

WASHINGTON STATE ELK HERD PLAN

Blue Mountains Elk Herd

MAY 2020



Washington Department of
FISH and WILDLIFE

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Washington State Elk Herd Plan BLUE MOUNTAINS ELK HERD

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Table of Contents

Acknowledgments	v
Executive Summary	vi
I. Introduction	1
II. Accomplishments during first planning period 2001-2017.	1
III. Area Description	5
Location.....	5
Ownership	5
Topography and Climate	5
Vegetation	7
IV. Distribution.....	7
Historic Distribution.....	7
Current Distribution	7
Proposed Distribution.....	7
V. Herd Background	8
Herd History	8
Population Estimation and Herd Composition	9
Harvest Management.....	10
Tribal Harvest.....	15
Illegal Kill	16
Agricultural Damage	16
Calf Survival	20
Predation.....	20
Social and Economic Values.....	23
VI. Habitat.....	23
Forest Management	24
Range Management.....	29
Noxious Weeds	31
Habitat Enhancement	32
Residential Development	32
VII. Research Needs.....	34
VIII. Herd Management Goals	34

IX. Management Objectives	34
Population Objective	34
Survey Objective	36
Bull Survival Objective	36
Elk Damage Prevention Objectives.....	37
Poaching Reduction Objective	38
Intergovernmental Objective.....	38
XI. Spending Priorities.....	39
Post-season Surveys	39
Landowner/elk conflicts.....	39
Peola elk fence Maintenance.....	40
XI. Plan Review and Maintenance	40
XII. Literature Cited.....	41
APPENDIX A: Blue Mountains Elk Herd Seasonal Distribution Maps	49
APPENDIX B: Elk composition-population trend surveys for the Blue Mountains, March 1987-2017....	50
APPENDIX C: Elk Hunting Seasons in the Blue Mountains Herd	51

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BLUE MOUNTAINS ELK HERD PLAN

EXECUTIVE SUMMARY

The Blue Mountains Elk Herd Plan is a step-down planning document under the umbrella of the Washington Department of Fish and Wildlife (the Department) 2015-2021 Game Management Plan (WDFW 2014). This plan is intended to define issues and identify objectives and strategies for Blue Mountains elk herd management. These objectives provide guidance to the Washington Department of Fish and Wildlife, Tribes, Department cooperators, landowners and the public. Priority management activities are identified and will be implemented as funding and resources are available.

The Blue Mountains elk herd is one of ten herds identified in Washington State. It is an important resource that provides recreational, aesthetic, cultural, and economic benefits to the people of Washington and adjacent counties in Idaho and Oregon. The Blue Mountains elk population appears to have peaked in the late 1970's and early 1980's at an estimated 6,500 elk and started declining in the late 1980's, continuing through about 2000. Currently, the elk population is estimated to be between 4,250 and 4,700 and has been declining for the past 2 years. The population had been stable for the previous 5-7 years.

The Blue Mountains elk herd has been managed with a spike bull general season since 1989. Branch-antlered bulls are harvested under a special permit system. This harvest structure corrected an earlier problem of delayed breeding due to low numbers of mature bulls and has led to post hunt bull:cow ratios of >20 bulls:100 cows, where before 1989, management averaged 5 bulls:100 cows. Many mature bulls are now available for recreational harvest as well as for wildlife viewing.

Managing agricultural damage associated with this elk herd is a continuing challenge, in many cases limiting the allowable size of local populations. Adaptive measures have been applied with some success, increasing landowner tolerance of elk and permitting larger numbers of elk to be maintained.

The primary management goals for the Blue Mountains elk herd 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 elk for a sustainable annual harvest.
- Manage elk and elk habitat to minimize human conflicts and agricultural damage.

Specific elk herd and habitat management goals, objectives, problems and strategies are identified in this document. These are priority objectives that address specific issues in Blue Mountains elk management. To accomplish each objective, strategies have been developed. The Blue Mountains elk herd objectives are:

- Maintain the Blue Mountains elk herd post-hunt estimate at 5,500 (+/- 10%) while maximizing opportunity for recreational harvest within the constraints of other objectives. Increase the number of elk in GMU 169 (Wenaha) and GMU 175 (Lick Creek) to achieve additional recreational opportunity. Maintain all other core area elk subpopulations at current levels. Limit elk numbers in GMU 145 (Mayview), GMU 149 (Prescott), GMU 163 (Marengo), GMU 178 (Peola), and GMU 181(Couse) to mitigate damage (below the levels described in Table 3).
- Maintain or improve the level of precision of Blue Mountains elk population estimates.

- Use recreational harvest to maintain bull elk populations with a diverse age structure and post-hunting season bull:cow ratios near 25 bulls:100 cows, (range of 22 – 28). Maintain a target of 10% prime age (> 5 yrs. of age) bulls within the post-hunt bull subpopulation.
- Use adaptive management to keep the number of elk-caused damage claims filed to fewer than 5 per year.
- Maintain full staffing of enforcement in the Blue Mountains area and publicize the use of emphasis patrols to prevent poaching.
- Once each biennium, invite the Nez Perce Tribe and the Confederated Tribes of the Umatilla Indian Reservation to meet and discuss implementation of the Blue Mountains Elk Herd Plan.
- Cooperate and collaborate with Asotin, Columbia, Garfield, and Walla Walla Counties to implement the Blue Mountains Elk Herd Plan. Discuss elk in meetings between Department Staff and County Commissioners as necessary.

Spending priorities have been identified for the first year and over the next five years. Achieving spending levels will be contingent upon availability of funds and creation of partnerships. The prioritized annual expenditures for the Blue Mountains elk herd are as follows:

PRIORITY EXPENDITURES	Current Annual Expenditures	First Year Needs Estimate	Five Year Needs Estimate
POST SEASON SURVEYS	\$50,000	\$50,000	\$150,000
LANDOWNER/ELK CONFLICTS	\$ 67,000	\$150,000	\$750,000
ELK FENCE MAINTENANCE	\$30,000	\$30,000	\$150,000
TOTAL	\$147,000	\$230,000	\$1,050,000

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BLUE MOUNTAINS ELK HERD PLAN

I. INTRODUCTION

The Blue Mountains Elk Herd Plan is a step-down planning document under the umbrella of the Washington Department of Fish and Wildlife's (the Department) 2015-2021 Game Management Plan (WDFW 2014). (Step-down management planning is the formulation of detailed plans for meeting goals and objectives.) The first Blue Mountains Elk Herd Plan was adopted in 2001. That plan guided elk management for the Blue Mountains population to the present. This updated plan removes objectives that have been accomplished and those no longer seen as priorities for the Department. Objectives of an ongoing nature remain in the plan, and new objectives representing new priorities in elk management have been added.

The Blue Mountains elk herd is one of ten herds formally identified in Washington. For management and administrative purposes Game Management Units (GMUs) have been delineated across the state. Groups of GMUs are combined to create an elk herd area. In this context, a herd is a population within a recognized boundary described by a combination of GMUs. The Blue Mountains elk herd is made up of 13 GMUs. GMUs 154 (Blue Creek), 157 (Mill Creek Watershed), 162 (Dayton), 166 (Tucannon), 169 (Wenaha), 172 (Mountain View) and 175 (Lick Creek) are all part of a core area containing good elk habitat. GMUs 145 (Mayview), 149 (Prescott), 163 (Marengo), 178 (Peola), 181 (Couse), and 186 (Grande Ronde) are outside the core area and/or contain areas with potential for high human conflict (Fig. 1).

II. ACCOMPLISHMENTS DURING FIRST PLANNING PERIOD 2001-2017.

Achieving objectives is always a function of available funding, resources, and staff time. During the period covered by the 2001 plan the Department accomplished the following priority objectives related to management of the Blue Mountains elk population:

- The Department implemented a mandatory hunting activity reporting system in 2001, which has improved the quality of harvest data.
- In 2003, the Department acquired 8,500 acres of land from the Schlee family. A portion of this land encompasses prime winter range and elk calving habitat. Year round use by elk has been observed since the acquisition.
- In 2016, the Department completed purchase and dedicated the new 10,502 acre 4-O Ranch Wildlife Area.
- Since 2002 the Department, in cooperation with the Rocky Mountain Elk Foundation (RMEF) and others, has invested nearly \$1.3 million on habitat improvement projects in the Blue Mountains herd area, funding weed control, prescribed burns, and forage enhancement projects (Table 1).
- The Department completed research in the Blue Mountains that provided estimates of elk survival for use in management (McCorquodale et al. 2011).
- The Department reduced elk damage in GMU 162 through a combination of strategies, including damage control techniques and implementation of antlerless permit and primitive weapon hunts in damage areas. These strategies successfully reduced elk numbers on private land while minimizing impacts to elk on public land.

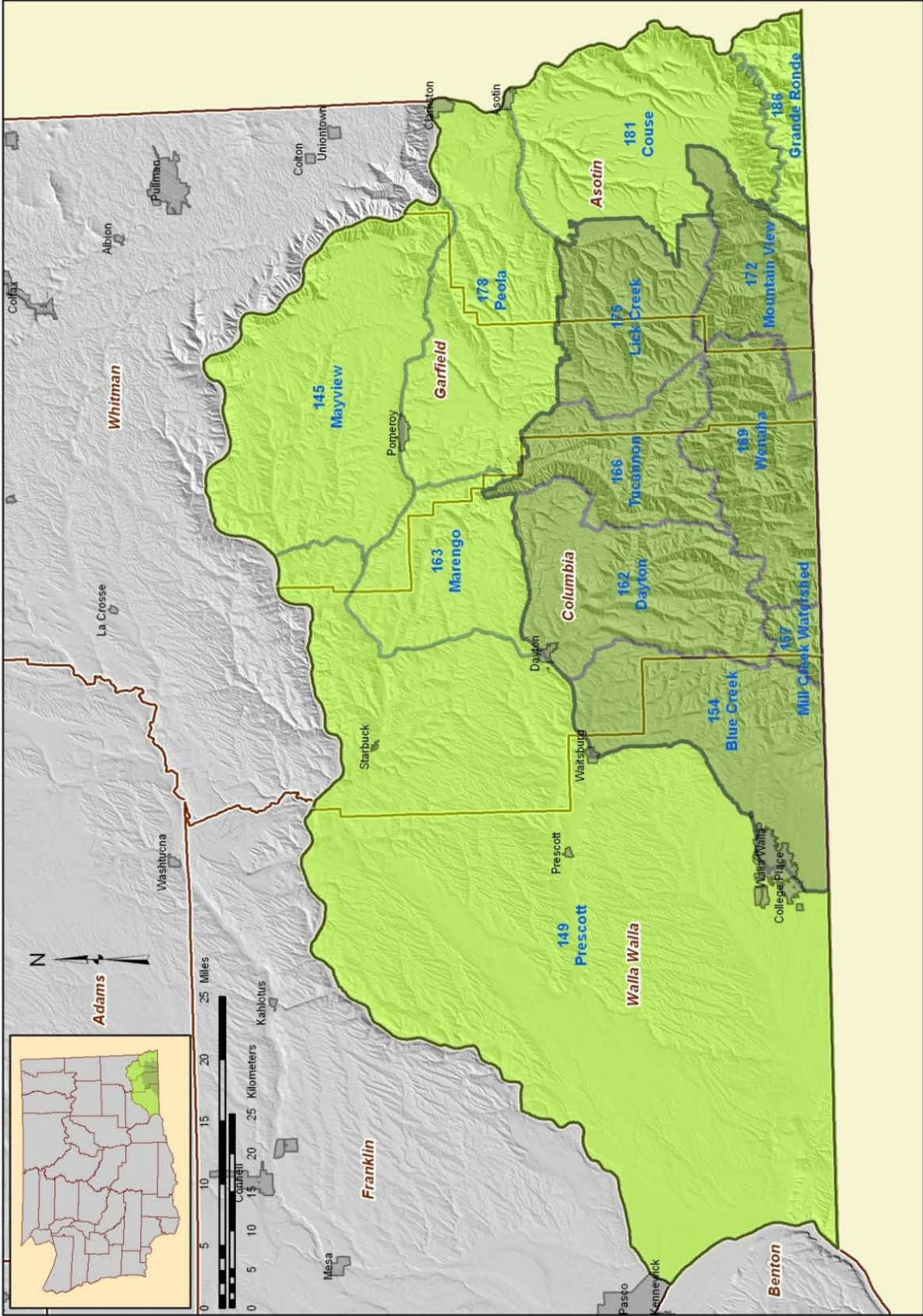


Figure 1. Washington's Blue Mountains elk herd area. The herd area GMUs are shaded green. The core area GMUs contain much of the elk habitat and most of the elk. They are shaded darker green.

- Damage complaints in GMU 181 were addressed by issuing landowner antlerless permits. While this did not entirely satisfy the landowners' needs for compensation, it did open private land to public hunting, and prevented a substantial reduction in elk numbers.
- Hunting opportunity for branch-antlered bulls was increased following a decrease in poaching losses, tribal hunting season restrictions (west of the Tucannon River), and some unit closures. Those measures increased adult bull numbers and allowed for a substantial increase in special permit levels.
- Bull:cow ratios improved and remained at or above management objectives in most units for the time period.
- The 14 miles of elk fence damaged by the School Fire was repaired.
- The Peola elk fence was extended one mile to the east on Tam Tam Ridge (2009).
- The Department has recently brought new focus on improving habitat on private lands as part of its implementation of elk plan objectives. Some of these are included in Table 1.

Table 1. Elk habitat projects completed during the plan period 2002-2018.

YEAR	PROJECT	ACRES	RMEF Funding	Partner Funding
2002	Lower Grande Ronde Cooperative Noxious Weed Treatment - #2	1,250	\$9,998	\$0 ^a
2003	Lick Creek Prescribed Burn Block #3	220	\$3,600	\$45,900 ^b
	W.T. Wooten Wildlife Area Noxious Weed Treatment #6	300	\$3,500	\$3,500 ^c
	Cook Ridge Habitat Enhancement	30	\$5,800	\$9,730 ^c
2004	Lick Creek Prescribed Burn Block #4	910	\$9,100	\$68,000 ^b
	W.T. Wooten Wildlife Area Noxious Weed Treatment #7	206	\$2,499	\$2,523 ^c
	Asotin County Rangeland Noxious Weed Control #1	2,352	\$15,000	\$25,909 ^d
2005	Lick Creek Prescribed Burn Block #5	569	\$4,216	\$38,459 ^b
	W.T. Wooten Wildlife Area Noxious Weed Treatment #8	233	\$3,495	\$3,499 ^c
	Lower Grande Ronde Cooperative Noxious Weed Treatment - #3	357	\$7,832	\$11,431 ^a
	Asotin County Rangeland Noxious Weed Control #2	1,098	\$17,840	\$30,767 ^d
	Chief Joseph Wildlife Area Noxious Weed Treatment	35	\$5,548	\$14,350 ^c
2006	Asotin County Rangeland Noxious Weed Control #3	2,500	\$5,000	\$0 ^d
	Asotin County Rangeland Noxious Weed Control #4	600	\$2,500	\$0 ^d
2007	W.T. Wooten W.A. Noxious Weed Treatment #9	6,844	\$16,180	\$67,008 ^c
	Lick Creek Prescribed Fire Block #6	1,000	\$9,905	\$70,000 ^b
	Blue Mountains School Wildfire Rehabilitation	1,025	\$29,003	\$49,000 ^b
	Charley Creek Prescribed Burn	1,345	\$21,097	\$88,000 ^b
	Asotin County Rangeland Noxious Weed Control #5	515	\$4,000	\$28,700 ^d
2008	Joseph Creek Noxious Weed Treatment	225	\$5,698	\$6,000 ^c
	Asotin County 2008 Noxious Weed Early Detection and Rapid Response	515	\$4,500	\$18,500 ^d
	Asotin County 2008 Whitetop Treatment - Montgomery Ridge	540	\$5,000	\$11,600 ^d
	Wallowa Canyonlands Partnership Noxious Weed Treatment #1	1,518	\$12,000	\$154,971 ^a

YEAR	PROJECT	ACRES	RMEF Funding	Partner Funding
	Cook Field Forage Pasture	30	\$1,000	\$1,800 ^c
	Rockpile Fire Noxious Weed Treatment	90	\$1,650	\$60,900 ^d
2009	Grouse Flats Forage Pasture	255	\$5,416	\$5,000 ^c
	Asotin County 2009 Noxious Weed Early Detection and Rapid Response	115	\$4,500	\$17,000 ^d
	Asotin County 2009 Whitetop Treatment	535	\$5,000	\$10,500 ^d
	Wallowa Canyonlands Partnership Noxious Weed Treatment #2	782	\$12,000	\$12,000 ^a
	Asotin Creek Wildlife Area Noxious Weed Treatment	200	\$4,000	\$4,000 ^c
2010	Great Ridge Prescribed Burn	1,500	\$14,994	\$60,000 ^b
2011	Wallowa Canyonlands Partnership Noxious Weed Treatment #4	2,502	\$15,000	\$53,816 ^a
	Jim Creek / North Touchet River Drainage Noxious Weed Treatment	1,100	\$5,000	\$17,000 ^c
	Robinette Mountain Noxious Weed Treatment	1,400	\$10,000	\$19,000 ^c
	Blue Mountains Wildlife Area Complex Noxious Weed Treatment #2	3,500	\$14,986	\$83,881 ^c
2011	W.T. Wooten Wildlife Area Guzzler	500	\$6,000	\$6,400 ^c
2012	Asotin County 2011 Noxious Weed Early Detection and Rapid Response	906	\$6,500	\$30,630 ^d
	Meyer Ridge 2011-2012 Mediterranean Sage Control	8	\$2,500	\$21,760 ^d
	Eastern Blue Mountains Noxious Weed Treatment - Rattlesnake Grade #2	300	\$3,600	\$8,545 ^d
	Starvout Ridge Noxious Weed Treatment	1,000	\$10,000	\$28,500 ^e
	Blue Mountains Wildlife Area Complex Noxious Weed Treatment #3	2,162	\$21,963	\$80,649 ^c
2013	Blue Mountains WLA Complex Forage Pastures - Cook and Abels Ridges	28	\$3,726	\$3,000 ^c
	Chief Joseph Wildlife Area Pond Rehabilitation	7,040	\$7,000	\$7,000 ^c
	Rainwater Wildlife Area Noxious Weed Control	1,000	\$5,000	\$25,000 ^f
	Blue Mountains Wildlife Area Complex Noxious Weed Treatment #4	2,746	\$19,987	\$94,000 ^c
2014	North Wenatchee Prescribed Burn	4,200	\$31,333	\$129,000 ^b
	Southeast Washington Noxious Weed Treatment	524	\$15,000	\$64,100 ^g
	Asotin County 2012 Noxious Weed Early Detection and Rapid Response	341	\$7,500	\$21,310 ^d
	Pomeroy Road Rehabilitation	72	\$10,000	\$55,000 ^b
	Asotin County 2013 Noxious Weed Early Detection and Rapid Response	341	\$7,500	\$21,310 ^d
	Meyer Ridge 2013-2014 Mediterranean Sage Control	135	\$2,500	\$17,800 ^d
2015	Asotin County 2015 Noxious Weed Early Detection and Rapid Response	433	\$10,000	\$37,045 ^d
	Blue Mountains Wildlife Area Complex Noxious Weed Treatment #5	890	\$30,000	\$45,000 ^c
2016	Little Butte Prescribed Burn	850	\$4,252	\$19,500 ^b
	Asotin County 2016 Noxious Weed Early Detection and Rapid Response	1,854	\$10,000	\$64,530 ^d
	Blue Mountains Wildlife Area Complex Noxious Weed Treatment #6	2,668	\$30,000	\$45,500 ^c
2017	Chase Mountain Elk Security	58	\$3,453	\$5,000 ^b
	Asotin County Medusahead Treatment 2016-2017	610	\$7,550	\$10,077 ^d
	Lower Grande Ronde River Watershed Weed Treatment	1,182	\$15,000	\$15,000 ^g
	Blue Mountains Wildlife Area Complex Noxious Weed Treatment #7	700	\$25,000	\$45,000 ^c
	Asotin County Medusahead Treatment 2017	374	\$8,873	\$8,763 ^d

YEAR	PROJECT	ACRES	RMEF Funding	Partner Funding
2018	Dark Canyon Prescribed Burn	1,750	\$10,000	\$20,626 ^b
	4-O Ranch Wildlife Area Thin	353	\$9,400	\$12,061 ^c
	Asotin County 2017-18 Noxious Weed Early Detection and Rapid Response	198	\$10,000	\$19,254 ^d
Total		32,723	\$327,637	\$954,960

Lead ^aWallowa Resources, ^bUmatilla National Forest, ^cWashington Department of Fish and Wildlife, ^dAsotin County Noxious Weeds Control Board, ^ePrivate, ^fConfederated Tribes of the Umatilla Indian Reservation, ^gWallowa Canyonlands Partnership

III. Area Description

Location

The Blue Mountains of Washington are located in the southeast corner of the state, bordering Oregon and Idaho. The Washington Blue Mountains elk herd ranges over approximately 3,500 square miles, with a core area of about 1,000 square miles. The herd area includes all of Asotin, Garfield, Columbia and Walla Walla counties.

Ownership

Public and private land ownership in the herd area varies by GMU. The Department owns more than 78,000 acres in the elk herd area, located within the Blue Mountains Wildlife Area complex: Grouse Flats Wildlife Area (640 acres) in GMU 172, the newly completed acquisition of the 4-0 Wildlife Area (10,502 acres) in GMU 172, the Asotin Wildlife Area complex in GMUs 175 and 181 (37,020 acres), the Chief Joseph and Shumaker Wildlife Areas in GMUs 181 and 186 (13,895 acres), and the W.T. Wooten Wildlife Area in GMU 166 (16,480 acres). Within the core herd area (Table 2), 57% (584 mi²) of the elk range is public land. Over 90% of the area in GMUs 157, 166, 169, and 175 is public land, managed by the Umatilla National Forest and the Department's Blue Mountains Wildlife Area Complex. GMU 172 has almost 39% of its total in public land, including the Department owned Grouse Flats Wildlife Area, and 4-0 Wildlife Area. Nearly 35% of GMU 162 is public land. This GMU also includes the 11,000-acre Rainwater Wildlife Area owned by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). GMU 154 is largely privately owned and is primarily agricultural, forestland, and rangeland. Outside the core area less than 10% of the area is in public ownership (Table 2), with DNR managing the largest share. The DNR holdings occur as scattered sections throughout private range and croplands.

Topography and Climate

The Blue Mountains are part of the Columbia Plateau that was formed by fissure lava flows from the Miocene and early Pliocene periods (Franklin and Dryness 1973). Uplifts occurring during the late Pliocene caused the Blue Mountains to rise above the Columbia Plateau. Erosion over millions of years created the major drainages of the Blue Mountains: Asotin Creek, Grande Ronde River, Mill Creek, Touchet River, Tucannon River, and the Wenaha River. The Blue Mountains are part of the Blue Mountains physiographic province (Franklin and Dryness 1973). Elevations range from 1,200-6,100 feet.

Summers are normally dry and hot, whereas winters are relatively mild. The 30-year average minimum and maximum temperatures at Dayton, 1971-2000, were near 25 ° F and 90 ° F, and occurred about January 1 and August 1, respectively (Western Regional Climate Center, wrcc@dri.edu., accessed 6/2/11). Average annual precipitation at Dayton was 19 inches for the period 1931 to 2005, with 46% (8.7 inches) falling December through March. Precipitation decreases across the herd area from west to east, creating a drier climate along the eastern front of the Blue Mountains. At higher elevations, snow accumulation frequently reaches depths that restrict elk movement and limit winter forage availability. As an example, three of the four SNOTEL sites in the Blue Mountains herd area recorded average snow

depths exceeding 18 inches beginning in December, and persisting until early April or later. Snow depth in the Blue Mountains decreased from west to east, and with elevation (Fig 2).

Table 2. Public land ownership of the Blue Mountains herd area (in square miles).

GMU	Name	-----Public-----					Total	
		DNR	USFS	BLM	USACE	WDFW	Public*	GMU
Core Area								
154	Blue Creek	3	0	0	0	0	5	217
157	Mill Creek Watershed	0	20	0	0	0	22	22
162	Dayton	2	50	1	0	1	68	211
166	Tucannon	2	106	0	0	19	128	131
169	Wenaha	0	161	0	0	0	161	161
172	Mountain View	1	36	1	0	18	40	108
175	Lick Creek	8	113	0	0	22	144	159
Total		16	486	2	0	60	584	1,010
Non-Core Area								
145	Mayview	12	0	0	14	0	26	357
149	Prescott	35	0	0	30	0	80	1,421
163	Marengo	5	0	0	0	3	7	150
178	Peola	7	0	1	3	2	13	277
181	Couse	3	0	3	0	25	33	263
186	Grande Ronde	3	0	16	0	10	29	53
Total		65	0	20	47	40	188	2,521

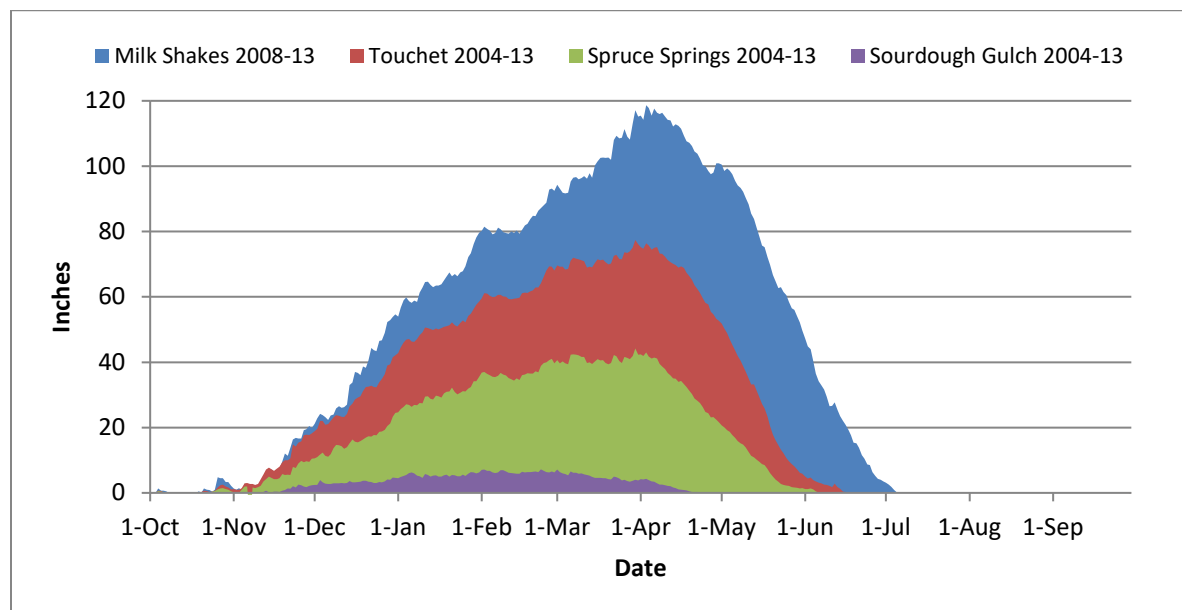


Figure 2. Comparison of mean daily snow depth at Blue Mountains SNOTEL Sites.

Vegetation

The vegetative communities of the Blue Mountains are a mixture of forests and open bunchgrass communities. The lowlands are typically characterized by agricultural fields with intermixed rangeland. This combination of closed forests and open shrub and grassland habitat is very attractive to elk. Kuchler (1964) describes the following forest types for the Blue Mountains of Washington: western spruce (*Picea* spp.)-fir (*Abies* spp.) forest, ponderosa pine (*Pinus ponderosa*) forest, grand fir (*Abies grandis*) forest, and Douglas fir (*Pseudotsuga menziesii*) forest.

Two major soil types characterize the area: vitrandepts and argixerolls. Vitrandepts are of volcanic origin and are found at moderate to high elevations; these soils formed under forested vegetation. Argixerolls are developed from loess and igneous rock and are found at lower elevations. Argixerolls support grassland, mainly bunchgrasses (*Pseudoroegneria* spp.), and shrub/grass vegetation. Vegetative associations have been previously described by Daubenmire and Daubenmire (1968), Daubenmire (1970), and Franklin and Dyrness (1973).

Higher elevations are characterized by heavy conifer forests on north slopes and in canyons, whereas south slopes are open, with scattered conifers and shrubs. As elevation decreases, steppe habitat becomes more prominent, and south slopes are more open, with bunchgrass and low shrubs comprising the dominant vegetation. Riparian zones are dominated by deciduous trees and shrubs.

IV. DISTRIBUTION

Historic Distribution

Elk have been present in the Columbia Basin and adjacent areas for at least 10,000 years and were an important source of food for Native Americans (McCorquodale 1985, Dixon and Lyman 1996).

Unregulated subsistence and market hunting by Euro-American immigrants, along with human encroachment on elk range made elk scarce in all of Eastern Oregon by the late 1880's (ODFW 2003).

In the early 1900's, sportsman's groups and landowners organized transplants of elk from Yellowstone National Park in order to recover elk populations in the Blue Mountains. Twenty-eight elk were released near Pomeroy in 1911, 50 elk near Walla Walla in 1919, and 26 elk near Dayton 1931 (Urness, 1960). The first hunting season for branch-antlered bull elk was held in 1927, and the first either sex hunting season occurred in 1934 to reduce elk numbers and control damage on private lands in the Charley Creek and Cummings Creek drainages.

Current Distribution

The density of the elk population in the Blue Mountains varies among the 13 GMUs. Some elk move to avoid snow in winter or to find forage in summer, including movements into adjacent areas of Oregon (Fig. 3). Major wintering and summering populations occur in GMUs 154, 157, 162, 166, 169, 172, and 175. Smaller numbers of elk occur in GMUs 145, 149, 163, 178, 181, and 186. Appendix A shows the seasonal use patterns and areas of concentration.

Proposed Distribution

No expansion is proposed for the overall distribution of the Blue Mountains elk herd. Acceptable elk distribution in southeast Washington is ultimately constrained by two things; the distribution of suitable habitat, and potential for human-elk conflicts on agricultural lands. At the present time these have reached equilibrium on private lands, and the Department will work to maintain this balance. In some areas, such as GMU 169 and portions of GMU 166, the designation of wilderness limits opportunities to improve habitat to weed control, natural wildfire and prescribed burning. The Department's district staff, coordinating with the USFS, will work to increase habitat quality in the national forest. Since 2009, the Department has worked extensively with private landowners in GMU 162 to improve habitat while increasing tolerance of elk. In the Dayton area, activities such as weed treatment, Conservation Reserve Program enhancement, and seeding have been used, and will be continued and expanded into other

portions of the Blue Mountains where elk extensively use private lands. These actions are needed to maintain the population in its current distribution.

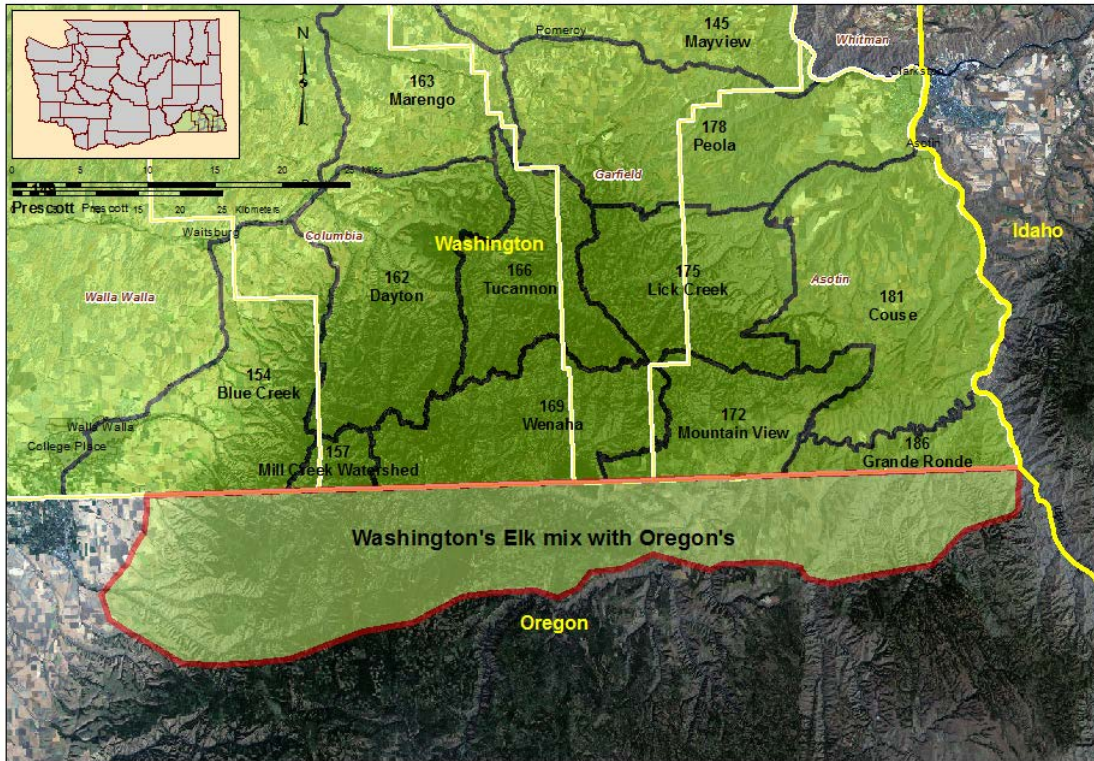


Figure 3. Red outline shows areas of Oregon used seasonally by Washington’s Blue Mountains elk herd.

V. HERD BACKGROUND

Herd History

Prior to 1988, no formal elk population estimates were calculated, and habitat in the Blue Mountains was selectively surveyed for elk abundance. Since 1988, annual aerial surveys have occurred in GMUs 154 - 186, providing a scientific basis for population estimation. Some of the elk counted spend the winter along both sides of the WA-OR border, and these mixed-herd surveys are coordinated and shared with Oregon Department of Fish and Wildlife (ODFW). Based on late winter surveys and harvest estimates, the elk population in the Blue Mountains probably peaked in the late 1970’s and early 1980’s, beginning a slow decline continuing through the year 2000, when the elk population was estimated to be 4,225 (+/- 395, 90% CI). The population experienced slow growth over the next 10 years, and herd size had been relatively stable until the winter of 2016/2017. In 2017, the elk population was estimated to be 4,396 (+/- 165, 90% CI).

Late-winter calf:cow ratios ranged from 38-45 calves:100 cows during the 1970’s and early 1980’s, but started declining in the mid-1980’s. During the 1990’s, calf:cow ratios were approximately 16-25 calves:100 cows (1990-99 mean = 21 calves:100). Since 2003, calf recruitment has improved, with calf:cow ratios ranging from 18-37 calves:100 cows (mean for 2007-17 = 28.8 calves:100 cows).

Low pregnancy rates (65-68%) and late breeding (Fig. 4) were recorded in the late-1980s. The causes were thought to be low bull:cow ratios (< 6 bulls:100 cows), few mature bulls in the population, breeding principally by yearling bulls, and poor physical condition in cow elk related to drought conditions (Fowler 1988).

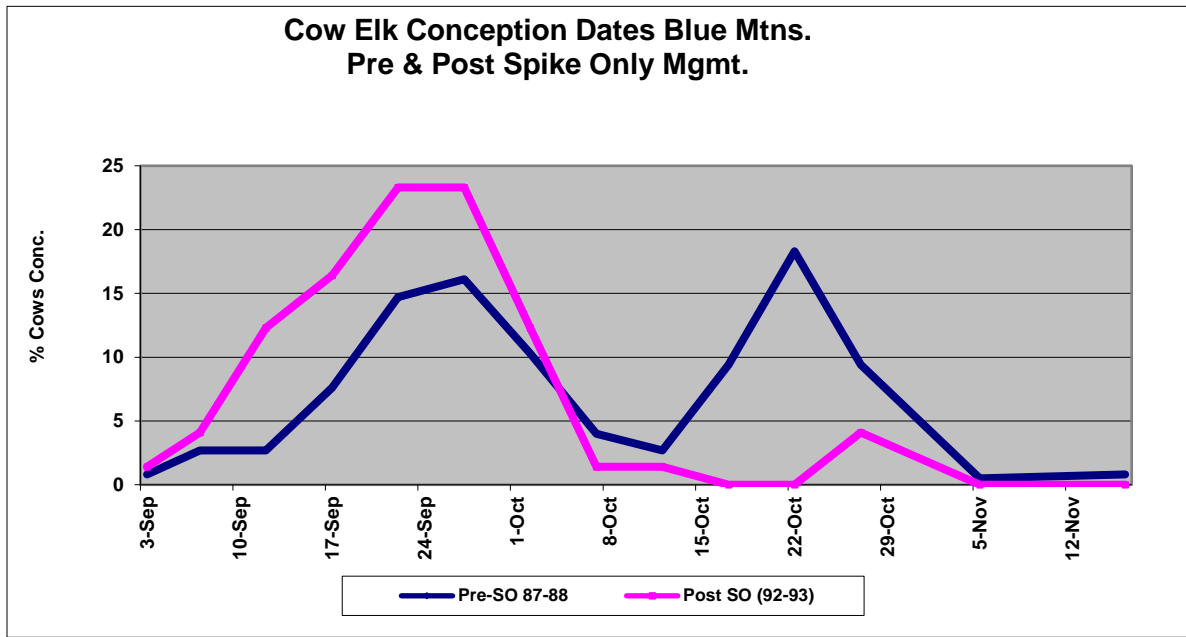


Figure 4. Trends in cow elk conception dates prior to and following implementation of spike only management in 1989 (Fowler 1988, 1993).

Implementation of a spike-only general season increased post-hunt bull:cow ratios. It also appears to have improved breeding efficiency and pregnancy rates. Prior to 1991, yearling bulls were the primary breeders in the Blue Mountains; cows being bred principally by yearling bulls may extend the breeding period (Prothero et al. 1979, Squibb 1985, Noyes et al. 1996). Prior to implementing spike-only management, mean conception dates were September 30 in 1987 and October 9 in 1988, with two peaks of breeding activity occurring approximately one month apart (Fig. 4). After adult bull numbers increased, most breeding occurred in September, with a single peak in conceptions occurring early in the rut; the average conception dates for cow elk moved back two weeks to September 24 and September 18, for 1992 and 1993 respectively (Fig. 4). The percentage of cow elk conceiving during the first estrus cycle increased to 90%, compared to the late 1980's when only 55% conceived prior to October 1. Conception dates are important because calves born early have a higher likelihood of surviving through winter (Rearden 2005), compared to calves born later or with low birth weight.

Population Estimation and Herd Composition

Aerial surveys for population estimation have been conducted annually in March in GMUs 154-186. At this time of year visibility is normally high due to spring green-up. Since 1991, aerial surveys have followed protocols outlined by the Idaho Sightability Model (Unsworth et.al.1991, 1999). The statistical sampling units are stratified into 4 strata; low, medium, and high densities, and one stratum composed primarily of bulls (when appropriate), based upon past estimated numbers and type of elk present. Elk populations in GMUs not surveyed by air are estimated using minimum counts from landowners, enforcement officers, and others familiar with elk numbers in those units (outside of the core elk area).

The population estimate in 2017 for the statistical sampling units of the Blue Mountains herd was 4,396 +/- 165 (90%CI). This estimate includes up to 300 elk that are surveyed on winter range in Oregon and may not use habitat within Washington. However, in the survey area there is a mingling of Oregon and Washington elk. In addition to these sampled units, we believe there are as many as 200-300 additional elk residing in the Blue Mountains herd area outside the survey units in elk suppression zones, mostly on private cropland and rangeland. The population objective for the Blue Mountains elk herd is 5,500 +/- 10%. Based upon the 2017 survey, the population has dropped below the population objective. The

GMUs outside the core area are largely elk suppression areas where elk numbers must be controlled to minimize conflict. Table 3 shows the population targets for these suppression GMUs.

Table 3. Elk Population Target for elk suppression areas.

Game Management Unit	Population Target
Suppress Elk Populations	
GMU 145 Mayview	< 50
GMU 149 Prescott	< 100
GMU 163 Marengo^a	< 30
GMU 178 Peola^a	< 50
GMU 181 Couse^a	< 150

^a Portions of these GMUs are included in statistical sampling zones, because some core area elk use them throughout the year.

Pre-hunt and late winter surveys are conducted annually to determine herd composition and population trends by GMU. Survey results for the late winter surveys are shown in Appendix B. Pre-hunt surveys conducted from the ground yield herd composition data during July-September to monitor summer calf:cow ratios, and document summer distribution. An effort is made to classify at least 150-200 elk in each of the GMUs in the core area; GMUs 154-157, 162, 166, 169, 172, and 175. GMUs 178 and 181 are surveyed to determine how many elk are using lands within the suppression areas and record patterns of use.

Harvest Management

The three-year hunting packages serve as the Department's basic harvest plan. Under the current Commission policy, hunting seasons are adopted for a three-year period, with special permit levels and any necessary amendments evaluated annually. Hunting seasons for the Blue Mountains elk herd area are shown in Appendix C. Specific recommendations governing harvest are made by staff every three years, with public review offered in numerous formats. Figures 5 – 9 summarize the permit levels and harvest for 2001–2015.

Prior to 1989, hunters were allowed to harvest any bull during the general archery, rifle, and muzzleloader seasons, which resulted in high bull mortality and few mature bulls in the population. Bulls over three years of age made up less than five percent of the harvest, an indication that few young bulls survived to maturity (at least 5 years old). Harvest pressure increased to such high levels during the 1970s and early 1980s that post-hunt bull:cow ratios of 2-5 bulls:100 cows were common (Appendix B). In 1989 the Department implemented spike-only general seasons designed to improve bull survival and increase the number of mature bulls in the population. Also during this time period, elk numbers in GMU 169 began a precipitous decline of 60-75% from a high of an estimated 2,000.

Following the 1989 restrictions on bull harvest, the total harvest of bull elk declined, including a decrease in the harvest of spike bulls. From 1984-88, the reported bull harvest averaged 745 per year, while the average for the period 1989-2006 was only 266.

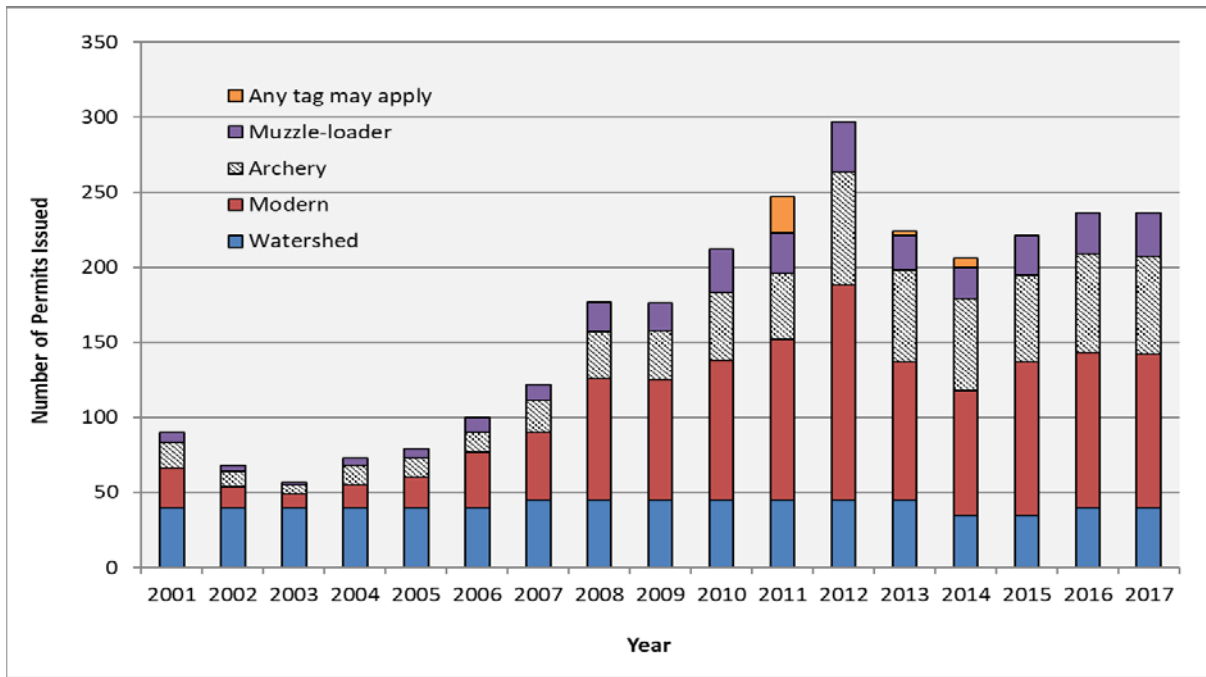


Figure 5. Blue Mountains elk herd any-bull permit numbers by weapon type from 2001-2017. The Watershed hunt is in a 3-pt minimum or antlerless limited entry area.

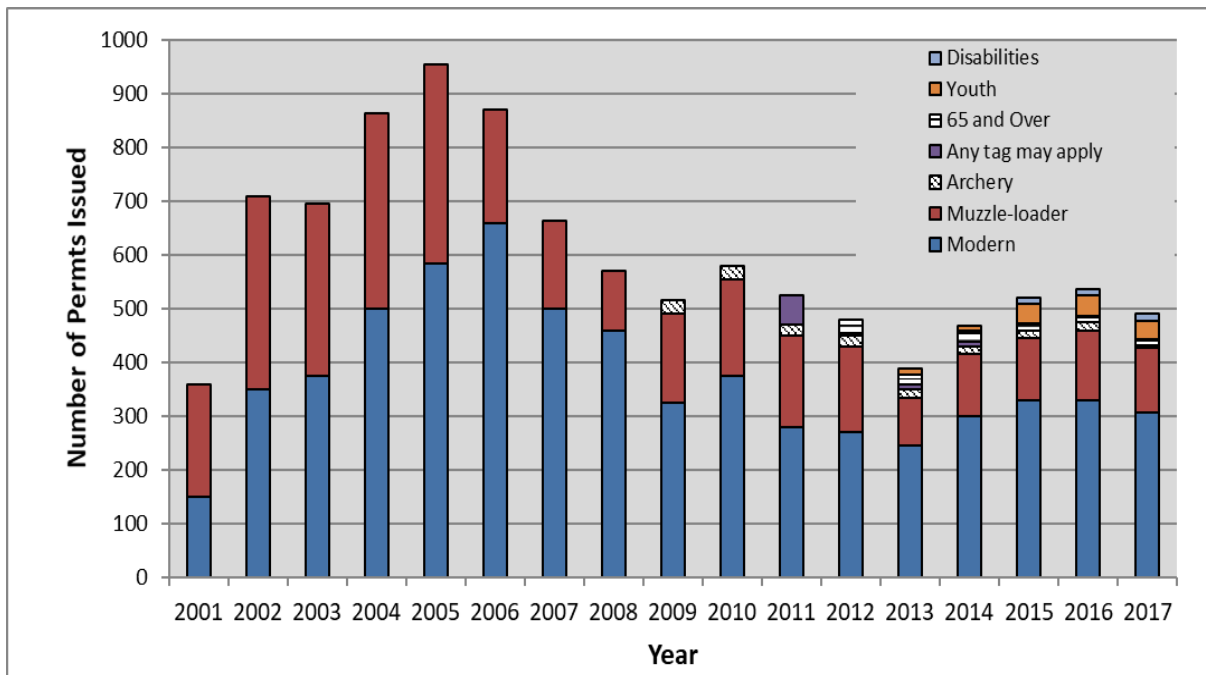


Figure 6. Blue Mountains elk herd antlerless permit numbers by weapon type from 2001-2017.

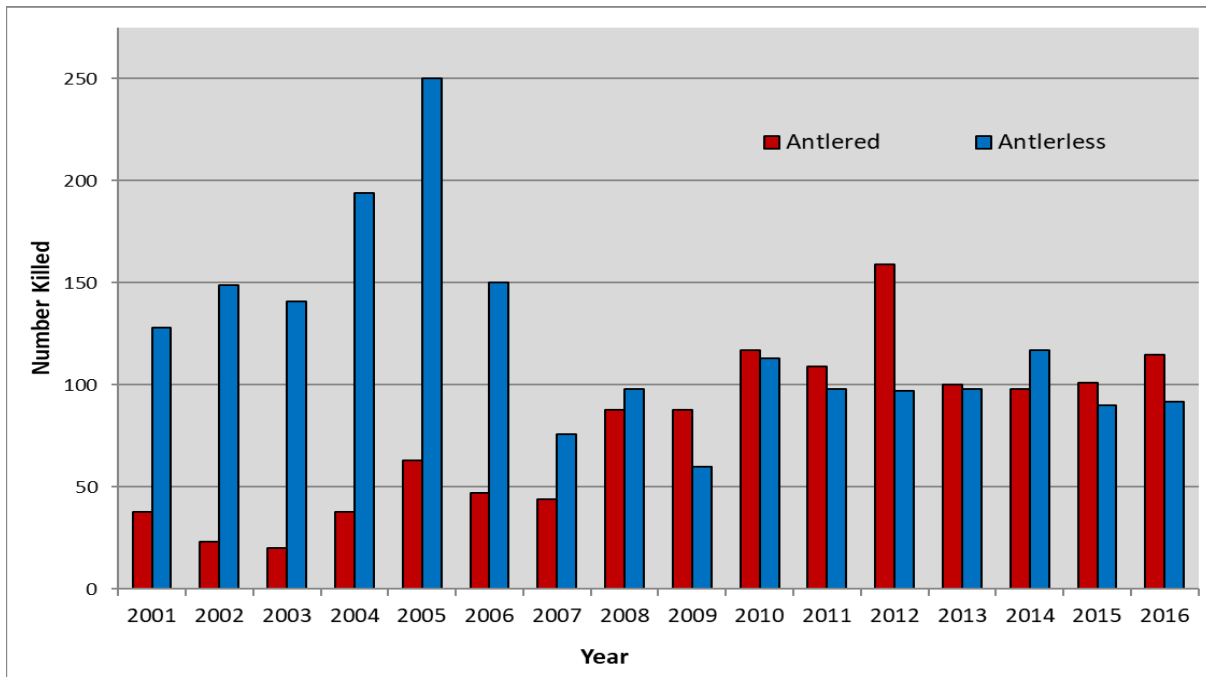


Figure 7. Blue Mountains elk herd permit harvest, all weapon types combined from 2001-2016.

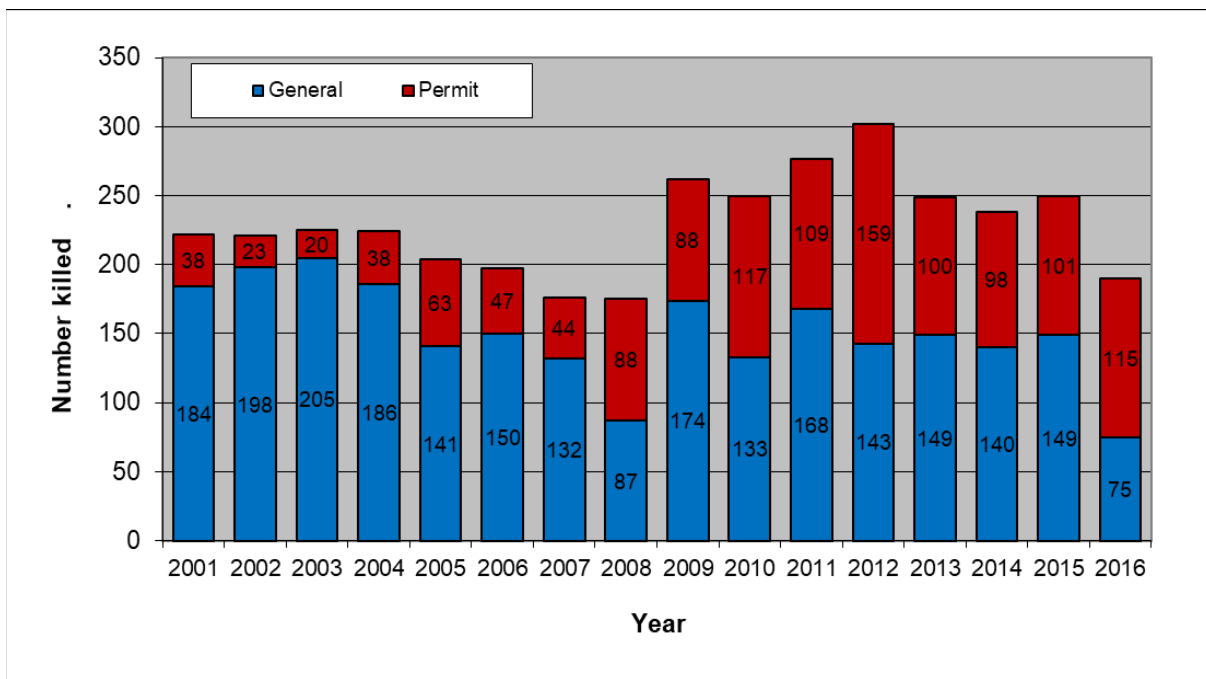


Figure 8. Blue Mountains bull elk harvest for general and permit season, all weapon types combined from 2001-2016.

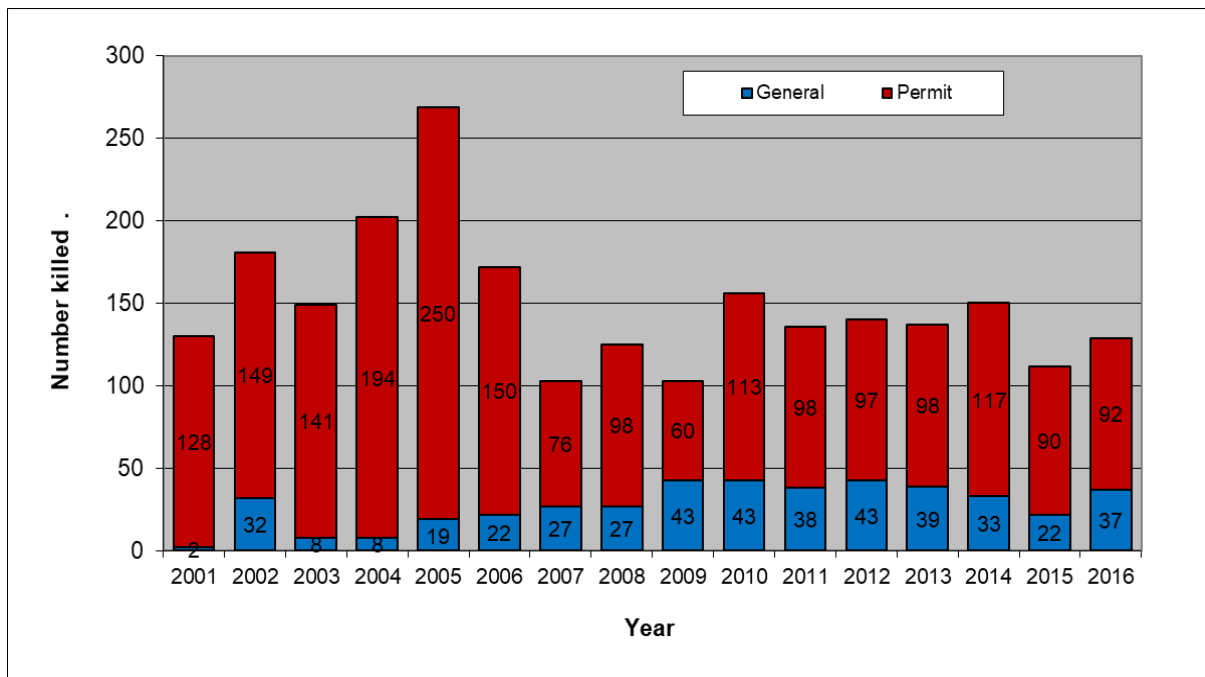


Figure 9. Blue Mountains antlerless elk harvest for general and permit season, all weapon types combined from 2001-2016.

The 15-year mean bull harvest since 2001 has been 231 (Table 4), with post-hunt bull:cow ratios ranging between 10-34 bulls:100 cows (Appendix B). Methods for estimating harvest have changed multiple times during this time period with unknown effects, but an obvious decline in harvest occurred over the past 30 years. During this time the central core area (GMU 169) experienced a population decline of approximately 1,500 elk, and calf survival also declined throughout much of the herd area. Collectively, these contributed to a decline in the number of yearling bulls available for harvest. Since 2006, improvements in calf recruitment have been observed, and we would expect this to be reflected in yearling bull harvest. However spike harvest has not increased, but has remained relatively stable over this time period, although increases in branch-antlered bull permits over this same time period resulted in increased total bull harvest. Recent population data indicate that the spike-only general season, with branch-antlered bulls by special permit, has produced the desired herd demographic and management outcomes, i.e., increasing bull numbers and diversifying age structure, which leads to improved breeding efficiency (Noyes et al. 1996), while maintaining general hunting season opportunity and providing opportunity to harvest mature bulls. The Department plans to retain the spike-only general season structure within the Blue Mountains during the life of this plan.

Table 4. Elk harvest and hunter numbers for the Blue Mountains herd 2001–2016.

Year	Antlered [®]	Antlerless [®]	Total Harvest	Hunters [*]	Hunter Days [*]
2001	222	130	352	3,675	16,609
2002	221	181	402	3,689	17,677
2003	225	149	374	3,470	16,751
2004	224	202	426	4,395	20,362
2005	204	269	473	3,713	16,787
2006	197	172	369	3,479	16,268
2007	176	103	279	3,924	18,739
2008	175	125	300	3,604	17,805
2009	262	103	365	3,669	17,803
2010	246	156	402	3,659	18,002
2011	277	136	413	3,801	18,834
2012	302	140	442	3,499	17,276
2013	249	137	386	3,576	17,148
2014	238	150	388	3,254	17,059
2015	250	112	362	3,154	16,811 ^{**}
2016	268	136	404	3,452	16,703 ^{**}
Averages	233	153	386	3,626	17,635

[®] Permit and general season harvest combined. Includes GMU 157. ^{*} General season elk hunters only, all weapons combined. Sums do not include GMU 157, which has no general season opportunity. ^{**} Multiseason days are not available for 2015 and 2016.

In a study of elk in the Blue Mountains completed in 2006, state licensed hunters accounted for 55% of all mortalities of marked elk (McCorquodale et al. 2010). Figure 10 summarizes the mortality data by age class and source. The majority of the hunter-killed elk were yearling bulls taken during general seasons. Tribal hunting accounted for the second highest number of elk during the study, and most sub-adult bull deaths were due to tribal hunting. State hunting accounted for most of the mortality in adult cows (n = 8 of 14 total). Three of these 8 state cow elk kills occurred in elk damage areas.

McCorquodale et al. (2010) also estimated annual survival of various demographic classes. The best supported models from this work provided estimates of annual yearling bull survival of 0.41 (95% C.I. 0.29-.053), a branch-antlered bull survival estimate of 0.81 to 0.83 (95% C.I. ~0.72-0.88 across all three datasets), and a survival estimate for adult cows of 0.80-0.84 (95% C.I. ~0.64-0.93). The estimated survival rate for adult bulls was considered high for a hunted population. This was attributed to low permit numbers during the study (Fig. 5). The special permits had been reduced prior to the study to increase bull recruitment following a documented period of heavy poaching, and to compensate for a reported increase in tribal harvest in GMU 162. Since the low point in 2003, as bull ratios improved, branch-antlered bull permits were increased from a low of 57 permits to a high of 289 in 2012, dropping back to roughly 220 each year through 2017.

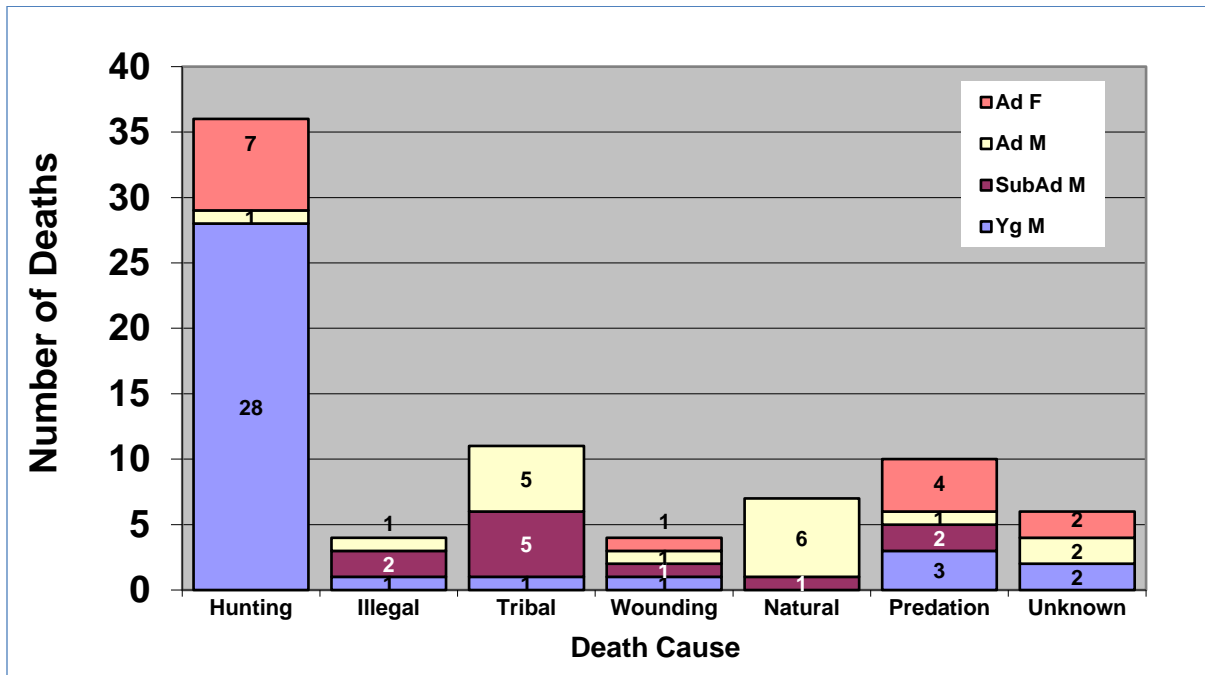


Figure 10. Sources of mortality for radio-marked elk by demographic class in the Washington Blue Mountains, 2003-2006 (years pooled) (from McCorquodale et al. 2010).

Population growth and structure was monitored annually through 2017, when surveys were switched to biennial. Permits are adjusted annually, seeking to find the point where mortality balances recruitment. These actions are implemented at the GMU level. The Department will implement harvest quotas that attempt to maintain post-hunt bull:cow ratios near management objective, maintain age structure diversity in the bull population component, and maintain a survival rate near 70% for branch-antlered bulls. Antlerless harvests vary depending on population targets and the level of agricultural damage. The Department currently restricts most antlerless elk harvest in the Blue Mountains to private-land damage control situations. Some antlerless harvest opportunity exists on public land in GMUs where population management targets have been reached.

Tribal Harvest

Two tribes, the Nez Perce Tribe and Confederated Tribes of the Umatilla Indian Reservation (CTUIR), by treaty have reserved their off-reservation hunting rights on open and unclaimed land within their ceded areas in the Blue Mountains. Nez Perce tribal members have traditionally exercised off-reservation hunting rights within GMUs 166 (east of Tucannon River), 172, 175, and 186. The tribal hunting season is open year around with no bag limit. Members of the CTUIR typically hunt in GMUs 157, 162, 166, and 169. Current CTUIR established seasons for tribal members allow the harvest of elk and deer within their ceded territory. Tribal code limits the harvest of elk from August 1 – December 31. Branched-bulls may only be taken August 1 – November 30, with the month of September being limited to archery only.

The Nez Perce Tribe does not ask its members to report harvest, which limits data-sharing for co-management. However, a Blue Mountains elk survival and mortality study (McCorquodale et al. 2010) found that during the study period, tribal hunting was the highest cause of mortality for sub-adult bulls ($n = 5$), and the second highest for adult bulls ($n = 5$). State-regulated hunters were the highest cause of mortality both for adult bulls ($n = 7$) and yearling bulls ($n = 28$; Fig. 10). Study mortalities attributed to tribal hunting all occurred in the Asotin Creek watershed in the eastern Blue Mountains (GMUs 166 and 175). It is unknown if there have been alterations in recent years to traditional use by either tribe, only anecdotal information is available to adjust State seasons to allow for changes in elk survival.

The CTUIR and Nez Perce Tribes have chosen not to share data pertaining to off-reservation elk harvest by tribal members. McCorquodale (1997, 1999) described cultural and political sensitivities that influence tribes when dealing with state governments and hunting issues. Lack of data on tribal harvest of big game complicates the collaborative management of big game populations in treaty hunting areas (McCorquodale 1999).

Illegal Kill

During 2000-2003, Department enforcement personnel documented a minimum of 52 branch-antlered bulls killed by poachers in the western Blue Mountains. Illegal harvest was believed to be at a level that affected bull population levels and age structure, and led to a subsequent reduction in the number of branch-antlered bull permits available. Increased enforcement efforts resulted in the arrest and prosecution of several major violators. Enhanced penalties for poaching trophy-class animals were implemented in an attempt to deter poachers. The civil penalty for poaching a trophy-class bull elk (six points or more on either side) is now \$6,000, plus fines and possible forfeiture of vehicles, firearms, and other equipment used in the violation. Since 2003, documented poaching has been minimal, with the Department investigating only 2 to 5 illegal bull kills per year. Since 2010 the Department has used the Big Game Hunting Seasons and Regulations pamphlet to increase the visibility of the TIP (Turn in a Poacher) Program, and also displayed the Department's Hunter Education TIP trailer at public venues. These were intended to help the public understand the negative effect poaching can have on both game populations and hunting opportunity. The Department also offers incentives to those who report violations. Information that leads to a conviction, can be eligible for a cash reward (up to \$500), or hunting bonus points (up to 10 points). Hunting bonus points provide a greatly improved chance for drawing special permits for hunting. These measures have helped increase poaching reports and may have contributed to a decline in poaching.

Agricultural Damage

Croplands, including pasture and hay, cover more than 1.1 million acres and make up about 49% of the total land cover in the Blue Mountains herd area (Fig. 11). Agricultural damage involving elk is a long-standing problem. The Department is the primary source for property owners seeking to determine legal and effective remedies for addressing wildlife interactions (WDFW 2016). Landowner tolerance for elk damage to crops varies depending on the type of crop, crop prices, farming costs, and elk densities. As landowner tolerance declines, the number and intensity of complaints increases, as does the pressure to reduce elk numbers. Reducing elk numbers to mitigate damage leads to smaller harvestable surpluses and lost recreation. Therefore the Department tries to minimize elk damage by using a variety of non-lethal damage control methods, such as fencing haystacks, or hazing elk out of areas with noise guns, 4-wheelers, or helicopters. Increasing special permits in damage areas and conducting special damage control hunts are also effective in reducing damage, at least for the short term, but may affect population growth.

In 2011 the responsibility for elk/human conflict moved from Wildlife Enforcement to the Wildlife Program. The Department is the primary source for addressing landowner/lessee (hereafter landowner) complaints involving elk. Elk damage to commercial crops in the herd area may occur year around. Damage to hay stacks may also occur during winters with heavy snowfall (such as during the 2016-2017 winter). The Department attempts to enroll any landowner with damage into a Damage Prevention Cooperative Agreement (DPCA). These agreements allow the Department to issue permits to landowners, which they may use to focus hunting pressure on elk causing damage to their land, even outside the hunting season. It requires the landowner to provide reasonable access to hunters during hunting seasons, but also allows them to have a hunter with a damage tag harvest an animal at other times during their DPCA period. More than 100 landowners have signed agreements. Some of these had previously claimed damage, but they agreed to suspend their claims in exchange for antlerless elk permits, and in some cases cash compensation.

These permits could be used by the landowner or any person they designate. Cash compensation (up to \$5,000) is offered to landowners willing to engage in forage enhancement projects. Acceptance of these incentive payments requires the landowner to waive all claims to elk damage. The program seems to have increased landowner tolerance for elk in some areas, and has focused most of the elk removals in elk suppression areas shown in Table 3.

Historically, damage claims were cooperatively assessed by the landowner and the Enforcement Program with occasional assistance from Department biologists. Between 2001 and 2011 the number of completed claim applications averaged 10 per year, and the number of paid claims was 8 (Fig. 12). The difference in claims filed and claims paid reflects that some were deemed to be invalid, and others were resolved through means other than monetary compensation. The difference in the claim amount and the dollars paid out reflected that the Department's on-site evaluation of actual losses was less than the claim amount (Fig.13). Since 2012, under the new program, when damage claims are filed landowners must choose a State licensed and federally certified crop insurance adjuster, whose fee is the shared responsibility between the landowner and the Department. The Department is authorized to pay up to \$10,000 to the owner per claim, but will not compensate for commercial crop losses less than \$1,000. WACs 232-36-100, 232-36-110, and 232-36-120 address the specifics of the Department's damage claim process (WDFW 2016). Under the new program, elk damage claims have declined in the Blue Mountains elk herd area (Fig. 12).

While the new approach may improve landowner tolerance for the future, it is useful to review the recent history of some trouble spots. In GMU 154, antlerless hunts during the early archery season and permit hunts during the modern firearm and muzzleloaders seasons have frequently been used in an attempt to address damage. In GMU 162, northern Chase and Robinette Mountains, and the upper Hatley Gulch-Patit areas of Eckler Mountain have long been problem areas. General season antlerless permits, Damage Prevention Permit hunts, and antlerless damage permits have been used. In 2006, a late archery season was implemented on private land in GMUs 162 and 163 to increase hunting pressure and move elk away from cropland.

Within GMU 172, the Department has completed land purchases, and conducted forage enhancement and weed control projects in an effort to hold elk on WLA lands. These efforts are all designed to increase landowner tolerance of elk and increase the elk use of WLA lands. A 23.5-mile long elk fence forms a large part of the southern border of GMU 178. The fence extends from the W. T. Wooten Wildlife Area on the Tucannon Road, east to USFS land on the Mountain Road, then east to the edge of the Asotin Wildlife Area on Tam Tam Ridge in GMU 175. This fence was constructed to prevent elk from moving north onto agricultural lands in GMU 178. In 2005, the School Fire burned nearly 52,000 acres in central Columbia and Garfield counties and destroyed 14 miles of the elk fence from the W.T. Wooten Wildlife Area to Pataha Creek. Reconstruction of the fence was completed in the spring of 2009, along with improvements of the undamaged portions of the fence. Additional one-way gates were added to allow elk outside the fence to move back onto public land, and it was extended to the east by approximately 2 miles. This extension was designed to prevent elk in GMU 175 from going around the eastern end of the fence and into GMU 178.

GMU 181 is another problem area. Elk from GMUs 172, 175, and 186 move into GMU 181 during the winter, some remain through the calving season and feed on agricultural crops. The number of elk in this GMU has sometimes exceeded 300. Limited access onto private lands in GMU 186 prevents the harvest of elk to control numbers, exacerbating the problem.

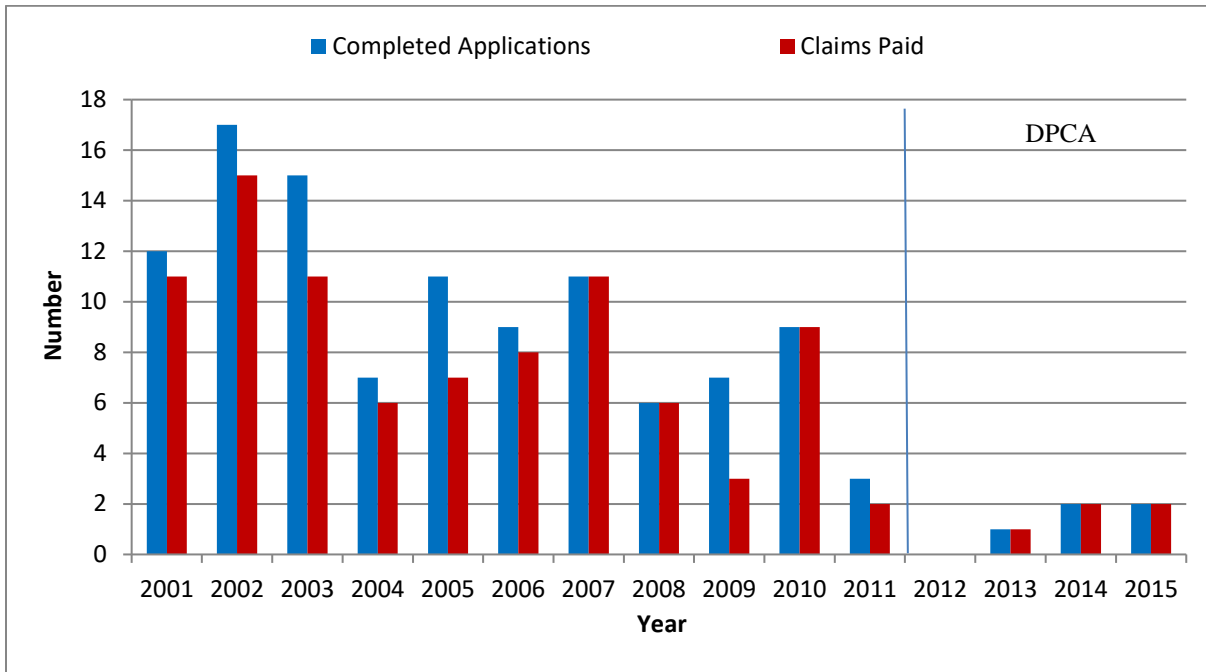


Figure 12. The number of reported incidents, completed complaint applications and paid claims for the Blue Mountains elk herd area, from 2001 to 2015.

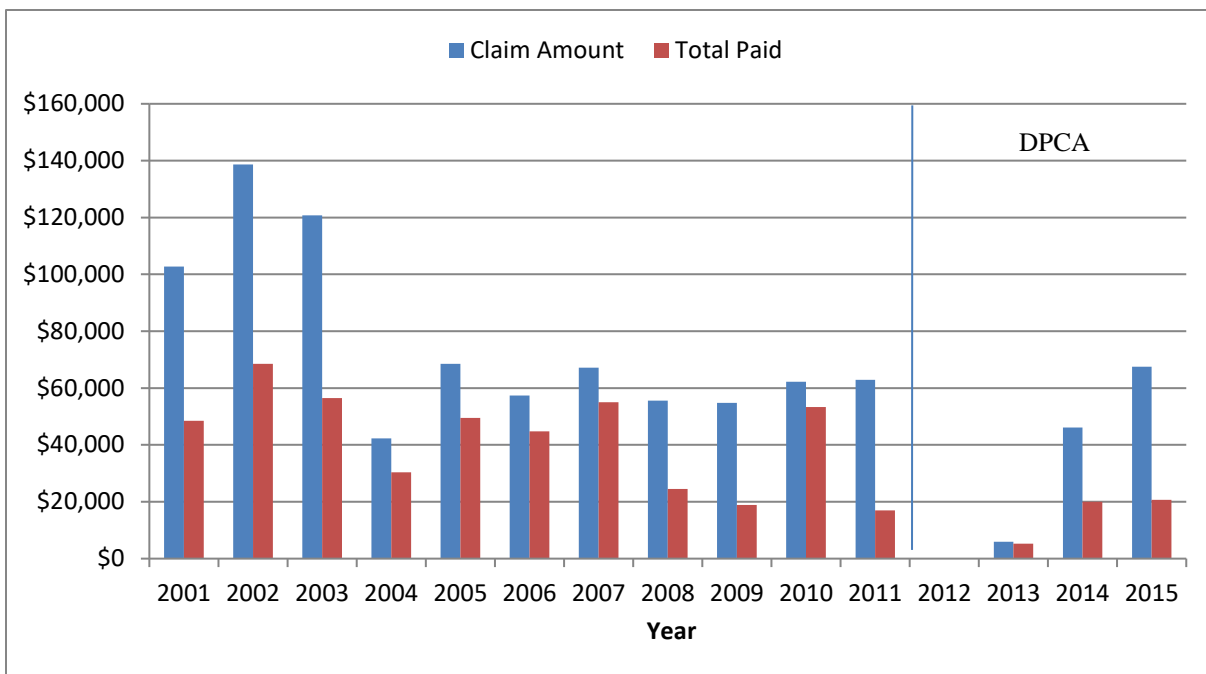


Figure 13. The value of completed and paid claims for the Blue Mountains elk herd area, from 2001 to 2015.

Calf Survival

Studies have revealed that predation is the major cause of mortality for elk calves throughout the west, including the Blue Mountains. Myers et al. (1999) studied calf survival in this area during 1992-1998, and found that of the 240 calf elk marked in their study, 113 did not survive their first year. Annual survival rates ranged 0.41 – 0.55. Of the calves that died, cougar predation accounted for 48.6% of the mortality, black bears 15.9%, unidentified predators 8.4%, coyotes and humans each 4.7%, accidents 1.8%, and 15.8% were from undetermined causes.

The Oregon Department of Fish and Wildlife implemented an elk nutrition and predation study in 2002 in the Wenaha and Sled Springs units of Oregon, directly south of Washington's GMUs 169 and 172. A total of 460 calf elk were radio collared. During the study 214 of the 232 documented mortalities were attributed to predators: 169 were killed by cougars (75%), 33 by bears (15%), 2 by coyotes, 1 by a bobcat, and 9 were killed by unidentified predators. Of the remaining mortalities, 6 were classified as human-caused, 4 as disease and/or abandonment, and 8 as unknown. Birth date was a major factor in calf survival, with earlier-born calves having higher survival rates than later-born calves. The data indicated that predation by cougars limited recruitment of elk calves; the authors predicted that calf recruitment would increase if cougar populations were reduced. However, they suggested that the high predation rates observed may mask nutritional limitations, and predation may be at least partially compensatory, meaning calf recruitment may also be constrained by inability of habitat to meet nutritional requirements of calves prior to winter (Johnson et al. 2011).

Summer and autumn range conditions have been reported to influence the nutritional status of female elk, thereby affecting their ability to conceive, causing delayed conception, later parturition dates, and reduced calf birth weights (Verme and Ullrey 1984, Cook et al. 2001, Cook et al. 2004). Cook et al. (2001) found delayed breeding in prime-aged cow elk subjected to marginally deficient nutritional conditions in a controlled setting. This may have demographic effects on a population because delayed parturition can reduce calf survival (Clutton-Brock et al. 1982, Keech et al. 2000, Cook et al. 2004). Cook et al. (2004) also found that digestible energy levels reported for large ungulate herds during summer and autumn in western North America were similar to levels they experimentally provided to captive elk that subsequently experienced lower calf recruitment. Although the relationship is still not completely understood, it is believed that summer range conditions sometimes fail to fully meet an elk's nutritional needs. Managers now predict that summer habitat improvement projects (e.g., forage enhancement, weed control) may positively influence calf recruitment, particularly when summer/fall drought conditions persisted the previous year.

Cow elk are sensitive to disturbance during the calving period, and human disturbance in calving areas during calving can affect reproductive success. Phillips and Alldredge (2000) evaluated effects of human-induced disturbance on reproductive success and found that calf:cow proportions for their control area remained stable, but those for their treatment area declined each year. Using population modeling they found that without treatment (added human disturbance) annual population growth was 7% for both areas, but that an average of 10 disturbances/cow above ambient levels would lead to zero population growth.

Predation

Gray Wolf

The Oregon Department of Fish and Wildlife estimated the wolf population at the end of 2017 to be at least 124 wolves, consisting of at least 21 named packs within Oregon (ODFW 2017). Wolves colonizing the Blue Mountains of Washington have been documented to predominantly come from resident Oregon packs. Since 2006, the Department has documented numerous wolf observations within the Washington portion of the Blue Mountains. By the end of 2017, the Department had documented 3 breeding packs that are located within or predominantly reside within the Washington Blue Mountains (WDFW 2018). The Wenaha, Walla Walla, and Shamrock packs have established territories along the border between Washington and Oregon and use habitat within both states, but predominantly reside in Oregon and have

always denned in Oregon. The Tucannon pack was the first to be documented breeding on the Washington side of the Blue Mountains. The Tucannon pack has only produced one surviving litter of pups as of 2017. The newly established Touchet pack consists of an Oregon collared female gray wolf from the Minam Pack, traveling with an unknown black wolf. The Grouse Flats pack denned in Washington in 2017 and uses habitat within both Washington and Oregon. .

Estimates in the Wolf Conservation and Management Plan (Wiles et al. 2011) suggest that, if they were only preying on elk, wolves may kill and consume 17 elk per wolf per year. Secondary prey will likely include small mammals, deer, moose, and birds. There are no estimates on how many wolves could theoretically occupy the Washington portion of the Blue Mountains to understand what impacts may be observed on the ungulate populations. Packs and population size will likely be limited by the territorial nature of wolves.

In May of 2011, wolves were federally delisted 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 Blue Mountains herd area. However, the gray wolf is listed as a state endangered species throughout Washington at the time of publication of this document.

In December of 2011 the Washington Fish and Wildlife Commission adopted the Wolf Conservation and Management Plan (Wiles et al, 2011). It outlines three recovery regions: Eastern Washington, Northern Cascades and Southern Cascades/Northwest Coast. It indicates the Department will manage for healthy ungulate populations through habitat improvement, harvest management, and reduction of illegal hunting. It also directs the Department to manage ungulate harvest to benefit wolves only in localized areas if research has determined wolves are not meeting recovery objectives and prey availability is a limiting factor. While the wolf remains a listed species, if the Department determines that wolf predation is a primary limiting factor for at-risk ungulate populations and the wolf population in that recovery region is comprised of at least 4 successful breeding pairs, it could consider moving wolves, lethal control, or other control techniques in localized areas to benefit at-risk ungulate populations. The status of wolves statewide, as well as within a specific wolf recovery region where ungulate impacts are occurring, would be considered in decision making. Decisions will be based on scientific principles and evaluated by the Department. The minimum estimated wolf population in Washington in 2017 increased by approximately 6% over 2016 estimates to at least 122 known wolves in 22 known packs including at least 14 breeding pairs (WDFW et al., 2018).

Black Bear and Grizzly Bear

Washington is divided into 9 black bear management units (BMU). BMU 8 aligns with the Blue Mountains elk herd range. Black bear predation on elk typically comes in the form of predation on calves during the first few weeks of life. Grizzly bears are capable of preying on both young and adult elk, but grizzly bear numbers in Washington are so low that they will have little to no influence on the dynamics of elk, and grizzly bears have not been observed in the Blue Mountains in recent history.

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 levels, and those population levels are not expected to result in increased impacts to elk populations. The black bear harvest guidelines are specified in the 2015-2021 Game Management Plan (WDFW 2014).

Cougar

The 2017 Big Game Hunting Seasons and Regulations pamphlet describes 50 cougar hunt areas, located throughout the state. Three of these hunt areas align with the Blue Mountains elk herd area, and the only

portion of the herd area excluded from cougar hunting in 2017 was GMU 157. Cougars are capable of preying on all age classes of elk. Cougars are classified as a game animal and are hunted under the big game hunting season structure, with seasons generally between September and April. The cougar population in the Blue Mountains is managed to maintain a stable cougar population, with harvest rates between 12-16% (for cougars >12 months of age). Harvest rates are managed using a harvest guideline applied after December 31 of each year. If the guideline is reached or exceeded by January 1st, the season will be closed; if not, the season remains open until the guideline is reached or April 30th, whichever occurs first.

The 2015-2021 Game Management Plan (WDFW 2014) addressed the integration of cougar and elk management. It recognized that elk are a primary prey species for cougars, that in some cases cougar populations influence the growth rates of elk populations, and that increased cougar harvest is a management action that the Department may use to increase elk populations where herd numbers are low. In these situations, local cougar populations can be managed to facilitate the increase of prey species as long as the total cougar harvest within the respective CMU stays within the female harvest guidelines. The Department has been conducting research with the goal of determining current cougar densities, population age structure, and home ranges.

A cougar research project was completed in the Blue Mountains in 2013, the goal of which was to identify the density and age structure of cougars within the Blue Mountains. Unpublished data indicates that cougar densities in the Blue Mountains averaged 3.02 cougars/100 km² (95% CI = 2.88-3.15) for cougars greater than 24 months of age during the study period. Average adult (>24 month of age) female density was 1.94/100km² (95% CI 1.76-2.11) and adult male density was 1.08/100km² (95% CI = 0.94-1.21). These reported densities are considerably higher than reported elsewhere in the state of Washington, which averaged 1.5 – 1.7 adult cougars/100 km² (Cooley et al. 2009).

Currently elk numbers in GMU 169 are lower than desired for a core area unit. The majority of the habitat in this area is within the Wenaha-Tucannon Wilderness, under USFS management. Rearden (2005) found that predation was the main proximate cause of death for elk calves in his northeastern Oregon study area, and that in Oregon's Wenaha Wildlife Management Unit, cougars were the major predator of young calves.

Coyote

Coyotes are ubiquitous in Washington and occur throughout the Blue Mountains elk herd range. Coyotes prey on calves in the spring, typically in the first few weeks of life. They are usually not predators of adult elk.

Currently, there are no closed seasons or bag limits related to coyote hunting. Coyote hunters must possess either a small game license or a big game license to hunt coyotes. Hunters that specifically target predators like coyotes are most active during the winter months, but those numbers are relatively 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 Blue Mountains elk herd. Lynx are found in the northern portion of eastern Washington, but are not known to occur in the Blue Mountains. The historical status of lynx in the Blue Mountains is uncertain (Stinson 2001). Although not typically thought of as preying on elk, bobcats and lynx are capable of preying on elk 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 (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) carcass checks.

Social and Economic Values

Elk Hunter Trends

The number of elk hunters hunting the Blue Mountains has remained stable for the past decade. In 2001 the number of general season elk hunters hunting the Blue Mountains elk herd area was 3,675, and in 2015 it was 3,154, with an average of 3,637 over that period (Table 4).

The 2014 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reported that trip and equipment expenditures for big game hunting in 2014 averaged \$973 per hunter (U. S. Department of Interior, et al. 2014). Using the 3,154 elk hunters who reported hunting in the Blue Mountains elk herd area in 2015, and the \$973 average expenditure per hunter from the National Survey, elk hunters in the Blue Mountains are projected to have added approximately \$3.1 million to local and state economies in 2015.

Watchable Wildlife

Spike-only general season management, implemented in 1989, has increased the number of mature bulls in the Blue Mountains herd. The large bulls have attracted the attention of many wildlife enthusiasts, and resulted in a dramatic increase in elk viewing and photography. It is common to encounter many people out looking for elk when bull elk are rutting in September, and during winter when elk are concentrated. The increase in recreational viewing of elk is likely related to the number and quality of large adult bulls in the elk population.

Shed Antler Hunting

Bull elk drop their antlers at the end of each winter. The practice of searching for these naturally shed antlers has grown in popularity in Washington and throughout the West. While providing considerable recreation, shed hunting raises a concern for the welfare of wintering elk, which are often in diminished condition at the end of winter. Shed antler hunting was uncommon in the Blue Mountains prior to 1995. Since then, competition among shed hunters has increased to a level that at times may result in harassment of elk in winter and early spring, and has led to frequent trespass complaints on private property. This was addressed in 2015 with a new WAC allowing Wildlife Enforcement officers to confiscate shed antlers collected during trespass violations. In addition, shed antler hunting may be pushing elk from their normal winter range into less favorable habitat in GMUs 154, 162, 163, 166, 169, 172, 175 and 178. In late winter, bull groups that are vulnerable to harassment have been observed dispersed into smaller groups and pushed into higher elevation snow and timber, where available forage is scarce and deeper snow increases energy costs. Cow-calf groups have been forced onto agricultural lands, resulting in the loss of elk from damage removals and increased damage liability by the Department. Additional disturbance has been documented when members of the public use small aircraft (fixed-wings and helicopters) to locate elk on winter range.

VI. HABITAT

Elk in the Blue Mountains occupy a diverse habitat mosaic, with respect to cover types, topography, and areas with and without strong human influences (e.g., roaded vs. wilderness habitats). Considerable research has addressed elk habitat selection and habitat effectiveness issues in the Blue Mountains. In general, habitat selection patterns have shown seasonal variability (Ager et al. 2005, Coe et al. 2011). Habitat selection models developed for radio-marked elk at one location in the Blue Mountains have generally been well-validated when applied to other areas of the Blue Mountains elk range (Coe et al. 2011); models have been particularly well-validated for seasons when forage availability is restricted (e.g., spring, late summer). When elk have more foraging options (availability is high across habitats), it has proven more difficult to predict their habitat selection.

In spring, elk in the Blue Mountains have shown affinities for south-facing and west-facing slopes, gentle terrain, and open habitats (Johnson et al. 2000, Coe et al. 2011). In summer and early fall, elk selected north-facing slopes and used forest cover more (Coe et al. 2011). These changes likely reflect both changes in the location of higher quality forage, as well as security-seeking behavior with the onset of hunting seasons and higher levels of human disturbance.

Forest Management

In the Blue Mountains herd area there are more than 400,000 acres of forest habitat (Fig 11). Table 5 shows the ecological systems included in the summation of forest habitat types. Nearly 70% of the forest habitat is under public and tribal ownership, and the USFS manages the greatest proportion of forest habitat in the Blue Mountains. However, more than 125,000 acres are in private ownership, largely consisting of small parcels, but some larger parcels are also owned by land and timber companies such as Bennett Lumber Products, Inc. and Hancock Timber Resource Group.

Table 5. Forest habitat in the Blue Mountains herd area by ecological system. All values are acres. Columns show acreages controlled by major public and tribal land managers.

Ecological System	Total	USFS	WDFW	CTUIR	BLM
Dry-Mesic Montane Mixed Conifer Forest	210,092	144,248	4,590	4,646	511
Mesic Montane Mixed Conifer Forest	56,730	49,241	680	542	71
Harvested Forest - NW Conifer Regeneration	49,167	21,386	3,214	371	53
Ponderosa Pine Woodland and Savanna	37,133	10,416	1,184	691	259
Subalpine Dry-Mesic Spruce-Fir Forest & Woodland	18,586	18,314	1	0	0
Subalpine-Montane Mesic Meadow	16,191	5,805	1,058	221	17
Western Larch Savanna	9,927	6,102	121	189	14
Subalpine Mesic Spruce-Fir Forest & Woodland	7,890	7,605	31	7	1
Subalpine Woodland and Parkland	1,493	1,492	0	0	0
Western Juniper Woodland & Savanna	1,299	884	32	0	35
Subalpine-Upper Montane Grassland	1,121	1,118	0	0	0
Lodgepole Pine Forest	930	780	5	3	0
Aspen Forest & Woodland	798	637	18	7	2
Alpine-Montane Wet Meadow	228	16	6	1	0
Subalpine Deciduous Shrubland	174	28	13	0	0
Alpine Fell-Field	158	158	0	0	0
Hemlock Forest	113	113	0	0	0
Poor-Site Lodgepole Pine Forest	88	59	2	0	0
Aspen-Mixed Conifer Forest & Woodland	66	45	8	0	0
Mesic Montane Mixed-Conifer Forest & Woodland	30	0	0	0	0
Curl-leaf Mountain Mahogany Woodland & Shrubland	19	10	2	0	0
Oak-Ponderosa Pine Forest & Woodland	1	0	0	0	0
Total	412,234	268,458	10,966	6,678	963

Elk are generalist herbivores, exploiting a wide array of forages, including grasses, forbs, and palatable shrubs. Although elk are strongly associated with forested habitat in the Blue Mountains, they typically forage extensively in openings, where understory plants flourish (Leckenby 1984). These openings include lower elevation grasslands in winter, and natural openings on summer ranges, such as meadows and alpine parklands. Elk also exploit early seral stage forest stands, typically created by disturbances such as fire or logging (Leckenby 1984, Lyon et al. 1985). In general, ideal habitat conditions for elk, at least where they are hunted, consist of a diverse mosaic of natural openings, early seral stands, and closed-canopy stands where elk find security (Hillis et al. 1991). Closed canopy security cover can be particularly important where open road densities are high (Unsworth and Kuck 1991).

Forest management, such as creating openings through logging, can enhance elk habitat values by creating additional foraging habitat, but it can also negatively affect elk distribution and survival by increasing road access. Successfully meeting elk habitat objectives through forest management requires good project planning, with clearly stated objectives, and continual evaluation of the results. New modeling tools are being developed for the Blue Mountains to help land and elk managers evaluate alternative management actions. These planning and evaluation tools were previewed in 2013 by the USFS PNW Research Station at a workshop called *Final Nutrition and Habitat Models for Elk in the Blue Mountains* (<http://www.fs.fed.us/pnw/research/elk/bluemtns/index.shtml>).

Road Closures

Elk in the Blue Mountains have commonly demonstrated an aversion to roads with moderate to high traffic levels (Johnson et al. 2000, Rowland et al. 2000, 2005, Wisdom et al. 2005b), irrespective of season and habitats (Coe et al. 2011).

Avoiding human disturbance by seeking habitats further from well-used roads apparently typifies a broad-scale pattern of elk habitat selection in the Blue Mountains (Rowland et al. 2005, Coe et al. 2011). McCorquodale et al. (2010) also demonstrated that radio-marked bulls were at higher risk in areas closer to roads and where local road densities were higher within the Washington Blue Mountains.

Wisdom et al. (2005a) studied elk reactions to a variety of human recreational activities (i.e., ATV traffic, horseback riding, mountain biking, and hiking) in the Blue Mountains. They found differences in the apparent sensitivity of elk to disturbance from these activities (see also Naylor et al. 2009); generally, elk reacted more strongly to ATV and mountain bike riders than to people hiking or on horseback. It is apparent that elk habitat selection and energetic expenditures are likely often modified by human disturbance (Naylor et al. 2009). This does not necessarily mean that all reactions of elk to human activities have biologically relevant negative consequences, such as reduced survival or reproductive success. But, it does suggest that elk select preferred habitats not only based on physical habitat attributes (e.g., forage availability), but also in response to perceived risk.

Other studies have also verified that disturbance from vehicles and human activity near open roads reduces elk use of adjacent habitat (Hershey and Legee 1976, Ward 1976, Perry and Overly 1977, Hayden-Wing 1979, Morgantini and Hudson 1979, Pedersen 1979, Rost and Bailey 1974, 1979). The area of avoidance has been reported to be as far as one-half mile from the road, depending on several factors such as the amount of traffic and density of cover near the road (Lyon 1979). Within this zone, available habitat is only partially used, and is thus less effective than it would have been in the absence of the road. The level of this partial use has been modeled (Lyon 1979, Thomas et al. 1988) and is often referred to as habitat effectiveness. The USFS uses habitat effectiveness in existing Blue Mountains forest plans.

Based upon the model assumptions, road densities in the Blue Mountains are high enough to reduce habitat effectiveness for elk in areas of critical summer habitat. The Department has worked closely with the USFS to reduce road densities in important elk habitat. In GMUs 162, 166, and 175, road closures

have been initiated on the Walla Walla and Pomeroy Ranger Districts. Within GMUs 166 and 175, additional road closures are needed in areas of high human use.

Management of forest road density and road location relative to preferred habitats, offers considerable promise when managers must meet a desired seasonal distribution of elk, or sustainable hunting season mortality (Rowland et al. 2005, McCorquodale et al. 2011). These effects appear to be broadly applicable to elk populations in the western U.S., not just the Blue Mountains (Edge and Marcum 1991, Hillis et al. 1991, Leptich and Zager 1991, Marcum and Edge 1991).

The *Final Nutrition and Habitat Models for Elk in the Blue Mountains* which were previewed in 2013 (<http://www.fs.fed.us/pnw/research/elk/bluemtns/index.shtml>) integrate both elk nutrition work described in Cook et al. (2004, 2005) and environmental factors such as distance to roads, to better predict patterns of elk use on summer habitats. These models supplement or replace other predictive models and permit elk managers in the Blue Mountains to better forecast patterns of use and plan habitat improvements, such as road closures.

Off Road Vehicles

Naylor et al. (2009) reported that activities of elk can be substantially affected by off-road recreation. During their study, elk increased travel time and reduced feeding and resting behavior when exposed to all-terrain vehicle riding, mountain biking, hiking, and horseback riding. Off-road vehicle (ORV) use on USFS trail systems likely causes decreased use of prime habitat. This effect may be acute where trails are constructed through elk calving areas such as the Meadow Creek-Bluewood trail, and high-use summer habitat such as the North-South ORV Trail and Stevens Ridge Park. The USFS has completed one ORV trail that runs from Meadow Creek (in GMU 166) to the upper Tucannon River drainage and over to Bluewood (N. Touchet River) in GMU 162. The 29 mile North-South ORV trail is complete and extends from the forest boundary on USFS Road # 40 (Mountain Road) to the forest boundary on USFS road 4304 at Big Butte. This new ORV trail has the potential to reduce habitat effectiveness in high value habitat of the upper drainages of Asotin Creek. The Department will continue to work closely with the USFS on travel and access management in order to minimize impacts to elk.

Area Closures

The Department and USFS have implemented motorized access closures on winter range to reduce harassment of wintering elk. Vehicle access closures have also been implemented around major elk calving areas such as in GMU 175. However, human activity on sensitive areas has increased dramatically since 2005 and even incursions into these closures appear to be increasing. There has been a steady increase in recreational horseback riding by large, organized groups since 2010 on both the Asotin Wildlife Area and W.T. Wooten Wildlife Area. The Department's Public Conduct rules require that organized groups of 30 or more must obtain a use permit. Permit conditions can provide a remedy and mitigate impacts on wildlife during sensitive periods through timing restrictions and specified routes. In the future, additional restrictions or closures to human entry may be necessary on both winter ranges and calving areas to reduce harassment of elk, and to prevent their re-distribution into less favorable habitat and agricultural areas.

Fire Management

Thomas et al. (1988), in their summary of the use of prescription burning in elk management, stated that fire was historically the most important factor affecting plant succession and species composition on most lower elevation sites that are now elk winter range. Mutch et al. (1993) stated that fire was a major influence on Blue Mountain forest structure and that the fire return interval in the low-elevation forests and on dry sites averaged 10 to 25 years. Gruell (1980) reported that in western Wyoming a reduction in acres burned allowed vegetation to reach advanced succession at the expense of herbaceous plants and

deciduous shrubs and trees. With advancing succession, the carrying capacity for elk declined. Managers have often used prescribed burning as a technique to improve forage quality for ungulates (Hobbs and Spowart 1984, Monsen et al. 2004) but the results of forage improvement have been mixed. The response of elk to prescribed burning on winter range must be closely evaluated to assure that specific objectives are achieved (Monsen et al. 2004). USFS Fire Management has improved habitat conditions for elk through the use of prescribed and controlled natural fires in GMUs 175, 166 and 172. The USFS has plans to continue using prescribed fire to achieve forest successional goals, including the use of prescribed fire in the wilderness when warranted and allowing natural fires to burn in the wilderness when appropriate (P. Wik, WDFW, personal communication with the Umatilla National Forest).

During the summers of 2005, 2006, and 2015, three landscape level fire events occurred in the Blue Mountains of Washington and burned approximately 220,000 acres in seven GMUs (Fig. 14). McCorquodale et al. (2010) summarized the effect of the 2005 and 2006 fires on elk habitat in the Blue Mountains. These fires burned predominantly within Columbia and Garfield Counties, although Walla Walla County was also impacted by the Columbia Complex Fire. Approximately 90% of GMU 166 burned during the 2 fires. The School Fire occurred in 2005 and burned approximately 52,000 acres (~21,000 ha) in the Tucannon River, Cummings Creek, Tualum Creek, and Pataha Creek drainages. This was a high intensity fire resulting in significant loss of vegetative cover within all of these drainages. Habitat recovery from this fire will likely take decades. The Columbia Complex Fire, which occurred in 2006, was a merging of 3 fires that burned a total of 110,000 acres in GMUs 154, 162, 166, and 175. The fire resulted in a mosaic of understory burns and stand replacing patches over approximately 80% of the fire area. This fire should provide short and long-term benefits to wildlife within the affected GMUs.

The Grizzly Bear Complex Fire, which occurred in 2015, was the merging of 18 lightning-caused fires in the Wenaha drainage that burned a total of 83,000 acres in WA and OR, predominantly within the Wenaha-Tucannon Wilderness. Similar to the Columbia Complex Fire, the fire resulted in a mosaic of understory burns and a few stand replacing patches across the fire area that should provide both short and long-term benefits to wildlife. This fire and the resulting habitat changes may be particularly beneficial to the portion of the Blue Mountains elk herd that utilize GMU 169, which has shown a significant decline since the 1980s, from an estimate of over 2,200 elk to less than 500 during the most recent survey. The remaining fires depicted in Figure 14 are outside the core elk use areas and are likely to have little impact on elk populations.

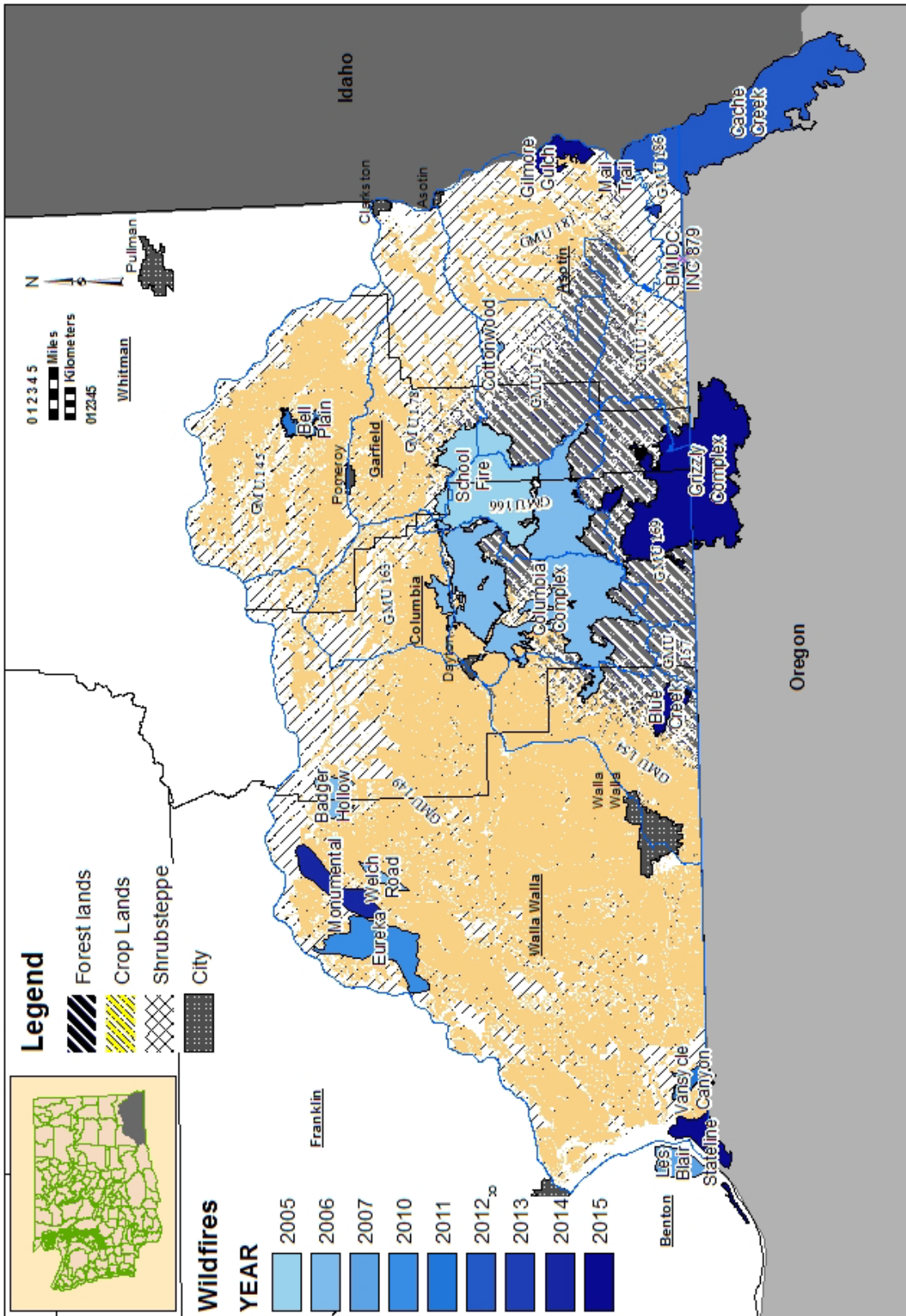


Figure 14. Wildfires affecting the Blue Mountains elk herd area from 2005 to 2015.

Range Management

Rangelands are lands dominated by grasses, grass-like plants, forbs, and sometimes shrubs or dispersed trees. Existing plant communities may include both native and introduced plants. Management of rangeland occurs primarily through indirect processes, rather than direct agronomic applications. Grazing by wildlife, fire, and weather extremes are important ecological factors affecting rangelands. Grazing by domestic livestock is the most common use of managed rangelands and will alter current ecologic site conditions. Rangeland habitats can consist of one or several ecological systems. Tables 6 and 7 list the ecological systems used to delineate the rangeland area shown in Figure 11. These ecological systems are described in Rocchio and Crawford (2008). Rangelands comprise more than 600,000 acres, or about 27% of the entire land cover in the Blue Mountains elk herd area (Figure 11, Table 6). Much of this rangeland contributes little to the Blue Mountains elk herd, because it is well outside the core use areas. However, when rangeland is within the winter range of elk, it plays an important part in the survival of some sub-populations. While only 15% (90,500 acres) of the total rangeland in the Blue Mountains herd area is publicly or tribally owned (Table 7), most (66%) of this rangeland occurs within important elk use areas. The USFS rangeland is largely a minor component within forested lands, whereas the Department-owned wildlife areas can be classified as rangelands with interspersed trees, especially along riparian areas.

Table 6. Range area, shaded yellow in Figure 11, by ecological system type and County.

Ecological System	Total for herd area	County Total			
	Acres	Asotin	Garfield	Columbia	Walla Walla
Foothills & Canyon Dry Grassland	257,142	198,405	42,756	12,767	3,214
Big Sagebrush Steppe	120,331	345	18,157	47,500	54,329
Annual Grass	74,398	10,122	30,276	19,470	14,529
Steppe and Grassland	46,936	4,701	14,584	18,042	9,610
Big Sagebrush Shrubland	45,371	171	2,600	7,092	35,507
Palouse Prairie	35,406	1,583	9,522	7,124	17,177
Semi-desert Grassland	16,109	165	8,136	7,627	181
Riparian Woodland and Shrubland	11,635	2,858	1,388	4,308	3,081
Scabland Shrubland	4,619	1,288	504	1,471	1,356
Salt Desert Scrub	1,946	1,749	37	159	0
Low Sagebrush Steppe	1,368	293	519	338	217
Western Juniper and Savanna	1,299	785	203	108	204
Montane Sagebrush Steppe	675	64	373	206	33
Greasewood Flat	183	56	0	2	125
Introduced Perennial Grassland and Forbland	4	0	0	1	3
	617,423	222,586	129,054	126,215	139,568

Table 7. Range area, shaded yellow in Figure 11, by ecological system type for public and tribal ownership

Ecological System	Total range area, acres	Public and Tribal Range Land, Acres									
		Total [®]	WDFW	USFS	BLM	USFWS	Other FED	DOD	CTUIR		
Foothills & Canyon Dry Grassland	257,142	51,121	30,339	7,732	10,886	13	1,944	37	127		
Big Sagebrush Steppe	120,331	6,656	1,345	914	58	46	3,522	609	160		
AnnualGrass	74,398	1,910	646	466	111	38	423	83	135		
Steppe and Grassland	46,936	21,773	475	19,815	70	790	261	115	196		
Big Sagebrush Shrubland	45,371	3,276	29	12	56	333	2,237	578	29		
Palouse Prairie	35,406	1,126	153	433	50	0	447	39	4		
Semi-desert Grassland	16,109	364	3	0	4	0	357	0	0		
Riparian Woodland and Shrubland	11,635	3,072	1,068	1,239	0	278	252	94	94		
Scabland Shrubland	4,619	346	189	81	25	0	36	9	5		
Salt Desert Scrub	1,946	3	0	0	0	0	3	0	0		
Low Sagebrush Steppe	1,368	120	25	79	3	0	0	0	12		
Western Juniper and Savanna	1,299	972	32	884	35	0	0	0	0		
Montane Sagebrush Steppe	675	135	30	101	0	0	0	0	3		
Greasewood Flat	183	22	7	0	2	1	9	1	0		
Perennial Grassland and Forbland	4	0	0	0	0	0	0	0	0		
Range Habitat types	617,423	90,897	34,341	31,756	11,300	1,498	9,493	1,564	764		
Total		426,751	53,222	310,962	13,797	4,195	30,394	3,509	8,677		

[®]This column includes 180 acres of range habitat owned by City Watershed, County and State Parks and other State agencies

The effects of grazing by elk and cattle in the Blue Mountains have been investigated by several authors (Westenskow-Wall et al. 1994, Clark et al. 1998a, 1998b, 2000), and Anderson and Scherzinger (1974) reported a relevant case study. In general, their findings indicated that careful management of livestock grazing may increase the number of elk using winter range and improve forage. Anderson and Scherzinger (1974) reported that their cattle grazing system, designed to reduce dietary overlap between cattle and elk, resulted in improved vegetation, more elk using the range and increased cattle AUMs (Animal Unit Months). Other studies have also suggested that livestock can have a positive effect on condition (crude protein, digestibility) of forage for elk (Grover and Thompson 1986, Yeo et al 1993, Danvir and Kearn 1996, Ganskopp et al. 2004, Taylor et al. 2004) when the timing, intensity, and duration of livestock grazing are controlled. Clark et al. (1998a, 1998b) reported that both the timing and level of grazing was important to quality and quantity of forage in a bluebunch wheatgrass (*Pseudoroegneria spicata*) rangeland.

Other studies do not support the claim that grazing has beneficial effects, finding no clear evidence for forage improvements or increases (Skovlin et al. 1983, Westenskow-Wall et al. 1994, and Wambolt et al. 1997). Ganskopp et al. (2004) found spring livestock grazing that results in improved nutritional quality of forage may reduce the fall standing crop. Similarly, Wagoner (2011) found that moderate spring cattle grazing in the Blue Mountains reduced the amount of digestible nutrients available to mule deer during the year of grazing. In addition, cattle have frequently been found to displace elk on rangelands (Mackie 1970, Yeo et al. 1993, Danvir and Kearn 1996, and Coe et al. 2005).

When both elk and cattle forage on the same rangeland, conflicts often arise concerning forage allocation. Holcheck (1980) states that through proper management, degrees of dietary overlap between elk and cattle may be reduced, but cautions that consideration should be given to maintenance and improvement of the forage resource. He offers strategies such as the reduction of wild or domestic animals, acquiring parcels of private land to expand elk wintering areas, and brush control, seeding, and burning as ways to reduce dietary overlap and improve habitat. Sheehy and Vavra (1996) found that in their Blue Mountains study area there was little direct temporal overlap between cattle and elk. Cattle use occurred in late spring-early summer and fall, while elk exhibited greatest use during the winter and spring seasons. They also reported that elk on their study area preferred bluebunch wheatgrass-annual grass and Idaho fescue-bluebunch wheatgrass communities occurring at higher elevations near the forest edge, whereas cattle selected Idaho fescue-annual grass communities on higher elevations at moderate distances from the forest edge. Although reporting some spatial and temporal separation between elk and cattle, they stated that dietary overlap will occur and interactions will likely increase with an increase in ungulate grazing intensity.

The grazing of livestock on public lands, even with the objective of improving habitat for wildlife, is a complicated issue. A review of literature by Edge and Marcum (1990) found that the compatibility of elk and livestock is questionable because of biological, economic, and societal factors. They further report that research findings investigating this uncertainty have been complicated by contradictory observations suggesting both compatibility and interference between elk and cattle. Grazing on conservation areas, such as Department wildlife areas, also requires consideration of the well-being of sensitive habitats and species beyond just elk (WDFW 2009).

Noxious Weeds

The Washington State Noxious Weed Control Board (NWCB) defines a noxious weed as a plant that when established, is highly destructive, competitive, or difficult to control by cultural or chemical practices. Such plants have economic and ecological impacts and are very difficult to manage once established. Some are toxic or a public health threat to humans and animals; others destroy native and beneficial plant communities. To help protect the state's resources and environment, the NWCB adopts a state weed list each year (Chapter 16-750 WAC), in accordance with the state noxious weed law (Chapter

17.10 RCW). In 2012 there were 143 species included on the Washington State Noxious Weed List (www.nwcb.wa.gov). Noxious weeds are separated into classes A, B, and C based on their distribution and abundance. Property owners, public and private, are required to control all Class A weeds and any Class B or C weeds that are designated by the state or county weed board for control in their area. Of the 143 state-listed noxious weed species, more than 60 have been identified by the weed boards in Asotin, Walla Walla, Columbia and Garfield counties.

The spread of noxious weeds is a major problem in many important elk areas. Some weeds can out-compete and replace native species, resulting in a reduction in elk forage. Many listed and non-listed noxious weeds (Table 8) have been identified on Department and adjacent lands. These include yellow starthistle (*Centaurea solstitialis*), rush skeletonweed (*Chodrilla juncea*), Mediterranean sage (*Salvia aethiopsis*), sulfur cinquefoil (*Potentilla recta*), Dalmatian toadflax (*Linaria genistifolia*), spotted knapweed (*Centaurea maculosa*), scotch thistle (*Onopordum acanthium*), and houndstongue (*Cynoglossum officinale*). The Department and the USFS have implemented weed control programs on their respective lands, and both agencies continue to work together to control infestations. In GMU 166, noxious weeds are a problem on elk winter range. A weed control program was initiated on the Wooten Wildlife Area; however, noxious weeds on adjacent private lands threaten to compromise weed control efforts on Department lands. Habitat conditions in GMUs 154, 157, 162, 172, 175, 181, and 186 continue to deteriorate due to noxious weeds such as yellow starthistle and houndstongue. A new program was implemented in 2010 to collaborate with county weed boards and landowners to control weeds on private land elk winter range.

Habitat Enhancement

Since 1986 more than 92,000 acres of habitat projects costing more than \$3.4 million have been completed in the Blue Mountains herd area (Table 1, WDFW 2001). These projects were developed by the Department, USFS, RMEF, and Blue Mountains Elk Initiative (BMEI) to improve habitat for elk on National Forest and Department lands, and to reduce elk damage on private lands. The project activities included prescribed fire, weed control, forage seeding, fertilization, and water development. The Department will continue to develop habitat improvement projects through partnerships with the RMEF, USFS, and the BMEI. The BMEI is a consortium of the Department, ODFW, USFS, tribes, and private landowners whose main objective is to initiate projects to improve elk habitat in southeast Washington and northeast Oregon.

Residential Development

There are about 44,000 acres of developed land in the Blue Mountain elk herd area. This is a bit misleading, however, because the amount of elk habitat affected by development is actually greater, as human presence influences a larger footprint than the developed area alone would indicate. Division of large tracts of land has contributed to the loss of elk habitat in some areas. Beginning in the early 1990s many acres of industrial timber land and rangeland in the four counties of the Blue Mountains herd area were converted to residential parcels. Habitat conditions in GMU 154 are a concern due to the large amount of land that has been sub-divided, especially in the Lewis Peak-Jasper Mountain area. Some development has also occurred in GMU 172, which is directly impacting year-round elk habitat.

Table 8. Weeds known to occur on elk ranges in the Blue Mountain Herd area.

Common Name	Scientific Name	State Class
Absinth wormwood	<i>Artemisia absinthium</i>	C
Blackberry, Himalayan	<i>Rubus armeniacus</i>	C
Bull thistle	<i>Cirsium vulgare</i>	C
Canada thistle	<i>Cirsium arvense</i>	C
Chicory	<i>Cichorium intybus</i>	NC
Common burdock	<i>Arctium minus</i>	NC
Common mullein	<i>Verbascum thapsus</i>	NC
Common teasel	<i>Dipsacus fullonum</i>	NC
Diffuse knapweed	<i>Centaurea diffusa</i>	B
Downy brome	<i>Bromus tectorum</i>	NC
Field bindweed	<i>Convolvulus arvensis</i>	C
Hawkweed, orange	<i>Hieracium aurantiacum</i>	B
Hawkweed, yellow	<i>Hieracium caespitosum</i>	B
Hoary cress	<i>Cardaria draba</i>	C
Horseweed	<i>Conyza canadensis</i>	NC
Houndstongue	<i>Cynoglossum officinale</i>	B
Japanese knotweed	<i>Polygonum cuspidatum</i>	B
Kochia	<i>Kochia scoparia</i>	B
Mediterranean sage	<i>Salvia aethiopis</i>	A
Medusahead	<i>Taeniatherum caput-medusae</i>	NC
Musk thistle	<i>Carduus nutans</i>	B
Oxeye daisy	<i>Chrysanthemum leucanthemum</i>	B
Plumeless thistle	<i>Carduus acanthoides</i>	B
Reed canarygrass	<i>Phalaris arundinacea</i>	C
Rush skeletonweed	<i>Chondrilla juncea</i>	B
Russian thistle	<i>Salsola iberica</i>	NC
Scotch thistle	<i>Onopordum acanthium</i>	B
Spotted knapweed	<i>Centaurea maculosa alt. stoebe</i>	B
Sulfur cinquefoil	<i>Potentilla recta</i>	B
Ventanata	<i>Ventanata dubia</i>	NC
Yellow Starthistle	<i>Centaurea solstitialis</i>	B
Wild Carrot	<i>Daucus carota</i>	B
White bryony	<i>Bryonia alba</i>	B

VII. Research Needs

There are currently (2018) no research projects and none planned in the near future.

VIII. HERD MANAGEMENT GOALS

As stated in the Game Management plan (WDFW 2014) 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

To help address elk/human conflicts, this plan includes a goal not specifically covered in the Game Management Plan (WDFW 2014).

- Manage elk and elk habitat to help minimize human conflicts and agricultural damage

IX. MANAGEMENT OBJECTIVES

The Department must consider two competing factors when assigning population management strategies to specific local areas; habitat carrying capacity and landowner tolerance (social carrying capacity). Habitat carrying capacity can be thought of as the largest number of elk that can survive long term in a given environment without having a negative effect on population growth variables (e.g. adult survival, pregnancy rates, recruitment, etc.). This level depends upon the limiting factors of the site, such as forage availability. In the absence of landowner conflicts the Department would encourage large elk populations (still below carrying capacity to maintain high recruitment) that can support high levels of hunting recreation each year. However in nearly every case, when elk populations grow, conflicts between elk and people arise. This is especially apparent where elk spend the majority of the year on private lands. This common scenario often leads the Department to manage elk by increasing hunting harvest and maintaining herd numbers below habitat carrying capacity.

Elk populations are dynamic by nature and prone to fluctuate from year to year. Many factors contribute to this, sometimes by affecting survival and recruitment directly, sometimes by forcing changes in distribution, and sometimes by doing both. Such factors include: weather, human harvest of all kinds, and large scale habitat alteration due to wildfire or wildfire suppression.

Population Objective

While the Blue Mountains elk herd has recently dropped below the population objective of 5,500 (+/- 10%) elk, returning to the objective will depend upon adaptive management to influence the many factors that affect survival and recruitment. Management typically occurs at the local level, usually at the scale of one or several GMUs. As increases or declines are detected in a GMU, harvest is adjusted or other management is prescribed to exploit the increases or reverse the declines.

One major factor that has limited population growth in the Blue Mountains herd was adult cow elk survival. McCorquodale et al (2010, 2011) found that hunting by state-licensed hunters was the predominant cause of adult cow deaths ($n = 8$ recovered kills among 14 deaths). Therefore, it is clear that the Department's most practical tool when attempting to limit or promote population growth is to manipulate the antlerless elk harvest. In damage areas, increasing antlerless permit levels will limit herd size, and alternatively, resolving conflict without cow harvest will maintain the herd's productivity. In addition some elk in the Blue Mountains summer in Washington and winter in Oregon, and are subject to hunting in both areas. Coordination between the two states ensures that collective harvest does not exceed the level needed to maintain adequate survival.

Good habitat produces resilient and productive elk herds capable of responding to changes in management or natural variables. Productive herds often provide for increased recreational opportunity. The Department is working with the USFS to improve habitat conditions for elk in the Umatilla National Forest. Elk habitat effectiveness can be increased by reducing road densities, and by reducing other human disturbance to elk at critical times. In some areas timber harvest has left no buffer between active roads and potential elk foraging areas. The closure of such roads is impractical, but habitat effectiveness would likely improve if buffers were allowed to grow along the roadways and provide some security to elk.

WDFW has multiple closures on the wildlife area complex designed to restrict different types of access to benefit elk security and prevent movement of elk onto private lands. A winter motorized closure exists on the Asotin Wildlife Area that restricts the use of motorized vehicles from Dec 1 – March 31, but non-motorized access remains. Within the Cummings Creek watershed on the W.T. Wooten Wildlife Area, a no-human access restriction is in place from Dec 1 – March 31 to protect elk winter range. On the 4-0 Wildlife Area, all interior roads are gated and closed to motorized entry year-round, but non-motorized access remains. On the adjacent Wenaha Wildlife Area in Oregon, a human access restriction was enacted in 2016 to protect elk on the winter range following many years of high use from shed antler hunters.

Objective 1

Maintain the Blue Mountains elk herd post-hunt estimate at 5,500 (+/- 10%) while maximizing opportunity for recreational harvest within the constraints of other objectives. Increase the number of elk in GMU 169 to achieve additional recreational opportunity. Maintain all other core area elk subpopulations at 2015 estimated GMU levels. Limit elk numbers in GMUs 145, 149, 163, 178, and 181 to mitigate damage (below the levels described in Table 3).

Strategies

- a. Prescribe harvest regulations that will maintain the elk population at 5,500 (+/- 10%).
- b. Work cooperatively with USFS to increase elk habitat effectiveness by implementing road closures.
- c. Develop habitat enhancement projects for forage improvement within the core area on public and private lands, including the USFS and Department lands.
- d. Maintain low impact seasons (primitive weapon seasons, damage prevention hunts, landowner permits) to redistribute or suppress elk populations where appropriate, without causing a reduction in elk numbers.
- e. Work with the USFS timber harvest planning to retain security cover along active USFS roads.

- f. Meet annually with ODFW to coordinate harvest levels for “inter-state” elk in GMUs 157, 169, 172, and 186.
- g. Where elk numbers are below desired levels, reduce or eliminate antlerless elk hunting opportunity.
- h. Work through State and Federal planning processes to identify ways to reduce winter range disturbance

Survey Objective

Reliable survey data are critical to monitoring elk herd status and formulating management recommendations. Pre-season surveys provide important information on historic trends in calf production levels. For example, a decline in pre-season calf:cow ratios in the late 1980’s were the first indication of a decline in cow elk pregnancy rates. Further research confirmed that cow elk pregnancy rates were far below normal levels (65%). From 1991 through 2017, all major elk units were surveyed annually. Due to budget restraints, and the need for a more powerful helicopter, surveys were moved to biennial beginning in 2019 (2018 was the first year not surveyed by a helicopter). This level of survey provides managers with information on herd demographics and should be maintained.

Post-season surveys provide data to determine a population estimate, calf recruitment estimate, and whether bull escapement targets are being met. To maintain precision of post-season estimates derived from aerial elk surveys, a minimum number of survey units must be surveyed. This number is prescribed by the survey protocol. This survey has required about 40-45 hours of helicopter time annually, but high precision of sightability estimates may allow for lower survey effort, meaning biennial surveys in conjunction with pre-season composition surveys are likely to be sufficient for population estimation and monitoring.

Objective 2

Maintain or improve the level of precision of Blue Mountains elk population estimates.

Strategies

- a. Assess the level of pre-hunt sampling required to provide trends in calf production.
- b. Reduce the current level of post-season aerial survey effort by flying survey units biennially as prescribed by protocol: 100 % of high density and “bull” strata, 70% of medium density strata and 35% of low density strata.

Bull Survival Objective

Prior to 1989 bull survival in the Blue Mountains was very low. Since 1989 spike-only management has improved herd demographics. However, bull escapement goals cannot be achieved through general seasons alone without specific strategies to manage overall bull mortality. Under the spike-only regulation and current recruitment rates, increases in general season hunting opportunity will decrease spike bull survival rates, thereby reducing recruitment into the branch-antlered bull cohort of the population. The Blue Mountains Elk Vulnerability study estimated the annual mortality rate for yearling bulls at 59% (McCorquodale et al. 2010, 2011). Since 1989, harvest of branch-antlered bulls has been managed by a permit system. This system has resulted in a bull population that has a diverse age structure and is known for trophy quality bulls. The opportunity to harvest and view mature bull elk has become popular and is desired by a large segment of the hunting and wildlife viewing public.

Recognizing this, elk management in the Blue Mountains will continue to manage towards a diverse age structure within the bull segment of the population. Biologically, a diverse age structure of bulls and a higher bull:cow ratio (>20 bulls:100 cows) should result in earlier conception dates, a contracted rut, competition that should promote breeding by the highest quality bulls, and reduced potential of genetic inbreeding (Noyes et al 1996, 2002, Peek et al. 2002).

Objective 3

Use recreational harvest to maintain bull elk populations with a diverse age structure and post-hunting season bull:cow ratios near 25 bulls:100 cows, (range of 22 – 28). Maintain a target of 10% prime age (> 5 yrs. of age) bulls within the post-hunt bull subpopulation.

Strategies

- a. Maintain spike-only general hunting seasons and manage branch-antlered bull harvest by special permits.
- b. Limit the number of branch-antlered bull permits to achieve harvest consistent with maintaining 10% prime aged (> 5 yrs. of age) bulls within the bull component of the population.
- c. Use spike-only general seasons (except in GMU 157) and permit controlled hunting of branch-antlered bulls to maintain the post-hunt bull:cow ratio at 22-28 bulls:100 cows.
- d. Continue tooth collection of branch-antlered bulls harvested.

Elk Damage Prevention Objectives

Elk damage to agricultural crops is a historic problem in the Blue Mountains of Washington. Elk often cause damage to high value agricultural crops and can sometimes cause property damage. Landowner tolerance varies depending on many factors, such as crop type, crop price, and elk densities. Mitigation of elk damage has been a concern for the Department for decades, wherever appreciable numbers 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 will damage wire fences by running through them rather than jumping them. The Department has implemented various strategies to deal with agricultural damage, including hazing (ground/aircraft), damage hunts, lure crops away from commercial crops, and payments to landowners.

Objective 4

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

Strategies

- a. Enroll all known potential elk damage claimants into Damage Prevention Cooperative Agreements (DPCA).
- b. As new damage areas arise, contact landowners and provide information on the DPCA.
- c. Emphasize non-lethal damage abatement especially in core elk GMU's.
- d. Adjust the timing of special permit hunting seasons in damage areas, to redistribute elk and reduce damage.

- e. Reduce the impact to non-target elk within damage units by focusing antlerless harvest onto private land and away from public land.
- f. Expand habitat enhancement on public land and private lands without damage potential.
- g. Use incentives to improve landowner tolerance of elk.
- h. Implement antlerless permits and damage permits as measures to reduce agricultural damage, reduce permits when damage issues decline.
- i. Maintain a high focus on elk fence maintenance and use volunteers to monitor for breaks in the fencing.
- j. Where feasible, and when necessary, use helicopters to herd elk from private land.

Poaching Reduction Objective

In the past, poaching in the Blue Mountains has been identified as an obstacle to reaching the objective of 2-3 prime age (> 5 yrs. of age) bulls per 100 cows. Increased enforcement has reduced the incidence of poaching and poaching does not currently pose a threat to herd management. In spite of this, poaching in the Blue Mountains remains a concern.

Objective 5

Maintain full staffing of enforcement in the Blue Mountains area and publicize the use of emphasis patrols to prevent poaching.

Strategies

- a. Use the media to increase public awareness of the problems caused by the illegal harvest of adult bull elk and to solicit the Public's help in apprehending violators.
- b. Increase public awareness of how to report violations, using the Big Game Hunting Seasons and Regulations Pamphlet, the Department web site, and State Patrol, County Sheriff, and Department offices.
- c. Implement recommendations resulting from the Blue Mountains Vulnerability Study (i.e., reducing road densities to increase elk security).

Intergovernmental Objective

The Nez Perce Tribe and CTUIR are two of Washington's treaty tribes. Washington's treaty tribes exercise their right to hunt on open and unclaimed land per their respective treaties. State harvest goals are adjusted to account for the tribal harvest. McCorquodale et al. (2010) in their study of elk mortality provided estimates of tribal harvest rates which have given managers a basis by which to adjust state harvest.

County governments are important partners in natural resources management. They have specific mandated duties and responsibilities including development and enforcement of local land use regulations. It will be important for the Department to maintain strong coordination with the counties during implementation of this plan.

Objective 6

Once each biennium invite the Nez Perce Tribe and the CTUIR to meet and discuss implementation of the Blue Mountains Elk Herd Plan.

Strategies

- a. Work cooperatively with the tribes in developing habitat management strategies to increase and/or maintain local elk numbers in the Blue Mountains elk herd area.
- b. Explore options that would result in the cooperation of the Nez Perce Tribe and CTUIR in the monitoring and sharing of off-reservation tribal harvest data.

Objective 7

Cooperate and collaborate with Asotin, Columbia, Garfield, and Walla Walla Counties to implement the Blue Mountains Elk Herd Plan. Discuss elk in meetings between Department staff and county commissioners as necessary.

Strategies

- a. Discuss and coordinate activities related to elk management with county governments.
- b. Include county governments in discussion of problems and solutions associated with elk damage and conflict.

XI. SPENDING PRIORITIES

The following priorities are needed to implement the Blue Mountains Elk Herd Plan.

Post-season Surveys

Objective 2, Strategy b.

The Department and cooperators should seek adequate funding to conduct biennial population surveys, with the objective of obtaining precise and unbiased estimates of post-season elk numbers. Applying the Idaho Sightability Model to elk surveys in the Blue Mountains has yielded sightability-corrected, statistically valid estimates needed for management (Appendix B).

Maintain current protocols for post-season aerial surveys by flying a minimum of 70% of the survey units. This will require approximately 40-50 hours of helicopter time at a cost of approximately \$40,000-\$50,000. These costs have increased substantially due to rising fuel and insurance costs over the last 5 years and will probably continue to increase over the next 5 years. Continue to produce estimates with statistical precision by using the elk sightability model, and/or other appropriate population estimators.

Priority: High

Timeline: Annual/Ongoing.

Total Survey Costs: \$50,000 biennially (5 yrs. - \$150,000).

Landowner/elk conflicts

Objective 5, Strategies a, g, i.

Landowner /elk conflicts and agricultural damage are a major problem in the Blue Mountains. Additional one-way gates installed in the elk fence between GMU 166 and GMU 178 would likely be helpful.

Funding for elk herders and the landowner incentive programs should be maintained in the annual budget to assist with landowner /elk conflicts in the spring, summer, and winter.

Priority: High

Timeline: Annual /ongoing

Cost: \$73,000 annually.

Landowner incentive- \$25,000

Forage Enhancements - \$25,000

Personnel time (herders)-\$20,000

Helicopter herding-\$3,000.

Peola elk fence Maintenance

Objective 5, Strategy i.

Elk fence construction has been completed (i.e., repairs to 14 miles destroyed by the School Fire). The fence separates GMU 166 and GMU 178, and annual maintenance costs need to be included in the annual capital budget.

Priority: High

Timeline: Annual /ongoing

Cost: \$30,000 annually.

XI. PLAN REVIEW AND MAINTENANCE

The Blue Mountains Elk Herd Plan should be reviewed annually to track implementation of strategies and their impact on meeting goals and objectives. Strategies that are not contributing to meeting management goals and objectives should be re-evaluated and modified during the next update. This plan will be in effect until revised.

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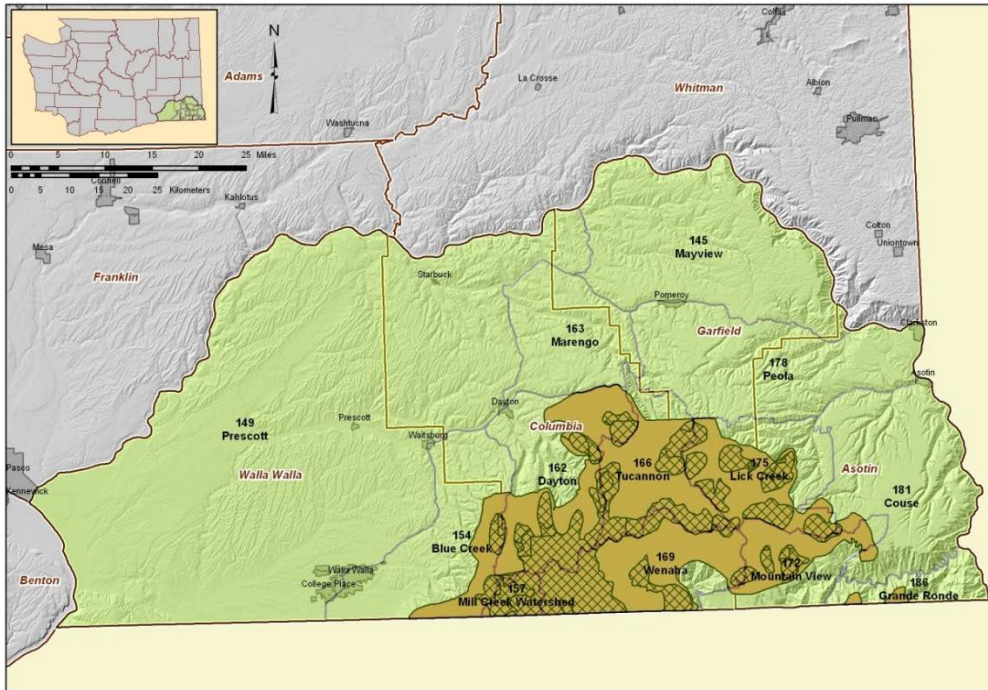
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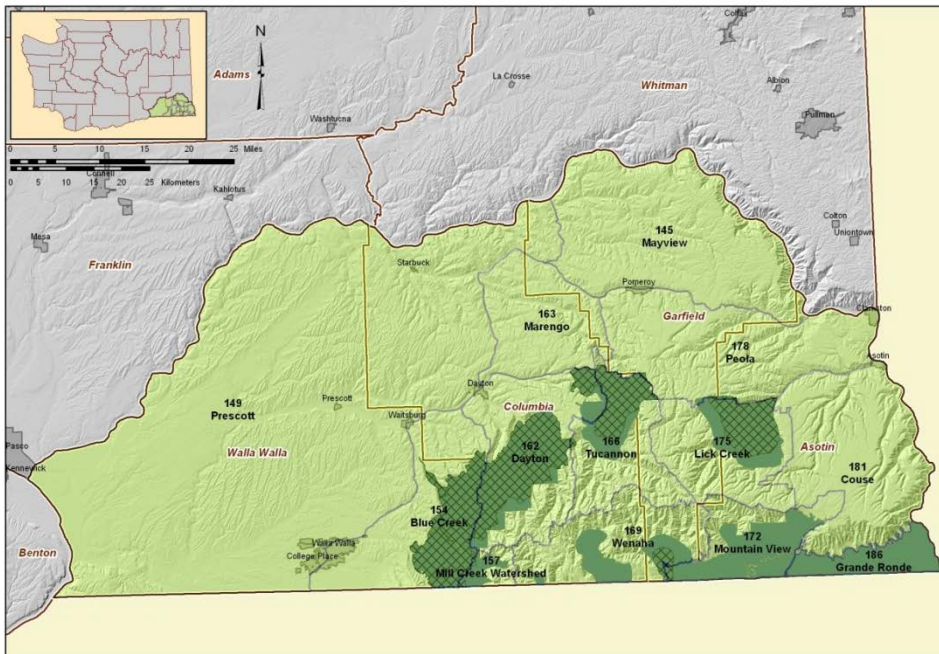
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APPENDIX A: BLUE MOUNTAINS ELK HERD SEASONAL DISTRIBUTION MAPS



Summer distribution. The important summer use areas are shown in brown. The cross-hatch shows critical summer range. Data are adapted from RMEF.



Winter distribution. The important winter use areas are shown in dark green. The cross-hatch shows critical winter range. Data are adapted from RMEF.

APPENDIX B: ELK COMPOSITION-POPULATION TREND SURVEYS FOR THE BLUE MOUNTAINS, MARCH 1987-2017

Year	Bulls:100 cows	Branch-antlered bulls:100 cows	Calves:100 cows	Elk Counted	SI Model Pop. Est.	90% ME ^a
1987	7	2	35	2060		
1988	6	1	32	2962		
1989	5	1	22	4196		
1990	8	3	25	3706		
1991	11	9	28	4072	4727	262
1992	16	14	18	3560	4027	262
1993	13	9	19	4092	4550	170
1994	14	13	18	3161	4106	388
1995	17	15	20	3689	4422	247
1996	14	14	15	3656	4538	309
1997	13	10	24	3405	4256	349
1998	11	10	23	3118	4168	297
1999	13	9	23	3615	4292	316
2000	12	11	17	3628	4225	395
2001	10	7	21	3872	4399	389
2002	13	8	21	3795	4436	353
2003	13	11	28	3584	4750	384
2004	16	13	24	3579	4723	554
2005	20		27	3275	na	na
2006	20	18	29	3975	4254	83
2007	24	24	25	3594	4129	194
2008	18	20	28	4238	4748	102
2009	23	23	29	4738	4925	355
2010	25	26	29	4566	4921	97
2011	28	21	37	4600	5638	356
2012	27	21	31	3628	4900	610
2013	23	16	26	4780	5102	124
2014	29	21	35	4815	5774	490
2015	32	26	31	4432	5307	298
2016	34	28	29	5168	5717	154
2017	33	29	18	3899	4396	165

^a Margin of Error at the 90% confidence level

APPENDIX C: ELK HUNTING SEASONS IN THE BLUE MOUNTAINS HERD

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
2015	162, 166, 169, 172(except Elk Area 1040), 186 145, 149, 154, 163, 175, 178, 181, Elk Areas 1010, 1013	09/12 - 09/24	13	Spike bull Spike bull or antlerless	Early Archery General (EA)
	178 163, Elk Area 1010	11/20 - 12/08 12/09 - 01/30	19 53	Antlerless	Late Archery General (EA)
	145, 149, 154, 162, 163, 166, 172 (except Elk Area (except Elk Area 1040) 175, 178	10/03-10/09	7	Spike bull	Early Muzzleloader General (EM)
	145, 149,154, 162, 163, 166, 169, 172(except Elk Area 1040), 175, 178, 181, 186	10/31 - 11/08	9	Spike bull	Modern Firearm General (EF)
	157 Watershed 2005 (35)	10/31 - 11/08	9	3 Pt. Min.	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	4-O Ranch 2095 (1) 4-O Ranch 2096 (1)	09/10 - 09/14 09/17 - 09/21	5	Any bull	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	4-O Ranch 2337 (2) 4-O Ranch 2338 (2)	10/29 - 11/02 11/22 - 11/26	4 4	Antlerless	Elk Hunts Open to Specified Tag Holders EF, EM
	149 Prescott 2001 (1) 154 Blue Creek 2003 (1) 163, Elk Area 1010 Ten Ten 2007 (1) 178 Peola 2015 (1)	09/28-10/02	5	Any Bull	Modern Firearm Permit Hunts (EF)
	149 Prescott 2002 (2) 154 Blue Creek 2004 (6) 162 Dayton 2006 (14) 166 Tucannon 2009 (12) Elk Area 1010 Ten Ten 2008 (5) Elk Area 1008 Wenaha West 2010 (10) Elk Area 1009 Wenaha East 2011 (12) Elk Area 1040 Ten Forty 2013 (2) 172 Mountain View 2012 (14) 181 Couse 2017 (2) 175 Lick Creek 2014 (7) 178 Peola 2016 (1) 186 Grande Ronde 2805 (1)	10/26- 11/08	14		
	149 Prescott 2800 (2) 149 Prescott 2801 (2) 149 Prescott 2802 (2) 149 Prescott 2803 (2)	11/09 - 11/18 11/19 - 11/30 12/01 - 12/15 12/16 - 12/31	10 12 15 16	Any Bull	EF,EM EF,EM EF EF
	Elk Area 1040 2804 (2)	10/31 -11/8	9	Spike bull only	EF

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	178 Mayview-Peola 2207 (10) 154 Blue Creek 2210 (10)	10/17 - 10/25	9	Antlerless	Modern Firearm Permit Hunts (EF)
	178 Mayview-Peola 2208 (35) 149 Prescott 2209 (20) 154 Blue Creek 2211 (10) 163 & Elk Area 1011 Marengo- Dayton 2212 (75) Elk Area 1013 Mountain View 2213 (40) Elk Area 1016 Dayton 2214 (25) 175 Lick Creek 2215 (15)	10/31 - 11/08	9		
	181 Couse 2216 (30) 181 Couse 2217 (40)	08/22 - 08/30 10/01 - 10/11	60 10	Antlerless	
	149 Prescott 2051 (1) 154 Blue Creek 2052 (4) 162 Dayton 2053 (7) Elk Area 1010 Ten Ten 2054 (3) 166 Tucannon 2055 (7) Elk Area 1008 Wenaha West 2056 (3) Elk Area 1009 Wenaha East 2057 (6) 172 Mountain View 2058 (Except Elk Area 1040) (10) 175 Lick Creek 2060 (12) 178 Peola 2061 (3) 181 Couse 2062 (1)	09/5 - 24	20	Any Bull	Archery Permit Hunts (EA)
	Elk Area 1040 Ten Forty 2059 (1)	09/12 - 25	14	Any Bull	Archery Permit Hunts (EA)
	Elk Area 1016 Dayton 2266 (15)	09/04 - 16	13	Antlerless	Archery Permit Hunts (EA)
	Elk Area 1040 Ten Forty 2835 (1)	09/30 - 10/09	10	Spike bull only	Muzzleloader Permit Hunts (EM)
	149 Prescott 2074 (1) 154 Blue Creek 2075 (2) 162 Dayton 2076 (4) Elk Area 1013 Ten Ten 2077 (1) 166 Tucannon 2078 (3) Elk Area 1008 Wenaha West 2079 (2) Elk Area 1009 Wenaha East 2080 (3) 172 Mountain View 2081 (5) Elk Area 1040 Ten Forty 2082 (1) 175 Lick Creek 2083 (2) 178 Peola 2084 (1) 181 Couse 2085 (1) 186 Grande Ronde 2836 (1)	10/03 - 11	9	Any Bull	Early Muzzleloader Permit Hunts (EM)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	Elk Area 1018 Dayton 2288 (25) Elk Area 1013 Mountain View 2290 (5) 175 Lick Creek 2291 (10) 145,178 Mayview-Peola 2292 (20) 181 Couse 2293 (30) 154 Blue Creek 2289 (25)	10/03 - 10/09 12/1- 12/31 12/09 - 01/20	8 31 43	Antlerless	Muzzleloader Permit Hunts (EM)
	145. 178 Mayview-Peola (5) 154 Blue Creek 2405 (2) 162 Dayton 2406 (10) 175 Lick Creek 2408 (5)	10/31 -11/08	9	Antlerless	Youth Hunts (EF)
	Elk Area 1040 Ten Forty 2407 (5) 181 Couse 2409 (5) 181 Couse 2410 (5)	10/10 -10/18 08/22 - 08/30 10/01 - 10/10	9 9 9		
	149 Prescott 2501 (3) 154 Blue Creek 2502 (3) 163 Dayton 2503 (3) 178 Peola 2504 (3)	10/31 -11/08	9	Antlerless	65 and Older
	149 Prescott 2602 (3) 154 Blue Creek 2603 (3) 163 Dayton 2604 (3) 178 Peola 2605 (3)	10/31 -11/08	9	Antlerless	Disabilities
2014	162, 166, 169, 172(except Elk Area 1040), 186	09/02 - 09/14	13	Spike bull	Early Archery General (EA)
	145, 149, 154, 163, 175, 178, 181, Elk Areas 1010, 1013			Spike bull or antlerless	
	178	11/20 - 12/08	19	Antlerless	Late Archery General (EA)
	163, Elk Area 1010	12/09 - 01/30	53		
	172 (except Elk Area 1040)	10/04-10/10	7	Spike bull	Early Muzzleloader General (EM)
	145, 149,154, 162, 163, 166, 169, 172(except Elk Area 1040), 175, 178, 181, 186	10/25 - 11/02	9	Spike bull	Modern Firearm General (EF)
	157 Watershed 2005 (45)	10/25 - 11/02	9	3 Pt. Min.	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	4-O Ranch 2095 (1) 4-O Ranch 2096 (1)	09/10 - 09/14 09/17 - 09/21	5	Any bull	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	4-O Ranch 2337 (2) 4-O Ranch 2338 (2)	10/29 - 11/02 11/22 - 11/26	4 4	Antlerless	Elk Hunts Open to Specified Tag Holders EF, EM

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	149 Prescott 2001 (1) 154 Blue Creek 2003 (1) 163, Elk Area 1010 Ten Ten 2007 (1) 178 Peola 2015 (1)	09/22-28	5	Any Bull	Modern Firearm Permit Hunts (EF)
	149 Prescott 2002 (4) 154 Blue Creek 2004 (4) 162 Dayton 2006 (12) 166 Tucannon 2009 (10) Elk Area 1010 Ten Ten 2008 (5) Elk Area 1008 Wenaha West 2010 (9) Elk Area 1009 Wenaha East 2011 (13) Elk Area 1040 Ten Forty 2013 (1) 172 Mountain View 2012 (14) 181 Couse 2017 (3) 175 Lick Creek 2014 (5) 178 Peola 2016 (1) 186 Grande Ronde 2805 (1)	10/20- 11/02	13		
	149 Prescott 2800 (2) 149 Prescott 2801 (2) 149 Prescott 2802 (2) 149 Prescott 2803 (2)	11/03 - 11/16 11/17 - 11/30 12/01 - 12/15 12/16 - 12/31	15 14 15 16	Any Bull	EF,EM EF,EM EF EF
	Elk Area 1040 2804 (2)	10/25 -11/2	9	Spike bull only	EF
	178 Mayview-Peola 2208 (10) 154 Blue Creek 2210 (10)	10/11 - 10/19	9	Antlerless	Modern Firearm Permit Hunts (EF)
	178 Mayview-Peola 2209 (40) 149 Prescott 2211 (20) 154 Blue Creek 2212 (10) 163 & Elk Area 1011 Marengo- Dayton 2213 (75) Elk Area 1013 Mountain View 2214 (10) Elk Area 1016 Dayton 2215 (25) 175 Lick Creek 2216 (15)	10/25 - 11/02	9		
	181 Couse 2217 (30) 181 Couse 2218 (40)	08/23 -09/01 10/01 - 11	10 11	Antlerless	
	149 Prescott 2048 (1) 154 Blue Creek 2049 (2) 162 Dayton 2050 (7) Elk Area 1010 Ten Ten 2051 (3) 166 Tucannon 2052 (8) Elk Area 1008 Wenaha West 2053 (3) Elk Area 1009 Wenaha East 2054 (5) 172 Mountain View 2055 (Except Elk Area 1040) (12) 175 Lick Creek 2057(16) 178 Peola 2058 (3) 181 Couse 2059 (2) 186 Grande Ronde 2824 (1)	09/1 - 19	19	Any Bull	Archery Permit Hunts (EA)
	Elk Area 1040 Ten Forty 2056 (1)	09/13 - 26	14	Any Bull	Archery Permit Hunts (EA)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	Elk Area 1040 Ten Forty 2823 (2)	09/04 - 14	11	Spike Bull only	Archery Permit Hunts (EA)
	Elk Area 1016 Dayton 2266 (15)	09/04 - 16	13	Antlerless	Archery Permit Hunts (EA)
	Elk Area 1040 Ten Forty 2834 (1)	10/1 - 10	10	Spike bull only	Muzzleloader Permit Hunts (EM)
	149 Prescott 2071 (1) 154 Blue Creek 2072 (1) 162 Dayton 2073 (3) Elk Area 1013 Ten Ten 2074 (2) 166 Tucannon 2075 (2) Elk Area 1008 Wenaha West 2076 (2) Elk Area 1009 Wenaha East 2077 (2) 172 Mountain View 2078 (4) Elk Area 1040 Ten Forty 2079 (1) 175 Lick Creek 2080 (1) 178 Peola 2081 (1) 181 Couse 2082 (1) 186 Grande Ronde 2835 (1)	10/01 - 10	10	Any Bull	Early Muzzleloader Permit Hunts (EM)
	Elk Area 1016 Dayton 2287 (15) Elk Area 1013 Mountain View 2289 (5) 175 Lick Creek 2290 (10) 145,178 Mayview-Peola 2291 (20) 181 Couse 2292 (30) 154 Blue Creek 2288 (25)	10/04 - 10/10 12/1- 31 12/09 - 01/20	4 7 31 43	Antlerless	Muzzleloader Permit Hunts (EM)
	162 Dayton 2400 (5) 175 Lick Creek 2401 (5)	10/25 -11/02	9	Antlerless	Youth Hunts (EF)
	149 Prescott 2502 (5) 154 Blue Creek 2503 (5) 163 Dayton 2504 (5) 178 Peola 2505	10/25 -11/02		Antlerless	65 and Older
2013	162, 166, 169, 172, 186	09/03 - 09/15	13	Spike bull	Early Archery General (EA)
	145, 149, 154, 163, 175, 178, 181, Elk Areas 1010, 1013			Spike bull or antlerless	
	178	11/20 - 12/08	19	Antlerless	Late Archery General (EA)
	163, Elk Area 1010	12/09 - 01/30	53		
	172	10/05-10/11	7	Spike bull	Early Muzzleloader General (EM)
	145, 149,154, 162, 163, 166, 169, 172, 175, 178, 181, 186	10/26 - 11/03	9	Spike bull	Modern Firearm General (EF)
	157 Watershed 2005 (45)	10/21 - 11/03	14	3 Pt. Min.	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	4-O Ranch 2092 (2)	09/22 - 09/26	5	Any bull	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	4-O Ranch 2842 (1)	10/30 - 11/03	5	Spike bull	Elk Hunts Open to Specified Tag Holders EA, EF, EM

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	4-O Ranch 2336 (4) 4-O Ranch 2337 (2) 4-O Ranch 2338 (2)	10/04 - 10/07 10/30 - 11/03 11/28 - 12/01	11 5 4	Antlerless	
	149 Prescott 2001 (1) 154 Blue Creek 2003 (1) 163, Elk Area 1010 Ten Ten 2007 (1) 178 Peola 2014 (1)	09/24-28	5	Any Bull	Modern Firearm Permit Hunts (EF)
	149 Prescott 2002 (4) 154 Blue Creek 2004 (4) 162 Dayton 2006 (12) 166 Tucannon 2009 (12) Elk Area 1010 Ten Ten 2008 (5) Elk Area 1008 Wenaha West 2010 (9) Elk Area 1009 Wenaha East 2011 (12) 172 Mountain View 2012 (15) 181 Couse 2016 (1) 175 Lick Creek 2013 (6) 178 Peola 2015 (1) 186 Grande Ronde 2803 (1)	10/21- 11/03	13		
	149 Prescott 2800 (2) 149 Prescott 2801 (2) 149 Prescott 2802 (2)	11/17 - 11/30 12/01 - 12/15 12/16 - 12/31	14 15 16		
	178 Mayview-Peola 2208 (10) 154 Blue Creek 2210 (10)	10/12 - 10/20	9	Antlerless	
	178 Mayview-Peola 2209 (40) 149 Prescott 2211 (20) 154 Blue Creek 2212 (10) 163 & Elk Area 1011 Marengo- Dayton 2213 (75) Elk Area 1013 Mountain View 2214 (10) Elk Area 1016 Dayton 2215 (25) 175 Lick Creek 2216 (15)	10/26 - 11/03	9		
	181 Couse 2217 (30)	10/01 - 11	11	Antlerless	
	149 Prescott 2069 (1) 154 Blue Creek 2070 (1) 162 Dayton 2071 (3) Elk Area 1013 Ten Ten 2072 (2) 166 Tucannon 2073 (2) Elk Area 1008 Wenaha West 2074 (2) Elk Area 1009 Wenaha East 2075 (2) 172 Mountain View 2076 (6) 175 Lick Creek 2077 (1) 178 Peola 2078 (1) 181 Couse 2079 (1) 186 Grande Ronde 2831 (1)	10/01 - 11	11	Any Bull	Early Muzzleloader Permit Hunts (EM)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	Elk Area 1016 Dayton 2287 (15) Elk Area 1013 Mountain View 2289 (5) 175 Lick Creek 2290 (10) 145,178 Mayview-Peola 2291 (20) 181 Couse 2292 (15) 154 Blue Creek 2288 (25)	10/05 - 10/11 12/1 - 31 12/09 - 01/20	4 7 31 43	Antlerless	Muzzleloader Permit Hunts (EM)
	149 Prescott 2047 (2) 154 Blue Creek 2048 (3) 162 Dayton 2049 (7) 166 Tucannon 2051 (8) Elk Area 1010 Ten Ten 2050 (3) Elk Area 1008 Wenaha West 2052 (3) Elk Area 1009 Wenaha East 2053 (5) 172 Mountain View 2054 (11) 175 Lick Creek 2055 (16) 178 Peola 2056 (1) 181 Couse 2057 (1) 186 Grande Ronde 2821 (1)	09/1 - 19	19	Any Bull	Archery Permit Hunts (EA)
	Elk Area 1016 Dayton 2266 (15)	09/04 - 16	13	Antlerless	
	162 Dayton 2400 (5) 175 Lick Creek 2401 (5)	10/26 -11/03	9	Antlerless	Youth Hunts (EF)
	149 Prescott 2502 (5) 154 Blue Creek 2503 (5) 163 Dayton 2504 (5) 178 Peola 2505	10/26 -11/03		Antlerless	65 and Older
2012	162, 166, 169, 172, 186	09/04 - 09/16	13	Spike bull	Early Archery General (EA)
	145, 149, 154, 163, 175, 178, 181, Elk Areas 1010, 1013			Spike bull or antlerless	
	178	11/20 - 12/08	19	Antlerless	Late Archery General (EA)
	163, Elk Area 1010	12/09 - 01/30	53		
	172	10/06-10/12	7	Spike bull	Early Muzzleloader General (EM)
	145, 149,154, 162, 163, 166, 169, 172, 175, 178, 181, 186	10/27 - 11/04	9	Spike bull	Modern Firearm General (EF)
	157 Watershed 2005 (45)	10/27 - 11/04	9	3 Pt. Min.	Elk Hunts Open to Specified Tag Holders EA, EF, EM

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	4-O Ranch 2100 (2) 4-O Ranch 2101 (1)	09/22 - 09/28 11/09 - 11/12	5 4	Any bull	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	4-O Ranch 2837 (1)	10/31 - 11/04	5	Spike bull	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	149 Prescott 2001 (1) 154 Blue Creek 2003 (1) 163, Elk Area 1010 Ten Ten 2007 (1) 178 Peola 2014 (1)	09/24-28	5	Any Bull	Modern Firearm Permit Hunts (EF)
	149 Prescott 2002 (4) 154 Blue Creek 2004 (5) 162 Dayton 2006 (26) 166 Tucannon 2009 (14) Elk Area 1010 Ten Ten 2008 (12) Elk Area 1008 Wenaha West 2010 (15) Elk Area 1009 Wenaha East 2011 (21) 172 Mountain View 2012 (20) 181 Couse 2016 (3) 175 Lick Creek 2013 (10) 178 Peola 2015 (2) 186 Grande Ronde 2803 (1)	10/22- 11/04	13		
	149 Prescott 2800 (2) 149 Prescott 2801 (2) 149 Prescott 2802 (2)	11/17 - 11/30 12/01 - 12/15 12/16 - 12/31	14 15 16		
	178 Mayview-Peola 2208 (10) 154 Blue Creek 2210 (10)	10/13 - 10/21	9	Antlerless	
	178 Mayview-Peola 2209 (40) 149 Prescott 2211 (20) 154 Blue Creek 2212 (25) 163 & Elk Area 1011 Marengo-Dayton 2213 (75) Elk Area 1013 Mountain View 2214 (5) Elk Area 1016 Dayton 2215 (40) 175 Lick Creek 2216 (15)	10/27 - 11/04	9		
	181 Couse 2217 (30)	10/02 -10/12	11	Antlerless	
	4-O Ranch 2336 (4) 4-O Ranch 2337 (2) 4-O Ranch 2338 (2)	10/05 -10/08 10/31 -11/04 11/29 -12/02	4 5 4	Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	154 Blue Creek 2076 (1) 162 Dayton 2077 (5) Elk Area 1010 Ten Ten 2078 (6) 166 Tucannon 2079 (3) Elk Area 1008 Wenaha West 2080 (3) Elk Area 1009 Wenaha East 208175 (3) 172 Mountain View 2082 (8) 175 Lick Creek 2083 (2) 178 Peola 2084 (1) 181 Couze 2085 (1)	10/01 - 12	12	Any Bull	Early Muzzleloader Permit Hunts (EM)
	Elk Area 1016 Dayton 2288 (25) Elk Area 1013 Mountain View 2290 (5) 175 Lick Creek 2291 (10) 145,178 Mayview-Peola 2292 (20) 181 Couze 2293 (30) 181 Couze 2294 (30) 154 Blue Creek 2289 (40)	10/06 - 10/12 12/1- 12/31 01/01- 01/20 12/09 - 01/20	7 31 20 43	Antlerless	Muzzleloader Permit Hunts (EM)
	149 Prescott 2050 (2) 154 Blue Creek 2051 (3) 162 Dayton 2052 (14) 166 Tucannon 2054 (8) Elk Area 1010 Ten Ten 2053 (8) Elk Area 1008 Wenaha West 2055 (5) Elk Area 1009 Wenaha East 2056 (11) 172 Mountain View 2057 (11) 175 Lick Creek 2058 (11) 178 Peola 2059 (1) 181 Couze 2060 (1)	09/1 - 19	19	Any Bull	Archery Permit Hunts (EA)
	Elk Area 1016 Dayton 2266 (20)	09/04 - 16	13	Antlerless	
	149 Prescott 2502 (5) 154 Blue Creek 2503 (5) 163 Dayton 2504 (10) 174 Lick Creek 2505 (5) 178 Peola 2506 (5)	10/27 -11/04		Antlerless	65 and Older
2011	162, 166, 169, 172, 186	09/06 - 09/18	13	Spike bull	Early Archery General (EA)
	145, 149, 154, 163, 175, 178, 181, Elk Areas 1010, 1013			Spike bull or antlerless	
	178	11/23 - 12/08	16	Antlerless	Late Archery General (EA)
	163, Elk Area 1010	12/09 - 01/20	43		
	172	10/01-10/07	7	Spike bull	Early Muzzleloader General (EM)
	145, 149,154, 162, 163, 166, 169, 172, 175, 178, 181, 186	10/29 - 11/06	9	Spike bull	Modern Firearm General (EF)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	157 Watershed 2005 (45)	10/30 - 11/07	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	Grand Ronde Vista East A 2101 (2)	10/01-04	4	Any bull	Any elk tag
	Grand Ronde Vista West A 2102 (1)	09/27- 30	4		
	Grand Ronde Vista West B 2103 (1)	10/01-04	4		
	Grand Ronde Vista East B 2837 (1)	11/12 - 15	4		
	Grand Ronde Vista East C 2838 (1)	11/03 – 7	4		
	Grand Ronde Vista East D 2324 (4)	11/03 – 7	4		
	Grand Ronde Vista East E 2325 (2)	11/26 -12/2	7		
	Grand Ronde Vista East F 2326 (2)	12/03 - 09	7		
	Grand Ronde Vista East G 2327 (2)	12/10 - 16	7		
	Grand Ronde Vista East H 2328 (2)	12/17 – 23	7		
	Grand Ronde Vista East I 2329 (2)	12/31 - 01/06	7		
	Grand Ronde Vista East J 2330 (2)	01/07 - 13	7		
	Grand Ronde Vista East J 2330 (2)	01/14 - 20	7		
	Grand Ronde Vista East K 2331 (2)	01/21 - 27	7		
	Grand Ronde Vista East L 2332 (2)				
	149 Prescott 2001 (1)	09/20-23	4	Any Bull	Modern Firearm Permit Hunts (EF)
	149 Prescott 2002 (2)	10/24- 11/06	14		
	154 Blue Creek 2004 (6)				
	162 Dayton 2006 (17)				
	GMU 166 Tucannon 2009 (13)				
	163, Elk Area 1010 Ten Ten 2008 (14)				
	Elk Area 1008 Wenaha West 2008 (13)				
	Elk Area 1009 Wenaha East 2009 (16)				
	172 Mountain View 2013 (13)				
	181 Couse 2017 (2)				
	175 Lick Creek 2014 (1)				
	178 Peola 2016 (1)				
	186 Grande Ronde 2802 (1)				
	154 Blue Creek 2003 (1)	09/21-25	5	Any Bull	Modern Firearm Permit Hunts (EF) [Continued]
	163, Elk Area 1010 Ten Ten 2007 (1)				
	Elk Area 1013 Ten Thirteen 2012 (1)				
	172 Mountain View 2010 (1)				
	178 Peola 2015 (1)				
	149 Prescott 2800 (1)	12/01 - 15	15	Any Bull	
	149 Prescott 2801 (1)	12/16 -31	16		

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	145, 178 Mayview-Peola 2206 (50) 149 Prescott 2207 (20) 154 Blue Creek 2208 (35) Elk Area 1012 Dayton 2209 (50) 163 & Elk Area 1011 Marengo-Dayton 2210 (40) Elk Area 1013 Mountain View 2211 (5) Elk Area 1016 Dayton 2212 (40) 175 Lick Creek 2213 (15) 149 Prescott 2502 (5) 154 Blue Creek 2503 (5) 163, Elk Area 1016 Dayton 2504 (10) 175 Lick Creek 2505 (5) 178 Peola 2506 (5)	10/29 - 11/06	9	Antlerless	
	181 Couse 2214 (30)	10/04 - 15	12	Antlerless	
	149 Prescott 2076 (1) 154 Blue Creek 2077 (2) 162 Dayton 2078 (6) 163, Elk Area 1013 Ten Thirteen 2079 (3) 166 Tucannon 2080 (3) Elk Area 1008 Wenaha West 2081 (2) Elk Area 1009 Wenaha East 2082 (2) 172 Mountain View 2083 (4) 175 Lick Creek 2084 (1) 178 Peola 2085 (1) 181 Couse 2086 (1) 186 Grande Ronde 2827 (1)	10/01 - 14	14	Any Bull	Early Muzzleloader Permit Hunts (EM)
	154 Blue Creek 2278 (50) Elk Area 1016 Dayton 2277 (25) Elk Area 1013 Mountain View 2279 (5) 175 Lick Creek 2280 (10) 145,178 Mayview-Peola 2281 (20)	12/09 - 01/20 10/01 - 09	43 9	Antlerless	Late Muzzleloader Permit Hunts (EM)
	181 Couse 2282 (30) 181 Couse 2283 (30)	12/1- 31 01/01 - 20	31 20		
	149 Prescott 2051 (2) 154 Blue Creek 2052 (4) 162 Dayton 2053 (7) 166 Tucannon 2055 (7) Elk Area 1008 Wenaha West 2056 (4) Elk Area 1008 Wenaha East 2057 (6) 172 Mountain View 2058 (8) 175 Lick Creek 2059 (3) 178 Peola 2060 (1) 181 Couse 2061 (1)	09/1 - 19	19	Any Bull	Archery Permit Hunts (EA)
	186 Grande Ronde 2819 (1)	09/06 - 19	14		
	Elk Area 1016 Dayton 2261 (20)	09/01 - 19	19	Antlerless	

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
2010	162, 166, 169, 172, 186	09/07 - 09/19	13	Spike bull	Early Archery General (EA)
	145, 149, 154, 163, 175, 178, 181, Elk Areas 1010, 1013			Spike bull or antlerless	
	178	11/24 - 12/08	15	Antlerless	Late Archery General (EA)
	163, Elk Area 1010	12/09 - 01/30	53		
	172	10/02-10/08	7 7	Spike bull	Early Muzzleloader General (EM)
	145, 149, 154, 162 -186	10/30 - 11/07	9	Spike bull	Modern Firearm General (EF)
		10/30 - 11/07	9		
		10/30 -11/15	17		
	157 Watershed 2005 (45)	10/30 - 11/07	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	149 Prescott 2001 (1)	09/21-25	5	Any Bull	Modern Firearm Permit Hunts (EF)
	154 Blue Creek 2004 (6) 162 Dayton 2006 (30) GMU 166 Tucannon 2007 (9) Elk Area 1008 Wenaha West 2008 (10) Elk Area 1008 Wenaha East 2009 (12) 172 Mountain View 2011 (11) 181 Couse 2015 (2) 175 Lick Creek 2012 (1) 178 Peola 2014 (4) 186 Grande Ronde 2016 (1)	10/25- 11/07	14		
	149 Prescott 2002 (1) 154 Blue Creek 2003 (1) 172 Mountain View 2010 (1) 178 Peola 2013 (1)	09/21-25	5	Any Bull	
	149 Prescott 2100 (1) 149 Prescott 2101 (1)	12/01 - 15 12/16 -31	15 16	Any Bull	
145 Mayview 2206 (30) 149 Prescott 2207 (20) 154 Blue Creek 2208 (50) Elk Area 1012 Dayton 2209 (50) 163 & Elk Area 1011 Marengo- Dayton 2210 (50) Elk Area 1013 Mountain View 2211 (15) Elk Area 1016 Dayton 2212 (75) 175 Lick Creek 2213 (25) 178 Peola 2214 (30)	10/30 - 11/07	9	Antlerless	Modern Firearm Permit Hunts (EF) [Continued]	
181 Couse B (30)	10/04 - 15	12			

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	149 Prescott 2074 (2) 154 Blue Creek 2075 (2) 162 Dayton 2076 (6) 166 Tucannon 2077 (2) Elk Area 1008 Wenaha West 2078 (2) Elk Area 1009 Wenaha East 2079 (3) 172 Mountain View 2080 (3) 175 Lick Creek 2081 (1) 178 Peola 2082 (6) 181 Couse 2083 (1) 186 Grande Ronde 2084 (1)	10/01 - 15	15	Any Bull	Early Muzzleloader Permit Hunts (EM)
	154 Blue Creek 2283 (40) Elk Area 1016 Dayton 2282 (25) Elk Area 1013 Mountain View 2284 (10) 175 Lick Creek 2285 (15) 178 Peola 2286 (30) 181 Couse 2287 (30) 181 Couse 2288 (30)	12/09 - 01/20 10/02 - 08 12/1- 31 01/01 - 20	43 7 31 20	Antlerless	Late Muzzleloader Permit Hunts (EM)
	149 Prescott 2048 (5) 154 Blue Creek 2049 (4) 162 Dayton 2050 (14) 166 Tucannon 2051 (4) Elk Area 1008 Wenaha West 2052 (4) Elk Area 1008 Wenaha East 2053 (3) 172 Mountain View 2054 (6) 175 Lick Creek 2055 (1) 178 Peola 2056 (2) 181 Couse 2057 (1) 186 Grande Ronde 2058 (1) Elk Area 1016 Dayton 2263 (25)	09/1 - 19	19	Any Bull Antlerless	Early Archery Permit Hunts (EA)
2009	145, 162, 166-172, 181, 186 149, 154, 163, 175, 178, Elk Areas 1010, 1013	09/08 - 09/20	13	Spike bull Spike bull or antlerless	Early Archery General (EA)
	178 163, Elk Area 1010	11/25 - 12/08 12/09 - 01/30	14 53	Antlerless	Late Archery General (EA)
	172	10/03-10/09	7	Spike bull	Early Muzzleloader General (EM)
	145 -154, 162 -186	10/31 - 11/08	9		Modern Firearm General (EF)
	157 Watershed (45)	10/31 - 11/08	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	149 Prescott A (3) 154 Blue Creek A (4) 162 Dayton A (21) Elk Area 1014 Tucannon A (7) Elk Area 1008 Wenaha West A (14) Elk Area 1008 Wenaha East A (9) 172 Mountain View A (12) 181 Couse A (1) 175 Lick Creek A (1) 178 Peola A (1)	10/28 - 11/08	14	Any Bull	Modern Firearm Permit Hunts (EF)
	149 Prescott B (1) 154 Blue Creek B (1) 162 Dayton B (1) Elk Area 1014 Tucannon B (1) Elk Area 1008 Wenaha West B (1) Elk Area 1008 Wenaha East B (1) 172 Mountain View B (1)	09/21-25	5		
	149&154 Blue Creek C (25) 149 Prescott C (30) 163, Elk Area 1011 Dayton C (50) 149, Elk Area 1012 Dayton D (50) Elk Area 1016 Dayton E (75) 175 Lick Creek B (25) 178 Peola B (30) Elk Area 1013 Mountain View C (10)	10/31 - 11/08	9	Antlerless	
	181 Couse B (30)	10/01 - 12	12		
	149 Prescott D (1) 154 Blue Creek D (2) 162 Dayton F (4) Elk Area 1014 Tucannon C (1) Elk Area 1008 Wenaha West C (3) Elk Area 1008 Wenaha East C (1) 172 Mountain View D (3) 175 Lick Creek C (1) 178 Peola C (1) 181 Couse C (1)	10/01 - 14	14	Any Bull	
	149, 154 Blue Creek E (40) Elk Area 1016 Dayton G (25) Elk Area 1013 Mountain View E (10) 175 Lick Creek D (15) 178 Peola D (15)	12/09 - 01/20 10/03 - 11	43 9	Antlerless	Late Muzzleloader Permit Hunts (EM)
	181 Couse E (30) 181 Couse F (30)	12/1- 31 01/01 - 20	31 20		

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	149 Prescott E (2) 154 Blue Creek F (4) 162 Dayton H (8) Elk Area 1014 Tucannon D (3) Elk Area 1008 Wenaha West D (3) Elk Area 1008 Wenaha East D (3) 172 Mountain View F (7) 175 Lick Creek E (1) 178 Peola D (1) 181 Couse F (1) Elk Area 1016 Dayton I (25)	09/8 - 20	13	Any Bull Antlerless	Early Archery Permit Hunts (EA)
2008	145, 162, 166-172, 181, 186	09/08 - 09/21	14	Spike bull	Early Archery General (EA)
	149 154, 163, 175, 178, Elk Areas 1010, 1013			Spike bull or antlerless	
	178	11/20 - 12/08	19	Antlerless	Late Archery General (EA)
	163, Elk Area 1010	12/09 - 01/20	43		
	172	10/04-10/10	7	Spike bull	Early Muzzleloader General (EM)
	145 -154, 162 -186	10/25 - 11/02	9	Spike bull	Modern Firearm General (EF)
	157 Watershed (45)	10/25 - 11/02	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	149 Prescott A (3) 154 Blue Creek A (4) 162 Dayton A (21) Elk Area 1014 Tucannon A (6) Elk Area 1008 Wenaha West A (15) Elk Area 1008 Wenaha East A (15) 172 Mountain View A (16) 181 Couse A (1)	10/20 - 11/02	14	Any Bull	Modern Firearm Permit Hunts (EF)
	149&154 Blue Creek B (75) 149 Prescott B (75) 163, Elk Area 1011 Dayton B (100) 149, Elk Area 1012 Dayton C (100) 178 Peola (50) Elk Area 1013 Mountain View B (30)	10/25 - 11/02	9	Antlerless	
	181 Couse B (30)	10/01 - 12	12		
149 Prescott C (1) 154 Blue Creek C (2) 162 Dayton D (4) Elk Area 1014 Tucannon B (1) Elk Area 1008 Wenaha West B (3) Elk Area 1008 Wenaha East B (3) 172 Mountain View C (4) 178 Peola C (1) 181 Couse D (1)	10/01 - 10	10	Any Bull	Early Muzzleloader Permit Hunts (EM)	

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	149, 154 Blue Creek D (40) Elk Area 1013 Mountain View D (10)	12/09 - 01/31 10/01 - 12	54 12	Antlerless	Late Muzzleloader Permit Hunts (EM)
	181 Couse E (30) 181 Couse F (30)	12/1- 31 01/01 - 30	31 30		
	149 Prescott D (2) 154 Blue Creek E (4) 162 Dayton E (8) Elk Area 1014 Tucannon C (3) Elk Area 1008 Wenaha West C (3) Elk Area 1008 Wenaha East C (3) 172 Mountain View E (7) 181 Couse G (1)	09/8 - 21	14	Any Bull	Early Archery Permit Hunts (EA)
2007	145, 162, 166-172, 181, 186	09/08 - 09/21	14	Spike bull	Early Archery General (EA)
	149 154, 163, 175, 178, Elk Areas 1010, 1013			Spike bull or antlerless	
	178	11/20 - 12/08	19	Antlerless	Late Archery General (EA)
	163, Elk Area 1010	12/09 - 01/30	53		
	172	10/06 - 10/12	7	Spike bull	Early Muzzleloader General (EM)
	145 -154, 162 -186	10/27 - 11/04	9	Spike bull	Modern Firearm General (EF)
	157 Watershed (45)	10/27 - 11/04	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	149 Prescott A (2) 154 Blue Creek A (2) 162 Dayton A (13) Elk Area 1014 Tucannon A (4) 169 Wenaha A (17) 172 Mountain View A (6) 181 Couse A (1)	10/22 - 11/04	14	Any Bull	Modern Firearm Permit Hunts (EF)
	149&154 Blue Creek B (100) 149 Prescott B (75) 163, Elk Area 1011 Dayton B (100) 149, Elk Area 1012 Dayton C (100) 178 Peola (50) Elk Area 1013 Mountain View B (20) 175 Lick Creek A (25)	10/29 - 11/06	9	Antlerless	
	181 Couse B (30)	10/01 - 12	12		
	149 Prescott C (1) 154 Blue Creek C (1) 162 Dayton D (2) Elk Area 1014 Tucannon B (1) 169 Wenaha B (3) 172 Mountain View C (2) 181 Couse D (1)	10/01 - 10	10	Any Bull	Early Muzzleloader Permit Hunts (EM)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	149, 154 Blue Creek D (60) Elk Area 1013 Mountain View D (20) 175 Lick Creek B (25)	12/09 - 01/31 10/01 - 12 10/01 - 10	54 12 10	Antlerless	Late Muzzleloader Permit Hunts (EM)
	181 Couse E (30) 181 Couse F (30)	12/1- 31 01/01 - 30	31 30		
	149 Prescott D (1) 154 Blue Creek E (2) 162 Dayton E (7) Elk Area 1014 Tucannon C (3) 169 Wenaha C (4) 172 Mountain View E (3) 181 Couse G (1)	09/8 – 21	14	Any Bull	Early Archery Permit Hunts (EA)
2006	145, 162, 166-172, 181, 186	09/08-09/21	14	Spike bull	Early Archery General (EA)
	149 154, 175, 178, Elk Areas 1010, 1012, 1013			Spike bull or antlerless	
	178	11/20-12/08	19	Antlerless	Late Archery General (EA)
	163, Elk Area 1010	12/09 - 01/30	53		
	172	10/07-10/13	7	Spike bull	Early Muzzleloader General (EM)
	145 -154, 162 -186	10/28-11/05	9	Spike bull	Modern Firearm General (EF)
	157 Watershed (40)	10/28-11/05	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	149 Prescott A (2) 154 Blue Creek A (2) 162 Dayton A (12) Elk Area 1014 Tucannon A (2) 169 Wenaha A (14) 172 Mountain View A (4) 181 Couse A (1)	10/23 - 11/05	14	Any Bull	Modern Firearm Permit Hunts (EF)
	149&154 Blue Creek B (100) 149 Prescott B (75) 163, Elk Area 1011 Dayton B (200) 149, Elk Area 1012 Dayton C (100) 178 Peola (50) Elk Area 1013 Mountain View B (60) 175 Lick Creek A (25)	10/29 - 11/06	9	Antlerless	
	181 Couse B (25) 181 Couse C (25)	08/27 - 09/07 10/01 - 10	12 10		
	149 Prescott C (1) 154 Blue Creek C (1) 162 Dayton D (3) Elk Area 1014 Tucannon B (1) 169 Wenaha B (2) 172 Mountain View C (1) 181 Couse D (1)	10/01 - 10	10	Any Bull	Early Muzzleloader Permit Hunts (EM)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	149, 154 Blue Creek D (60) Elk Area 1013 Mountain View D (25) 175 Lick Creek B (25)	12/09 - 01/31 10/01 - 10	54 10	Antlerless	Late Muzzleloader Permit Hunts (EM)
	181 Couse E (50) 181 Couse F (50)	12/1- 31 01/01 - 30	31 30		
	149 Prescott C (1) 154 Blue Creek E (1) 162 Dayton E (4) Elk Area 1014 Tucannon C (1) 169 Wenaha C (3) 172 Mountain View E (2) 181 Couse G (1)	09/8 - 21	14	Any Bull	Early Archery Permit Hunts (EA)
2005	145,149, 162-172, 178-186	09/08-09/21	14	Spike bull	Early Archery General (EA)
	154, 175, Elk Areas 1010, 1012, 1013	09/08-09/21	14	Spike bull or antlerless	
	178, 186	11/20-12/08	19	Antlerless	Late Archery General (EA)
	172	10/01-10/07	7	Spike bull	Early Muzzleloader General (EM)
	145 -154, 162 -186	10/29-11/06	9	Spike bull	Modern Firearm General (EF)
	157 Watershed (40)	10/24-11/06	14	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	154 Blue Creek A (2) 162 Dayton A (7) Elk Area 1014 Tucannon A (2) 169 Wenaha A (5) 172 Mountain View A (3) 181 Couse A (1)	10/24 - 11/06	14	Any Bull	Modern Firearm Permit Hunts (EF)
	149&154 Blue Creek B (100) 163, Elk Area 1011 Dayton B (200) 149, Elk Area 1012 Dayton C (100) 178 Peola (50) Elk Area 1013 Mountain View B (60) 175 Lick Creek A (25)	10/29 - 11/06	9	Antlerless	
	181 Couse B (25) 181 Couse C (25)	08/27 -09/07 10/01 - 10	12 10		
	154 Blue Creek C (1) 162 Dayton D (1) Elk Area 1014 Tucannon B (1) 169 Wenaha B (1) 172 Mountain View C (1) 181 Couse D (1)	10/01 - 10	10	Any Bull	Early Muzzleloader Permit Hunts (EM)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	149, 154 Blue Creek C (60) 163, Elk Area 1011 Columbia A (100) 163, Elk Area 1011 Columbia B (100) 149, Elk Area 1012 Columbia C (60) Elk Area 1013 Mountain View D (25) 175 Lick Creek B (25)	12/09 - 01/31 12/01 - 31 01/01 - 31 12/20 - 01/31 10/01 - 10 10/01 - 10	54 31 31 43 10 10	Antlerless	Late Muzzleloader Permit Hunts (EM)
	154 Blue Creek D (1) 162 Dayton E (6) Elk Area 1014 Tucannon C (2) 169 Wenaha C (2) 172 Mountain View E (3) 181 Couse E (1)	09/8 - 21	14	Any Bull	Early Archery Permit Hunts (EA)
2004	145,149, 162-172, 178-186	09/08-09/21	14	Spike bull	Early Archery General (EA)
	154, 175, Elk Areas 1010, 1012, 1013	09/08-09/21	14	Spike bull or antlerless	
	178, 186	11/20-12/08	19	Antlerless	Late Archery General (EA)
	172	10/02-10/08	7	Spike bull	Early Muzzleloader General (EM)
	145 -154, 162 -186	10/30-11/07	9	Spike bull	Modern Firearm General (EF)
	157 Watershed (40)	10/30-11/07	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	154 Blue Creek A (3) 162 Dayton A (3) 169 Wenaha A (4) 172 Mountain View A (5)	10/25 - 11/07	14	Any Bull	Modern Firearm Permit Hunts (EF)
	149&154 Blue Creek B (100) 163, Elk Area 1011 Dayton B (200) 149, Elk Area 1012 Dayton C (75) 181 Couse A (25) 181 Couse B (25) Elk Area 1013 Mountain View B (50) 175 Lick Creek A (25)	10/30 - 11/07	9	Antlerless	
	154 Blue Creek C (1) 162 Dayton D (1) 169 Wenaha B (1) 172 Mountain View C (2)	10/01 - 10	11	Any Bull	Early Muzzleloader Permit Hunts (EM)
	149, 154 Blue Creek C (60) 163, Elk Area 1011 Columbia A (100) 163, Elk Area 1011 Columbia B (100) 149, Elk Area 1012 Columbia C (60) Elk Area 1013 Mountain View D (20) 175 Lick Creek B (25)	12/09 - 01/31 12/01 - 31 01/01 - 31 12/20 - 01/31 10/02 - 08 10/01 - 10	54 31 31 43 7 11	Antlerless	Late Muzzleloader Permit Hunts (EM)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	154 Blue Creek D (2) 162 Dayton E (3) 169 Wenaha C (2) 172 Mountain View C (6)	09/8 – 21	14	Any Bull	Early Archery Permit Hunts (EA)
2003	145,149, 162-186	09/08-09/21	14	Spike bull	Early Archery General (EA)
	154, Elk Area 1010	09/08-09/21	14	Spike bull or antlerless	
	178, 186	11/20-12/08	19	Any elk	Late Archery General (EA)
	172	10/04-10/10 10/04-10/10	7 7	Spike bull	Early Muzzleloader General (EM)
	145 -154, 162 -186	10/25-11/02	9	Spike bull	Modern Firearm General (EF)
	157 Watershed (40)	11/01-09	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	169 Wenaha A (5) 172 Mountain View A (4)	10/25 - 11/02	9	Any Bull	Modern Firearm Permit Hunts (EF)
	149&154 Blue Creek A (100) 163, Elk Area 1011 Dayton A (200) 149, Elk Area 1012 Dayton B (75)	10/25 - 11/02	9	Antlerless	
	169 Wenaha B (1) 172 Mountain View B (1)	10/25 - 11/02	11	Any Bull	Early Muzzleloader Permit Hunts (EM)
	149, 154 Blue Creek B (60) 163, Elk Area 1011 Columbia A (100) 163, Elk Area 1011 Columbia B (100) 149, Elk Area 1012 Columbia C (60)	12/01 - 01/31 12/01 – 31 01/01 – 31 12/20 - 01/31	62 31 31 43	Antlerless	Late Muzzleloader Permit Hunts (EM)
	169 Wenaha C (2) 172 Mountain View C (4)	09/8 – 21	14	Any Bull	Early Archery Permit Hunts (EA)
2002	145-149, 163-186	09/01 - 09/14	14	Spike bull	Early Archery General (EA)
	154, 162 excluding National Forest and Rainwater Wildlife Area	09/01 - 09/14	14	Spike bull or antlerless	
	178	11/20 - 12/08	19	Antlerless Only	Late Archery General (EA)
	172	10/05 - 10/11	7	Spike bull	Early Muzzleloader General (EM)
	145-154, 162 -186	10/26 - 11/03	9	Spike bull	Modern Firearm General (EF)
	157 Watershed (40)	10/26 - 11/03	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	149&154 Blue Creek E (100) 162 & 163 [#] Dayton A (200) 162 & 163 [*] Dayton B (50)	10/26 - 11/03	9	Antlerless	Elk Hunts Open to Specified Tag Holders EF, EM
	154 Blue Creek A (3) 169 Wenaha A (5) 172 Mountain View A (5) 181 Couse A (1)	10/21 - 11/03	13	Any Bull	Modern Firearm Permit Hunts (EF)
	154 Blue Creek B (1) 169 Wenaha C (1) 172 Mountain View B (1) 181 Couse B (1)	10/01 - 11	11	Any Bull	Early Muzzleloader Permit Hunts (EM)

YEAR	GMU and Hunt Name (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
	154 Blue Creek C (60) 162* & 163 Columbia A (100) 162* & 163 Columbia B (100) 162* Columbia C (50) 181 Couse C (25) 181 Couse D (25)	12/01 - 01/31 12/01 - 31 01/01 - 31 12/20 - 01/31 12/01 - 31 01/01 - 31	62 31 31 43 31 31	Antlerless	Late Muzzleloader Permit Hunts (EM)
	154 Blue Creek D (2) 169 Wenaha D (2) 172 Mountain View C (5) 181 Couse F (1)	09/1 - 14	14	Any Bull	Early Archery Permit Hunts (EA)

#That part of GMU 162 (east of the N. Touchet Rd) and 163 excluding National Forest and the Rainwater Wildlife Area. *That part of GMU 162 west of North Touchet Rd, excluding National Forest. Mostly private land, winter closures in GMU 162.

2001	145-154, 162-186	09/01 - 09/14	14	Spike bull	Early Archery General (EA)
	178	11/21 - 12/08	16	Antlerless Only	Late Archery General (EA)
	172	10/06 - 10/12	7	Spike bull	Early Muzzleloader General (EM)
	145-154, 162 -186	10/27 - 11/04	9	Spike bull	Modern Firearm General (EF)
	157 Watershed (40)	10/27 - 11/04	9	3 Pt. Min. or Antlerless	Elk Hunts Open to Specified Tag Holders EA, EF, EM
	149&154 Blue Creek E (50) 162 & 163# Dayton D (100)	10/27 - 11/04	9	Antlerless	Elk Hunts Open to Specified Tag Holders EF, EM
	154 Blue Creek A (3) 162 Dayton A (6) 166 ^o Tucannon A (2) 169 Wenaha A (5) 172 Mountain View A (8) 181 Couse A (1) 186 Grande Ronde A (1)	10/22 - 11/04	13	Any Bull	Modern Firearm Permit Hunts (EF)
	154 Blue Creek B (1) 162 Dayton B (1) 166 Tucannon B (1) 169 Wenaha C (1) 172 Mountain View B (1) 181 Couse B (1) 186 Grande Ronde B (1)	10/01 - 12	12	Any Bull	Early Muzzleloader Permit Hunts (EM)
	154 Blue Creek C (60) 162 & 163 ^o Columbia A (50) 162 & 163 ^o Columbia B (50) 181 Couse C (25) 181 Couse D (25)	12/01 - 01/31 12/01 - 31 01/01 - 31 12/01 - 31 01/01 - 31	62 31 31 31 31	Antlerless	Late Muzzleloader Permit Hunts (EM)
	154 Blue Creek D (2) 162 Dayton C (4) 166 Tucannon C (1) 169 Wenaha D (2) 172 Mountain View C (6) 181 Couse F (1) 186 Grande Ronde C (1)	09/1 - 14	14	Any Bull	Early Archery Permit Hunts (EA)

@ W of Tucannon River, #That part of GMUs 162 and 163 excluding National Forest and the Rainwater Wildlife Area. o That part of GMU 162 east of North Touchet Rd, excluding National Forest. Mostly private land, winter closures in GMU 162.

Washington State Elk Herd Plan
BLUE MOUNTAINS ELK HERD



Washington
Department of
**FISH and
WILDLIFE**

