Review of Oregon's Mule Deer and Elk Management Objectives

2016

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INTRODUCTION

Management Objectives:

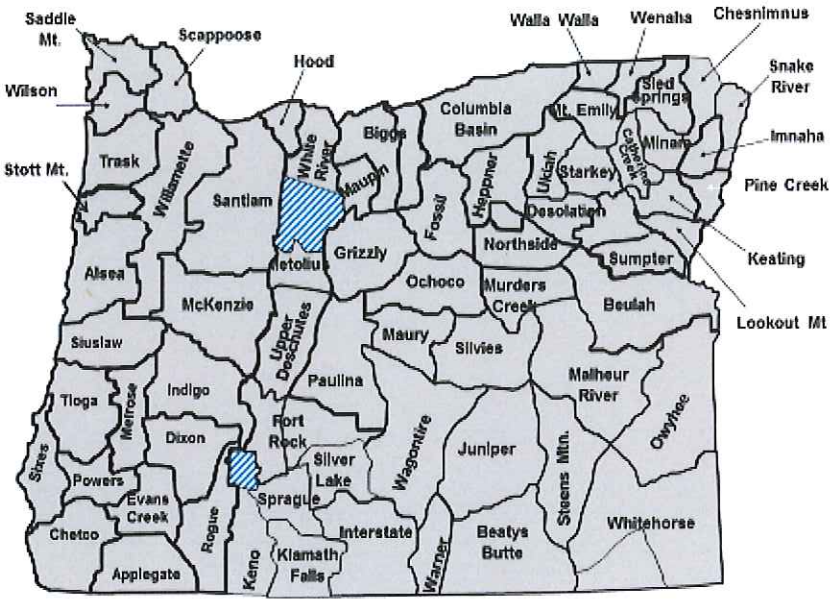
The Department uses two types of Management Objectives (MOs) for mule deer and elk. Population MOs are the number of deer and/or elk the Department strives to maintain in each wildlife management unit (WMU) (Figure 1). Population MOs represent the desired winter population size based on surveys conducted when animals are on their winter range. It is important to note that animals from more than one WMU may share winter ranges and may not be hunted in the same WMU in which they are surveyed. The second type of MO is post hunting season ratio of bucks/100 does (buck ratio) or bulls/100 cows (bull ratio). Annual herd composition information such as buck and bull ratios are used to monitor the adult male component of the population. Fawn and calf ratios are used to estimate recruitment and in population modeling. However, without very large scale habitat manipulation or predator control, it is not possible to manage fawn and calf ratios. Therefore, no management objectives have been established for fawn or calf ratios.

MOs give the Department specific points of reference to use in evaluating the success of deer and elk management programs. When MOs are achieved they provide the public a variety of viewing and hunting opportunities. Management strategies are designed to maintain population parameters near MOs. In addition, MOs and population estimates provide land management agencies information to use in making land management decisions.

The Oregon Fish and Wildlife Commission (Commission) adopted minimum post-season buck ratios and population MOs for mule deer in each WMU in 1982. The first Mule Deer Plan was written and adopted in 1990 to guide mule deer management in Oregon. At that time, buck ratio MOs were revised from minimum post season ratios to a range of desired ratios that would provide a variety of hunting opportunities across eastern Oregon. The plan also identified several issues of concern pertaining to future management of mule deer populations. The Mule Deer Plan was revised in 2003 and MOs were revised shortly afterward in 2005.

There are no MOs established for WMUs with black-tailed deer. Due to the habitat conditions in which black-tails live, a methodology to consistently survey and estimate herd composition and population size has not been developed. Herd composition data is collected and is used to follow trends in ratios. Currently the Department's biologists are researching a new methodology to estimate the population size. If this methodology proves applicable and reliable, MOs may be developed in the future.

Figure 1. Wildlife Management Units in Oregon



The Commission first adopted MOs for elk in most of eastern Oregon in 1981 and then adopted MOs for all eastern Oregon WMUs in 1986. The first Elk Management Plan was completed in 1992. Shortly thereafter MOs for elk were adopted for all of Oregon in 1994 except for the Alsea and Snake River WMU. The Elk Management Plan was revised in 2003; MOs were subsequently reviewed, revised and adopted in 2005 including the Alsea and Snake River WMUs.

The population MOs developed within these plans are enabled in statute, (ORS 496.146 (16)) which states "May adopt optimum populations for deer and elk consistent with ORS 496.012. These population levels shall be reviewed at least once every five years." MOs can be reviewed sooner if new information determines that the current objective is inaccurate, does not meet management needs or is not compatible with public values.

Factors Considered to Set MOs

A variety of factors are considered when determining MOs for deer or elk. How each factor influences the final MO varies by species and the unique circumstances and characteristics of each population. The primary consideration for each MO is the department's statutory obligation to: prevent the serious depletion of indigenous wildlife; provide optimum recreational and aesthetic benefits; and, maintain populations at levels compatible with primary uses of the land. In areas where deer and elk winter primarily on private lands, damage to private property is a critical factor influencing MOs.

Habitat availability and carrying capacity factor into developing MOs, as well. However, both habitat availability and carrying capacity are not static and continually change. MOs are not set to maximize the population to the carrying capacity of an area. Carrying capacity is the maximum number of animals an area can support and is usually determined by a combination of food availability on summer and winter ranges. Habitat factors that affect carrying capacity

include condition of summer and winter range, cover, forest and range management practices, and the loss of habitat due to human development.

Social tolerance is a subjective measure of how many animals the human population in a specific WMU will accept. When wildlife interacts with humans in a manner that is destructive to private property such as yards, gardens, fences, or agricultural or forest crops, a reduction of the local deer or elk population is one alternative. MOs must take into consideration the limits of public tolerance, balancing population levels with other wildlife values such as viewing and hunting.

Trends in population parameters are used to evaluate population status relative to established MOs. The numbers used to determine population status of deer and elk are not arrived at through a count of all individuals in the population. Instead, population estimates are based on survey data acquired using population-sampling techniques. Department staff monitors populations over time to establish long-term trends.

For the 2016 review, district biologist along with the wildlife division reviewed and proposed changes to MOs for some WMUs. The proposed changes were then brought forward to local review committees (LRC) in each wildlife district. The LRC were comprised of hunter organization representatives, local hunters, landowners, land managers, Tribes and Oregon State Police (OSP). The LRC reviewed all of the local WMU and provided recommendations on population and buck and bull ratio MOs. Their review included the following criteria:

Criteria used for current MO review:

1. MOs that have not been achievable will not be adjusted without improved or more accurate information.

2. Recognize the broad support for maintaining or increasing hunting opportunity.

3. Do not lower MOs just so they can be achieved under current conditions.

4. Avoid creating more than one MO within a WMU.

MANAGEMENT OBJECTIVE BACKGROUND

Population Management Objectives

Population management objectives are the number of wintering animals that the Department manages for in each WMU. Some WMUs or part of a WMU are designated as Elk De-Emphasis Areas (EDA). These areas are characterized by high percentages of private land with on-going elk damage to private property and agricultural crops, or high potential for such damage. Hunter access to these areas is often limited. No MOs are proposed for these areas, and the management focus is to minimize elk numbers and damage caused by elk.

The Department manages populations of deer and elk through harvest. Harvest rates of antlerless animals are typically increased to reduce populations that are above MO and decreased or eliminated if populations fall below MO. Antlerless harvest also is used to address property damage situations regardless of whether the population is above or below the MO. Populations

may not increase in response to restricted antlerless harvest due to other factors such as habitat quality and quantity, severe winter weather, drought, predation and/or disease.

Buck, bull and antlerless harvest all effect buck and bull ratios. In WMUs where hunter numbers are controlled by limiting the number of available tags, a change in a buck or bull ratio MO will have consequences to hunting opportunity. This is particularly true where antlerless harvest is limited or eliminated. If the average buck or bull ratio, over the course of a few years, is significantly lower than a MO, tag numbers would be reduced to increase the ratio to the MO. Fewer tags in a controlled hunt process means it will take more years to draw a tag.

The Department continues to research new techniques to survey and estimate populations of deer and elk. It is likely that a couple of survey techniques will be appropriate for different WMUs because of the cover conditions created by different habitats. Methods to estimate populations also include computer models. These models use information such as population age and sex structure, reproductive rates, recruitment, and harvest to simulate population size. Annual herd composition and trend route information provides input to the model and is also used to validate the accuracy of the model.

For example, a sightability model has been used experimentally in a few central Oregon WMUs to estimate population size. This technique involves flying grid patterns over several representative habitat types within a WMU and recording number of animals observed, animal group size, sex and age of individuals in the group, percent canopy cover, snow cover and activity of the animals when first seen. Using this data, and the amount of each habitat type available, the total number, of animals in a WMU can be estimated. The major drawback to this technique is the expense of the helicopter flight time necessary to survey a WMU.

In addition to researching new techniques, the Department completed a large scale effort to radio-collar and determine the locations of mule deer in south-central Oregon. This research project produced over one million locations of deer over the course of several years. Information on the movements of these deer will help refine MOs in this area in the future. Because population MOs are based on winter surveys of deer and elk on winter range, they do not necessarily represent the population of animals in the WMU during the hunting season. This research will help biologists adjust tag numbers based on where the animals are in the fall. A similar radio-collaring research project began in early 2015 in the Blue Mountains of Oregon where 500 deer where captured and collared.

Post Season Buck and Bull Management Objectives

Buck or bull ratios are derived from the number of adult males per 100 adult females observed in each WMU during the herd composition surveys conducted each fall or winter after the hunting season. These surveys provide an estimate of buck, bull, doe and cow numbers in each WMU. Male deer and elk are more difficult to observe than females because: males are more secretive, usually occupy a different part of the range and group in fewer numbers than females. As a result, observed buck and bull ratios tend to be lower than the actual ratios and estimates are considered conservative.

A minimum MO of 12 bucks per 100 does and 10 bulls per 100 cows was established by the Department to meet biological requirements for breeding. In addition, objectives of 15 and 25 bucks per 100 does and 15 and 20 bulls per 100 cows were adopted in several WMUs to provide a higher quality hunting opportunity. WMUs with higher buck and bull MOs provide less

opportunity to hunt, however hunter success is generally higher and there may be more mature bucks and bulls available.

Changes to buck and bull ratios will change hunting opportunity unless the change is equal to the ratio currently observed. If other factors remain the same, increasing buck ratio MOs from 15 to 25 will reduce available tag numbers to about 2/3 of the previous number (from 100 tags to 67). Changing a buck ratio from 12 to 25 would cut available tags approximately in half (100 tags to 50). On the average, if the buck ratio MO is raised from 12 to 25 it will take almost twice as long to draw a tag.

Hunting Opportunity

The Department has long recognized the broad support for hunting in Oregon which is one of the criteria used to review MOs. A survey was just released of current hunters, hunters who did not hunt the most recent two years, and hunters who have not hunted in the past 10 years (ODFW Hunter Awareness and Outreach Survey, May 2016). The vast majority of these hunters indicate the main reasons for hunting is the opportunity (ranked in order): for the meat, to be with family and friends, for recreation, to be close to the outdoors and nature, and for the sport. Only a tiny percentage of respondents indicated they were trophy hunting. This survey verifies that the most important aspect of retention of active hunters is providing opportunity for a variety of reasons, the least of which is trophy hunting.

MULE DEER

Mule Deer Distribution

Since population MOs were first adopted, both biologists and landowners have noted that in some areas there has been a shift in mule deer distribution from public land to private land. This has been primarily due to habitat changes on private and public lands. In some areas deer spend most of the year on private ranches, feeding in irrigated fields and surrounding rangeland. Unit-wide antlerless permits tend to concentrate hunters and harvest on public land while not harvesting enough animals on private property. This exacerbates the distribution problem and can fail to resolve damage problems on private land. As a result it may not be possible to reduce populations to MO in some WMUs without the support of private landowners.

Seasonal Mule Deer Movement

Population size in some WMUs changes dramatically from summer to winter due to mule deer migrations that occur between summer and winter range. This movement is most significant in WMUs with summer range located primarily at high elevation where snow forces animals to migrate onto winter ranges in adjacent WMUs. There is some seasonal movement in and out of most WMUs.

Mule Deer Populations Trends

Figure 2 shows the population of mule deer related to the MO established in 2005. Mule deer populations in Oregon are primarily declining, however some populations are stable. Long term habitat decline, drought and predation are thought to be primary factors; however disease, such

as adenovirus, has also played a role in a few areas. The 2014-16 average population of mule deer was less than 90% of MO in 41 of 49 WMUs (and sub units). Forty-two of 47 WMUs and sub-units with buck ratio MOs and where herd composition data are collected have a 3-yr average observed buck ratio at or above the MO (Appendix 1).

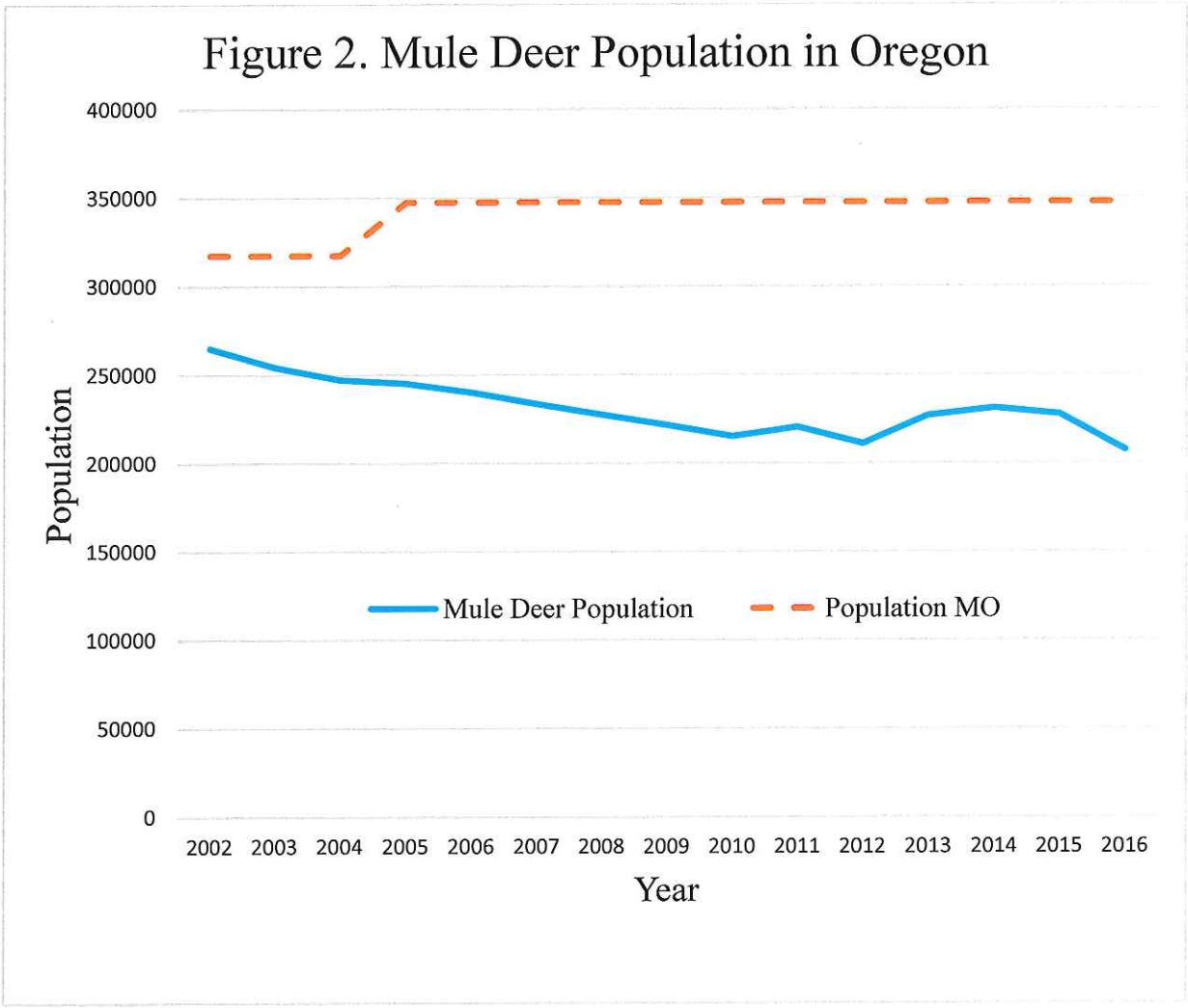
PROPOSED CHANGES TO MULE DEER MANAGEMENT OBJECTIVES

The Department first attempted to estimate mule deer in each WMU during the 1981 MO process. Managers used the best data and techniques available to them at the time. Current population modeling techniques, better harvest survey information and the use of helicopters to collect herd inventory data has provided managers with better information to estimate population numbers. In many WMUs, past estimates of mule deer numbers were low, resulting in the adoption of correspondingly low management objectives. In 2005, population MOs were increase in 16 WMUs/sub-units and decreased in three WMUs.

For this 2016 review, the Department is proposing lowering two population MOs for deer: Desolation and Upper Deschutes. The population estimates for the Desolation WMU have been declining for several years and the estimates have never reached the original population MO. Based on survey information and the movements of radio-collared deer, the Department believes a population of deer winter lower than the current MO is supported in the Desolation WMU. The LRC supported this proposal.

The Upper Deschutes WMU mule deer population has been estimated to be lower than the current MO for many years. The proposal to lower the MO from 2200 to 2000 was made by the LRC which the Department supports as a more realistic level.

There were two WMU, Wagontire and Metolius, that the LRC proposed raising the population MOs substantially (Appendix 1). The Department believes it is premature at this time to propose changes to those MOs. The Department is currently researching three different methods of surveying and estimating mule deer populations in the Metolius WMU, and no decisions have been made as to the best methodology and the actual population size at the present time. The Wagontire WMU is one of the south-central Oregon WMU that was part of the large radio-collared deer research project that determined there were large movements of deer from summer to wintering grounds among several WMU. There is a process underway to determine more precisely this distribution of deer and the Department believes it is premature to adopt new MOs at this time. One of the two LRCs that reviewed the Wagontire population MO did not support any changes to the MO.



The Department proposes changing the buck ratio MOs for 10 WMU (Appendix 1). The LRC support every one of these proposals. Each of the 10 proposed changes are increases in the buck ratio for WMU that consistently demonstrate an average, observed buck ratio higher than current MOs. As a result, the Department does not expect any loss of hunting opportunity.

One LRC proposed increasing the buck ratio MO in the Ochoco, Grizzly and Maury WMU. The Department originally proposed an increase in the MO for the Maury unit as a result of the Mule Deer Initiative Committee recommendation of 2014. The Department did not support the LRC recommendation to raise the buck ratio MO in the Ochoco WMU because it could reduce opportunity in the future for this very popular unit with 54% public lands. However, the Department did support their recommendation to raise the MO in the Grizzly WMU which will not limit opportunity in this unit with very little public access to deer on private lands and a high observed buck ratio.

The Department did not support a proposal to raise the buck ratio MO in the Sprague WMU. Many of the mule deer in this unit move to other units before herd composition surveys can be conducted therefore there are no data to examine. The original proposal was an idea to have a MO similar to its adjacent WMU, but without data to support such a change it was not brought forward as a proposal.

ROCKY MOUNTAIN AND ROOSEVELT ELK

Elk Distribution

Since population MOs were first adopted, there have been some shifts in elk distribution from public lands to private lands. This may be due to both increased disturbance on public land and an increase in irrigated crops on private property. In some areas resident populations of elk spend most of the year on private property, feeding in irrigated fields and surrounding rangeland. This has made it difficult to harvest an adequate number of antlerless animals and reduce populations that are above MO. In the situation where there are high value crops within large agriculture areas EDAs were created and elk numbers are minimized as best as possible. The EDA's are usually large areas not small areas with a few private landowners. EDAs tend not to be practicable where public land surrounds or is incorporated within the private lands. Unit-wide antlerless permits tend to concentrate hunters and harvest on public land while not harvesting enough animals on private property. This exacerbates the distribution problem and fails to resolve damage problems on private land. As a result it may not be possible to reduce populations to MO in some WMUs without the support of private landowners. A new program for managing elk damage problems, the Oregon Elk Damage Program, began statewide in 2014. The program provides up to five tags at any one time for antlerless elk on private property, regardless of the property acreage. The program may allow for more concentrated hunting to remove elk causing damage.

Seasonal Elk Movements

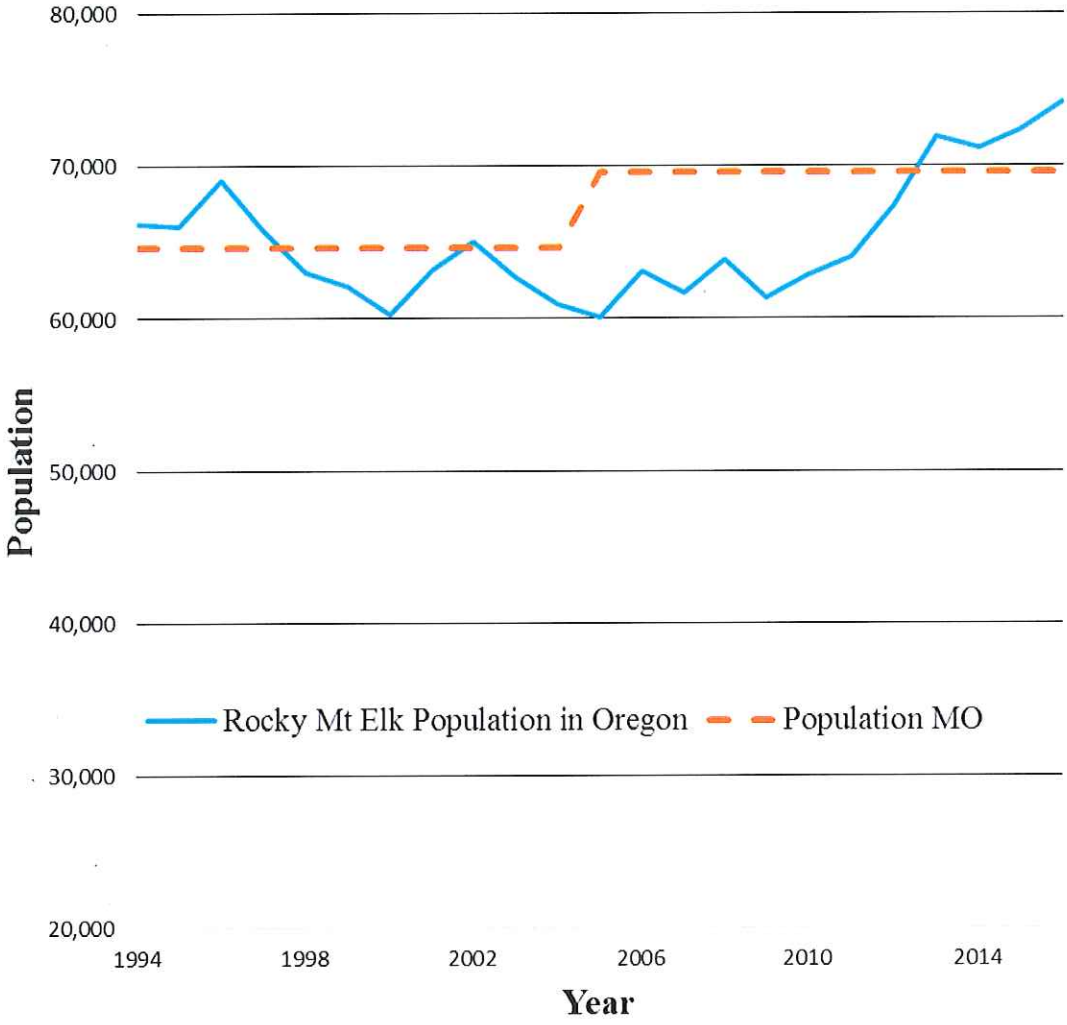
The elk population in some WMUs changes from summer to winter due to migrations between summer and winter range. This movement is most significant in WMUs with high elevation summer range, where winter snow forces animals to migrate to winter ranges in adjacent WMUs. There is some seasonal movement in and out of most WMUs. For the most part, Roosevelt elk in the Coast range do not migrate and Roosevelts have limited movement from higher to lower elevations in the Cascades, but tend not to leave the WMU. Some of the Cascade elk move from a western Oregon WMU, such as the Indigo WMU, to lower elevations in an east slope Cascade unit, such as the Fort Rock WMU.

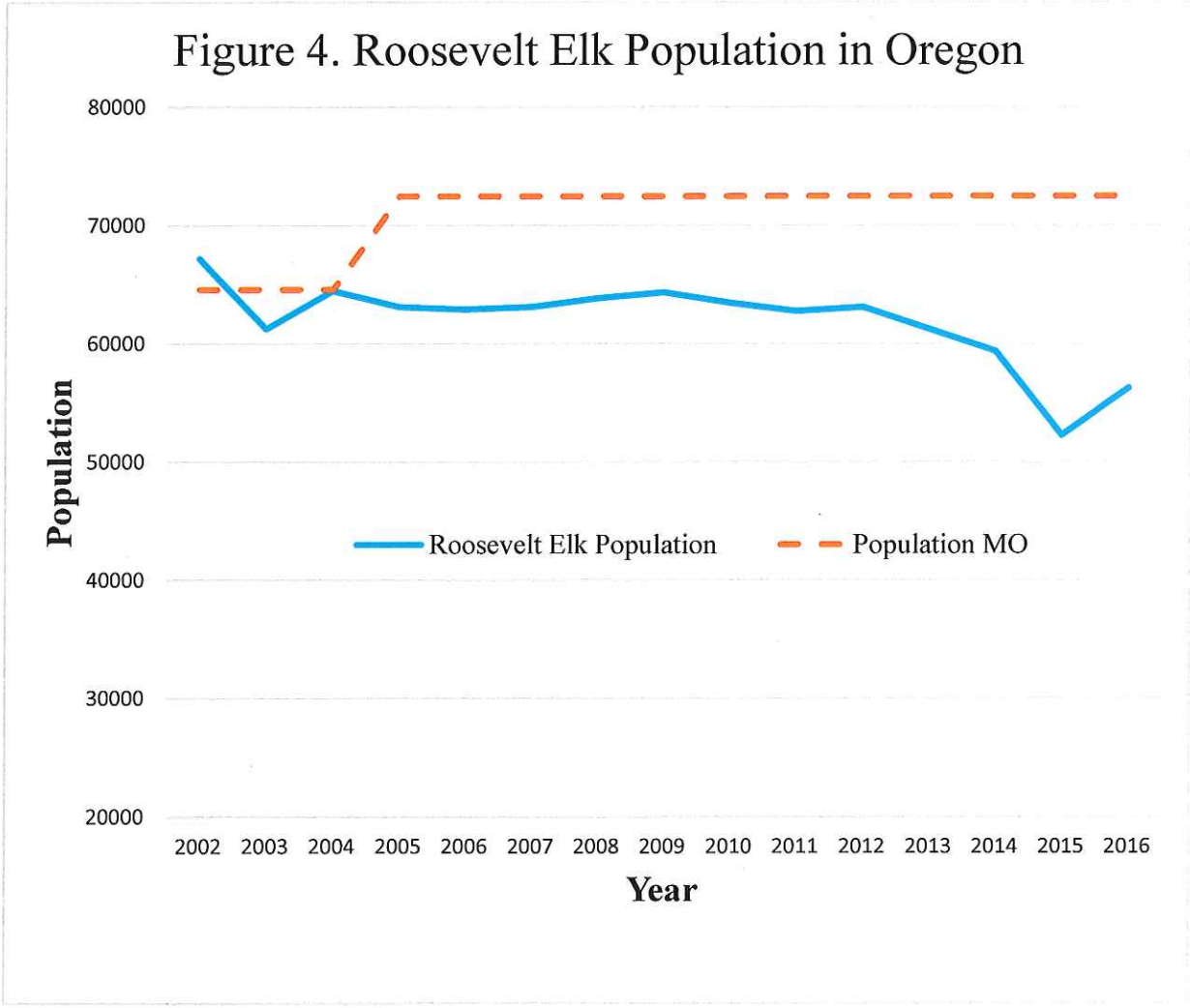
Elk Populations Trends

Figures 3 and 4 show the population trends for Rocky Mountain and Roosevelt Elk. Appendices 1, 2, and 3 list the MO and provide current elk population and bull ratio estimates for the WMUs. The Rocky Mt elk population has been rising in recent years after remaining fairly constant just above 60,000 animals. However, the overall Roosevelt elk population started to decline in recent years and remains under MO.

There are 10 of 33 WMU with Rocky Mt. elk that are under population MO, but only six WMU with Roosevelt elk are near population MO. Nearly ½ of the eastern Oregon WMUs bull ratios were less than MOs. For Roosevelt elk, the bull ratios are being met or exceeded in all but four WMUs.

Figure 3. Rocky Mt Elk Population in Oregon





PROPOSED CHANGES TO ELK MANAGEMENT OBJECTIVES

The MO review conducted in 2005 fine-tuned many MOs for elk that were adopted in 1994, and included setting MOs for the Alsea and Snake River WMUs. Even fewer changes in MOs for elk are proposed with this review.

There is only one MO change proposed for 23 WMUs with Roosevelt elk. A portion of the Fort Rock WMU, west Fort Rock, was previously combined with the Indigo WMU because elk in this part of the Cascades move over both sides of the crest. No surveys of elk are conducted in the west Fort Rock which does winter some animals. Therefore this proposed change reflects that both areas winter elk, but keeps the Indigo WMU as a separate MO. The LRC supports this proposal.

Of the 20 WMU with Roosevelt elk (three WMU are elk –de-emphasis areas) only 6 are at 90% or greater population MO. Due to several factors including habitat conditions, general seasons and damage to agricultural areas, Roosevelt elk populations have declined in recent years (Figure 4, Appendix 3). The district biologists and LRCs recommend no other changes to MOs for Roosevelt elk.

The Department is proposing changes to 7 population MO's for Rocky Mt. elk; six are proposed increases: the Imnaha, Catherine Cr., Pine Cr., Lookout MT, and Snake River WMUs as well as the group of units comprising the "High Desert" MO. The proposed decrease is the West Beulah population MO where the elk population has consistently remained well below the current MO (Appendix 2). The proposed reduction more accurately represents the winter population. Two LRC groups reviewed this proposal with one supporting and the other group proposing a decrease which was considerably higher than the population estimates.

The LRC supported the Department proposals to increase the population MOs for Catherine Cr., Snake River, and High Desert area. The Department supported the LRC recommendation of a population MO of 600 for Lookout Mt where the elk population is currently much higher than the MO and there is 38% public lands. There was a range of proposals by the LRC for the Imnaha WMU, but no agreement within the group. The Department proposal is to raise the MO to the current population estimate in this WMU that is predominantly (74%) public lands.

The Department proposes to raise the Pine Creek population MO to 800 from 650 which is well below the current population estimate in this unit that is 76% public lands. The Department believes the public land is capable of supporting this wintering population. The LRC recommended not changing the MO.

Two bull ratio MOs are proposed by the Department to be changed: an increase from 10 to 15 in the Chesnimnus WMU and from 20 to 15 in the Paulina/E. Fort Rock area. The LRC reviewing the Chesnimnus WMU recommended 3 different MOs: 12, 15, and 20. The Department supports 15 as it would not cause a change in hunter opportunity and reflects the past three-year average observed bull ratio.

The LRC recommended increases in the Snake River, Sled Springs, Wenaha, Mt. Emily, Hood and White River WMU. Other than the Hood and White River WMU, those proposals would result in substantial reduction in hunting opportunity as the average bull ratios are well below the proposals. Therefore the Department does not support those proposals. The Hood and White River units have a general season hunting structure and the bull ratios cannot be easily manipulated. In addition, the White River is currently meeting bull ratio MO and raising the MO would significantly reduce opportunity. No herd composition surveys are conducted in the Hood unit.

APPENDIX 1: 2016 Mule Deer Management Objectives (MO) Staff Proposals And Local Review Committees (LRC) Recommendations. WMUs with a proposed change are highlighted with bold text in shaded cells.

Unit #	Unit Name	2005 Population MO	2016 Population	% Pop'n MO	3-yr avg Pop'n	Pop'n Trend	Dept. Proposed MO	LRC Proposed MO	3-yr avg Buck Ratio	Buck Ratio MO	Dept. Proposed MO	LRC Proposed MO
60	Minam	7,000	2,600	37%	2,500	down	7,000		20.9	25	25	
61	Imnaha	7,000	3,000	43%	2,900	down	7,000		17.7	15	15	
53	Catherine Creek	4,300	1,500	35%	1,617	static	4,300		17.0	15	15	
63	Keating	4,600	2,433	53%	2,447	static	4,600		18.9	15	15	
62	Pine Creek	3,700	2,427	66%	2,440	up	3,700		16.7	15	15	
64	Lookout Mountain	5,000	2,466	49%	3,256	up	5,000		16.5	15	15	
Wallowa Zone Total		**31,600**	**14,426**	**46%**	**15,160**		**31,600**					
59	Snake River	6,400	2,900	45%	2,833	static	6,400		21.9	25	25	
58	Chesnimnus	5,700	3,400	60%	3,367	static	5,700		12.6	12	12	
57	Sled Springs	11,000	6,400	58%	6,200	down	11,000		11.0	12	12	
56	Wenaha	4,000	2,600	65%	2,650	static	4,000		19.4	12	12	
55	Walla Walla	1,900	1,800	95%	1,790	static	1,900		23.5	15	15	
54	Mt. Emily	5,000	3,800	76%	3,750	down	5,000		18.8	15	**20**	20
Wenaha-Snake Zone Total		**34,000**	**20,900**	**61%**	**20,590**		**34000**					
52	Starkey	3,000	2,550	85%	2,833	down	3,000		13.5	15	15	
49	Ukiah	8,500	8,000	94%	8,000	static	8,500		21.2	15	15	
51	Sumpter	7,000	6,640	95%	6,270	up	7,000		24.3	15	15	
50	Desolation	2,500	1,082	43%	1,163	down	**1,500**	1500	12.7	15	15	
48	Heppner	12,000	7,800	65%	8,367	down	12,000		18.1	12	12	
45	Fossil	10,000	8,100	81%	8,133	up	10,000		16.4	12	12	
44	Columbia Basin	10,000	7,000	70%	7,067	static	10,000		15.2	12	12	
Umatilla Whitman ZoneTotal		**53,000**	**41,172**	**78%**	**41,833**		**52000**					
47	Northside	15,500	6,566	42%	6,727	down	15,500		11.9	15	15	
46	Murderers Creek	9,000	6,244	69%	5,984	up	9,000		16.4	15	15	
65	Beulah	15,000	12,000	80%	12,250	static	15,000		14.3	12	**15**	15
66	Malheur River	15,000	11,050	74%	11,381	static	15,000		14.3	12	**15**	15
72	Silvies	12,000	9,300	78%	9,604	up	12,000		14.7	12	**15**	15
37	Ochoco	20,500	9,919	48%	13,240	static	20,500		19.0	15	15	20
38	Grizzly	8,500	7,000	82%	7,067	static	8,500		21.8	15	**20**	20
36	Maury	5,200	3,900	75%	3,855	down	5,200		22.7	15	**20**	20
Ochoco-Malheur Zone Total		**100,700**	**65,979**	**66%**	**70,108**		**100700**					

APPENDIX 1 (Cont'd): 2016 Mule Deer Management Objectives (MO) Staff Proposals And Local Review Committees (LRC) Recommendations. WMUs with a proposed change are highlighted with bold text in shaded cells.

Unit #	Unit Name	2005 Population MO	2016 Population	% Pop'n MO	3-yr avg Pop'n	Pop'n Trend	Dept. Proposed MO	LRC Proposed MO	3-yr avg Buck Ratio	Buck Ratio MO	Dept. Proposed MO	LRC Proposed MO
43	West Biggs	3,300	3,300	100%	3,300	up	3,300		24.2	12	**15**	15
43	East Biggs	3,500	2,050	59%	2,417	up	3,500			12	12	
40	Maupin	3,000	2,800	93%	2,833	up	3,000		25.6	12	**15**	15
41	White River	9,000	6,750	75%	1,000	down	9,000		25.2	25	25	
42	Hood	1,400	1,000	71%	7,467	static	1,400		24.0	25	25	
Columbia Zone Total		**20,200**	**15,900**	**79%**	**17,017**		**20200**					
39	Metolius	6,200	5,748	93%	7,726	up	6,200	8000-9000	25.9	25	25	
35	Paulina	16,500	8,126	49%	8,057	down	16,500		21.8	15	15	
34	Upper Deschutes	2,200	968	44%	1,136	Varies	**2000**	2000	23.8	15	15	
77	Fort Rock	11,200	N/A	N/A	3,738	N/A	11,200		24.0	15	15	
76	Silver Lake	10,300	N/A	N/A	4,503	N/A	10,300		21.4	12	**15**	15
33	Sprague	2,200	300	14%	300	static	2,200			12	12	15
32	Klamath Falls	6,200	3,400	55%	3,417	static	6,200		21.3	12	**15**	15
31	Keno	3,200	3,035	95%	2,012	N/A	3,200		21.5	15	15	
75	Interstate	14,800	4,700	32%	4,405	N/A	14,800		20.5	15	15	
74	North Warner									25	25	
74	Warner	5,500	3,997	73%	2,928	N/A	5,500		29.7	15	15	
Central-South Zone Total		**78,300**	**30,274**	**39%**	**38,222**		**78100**					
73	Wagontire	2,500	2,946	118%	3,449	up	2500	6000	14.4	15	15	
70	Beatys Butte	2,800	1,950	70%	1,917	up	2,800		14.1	15	15	
71	Juniper	2,300	1,300	57%	1,300	down	2,300		39.5	15	15	
69	Steens Mountain	11,000	5,300	48%	5,256	up	11,000		31.4	25	25	
68	East Whitehorse	3,200	1,700	53%	1,700	down	3,200		15.9	15	15	
68	Trout Creek Mtns	2,800	1,250	45%	1,219	up	2,800		54.5	25	25	
67	Owyhee	5,000	3,900	78%	3,900	up	5,000		11.2	15	15	
Southeast Zone Total		**29,600**	**18,346**	**62%**	**18,741**		**29600**					
Mule Deer Total		**327,200**	**191,097**		**204,653**		**326,000**					

APPENDIX 2: 2016 Rocky Mt. Elk Management Objectives (MO) Staff Proposals And Local Review Committees (LRC) Recommendations. WMUs with a proposed change are highlighted with bold text in shaded cells.

Unit #	Unit Name	2005 Population MO	2016 Population	% Pop'n MO	3-yr avg Pop'n	Pop'n Trend	Dept. Proposed MO	LRC Proposed MO	3-yr avg Bull Ratio	Bull Ratio MO	Dept. Proposed MO	LRC Proposed MO
60	Minam	2,000	2,500	125%	2,483	up	2000		16.7	20	20	
61	Imnaha	800	2,000	250%	2,050	up	**2000**	1200-2200	8.5	15	15	
53	Catherine Cr	700	900	129%	1,100	up	**1000**	1000	7.2	10	10	
63	Keating	400	652	163%	539	up	400		9.1	10	10	
62	Pine Cr	650	1,418	218%	1,157	up	**800**	650	9.9	15	15	
64	Lookout Mt	300	1,135	378%	1,078	up	**600**	600	19	15	15	
Wallowa	**Zone Total**	**4,850**	**8,605**	**177%**	**8,407**		**6,800**					
59	Snake River	3,800	4,300	113%	4,300	up	**4500**	4500	10.6	15	15	20
58	Chesnimnus	3,500	4,500	129%	4,867	up	3500		17.4	10	**15**	12,15,20
57	Sled Springs	2,750	3,100	113%	3,100	up	2750		12.7	10	10	15
56	Wenaha	4,250	2,600	61%	2,533	up	4250		14.9	15	15	20
55	Walla Walla	1,800	1,700	94%	1,630	up	1800		7.4	15	15	
54	Mt Emily	5,700	3,200	56%	3,200	down	5700		7.9	10	10	15
Wenaha-Snake	**Zone Total**	**21,800**	**19,400**	**89%**	**19,630**		**22,500**					
52	Starkey	5,300	5,300	100%	5,083	static	5300		6.5	10	10	
49	Ukiah	5,000	5,100	102%	4,800	down	5000		7.2	10	10	
51	Sumpter	2,000	1,802	90%	1,838	static	2000		14.9	10	10	
50	Desolation	1,300	1,500	115%	1,450	up	1300		6.1	10	10	
48	Heppner	5,000	6,000	120%	5,600	up	5000		10.4	10	10	
45	S. Fossil	400	1,700	425%	1,700	static	400		14.4	10	10	
45	N. Fossil	600	600	100%	517	up	600			10	10	
Umatilla-Whitman	**Zone Total**	**19,600**	**22,002**	**112%**	**20,988**		**19,600**					

APPENDIX 2 (Cont'd): 2016 Rocky Mt. Elk Management Objectives (MO) Staff Proposals And Local Review Committees (LRC) Recommendations. WMUs with a proposed change are highlighted with bold text in shaded cells.

Unit #	Unit Name	2005 Population MO	2016 Population	% Pop'n MO	3-yr avg Pop'n	Pop'n Trend	Dept. Proposed MO	LRC Proposed MO	3-yr avg Bull Ratio	Bull Ratio MO	Dept. Proposed MO	LRC Proposed MO
47	Northside	2,000	2,700	135%	2,700	up	2000		10.3	10	10	
46	Murderers Cr	1,700	1,900	112%	1,900	static	1700		20	15	15	
65	West Beulah	1,300	400	31%	400	down	**500**	500, 1000	76.30	15	15	
65	East Beulah	EDA[a]	1,000		1,000	up	EDA[a]		15.3	EDA[a]	EDA[a]	
66	Malheur River	1,500	1,650	110%	1,673	static	1500		21.1	15	15	
72	Silvies	2,200	2,700	123%	2,619	up	2200		14.9	15	15	
37	Ochoco	4,500	4,150	92%	4,133	static	4500		15	20	20	
38	Grizzly	1,500	1,200	80%	1,233	down	1500		12.7	15	15	
36	Maury	1,400	970	69%	990	up	1400		11.6	20	20	
Ochoco-Malheur Zone Total		**16,100**	**16,670**	**104%**	**16,648**		**15,300**		7.2			
35/77	Paulina/E. Ft Rock	1,600	1,350	84%	1,317	up	1600		7.5	20	**15**	15
42	Hood	120	300	250%	250	up	120		0	10	10	Raise
41	White River	1,030	1,300	126%	1,300	up	1030		10	10	10	Raise
40/43/44	Maupin/Biggs/Col. Basin	EDA[a]	1,200		1,133	up	EDA[a]		42.8	EDA[a]		
74	Warner	500	200	40%	200	static	500			20	20	
[b]	South Central[b]	3,000	1,500	50%	1,500	up	3000			20	20	
[c]	High Desert[c]	1,000	1,700	170%	1,400	up	**1600**	1600		20	20	
High Desert Zone Total		**7,250**	**7,550**	**104%**	**7,100**		**7,850**					
Rocky Mountain Elk Total		**69,600**	**74,227**	**107%**	**72,773**		**72,050**					

[a] EDA indicates the area is an Elk De-emphasis Area

[b] South Central Includes: Silver Lake, Interstate, Klamath Falls, and Sprague WMUs.

[c] High Desert Includes: Steens Mt., Owyhee, Whitehorse, Beatys Butte, Wagontire, Juniper & S. Malheur River WMUs

APPENDIX 3: 2016 Roosevelt Elk Management Objectives (MO) Staff Proposals And Local Review Committees (LRC) Recommendations. WMUs with a proposed change are highlighted with bold text in shaded cells.

Unit #	Unit Name	2005 Population MO	2016 Population	% Pop'n MO	3-yr avg Pop'n	Pop'n Trend	Dept. Proposed MO	LRC Proposed MO	3-yr avg Bull Ratio	Bull Ratio MO	Dept. Proposed MO	LRC Proposed MO
11	Scappoose	2,200	2,200	100%	2,033	up	2,200		12.0	10	10	
10	Saddle Mountain	7,800	5,200	67%	5,300	down	7,800		22.3	20	20	
12	Wilson	4,800	4,200	91%	4,383	down	4,800		15.4	10	10	
14	Trask	5,200	3,600	69%	3,600	down	5,200		12.3	10	10	
17	Stott Mt.	1,500	N/A	67%	1,086	down	1,500		6.9	10	10	
18	Alsea	6,500	N/A	62%	4,072	down	6,500		9.2	10	10	
20	Siuslaw	3,500	N/A	N/A	N/A	up	3,500		20.3	10	10	
15	Willamette	EDA[a]			650		EDA[a]			EDA[a]	EDA[a]	
North Coast Zone Total		**31,500**	**15,200**		**21,124**		**31,500**				0	
24	Tioga	8,000	8,000	94%	7,667	up	8,000		17.3	15	15	
25	Sixes	2,500	3,500	140%	3,500	up	2,500		20.5	10	10	
26	Powers	2,500	1,500	60%	1,400	up	2,500		13.4	10	10	
27	Chetco	2,500	1,200	48%	1,167	up	2,500		12.0	10	10	
28	Applegate	EDA[a]	350		350	up	EDA[a]			EDA[a]	EDA[a]	
23	Melrose	EDA[a]	1,400		1,400		EDA[a]			EDA[a]	EDA[a]	
Southwest Zone Total		**15,500**	**15,950**		**15,483**		**15,500**				0	
31/33	Keno/W. Sprague	700	N/A	79%	525	up	700		N/A	10	10	
34	Upper Deschutes	700	700	100%	583	up	700	1,000	6.9	10	10	
39	Metolius	700	600	86%	517	up	700		5.0	10	10	
16	Santiam	5,200	3,000	58%	3,000	down	5,200		20.8	10	10	
19	Mckenzie	5,000	N/A	98%	4,750	static	5,000		26.4	10	10	
21~~/77~~	Indigo~~/W. Ft. Rock~~	4,700	N/A	0%	N/A	up	**4,500**	4,500	18.6	10	10	
22	Dixon	3,750	2,700	72%	2,700	up	3,750		19.7	10	10	
29	Evans Creek	900	800	89%	833	up	900		N/A	10	10	
30/77	Rogue/S. Ft. Rock	3,800	2,600	68%	2,667	down	3,800		28.9	10	10	
77	**West Fort Rock**						**200**	200		**10**	0	
Cascade Zone Total		**25,450**	**10,400**	**41%**	**15,575**		**25,450**					
Roosevelt Elk Total		**72,450**	**41,550**	**57%**	**52,183**		**72,450**					

[a] EDA indicates the area is an Elk De-emphasis Area