Oregon Mule Deer Initiative

5 Year Summary 2010 - 2014

EXECUTIVE SUMMARY

Mule deer are one of the premier big game species in Oregon and provide significant recreation for both consumptive and non-consumptive users of Oregon's wildlife. Since the 1960's mule deer populations have declined throughout their range and Oregon populations are no exception.

In 2009 following a series of public meetings, Oregon Department of Fish and Wildlife Director Roy Elicker tasked staff to develop a process to emphasize management of mule deer and address their declines. As a result, the Oregon Mule Deer Initiative (MDI) was created with the purpose of addressing the problems that are affecting mule deer populations. Rather than attempt to address the problems in all 46 Wildlife Management Units (WMU) with mule deer, the Department selected five units to start the MDI effort. The five WMU's selected were Heppner, Maury, Warner, Steens Mountain, and Murderer's Creek. These units have every major vegetation association that provides mule deer habitat in Oregon.

Department biologists, with the help of local action plan committees developed action plans for each MDI unit. Local committees consisted of representatives of hunting associations, landowners, state and federal land management agencies, and county government (ODFW 2011). The action plans outlined factors effecting mule deer populations and prioritized objectives and strategies to help improve conditions for mule deer. For each MDI, six objectives were addressed: 1) Habitat Management, 2) Predator Management, 3) Disturbance and Harassment, 4) Law Enforcement, 5) Disease and Parasites, and 6) Population Management.

Implementation of the individual action plans started in January 2010. Since that time the Department and the various MDI cooperators have spent over $37,892,360 on habitat projects to benefit mule deer on 384,717 acres of the five MDI units. Predator control activities included implementation of cougar target areas in the Steens Mountain and Warner MDI units, and a coyote control project in Heppner. From January 2010 through December 2013, 60 cougar were administratively removed from Steens at a total cost of $65,400 and 28 from Warner at a cost of $12,896. Josephine county OHA assisted with expenses for the Warner target area. Rifle hunter harvest and post season buck ratios indicate that we positively affected mule deer populations in both units. From March 2010 through June 2013, 933 coyotes were removed from the northern half of the Heppner MDI unit at a cost of $114,046. Mule deer monitoring in the control area did not show a noticeable response in mule deer fawn ratios.

Oregon State Police officers developed enforcement action plans for each of the MDI units. When action plans were developed it was generally assumed that there were no substantial enforcement issues in any of the MDI units. Based on 1,796 specific mule deer contacts the average compliance rate was 87%. The only unit with an average compliance rate below the average was Murderer's Creek at 67% and the reason for this low rate is not clear at this time.

Through the MDI process the Department implemented quadrat sampling to better measure mule deer populations and gather baseline data needed to measure the effect of MDI activities.

Management objectives and hunting season structure were reviewed by local committees resulting in implementation of limited entry archery seasons in Maury, Steens, and Warner; and an increase in the post season buck management objective (MO) from 15/100 does to 20/100 does in Maury.

The single most unexpected result of MDI was the support we received from all the cooperators to emphasize mule deer in their planning efforts. Because the Department made mule deer a priority, cooperators were able to use that to leverage funds for projects specifically for mule deer or projects that had side benefits for deer.

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INTRODUCTION

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In 2009 following a series of public meetings, ODFW Director Roy Elicker directed staff to develop a process to emphasize management of mule and address the declines. As a result, the Oregon Mule Deer Initiative (MDI) was created with the purpose of addressing the problems that are affecting mule deer populations. Rather than attempt to address the problems in all 46 Wildlife Management Units (WMU) with mule deer the Department selected five units to start the MDI effort. Local implementation teams were appointed to develop an action plan for individual MDI units. After five years of implementing these plans the intent was to take what we learned in the MDI units and apply the successful actions to additional mule deer units.

The five WMU's selected were Heppner, Maury, Warner, Steens Mountain, and Murderer's Creek (Fig 1.). Each WMU had a comparison area associated with it: Heppner/Fossil, Murderer's Creek/Northside, Maury/Paulina, Steens Mountain/Trout Creek Mountains, and Warner/Interstate. Comparison areas were selected to be similar in vegetation characteristics and habitat, as well as in close proximity to the MDI unit. Detailed information on mule deer populations in each unit is presented in The Mule Deer Initiative Plan (ODFW 2011).

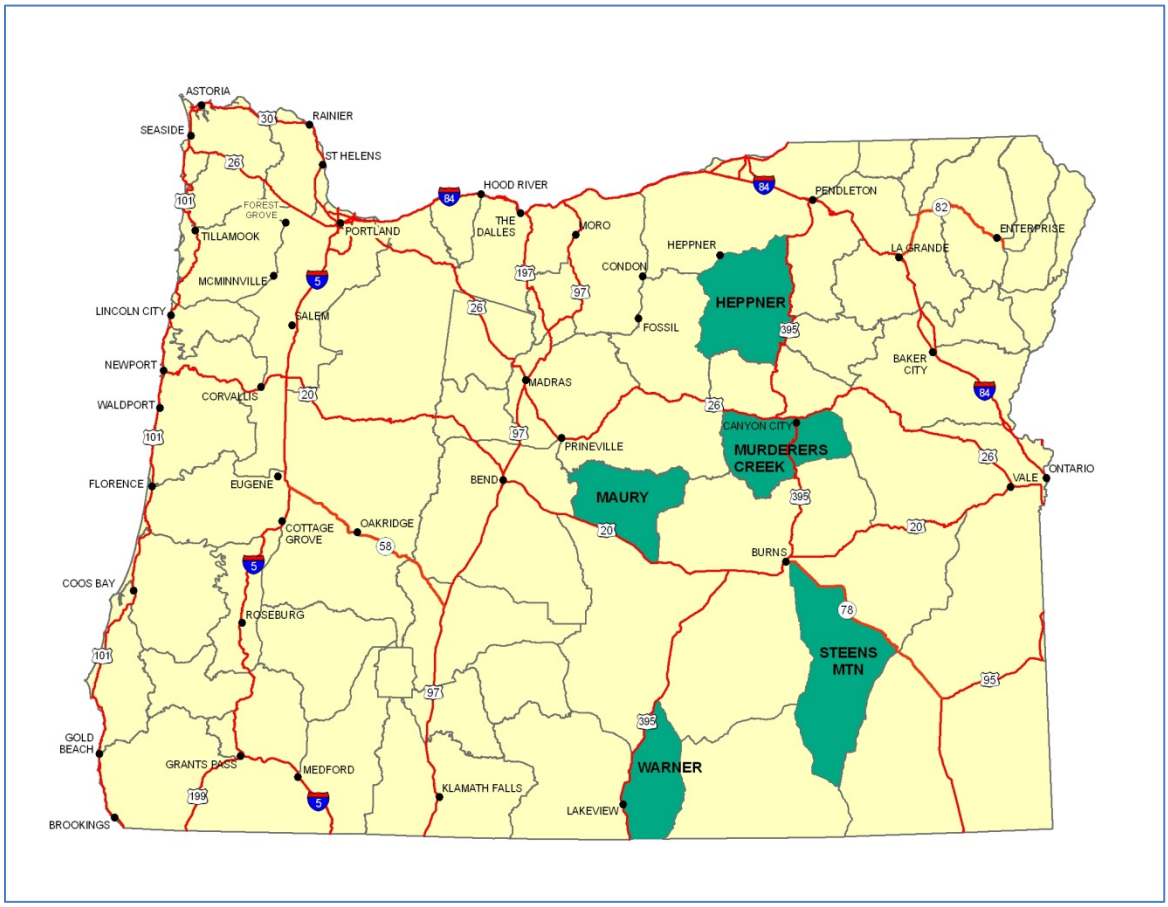
Heppner is 1,440 mi^2 of which 68% is in private ownership and 32% public. Vegetation associations are comprised of forested habitats typical of the Blue Mountains in Oregon and grassland habitats of the Columbia Basin, most of which are used for cattle grazing or have been converted to dry land agriculture and a few irrigated fields. There is 1022 mi^2 of winter range in the unit. The comparison unit for Heppner was Fossil. Fossil is 1410 mi^2 of which 86% is privately owned and 14% public. Vegetation associations are similar in both units. Winter range makes up 829 mi^2 of Fossil.

Murderer's Creek is 1,550 mi^2 of which 36% is in private ownership and 64% public. Vegetation associations in the unit are primarily forested habitats and shrub-steppe that has been heavily impacted by juniper encroachment and annual grass infestation. There is 408 mi^2 of winter range in the unit. The comparison area for Murderer's Creek was the Northside. Northside is 1,116 mi^2 of which 53% is privately owned and 47% public. Vegetation associations in the Northside unit were similar to Murderer's Creek. Winter range makes up 519 mi^2 in Northside.

Maury is 1,100 mi^2 of which 39% is privately owned and 61% public. Vegetation associations in the unit are primarily sagebrush-steppe, juniper woodlands, and mixed conifer with agricultural lands in lower elevations, the southeastern part of the unit is fairly forested. Winter range makes up 822 mi^2 of the unit. For deer population monitoring the comparison area for Maury was the

northern portion of the Paulina WMU which had vegetation and human demographics similar to Maury. Paulina is 2,176 mi^2 of which 24% is in private ownership and 76% is publicly owned. There are 1,116 mi^2 of winter range in the Paulina unit.

Figure 1. Mule Deer Initiative Wildlife Management Units.



Steens Mountain is 1,916 mi^2 of which 31% is in private ownership and 69% is publicly owned. Vegetation associations in the unit are shrub-steppe with aspen stands and substantial areas of juniper encroachment. Winter range makes up 672 mi^2 of the unit. The Trout Creek Mountains portion of the Whitehorse WMU was the comparison area for Steens. Vegetation associations in the Trout Creeks were similar to Steens. There is 950 mi^2 in the comparison area of which 530 mi^2 is winter range.

Warner is 960 mi^2 of which 39% is in private ownership and 61% public. Vegetation associations in the unit are shrub-steppe plant communities and forested habitat. There are extensive aspen stands throughout the unit. There are 124 mi^2 of winter range in the Warner unit. The comparison area for Warner was the Interstate WMU. Interstate is 2,197 mi^2 of which 42% is privately owned and 58% public. Vegetation associations in the Interstate were similar to

Warner; however, there is substantially more shrub-steppe vegetation in Warner. Winter range makes up 367 mi^2 of the Interstate unit.

METHODS/ACTIONS

Action Plan Committees

Department biologists, with the help of local action plan committees developed action plans for each MDI unit. Action plan committees consisted of representatives of hunting associations, landowners, state and federal land management agencies, and county government (ODFW 2011). The action plans outlined the factors effecting mule deer populations and prioritized objectives and strategies to help improve conditions for mule deer. For each MDI unit, six objectives were addressed: 1) Habitat Management, 2) Predator Management, 3) Disturbance and Harassment, 4) Law Enforcement, 5) Disease and Parasites, and 6) Population Management.

Habitat Management

Although mule deer are habitat generalists and can be found in almost all available vegetation associations, their populations are most productive in early to mid-seral vegetation (deVos et al. 2003). The most important habitat component for mule deer is forage quality and quantity. Most shrub and forb species preferred by deer are more productive when growing in open areas with open tree canopy. The four major habitat actions: juniper treatment, timber stand improvement, aspen stand improvement and invasive weed treatments were all designed to improve forage quality by reducing competition on desired forage species.

Western juniper (*Juniperus occidentallis*) has significantly expanded its range and abundance due to fire suppression and grazing practices of the early 20th century. Juniper is invasive in shrub-steppe and dry forest habitats. As juniper densities increase, shrub, grass, and forb species are out competed resulting in significant decline in deer forage. Removal of post-settlement juniper (Miller et al. 2007) increases the amount of sunlight, moisture, and nutrients available for shrubs and forbs used by mule deer. Aspen (*Populus tremuloides)* communities play an important role for mule deer from gestation through adulthood. Aspen stands have been described as critical summer range habitat that provide hiding and thermal cover, high diversity forage, fawning and fawn rearing habitat. The Oregon Conservation Strategy (ODFW 2006) has identified aspen communities as one of the eleven strategy habitats on which to focus conservation and restoration efforts. Unfortunately, aspen stands have been declining due to poor grazing management and lack of fire resulting in conifer encroachment. Because of their importance as fawning habitat, MDI projects were designed to improve aspen stands by cutting conifers and fencing areas.

Forest vegetation associations make up a significant portion of summer deer habitat in four of the five MDI units. Forest habitats have higher annual precipitation and the potential to produce more mule deer forage per acre than shrub-steppe or grassland vegetation associations. The decline in timber production coupled with fire suppression has resulted in higher conifer densities and increased canopy closure in forest vegetation on public lands. Increased competition from conifers coupled with a reduction in sunlight to the forest floor has resulted in a decline in shrub and forb abundance which are the primary forage species for deer. Forest health and timber stand improvement projects are generally designed to thin (commercial or pre-commercial) timber stands which results in an increase in deer forage.

Because most shrub species in forested habitats are fire tolerant and re-sprout after burning, prescribed fire benefits mule deer by reducing duff on the forest floor and increasing deer forage. This is not true in shrub-steppe and dry ponderosa pine habitats because most shrub species in this habitat type are not fire tolerant, do not re-sprout, and it takes decades or centuries for them to re-establish. Most of the acres treated with prescribed fire were in forested habitats and the fires were designed to consume slash produced from thinning projects or reduce small tree densities and duff in un-thinned stands.

Non-native invasive plants often outcompete native vegetation, reduce native plant diversity, cause soil erosion, and increase frequency of wildfires; all leading to a reduction of more desirable forage species. Alterations in mule deer habitats caused by invasive plants can have dramatic impacts to mule deer habitat selection, survival, and sustained population size. Introductions of non-native plant species during early European settlement were escalated by high-intensity grazing in the early 1900s. Invasive weed treatments were designed to improve or maintain mule deer forage quality and quantity. Impacts of invasive species on Oregon's fish and wildlife resources are one of the six most pressing conservation issues identified in the Oregon Conservation Strategy (ODFW 2006).

Where shrub-steppe habitats were altered by invasive weeds, fire and/or crested wheat seeding, the browse component was increased by applying chemical herbicide using aerial or ground spraying techniques, and returning to the site a year later to plant a mix of native and non-native shrubs, grasses, and forbs,

Other habitat improvement projects identified by the local committees included water development, fencing projects to protect riparian areas used for fawning habitat or improve cattle distribution, and seeding or planting to improve forage.

Predator Management

The five local committees identified predation as either the primary or secondary most important factor affecting mule deer numbers in MDI units. Cougars and coyotes were identified as the main predators. Predation by bears was not considered a significant factor. The goal of predator

management actions was to increase either adult or fawn survival and thereby increase the number of deer in the selected units.

Steens and Warner were selected for Cougar Target Areas. The targeted number of cougar to be removed in each unit was based on Oregon's Cougar Management Plan (ODFW 2006b) and the population model for cougar zone F.

Heppner was selected for implementation of coyote control on the northern third of the unit that consisted primarily of winter and year round range as well as some summer range.

Disturbance and Harassment

In some instances human activity can cause enough disturbance or harassment to mule deer that it has an effect on habitat use or survival. These human caused factors can be direct, such as a project that removes forage plants and converts an area to non-usable vegetation. Factors can also be indirect, as when an increase in human activities causes mule deer to avoid using substantial areas of available habitat. Direct and indirect activities generally have the greatest effect on mule deer survival in winter when animals are already nutritionally stressed.

Historically Department biologists have been involved in various programs to reduce disturbance and harassment to mule deer on both winter and summer ranges. Under MDI some of these programs were continued, such as implementation of pre-existing travel management areas, or working with energy development proponents to minimize impacts of their projects on mule deer; or enhanced such as targeting permanent road closures on USFS lands within MDI units, or removing juniper in rights of ways to reduce vehicle collisions.

Law Enforcement

Each local committee had at least one representative from OSP Fish and Wildlife Division as a member. The troopers identified the prevalence of illegal activities in the unit and their impression of those activities effect on mule deer herds. OSP troopers developed action plans to measure and address illegal activities in the MDI units.

The Department attempted to reduce unlawful take of mule deer by increased presence of OSP and increased compliance with wildlife regulations by hunters through OSP Action Plans for each MDI unit. Better incentives were developed for citizens to notify OSP of game violations by doubling the Turn-In-Poacher reward money within MDI units. OHV enforcement efforts were also escalated in selected WMUs.

Disease and Parasites

Certain types of disease or parasites have been implicated in mule deer population declines. During plan development the severity of various diseases in the MDI units was unknown. Local committees identified various actions to monitor or measure disease or parasite prevalence.

Population Management

Population management includes development of hunting seasons as well as inventory and monitoring of mule deer populations.

Local committees reviewed management objectives (MOs) and hunting seasons in their respective MDI units and recommended changes. During this review process the Department agreed to implement any change the committee thought would improve mule deer abundance or herd structure.

In addition to the review of MOs and hunting seasons, Department biologists implemented quadrat sampling (Kuefeld et al.1980) to provide a population estimate with a measure of variance for monitoring mule deer herds within the MDI units and comparison areas.

Local committees reviewed MOs and hunting season structure and made recommendations for changes that would increase deer populations and/or buck ratios.

RESULTS

Habitat Management

All habitat improvement projects were completed in cooperation with other agencies or organizations interested in habitat quality specifically for mule deer or other wildlife and domestic livestock. Cooperating agency personnel used MDI unit designations to secure funding for projects that would improve mule deer habitat as well as meet other resource objectives. Funding for most of the activities reported below would not have been available without the Department's increased emphasis on mule deer and implementation of MDI.

Several of these projects were accomplished through programs for other target species or habitats. For example the Natural Resource Conservation Service's (NRCS) Sage-Grouse Initiative targets projects that will benefit sage-grouse on private land. Because sage-grouse and mule deer share similar habitats in the shrub-steppe ecosystem, most efforts intended to improve habitat for sage-grouse also improved conditions for mule deer.

Juniper Treatment

With the exception of Heppner, juniper encroachment was identified as a serious factor affecting habitat quality in all MDI units (Table 1). The importance of MDI designation for securing project funding is represented in the difference between juniper treatments in Warner versus Interstate. Post settlement juniper is affecting mule deer habitat on 230,000 acres of mule deer habitat in Warner and over 550,000 acres in Interstate. Although there is concern with the amount of juniper in Interstate and some projects are being funded, during the report period more than twice as many acres were treated in Warner because of the MDI designation.

Figures 2 and 3 present a breakdown of expenditures by cooperating organizations for MDI units and comparison areas, respectively. The type of juniper treatment selected depended on slope, density and size of juniper on the treatment site, and condition of the shrub component. In Phase I stands (Miller et al. 2007) individual junipers were cut and left. Treatment selected in Phase II stands were highly variable and ranged from hand falling followed by jackpot burning individual trees; to mechanical falling and piling followed by burning individual piles. The primary goal of juniper treatment was to retain as much of the shrub component as possible but not less than 50% shrub cover. The various treatment techniques used in Phase II stands were selected to maximize retention of shrubs. In general, Phase III stands were not treated due to the cost and amount of time needed for restoration of these sites. However, in Murderer's Creek, the Department treated some Phase III stands on Phillip W. Schneider Wildlife Area.

Table 1. Acres of juniper treated and expenditures in Oregon Mule Deer Initiative WMUs and comparison areas.

MDI Juniper Treatments 2010-2014		
Unit	**Total Acres Treated**	**Total Cost**
Warner	36,941.6	$3,544,407.40
Interstate	17,714.1	$1,910,213.90
Steens Mountain	36,109.3	$2,644,298.00
Trout Creek Mountains	0.0	$0.00
Maury	48,978.6	$4,420,551.00
Paulina	1,926.1	$116,416.00
Heppner	3,275.0	$370,282.79
Fossil	7,229.9	$853,786.56
Murderer's Creek	14,742.1	$1,569,424.00
Northside	854.0	$110,800.00
TOTAL	**167,770.7**	**$15,540,179.65**

Figure 2. Juniper Treatment Expenditures by Cooperator in Oregon Mule Deer Initiative WMUs, 2010 – 2014.

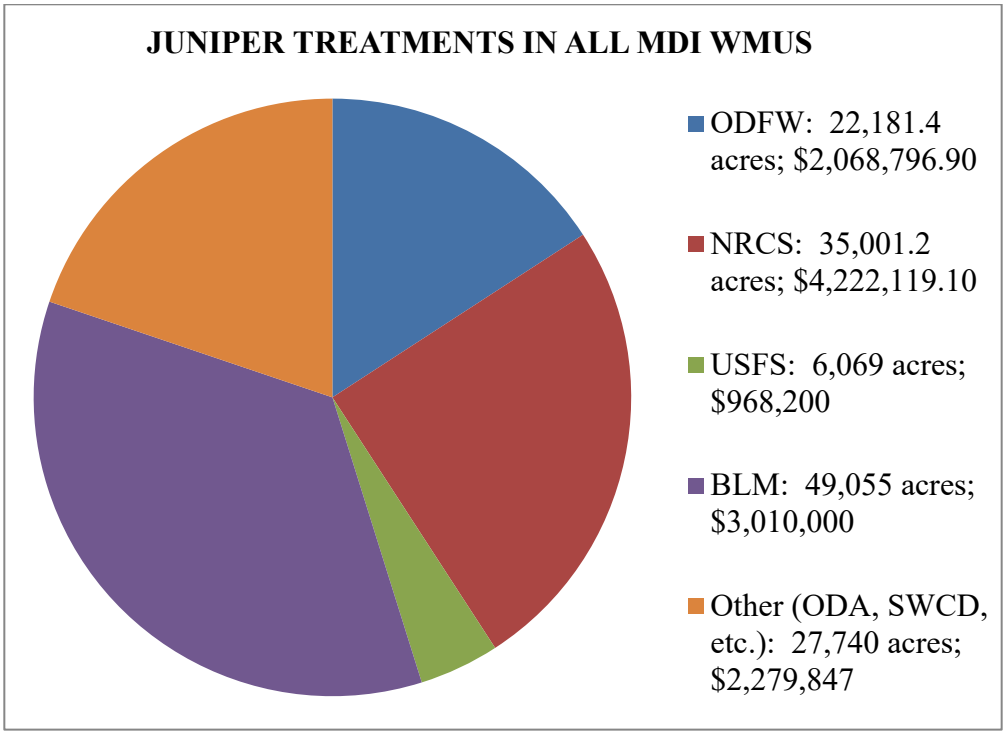
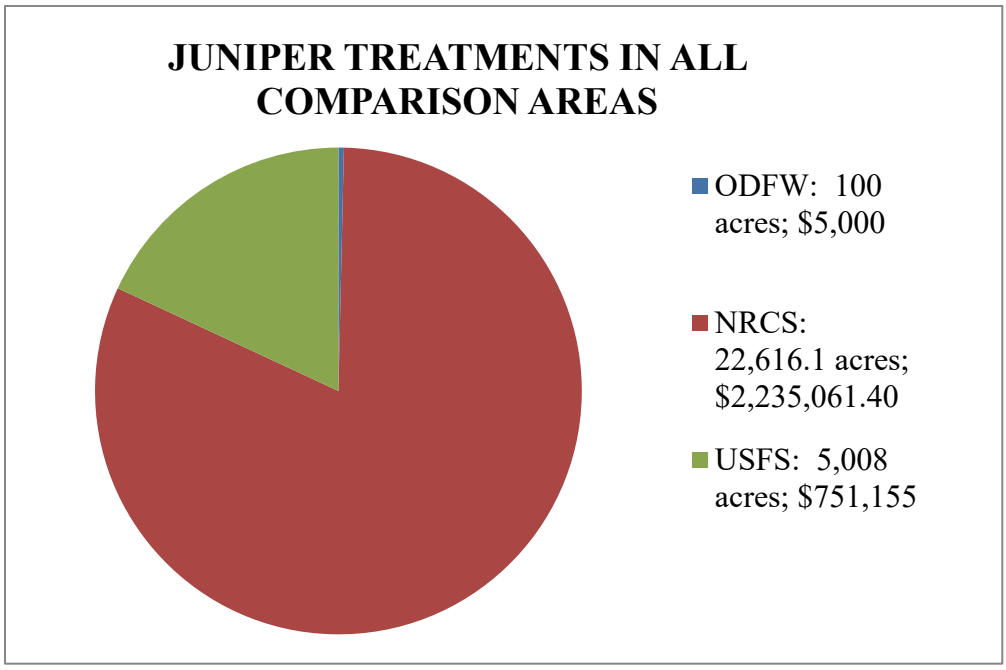


Figure 3. Juniper Treatment Expenditures by Cooperator in Oregon Mule Deer Initiative Comparison Areas, 2010 – 2014.



Invasive Weed Treatments

Non-native invasive weeds impact forage quality and quantity primarily on mule deer winter range. The major species of concern on winter ranges in the MDI units included medusa head rye, various species of non-native thistle, white top and knapweed. Chemicals to control weeds were applied both aerially and with various ground based techniques (Table 2). Figures 4 and 5 present a breakdown of invasive weed treatment expenditures by cooperating organizations for MDI and comparison areas respectively.

Table 2. Acres of non-native invasive weeds treated and expenditures in Oregon Mule Deer Initiative WMUs and comparison areas.

MDI Invasive Weed Treatments 2010-2014		
Unit	**Total Acres Treated**	**Total Cost**
Warner	6,810	$367,915.00
Interstate	12,372.60	$772,788.67
Steens Mountain	7,830.70	$123,937.00
Trout Creek Mountains	3,300	$52,229.31
Maury	410	$24,124.00
Paulina	0	$0.00
Heppner	8,393.70	$303,053.50
Fossil	234	$1,268.00
Murderer's Creek	413	$11,939.23
Northside	0	$0.00
TOTAL	**39,764.0**	**$1,605,025.40**

Figure 4. Non-native Invasive Weed Treatment Expenditures by Cooperator in Oregon Mule Deer Initiative WMUs, 2010 – 2014.

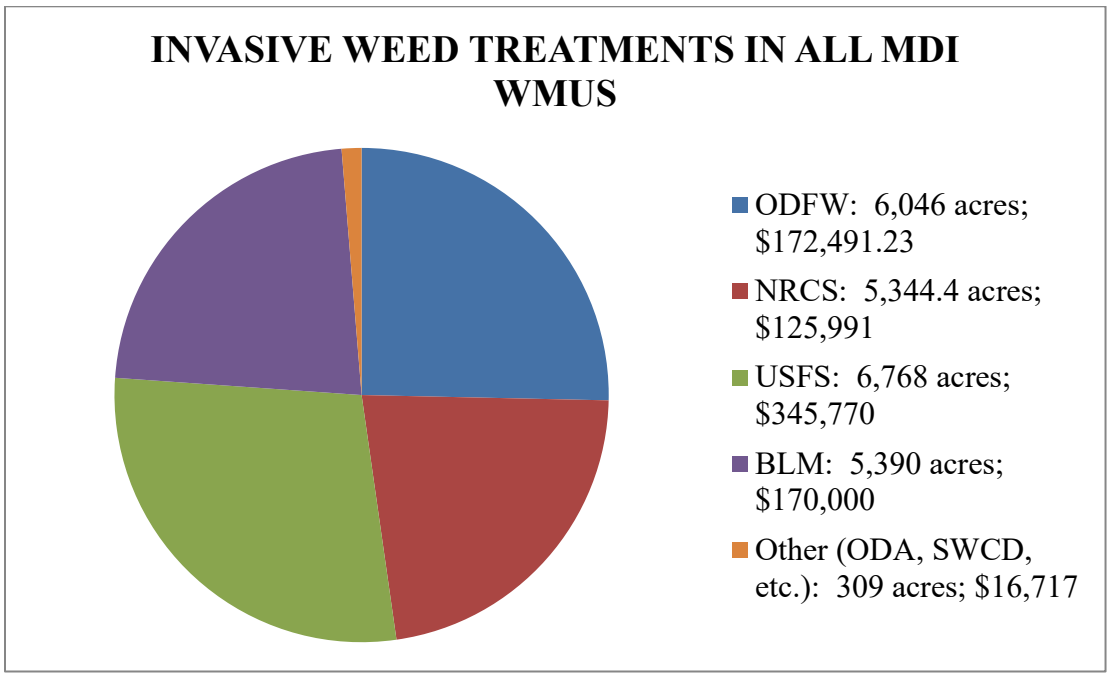
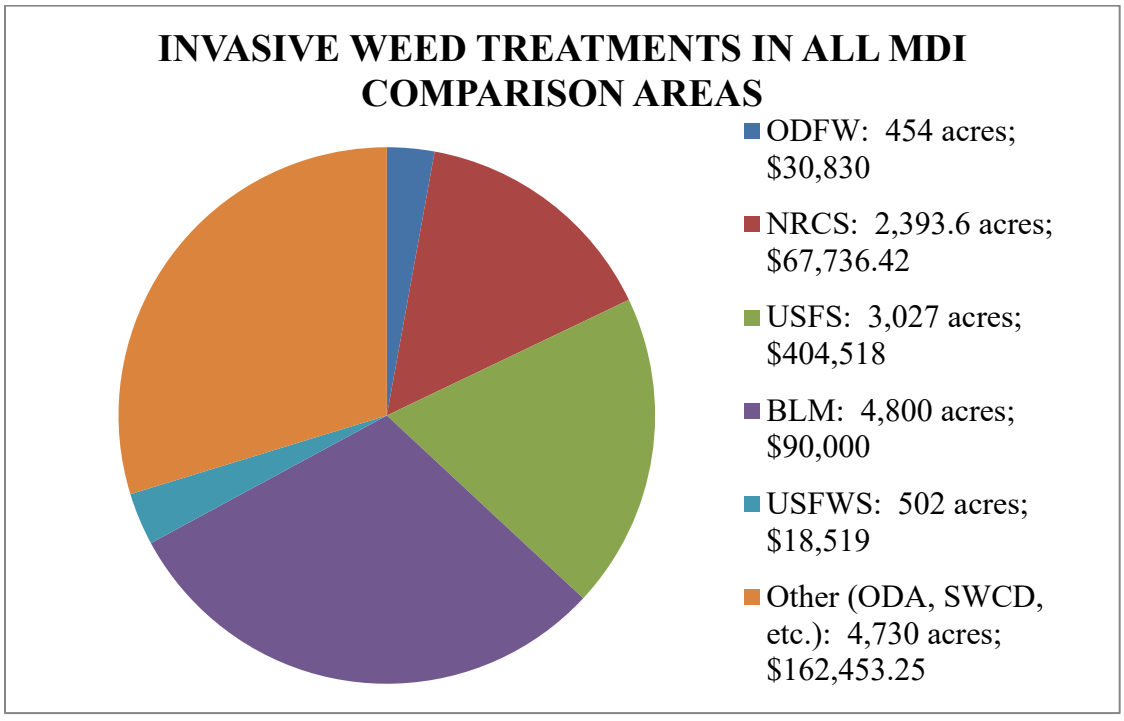


Figure 5. Non-native Invasive Weed Treatment Expenditures by Cooperator in Oregon Mule Deer Initiative Comparison Areas, 2010 – 2014.



In addition to these treatments the Department partnered with Lakeview BLM and Fremont NF to complete weed surveys on 8,500 acres and 1,500 acres in Warner and Interstate respectively. These surveys were for medusa head rye, dyer's woad, and knapweed, and will be used to plan future treatments. Total cost of the surveys was $68,750, and the Department's contribution was $10,000.

Shrub/Grass Seeding

Seeding various grass or shrub species was done to establish desirable vegetation in areas that had been disturbed for a variety of reasons (Table 3). These reasons included: areas intensely burned in wildfires which killed all the native vegetation; seeding after juniper treatments to establish desirable herbaceous vegetation or shrubs and to provide competition with weeds; and/or seeding after several years of weed treatments to establish desirable forage species and keep weeds from re-infesting the treatment area. Seed mixes were selected for their forage value, adaptability to precipitation zone and soil type, and competiveness with weeds. Seeding occurred in all seasonal mule deer ranges (Fig. 6 & 7).

Table 3. Acres of shrub and grass seeding and expenditures in Oregon Mule Deer Initiative WMUs and comparison areas.

MDI Shrub/Grass Seeding 2010-2014		
Unit	**Total Acres Treated**	**Total Cost**
Warner	575	$23,513.00
Interstate	868.7	$64,277.00
Steens Mountain	8,275	$752,500.00
Trout Creek Mountains	10,300	$936,646.51
Maury	847	$21,681.00
Paulina	0	$0.00
Heppner	4,190.30	$351,964.02
Fossil	2,304.80	$227,490.68
Murderer's Creek	620	$15,891.26
Northside	40	$1,530.00
TOTAL	**28,020.8**	**$1,458,846.96**

Figure 6. Shrub and Grass Seeding Expenditures by Cooperator in Oregon Mule Deer Initiative WMUs, 2010 – 2014.

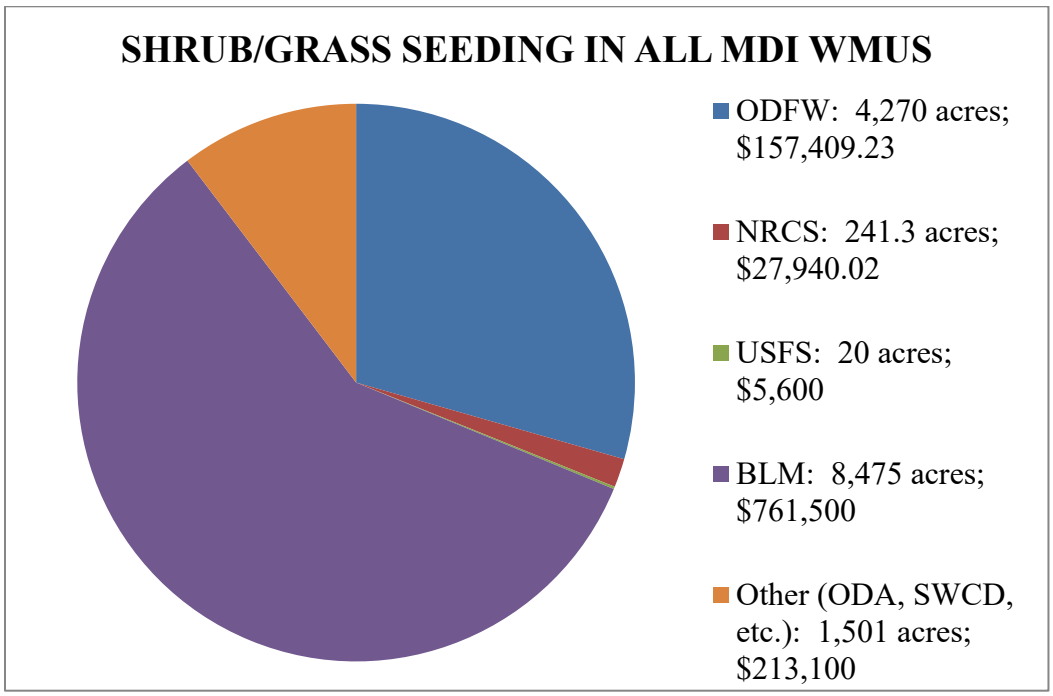
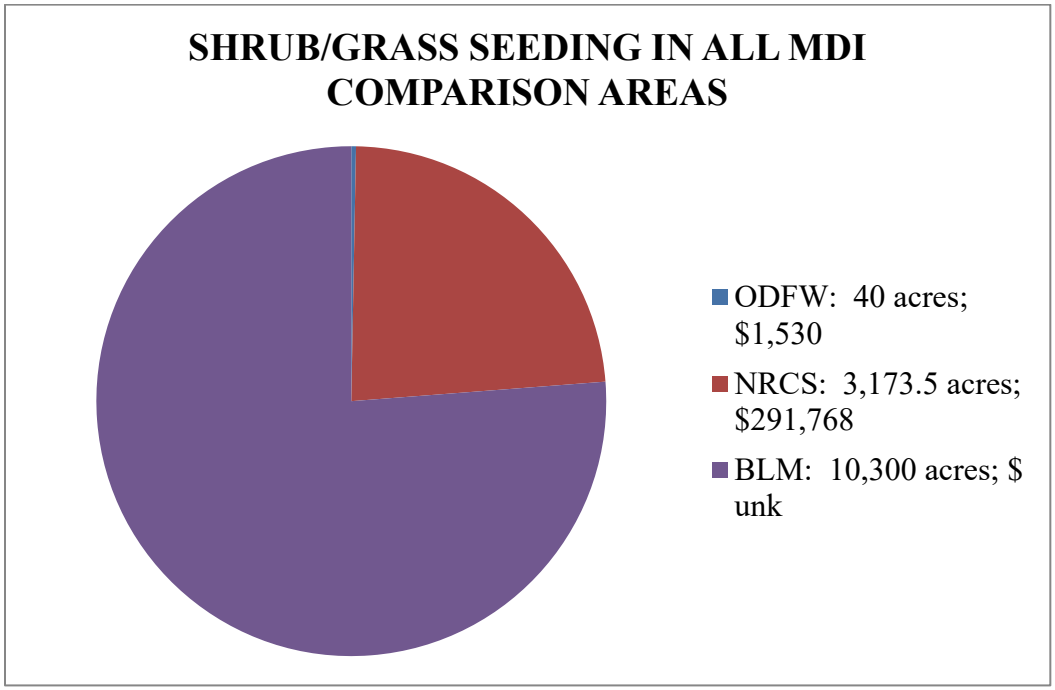


Figure 7. Shrub and Grass Seeding Expenditures by Cooperator in Oregon Mule Deer Initiative Comparison Areas, 2010 – 2014.



Aspen Stand Improvement

Activities to improve aspen stands included removing competing conifers, fencing to protect from grazing, and burning to treat conifer slash (Table 4). Because of the importance of aspen for a wide variety of wildlife species many of the treatments were not specifically targeting mule deer (Fig. 8 & 9); however any aspen improvement has the potential to benefit deer.

Table 4. Acres of aspen stand improvement and expenditures in Oregon Mule Deer Initiative WMUs and comparison areas.

MDI Aspen Stand Improvements 2010-2014		
Unit	**Total Acres Treated**	**Total Cost**
Warner	1,714	$466,028.00
Interstate	445	$154,200.00
Steens Mountain	0	$0.00
Trout Creek Mountains	0	$0.00
Maury	147.4	$22,812.00
Paulina	0	$0.00
Heppner	7.9	$36,777.79
Fossil	0	$0.00
Murderer's Creek	18	$58,000.00
Northside	0	$0.00
TOTAL	**2,332.3**	**$737,817.79**

Figure 8. Aspen Stand Improvement Expenditures by Cooperator in Oregon Mule Deer Initiative WMUs, 2010 – 2014.

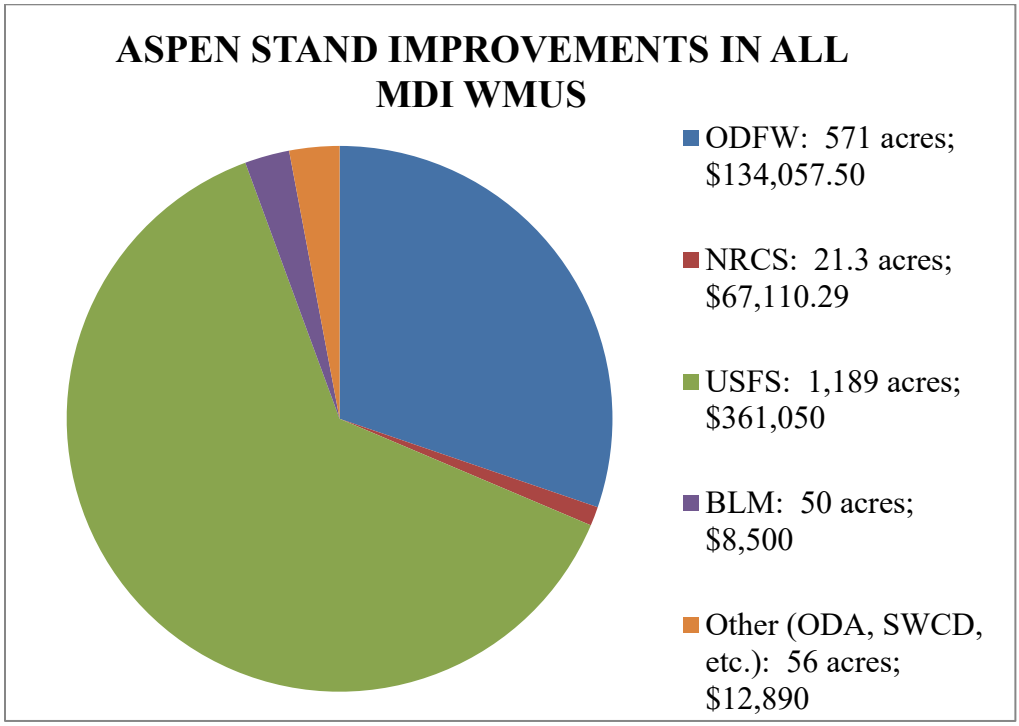
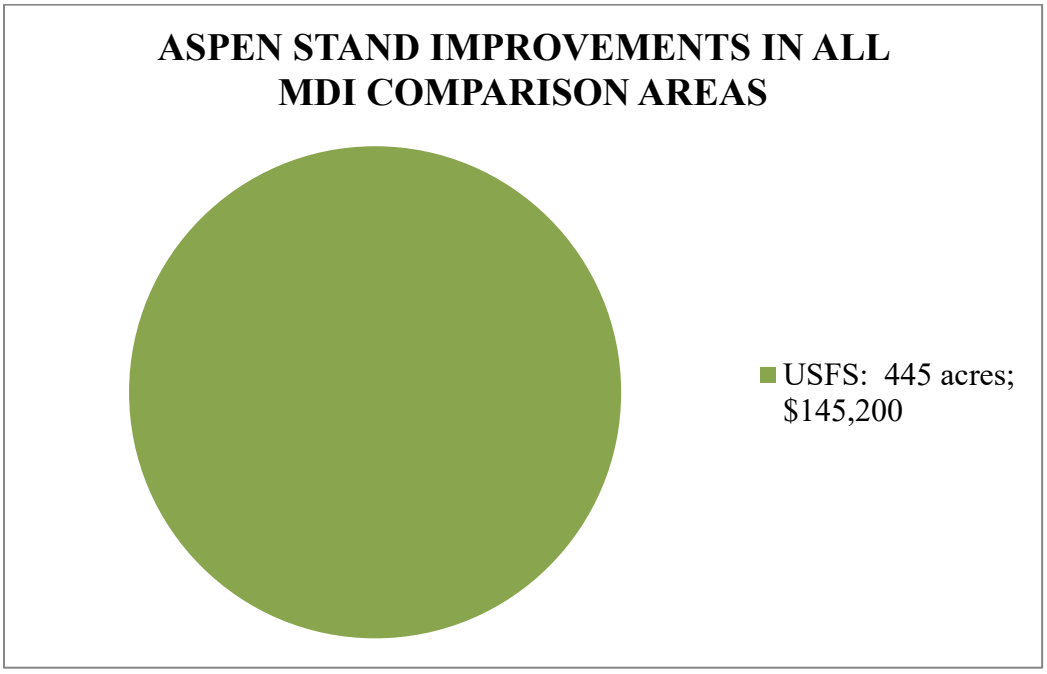


Figure 9. Aspen Stand Improvement Expenditures by Cooperator in Oregon Mule Deer Initiative Comparison Areas, 2010 – 2014.



Forest Health Treatment

In Oregon, a majority of mule deer summer range is forested habitat. Over the past 30 years forest maturation has resulted in increasingly closed forest canopies and a buildup of duff, resulting in a decline in shrubs and forbs important for mule deer forage. Forest health treatments generally include both commercial and pre-commercial thinning which opens canopies, decreases competition between trees, and increases sunlight getting to the forest floor which results in a more vigorous understory (Table 5). The majority of the forest health treatments occurred on National Forests, and as with aspen projects, was not always specifically designed to benefit mule deer (Fig. 10 & 11).

Table 5. Acres of forest health treatment and expenditures in Oregon Mule Deer Initiative WMUs and comparison areas.

MDI Timber Stand Improvements 2010-2014		
Unit	**Total Acres Treated**	**Total Cost**
Warner	6,705	$669,515.00
Interstate	37,711	$3,107,768.00
Steens Mountain	0	$0.00
Trout Creek Mountains	0	$0.00
Maury	1984	$204,656.00
Paulina	0	0
Heppner	423.6	$143,581.27
Fossil	201	$29,525.00
Murderer's Creek	700	$200,000.00
Northside	0	$0.00
TOTAL	**47,724.6**	**$4,355,045.27**

Figure 10. Forest Health Treatment Expenditures by Cooperator in Oregon Mule Deer Initiative WMUs, 2010 – 2014.

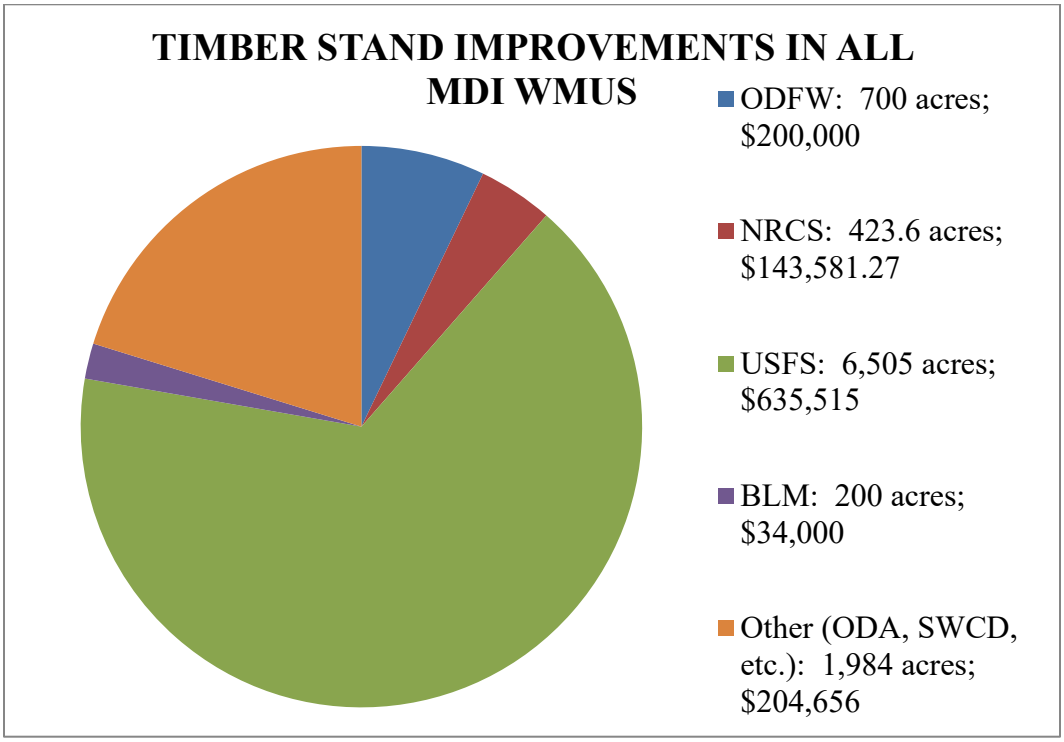
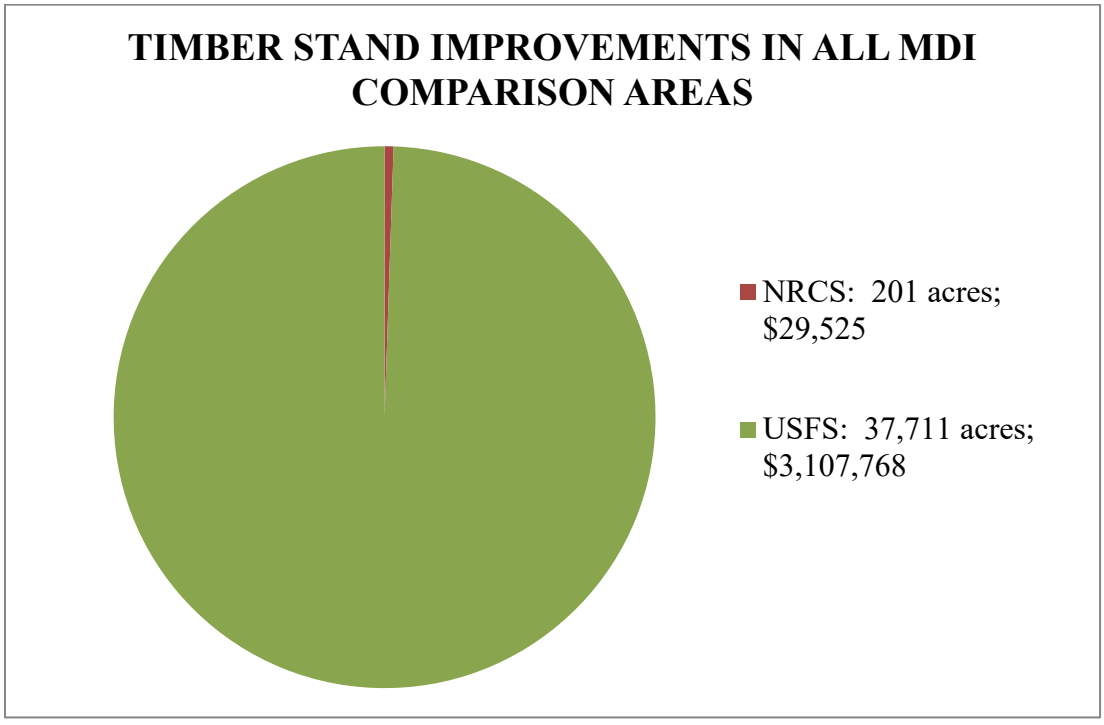


Figure 11. Forest Health Treatment Expenditures by Cooperator in Oregon Mule Deer Initiative Comparison Areas, 2010 – 2014.



Prescribed Burning

With the exception of the Steens, most of the acres treated with prescribed fire (Table 6) were in forested habitats and the fires were designed to consume slash produced from thinning projects or reduce small tree densities and duff in un-thinned stands. Most of the prescribed burning was not completed specifically to benefit mule deer (Fig. 12 & 13).

In the Steens unit the BLM has implemented two significant rangeland restoration projects. The foremost objective of each of these projects is to reduce juniper related fuels and restore natural plant communities. The North Steens Ecosystem Restoration Project area encompasses 336,000 acres of public and private lands, and includes approximately 130,000 acres of juniper treatment. The Five Creeks Rangeland Restoration Project calls for an estimated 72,740 acres of juniper treatment. The Department has worked closely with the BLM during the development and implementation of these projects to ensure that significant areas of sagebrush and bitterbrush are maintained while adjacent areas are being treated. Often this requires a variety of juniper removal techniques in addition to burning. The prescribed fires that were conducted were primarily part of the Five Creeks Rangeland Restoration Project and were conducted in large continuous stands of late Phase II juniper where sagebrush was being impacted by juniper. Prescribed fires were conducted at elevations above 5,800 where the shrub component is expected to recover and the risk of annual grass infestation is low.

Table 6. Acres of prescribed burning and expenditures in Oregon Mule Deer Initiative WMUs and comparison areas.

MDI Prescribed Burning 2010-2014		
Unit	**Total Acres Treated**	**Total Cost**
Warner	13,002	$833,850.00
Interstate	17,701	$766,861.00
Steens Mountain	48,979	$764,000.00
Trout Creek Mountains	0	$0.00
Maury	5,911.60	$133,169.00
Paulina	0	$0.00
Heppner	8,135	$248,820.00
Fossil	5,379	$168,447.00
Murderer's Creek	0	$0.00
Northside	0	$0.00
TOTAL	**99,107.6**	**$2,915,147.00**

Figure 12. Prescribed Burning Expenditures by Cooperator in Oregon Mule Deer Initiative WMUs, 2010 – 2014.

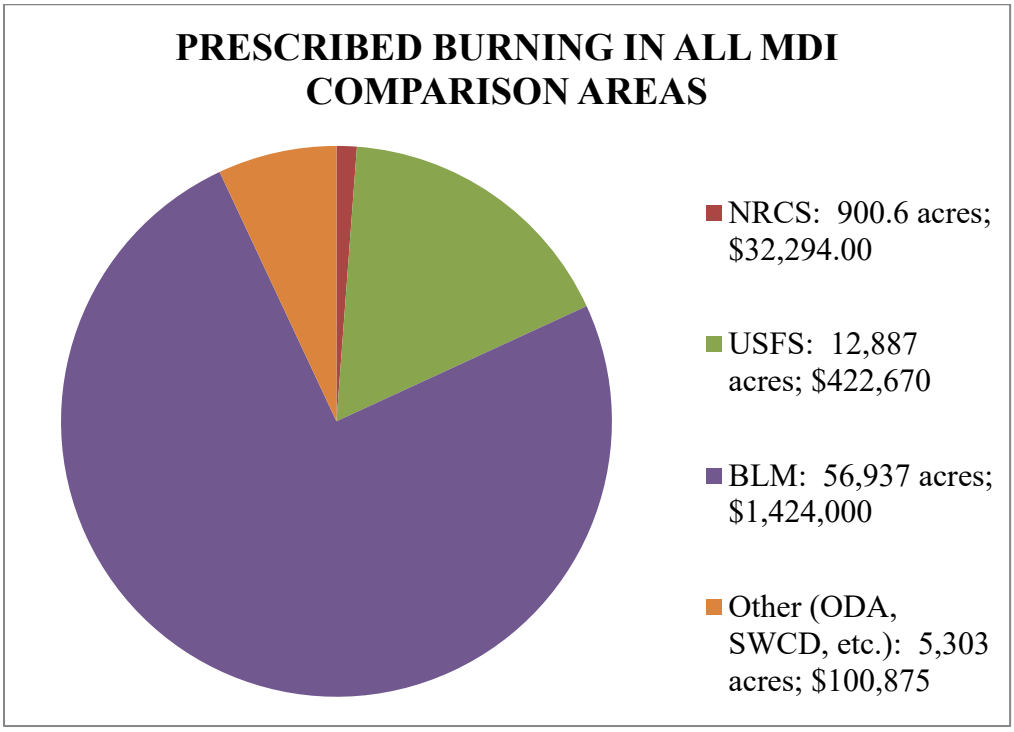
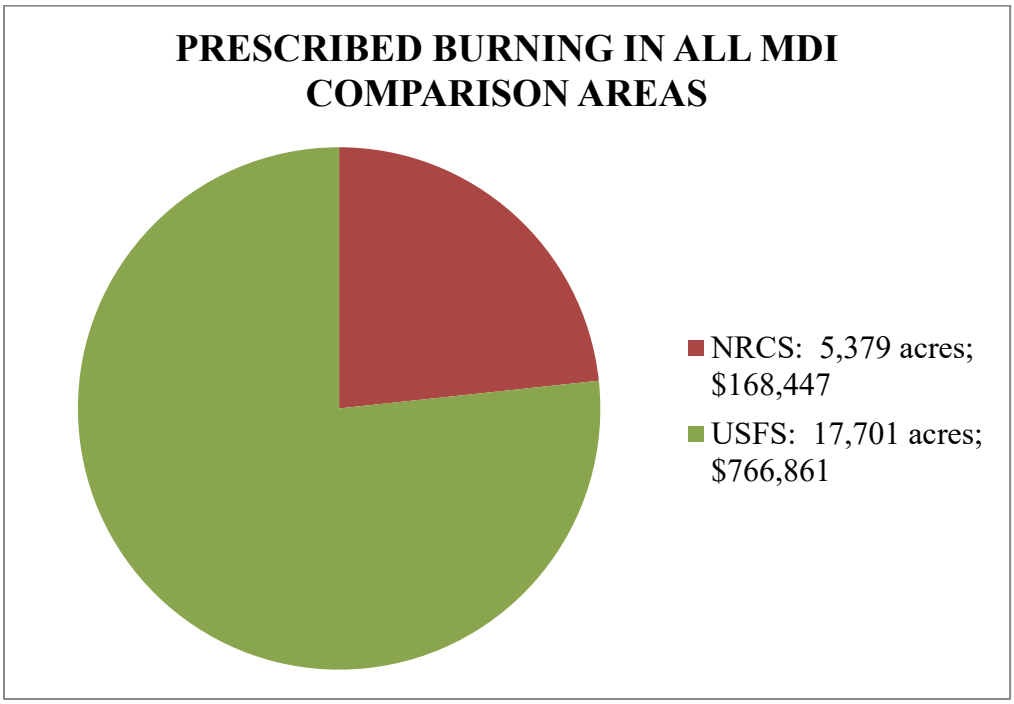


Figure 13. Prescribed Burning Expenditures by Cooperator in Oregon Mule Deer Initiative Comparison Areas, 2010 – 2014.



Fence Construction

Fences were constructed to enhance riparian areas which would then be used by mule deer as fawning habitat; or in upland areas to improve cattle distribution and reduce grazing pressure on important shrubs (Table 7). A total of 53.6 miles of fence construction was completed in four of the MDI units and 2 of the comparison areas. The Department provided partial funding on several of the fence projects because there were benefits to mule deer even though the primary purpose of the project was not specific to deer (Fig. 14 & 15).

Table 7. Miles of fence constructed and expenditures in Oregon Mule Deer Initiative WMUs and comparison areas.

MDI Fence Construction 2010-2014		
Unit	**Total Miles**	**Total Cost**
Warner	5.3	$39,572.04
Interstate	0	$0.00
Steens Mountain	4	Data unavailable
Trout Creek Mountains		
Maury	24.28	$200,462.00
Paulina	1.45	$17,251.00
Heppner	12.4	$130,830.45
Fossil	6.2	$47,443.56
Murderer's Creek	0	$0.00
Northside	0	$0.00
TOTAL	**53.63**	**$435,559.05**

Figure 14. Fence Construction Expenditures by Cooperator in Oregon Mule Deer Initiative WMUs, 2010 – 2014.

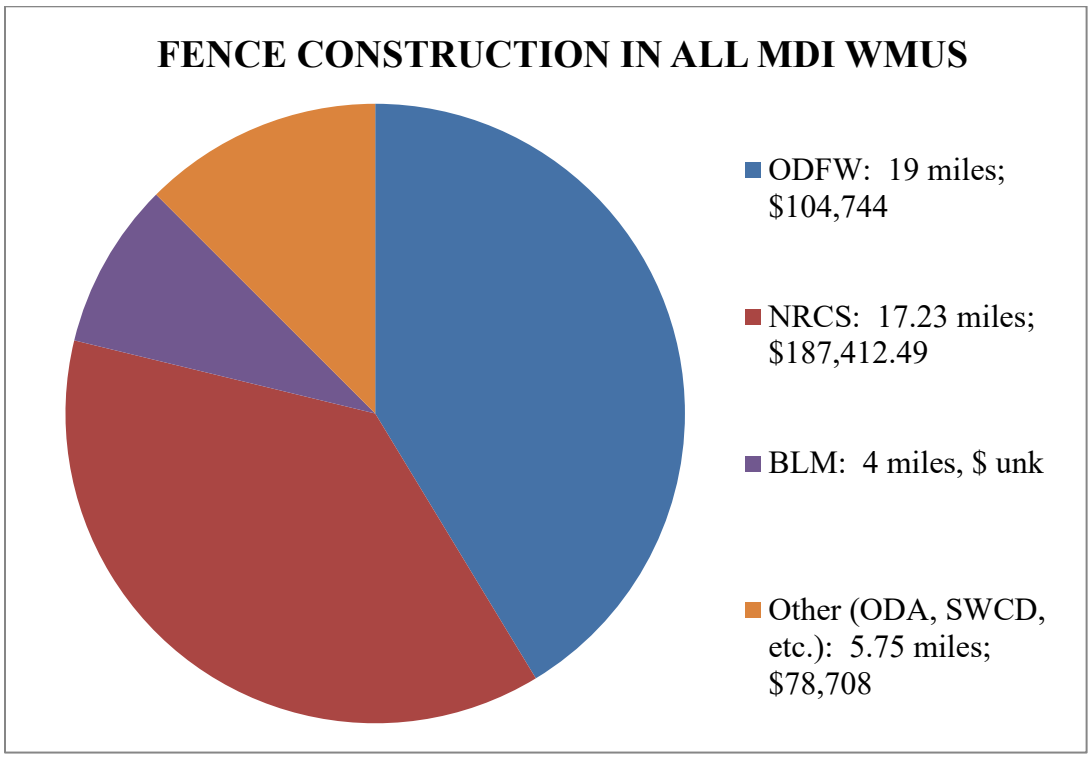
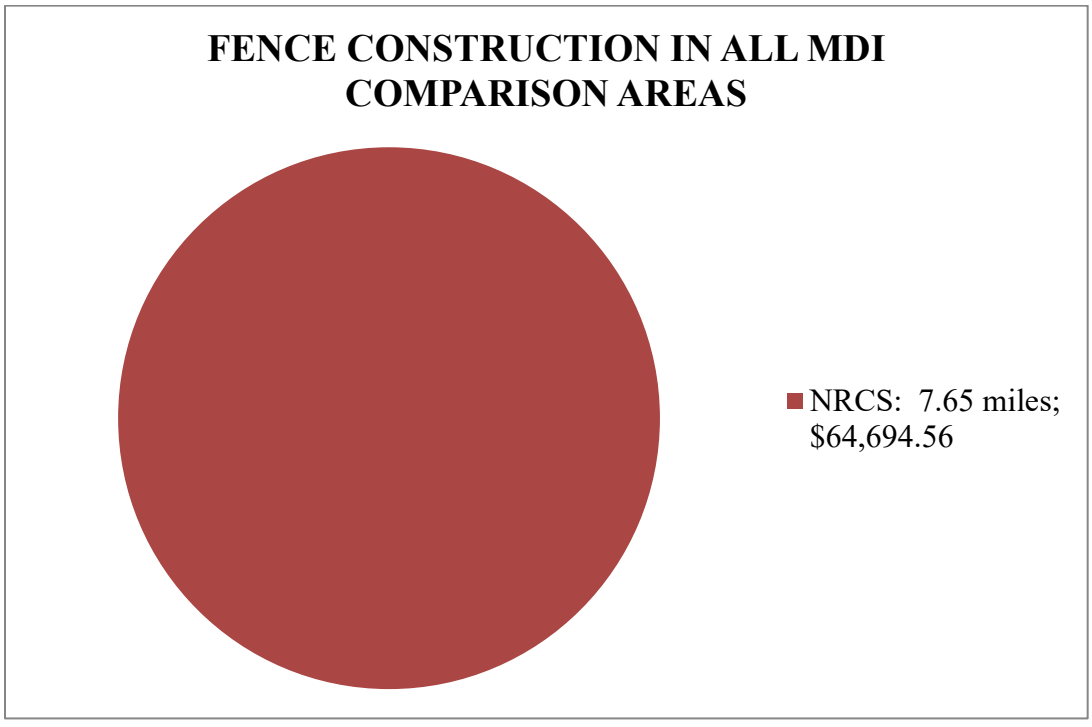


Figure 15. Fence Construction Expenditures by Cooperator in Oregon Mule Deer Initiative Comparison Areas, 2010 – 2014.



Other Habitat Projects

Water developments were completed in Heppner, Fossil, Maury, Paulina, and Murderer's Creek. In Heppner 28 springs were developed at a cost of $34,853.80, in Fossil development of 44 springs cost $72,962.17, and in Murderer's Creek development of one spring cost $1,105.40. Fourteen guzzlers were installed in Maury at a cost of $11,827, and four guzzlers were installed in Paulina at a cost of $2,008.

The springs in Heppner and Fossil were developed to improve off stream water for livestock; however the developments also provide benefits to mule deer. In Warner two miles of pipeline was installed. The Department purchased the pipe ($10,000) and the landowner completed installation ($10,400). The purpose of this pipeline was to improve water distribution for cattle and reduce grazing pressure on riparian vegetation on Honey Creek.

Mountain mahogany and bitterbrush seedlings were planted in Steens. Seedlings were planted in appropriate areas that were affected by either wildfire or prescribed burns. Approximately 200 acres of mahogany and 250 acres of bitterbrush were planted for a total of 450 acres. Plants were acquired by the Department and planted by Department and BLM personnel at the cost of $12,000.

Predator Management

All of the local committees identified predation as being either the primary or secondary factor affecting mule deer numbers in the MDI units. The Department adopted Cougar Target Areas in Steens and Warner and implemented a coyote control project in the Heppner. In an effort to measure the effect of these control efforts the Department upgraded mule deer population monitoring by developing population estimates using quadrat sampling methodology.

Cougar Target Areas

The purpose of both target areas was to increase mule deer populations by reducing cougar predation and increasing adult and fawn survival.

Using the Zone F Cougar model and applying the population estimate at the unit level the number of cougar to be removed was set at 20/year in Steens and 14/year in Warner. In Steens cougar removal was completed through a contract with Wildlife Services (WS), on all administrative removal in Warner was completed using Department Volunteer Cougar/Bear Agents. In both units hounds were used as the primary method for taking cougars, with traps or snares being used in appropriate situations. The average cost per cougar removed was $1,090 in the Steens and $460 in Warner. The difference was due to the WS contract in Steens which effectively hired an employee to remove cougars versus using volunteer agents in Warner who were compensated for their mileage but not their time.

Targets were not met in either unit (Table 8). In Steens the annual target (20 cougar) was met in year one, almost met in year two (18) and fewer cougar were taken in years three and four (15 & seven respectively). This is consistent with results from previous target areas and although the reasons vary the common themes include: 1.) As the cougar population declines in subsequent years of operation, it becomes harder to catch cougars. 2.) Weather conditions can affect taking cougars, particularly with hounds, and two of the four years of operation had mild winters.

In Warner, the 12 cougars taken in 2012 was closest to meeting the target. There were not enough volunteer agents signed up the first two years of implementation of the target area and, because they were volunteer agents, they were not always available when weather conditions were right.

Table 8. Cougar Harvest in Steens and Warner Cougar Target Areas in Oregon Mule Deer Initiative WMUs, 2010-2014.

PREDATOR CONTROL MDI WMU							
Unit	**Operation Period***	**Four-Year Objective**	**# Admin**	**# Sport**	**# Damage**	**# Other**	**Cost ($)**
Warner	**Jan 2010 – Dec 2014**	56	28	17	6	1	$12,896 (ODFW/OHA)
Steens Mountain	**Jan 2010 – Dec 2013**	80	60	0	0	0	$65,400 (ODFW)

Variables used to measure deer response to cougar removal included comparison of deer population estimates between target area and comparison units using quadrat sampling methodology (Kuefeld, 1980), POP II (Fossil Creek Software)and deer hunter harvest data. Percent adult female cougars taken and average age of cougars taken were also monitored.

Quadrat population estimates did not show an increase in mule deer numbers during target area implementation (Tables 12 & 13). However, other variables did indicate a positive response in deer numbers. It is likely that there was a positive response in deer numbers as a result of target area implementation and the lack of an increasing trend in quadrat based population estimates was due to our inexperience with the method in 2010 and the effect of highly variable weather conditions and deer distribution between 2011 and 2014. 2011 and 2012 were the only years with consistent weather and deer distribution between years and the population estimate in both units was stable with acceptable variance.

Rifle harvest data is probably the clearest indicator that the target area had a positive impact on the deer population in the Steens. The number of public hunting tags proposed in the Steens (250 tags) and Trout Creeks (50 tags) has remained the same since 2004. Steens hunter success

rate from 2004 through 2010 averaged 46%, and the average success rate from 2011-2013 was 53%. In addition, the average percent yearlings in the Steens harvest declined from 37% in 2004-2010 to 25% for 2011-2013. This indicates that not only are hunters having more success, but they are also harvesting more mature bucks. The Trout Creek harvest data remained stable during the same time period. Harvest success in the Trout Creeks was 61% from 2004-2010, and 62% from 2011-2013. Yearling bucks in the harvest from 2004-2010 was 14% and 15% from 2011-2013.

Rifle harvest data in Warner/Interstate was similar to Steens/Trout Creeks but hunter numbers in Warner declined in the second period. Hunter numbers in the north and south Warner hunt areas averaged 88 and 249 respectively from 2004-2010; and 53 and 200 from 2011-2013. Percent hunter success for Warner increased similar to Steens with 51% north and 33% south from 2004-2010; and 67% and 49% respectively from 2011-2013. Percent yearling bucks in the harvest also declined similar to Steens with 37% north and 63% south from 2004-2010; and 18% and 51% respectively from 2011-2013. Interstate harvest data was similar to Trout Creeks during the time period. Average hunter numbers in Interstate was 1,351 from 2004 -2010 and 1,431 from 2011-2013. Average hunter success was 44% and 47% respectively and yearling bucks harvested averaged 54% and 51% respectively.

Coyote Control

The objective of coyote control in the northern portion of the Heppner was to increase spring fawn recruitment to 42 per 100 adults. The average spring fawn ratio from 1991-2000 was 42 fawns per 100 adults.

Coyote control was implemented by Wildlife Services from March 2010 through June 2013. A total of 933 coyotes and 74 dens were taken for a cost of $114,046 (ODFW: $54,000, Wildlife Services: $60,046). Methods used included aerial control and ground trapping. Aerial control occurred primarily from December through May and trapping efforts occurred year round. A helicopter was used for aerial control the first two years and a fixed wing aircraft was used in the third year. Removing coyotes during this time period disrupts the breeding cycle and has been shown to be the most effective in reducing coyote predation impacts on deer populations.

Mule deer monitoring in the control area did not show a noticeable response in mule deer fawn survival from the rest of the Heppner unit or Fossil unit (Table 9).

Table 9. Fall and spring fawn ratios in the coyote control area of the Heppner wildlife management unit, the total Heppner unit and the Fossil wildlife management unit, Oregon.

	Heppner Coyote Control Area		Heppner WMU Total		Fossil WMU Total	
Year	Fall Fawns (f/100doe)	Spring Fawns (f/100adult)	Fall Fawns (f/100doe)	Spring Fawns (f/100adult)	Fall Fawns (f/100doe)	Spring Fawns (f/100adult)
2010	55	-	64	53-	35	-
2011	58	34	46	51	43	44
2012	40	48	49	45	32	49
2013		35				35

2011 was the only year that the fall fawn ratio was substantially higher in the control area as compared to the rest of the Heppner unit and Fossil unit. Fawn ratios improved in the control area as compared to the previous 10 years prior to project implementation, however that improvement was observed in the rest of Heppner and Fossil, and was probably more related to other factors, primarily favorable forage conditions driven by weather and not coyote control.

After considering research performed on coyote control in other areas, it may be that the Heppner coyote control area was too large of an area to be successful. It is possible that more vigorous efforts would have resulted in a more desirable effect on mule deer fawn recruitment.

Disturbance and Harassment

The primary activity under this section was implementation of travel management areas (Table 10) and cooperative project with the USFS to permanently close some roads in Warner unit. Travel management areas in Heppner and Maury were in effect prior to MDI but have been beneficial to mule deer and were continued. The area closure on P.W. Schneider Wildlife Area was implemented as a result of the MDI, and its intent is to protect wintering mule deer from harassment by shed antler hunters.

Table 10. Road closures and travel management areas implemented in Oregon Mule Deer Initiative WMUs, 2010 – 2014.

ROAD CLOSURES/TMA'S			
WMU	**Road Closure/TMA Name**	**Square Miles**	**Effective Dates**
Heppner	West end	93	Year round
Heppner	Heppner	388	various
Maury	Maury	9	December 1 – April 15
Murderer's Creek	Murderer's Creek – Flagtail TMA	262	Three days prior to archery through the end of buck deer. Did not include archery season prior to MDI.
Murderer's Creek	Phillip W. Schneider Wildlife Area Closure	unknown	Feb 1 to April 14

The Heppner closure has been in place since the mid 1990's but there was a concerted effort to improve signage and enforcement to make the closures more effective.

The closure period of the Murderer's Creek-Flagtail TMA was changed to include archery season to increase buck escapement and reduce harassment of deer.

The Department signed a cooperative agreement with the Fremont/Winema NF to complete a survey of forest roads planned for permanent closure. The forest committed $60,000 to the project and the Department's contribution was $5,000. The survey area covered the entire forest and the Department's contribution covered survey of 77 miles of roads in Warner unit.

Law Enforcement

Table 11 presents contacts made and compliance rates measured by OSP officers while completing patrols or Wildlife Enforcement Decoy (WED) operations while implementing MDI unit OSP action plans. Data shown includes patrols during hunting seasons and for winter range protection.

Table 11. Oregon State Police Enforcement Results in Oregon Mule Deer Initiative Wildlife Management Units.

MDI ENFORCEMENT FOR YEARS 2010-2013				
Unit	**Action Plan Initiated***	**Mule Deer Contacts**	**$\bar{x}$ Compliance Rate**	**Compliance Rate Range**
Warner	Yes	247	90.2%	82.4 % - 96.2%
Steens Mtn.	Yes	71	89.4%	70.2% - 100%
Maury	Yes	206	95.9%	87.5% - 98.3 %
Heppner	Yes	771	91.7%	88.5% - 98.8%
Murderer's Creek	Yes	501	67.2%	75% - 96.7%
TOTAL		**1,796**	**86.90%**	**70.2% - 100%**

When action plans were developed it was generally assumed that there were no substantial enforcement issues in any of the MDI units. With the exception of Murderers Creek, compliance rates measured were generally consistent with other units and other patrol activities in eastern Oregon.

Murderers Creek compliance rates were substantially lower than other MDI units, but the reason is unknown.

During the report period no rewards were paid out through the Oregon Hunters Association TIP program.

Disease and Parasites

All of the MDI local committees identified disease as a low priority factor effecting mule deer populations. During the report period no substantial disease outbreaks were observed in any of the MDI units and the only sampling that occurred was the occasional submission of samples from individual deer that appeared sick.

Annual monitoring for the occurrence of Chronic Wasting Disease (CWD) has been completed by collecting samples from hunter harvested deer in all wildlife units. Those collections continued during the report period and there has not been a CWD positive deer detected in Oregon.

While completing spring census in Steens a few deer were observed with barbered hair indicative of Hair Loss Syndrome. The first observation was in 2011, but biologists were not able to collect any samples. In February 2013 biologists collected and submitted one deer to the OSU Veterinary Diagnostic Laboratory, and the diagnosis was Hair Loss Syndrome caused by the exotic louse *Bovicola tibialis*, but was otherwise in excellent physical condition and was carrying twin fawns. Routine sample collection from sick deer in Maury identified an outbreak of adenovirus hemorrhagic disease (AHD). Five cases were confirmed in 2010 and 2011, and a few cases of AHD were suspected in 2012 and 2013 but no samples were collected.

Population Management

Deer Population Inventory

The Department recognized that herd trend surveys were not accurate enough to measure a change in a deer population over the short time period of MDI. The Department adopted quadrat sampling as a statistically based, more rigorous method of measuring mule deer populations in the MDI units and their comparison areas.

The quadrat method is a stratified random sampling technique. All areas that could contain mule deer during the sample period were stratified by deer density (high, medium, low) and then a representative number (~20%) of all one square mile blocks (quadrats) within each strata were randomly selected for deer sampling. Quadrats were gridded using a helicopter with the intent to count every deer within a quadrat. A population estimate was derived for MDI units and their respective comparison unit.

In the units with cougar target areas there was potential to see a change in deer populations during implementation of the control effort, therefore quadrat sampling methodology was started in 2010 (Table12 & 13). In the units without target areas quadrat sampling was started in 2011. Population estimates for the MDI units without cougar target areas and their comparison units are presented in Tables 14 – 16.

Table 12. Mule deer population estimates for Steens Mountain wildlife management unit (treatment) and Trout Creeks hunt area (comparison) based on quadrat sampling methodology.

Steens					**Trout Creek**		
Year	Population Estimate	95% CI	Standard Deviation		Population Estimate	95% CI	Standard Deviation
2010	6,379	2,992-9,766	1,728		818	0-1,772	487
2011	4,306	3,156-5,456	587		997	438-1,556	285
2012	4523	3,544-5,502	500		617	320-914	151
2013	6,769	5,100-7,938	851		901	323-1,479	295
2014	4,377	3,227-5,527	586		875	422-1,328	231

Table 13. Mule deer population estimates for Warner (treatment) and Interstate (comparison) wildlife management units based on quadrat sampling methodology.

Warner					Interstate		
Year	Population Estimate	95% CI	Standard Deviation		Population Estimate	95% CI	Standard Deviation
2010	3,157	2,247-4,067	464		4,718	3,190-6,247	780
2011	2,468	2,067-2,869	205		4,061	3,430-4,691	321
2012	2,464	1,774-3,155	352		4,104	3,191	466
2013	3,814	2,706-4,921	565		5,538	4,405-6,670	578
2014	1,986	1,424-2,547	286		3,815	2,868-4,762	483

Table 14. Mule deer population estimates for Heppner (treatment) and Fossil (comparison) wildlife management units based on quadrat sampling methodology.

Heppner					Fossil		
Year	Population Estimate	95% CI	Standard Deviation		Population Estimate	95% CI	Standard Deviation
2011	10,289	8,520-12,058	902		9,418	7,453-11,383	1,003
2012	8,914	8,132-9,696	399		8,624	7,041-10,207	807
2013	8,327	7,428-9,226	459		7,914	6,430-9,398	757
2014	10,761	9,810-11,712	485		12,301	10,324-14,278	1,009

Table 15. Mule deer population estimates for Maury (treatment) and northern portion of Paulina (comparison) wildlife management units based on quadrat sampling methodology.

Maury					North Paulina		
Year	Population Estimate	95% CI	Standard Deviation		Population Estimate	95% CI	Standard Deviation
2010	6,399	4,688-8,110	873				
2011	5,805	4,636-6,974	596		3,466	2,807 – 4,125	336
2012	4,297	3,194-5,401	563		3,699	2,659 – 4,739	531
2013	5,590	4,378-6,801	618		3,784	2,966 – 4,602	417
2014	3,866	3,373-4,359	251		2,018	1,554 – 2,482	237

Table 16. Mule deer population estimates for Murderers Creek (treatment) and Northside (comparison) wildlife management units based on quadrat sampling methodology.

Murderers Creek		North Side

Year	Population Estimate	95% CI	Standard Deviation		Population Estimate	95% CI	Standard Deviation
2011	9,018	7,730-10,304	657		14,385	12,300-16,470	1,064
2012	7,842	6,921-8,762	470		10,182	8,431-11,932	893
2013	8,790	7,513-10,067	652		13,888	11,565-16,211	1,185
2014	6,846	5,644-8,048	613		11,542	9,888-13,197	844

Table 17 presents flight hours utilized on MDI units and comparison areas and Table 18 presents costs. Although quadrat sampling is more statistically rigorous and provides a population estimate, it costs substantially more due to increased flight hours as compared to trend surveys. Using the Warner unit for comparison, it required an average of 10 helicopter hours to complete spring trend counts for the years 2005 through 2009. The average hours used for quadrat sampling in Warner was 29.5, an increase of approximately three times the flight hours.

Table 17. Quadrat Sampling Helicopter Hours for Oregon Mule Deer Initiative WMUs and Comparison Areas, 2010-2014.

QUADRAT FLYING EFFORT (HOURS)					
UNIT	**2010**	**2011**	**2012**	**2013**	**2014**
Heppner		47.8	46.7	47.2	34.2
Fossil		58.2	57.3	42.4	41.6
Maury	32	44	32	30	30
North Paulina		24.9	25.6	22.3	25.0
Murderer's Creek		55.7	57.3	32.4	35.6
Northside		50.4	52.6	29.3	32.2
Steens Mountain	34.1	41	47.2	43.9	40.5
Trout Creek Mountains	19.7	26	17	14.5	16.2
Warner	34	32.6	28.3	20.8	31.7
Interstate	51.6	49.8	43.4	43.8	47.4

Table 18. Quadrat Sampling Expenditures for Oregon Mule Deer Initiative WMUs and Comparison Areas, 2010-2014.

QUADRAT FLYING COST					
UNIT	**2010**	**2011**	**2012**	**2013**	**2014**
Heppner		$30,592	$31,522	$43,188	$20,520
Fossil		$37,248	$38,677	$38,796	$24,960
Maury	$27,200	$37,400	$26,080	$30,000	$27,000
North Paulina		$40,000	$40,000	$40,000	$40,000
Murderer's Creek		$31,415	$32,203	$21,092	$21,360
Northside		$28,426	$29,561	$19,074	$19,320
Steens Mt.	$22,131	$25,666	$34,172	$30,686	$34,101
Trout Creek Mountains	$12,785	$16,276	$12,308	$10,355	$13,640
Warner	$26,384	$25,232	$23,461	$17,243	$26,628
Interstate	$40,041	$38,545	$35,978	$36,310	$39,816

Fall deer surveys were conducted via helicopter in the Steens and Trout Creeks in 2011 through 2014 in order to attain reliable buck ratio data for those units. Helicopter surveys had been cut previously in those units for cost savings purposes. Ground surveys in those areas produce unreliable/highly variable data because of inadequate sample size and/or inability to access representative populations due to weather.

Regulation Changes

All of the local committees reviewed management objectives and current hunting regulations and suggested changes they thought would benefit mule deer. The only change in MO was in Maury where the post season buck MO was increased from 15 bucks/100 does to 20 bucks/100 does. The committee for Maury believed that by increasing buck escapement a higher proportion of does would be bred in the first estrus cycle and this would result in increased fawn survival. All rifle tags were reduced by 50% and Land Owner Preference (LOP) tags also were restricted. In 2010 buck ratios were 16, and with the tag reduction they increased to 26 in the Maury WMU. In 2012 and 2013 buck ratios were 18 and 16 respectively.

Rifle deer tags were also reduced in the north Warner hunt area. North Warner has a post season buck MO of 25. In the 17 years prior to MDI the buck MO was met only three years. The Warner committee felt it important that the Department do everything it could to meet buck MO, therefore the proposal was to reduce rifle tags 50% of what the biologist thought appropriate until buck MO was met for three consecutive years. LOP tags also were restricted to 50% of what was available in the hunt area. In 2010 public rifle tags were reduced to 30 and LOP tags were restricted to 38, post season buck ratio was 15. Buck ratio increased in 2011-2013 to 27, 28 and 29 respectively. For the 2013 and 2014 hunting seasons, public rifle tag numbers were increased to 35.

No changes to hunting regulations were proposed for Heppner and Murderers Creek. Murderers Creek has a post season buck MO of 15, while Heppner's MO is 12, and both units have been at or above MO. The respective committees believed that the problems revolved around the total number of deer in each unit and not buck escapement. Standard tag modification occurred in both units based on fawn recruitment and the previous year's buck ratio. The only antlerless seasons in these units are damage related hunts with low tag numbers.

Prior to MDI all archery deer hunting was under general season regulations. Harvest survey data for all general seasons have very wide confidence intervals (± 200%) and because of that the committees for Maury, Steens and Warner all proposed changing to limited entry regulations for archery hunting. The purpose for limited entry was to be able to measure the amount of archery harvest occurring in each unit and, if necessary, provide the opportunity to control archery harvest similar to rifle harvest. Tag numbers in all three units were initially set at the average number of archers that reported hunting in the unit during the 2006-2008 seasons. All tags were also valid in any other general season unit.

Limited entry archery tags in North Warner were set at 55 and were undersubscribed by first choice applicants in 2011 and 2012 and oversubscribed since. South Warner tags were set at 85 and have been undersubscribed all years. Telephone surveys of hunter success were not completed for the Warner archery hunts until 2012 and by that time the mandatory harvest reporting system was becoming effective. Hunter success for 2012 and 2013 was 28% and 21% respectively for north Warner and 9% and 27% for south Warner. Approximately 75% of the hunters that purchased the limited entry archery tag hunted in the unit.

Limited entry archery tags in Steens Mountain were set at 125 and were undersubscribed by first choice applicants in all years (2010-2013). Hunter success for 2010 was 6%, 2011 was 20%, 2012 was 16%, and 2013 was 17%. Approximately 69% and 63% in 2012 and 2013 respectively of the hunters that purchased the limited entry tag hunted in the unit. Prior to 2012 the data received from the telephone surveys of hunters was not sufficiently detailed to provide this statistic.

In order to meet the new post season buck MO of 20 bucks/100 does, rifle tags in the Maury unit were reduced in 2009 from 821 to 385, limited entry for archery season was implemented in 2010 and set at 90 tags. Rifle and archery tags have stayed consistent since the changes with the goal of meeting buck MO for three consecutive years. The post season buck ratio was over MO in 2011 (26) and 2014 (21). The local committee for Maury believed that having more and older bucks in the population during the rut would increase fawn recruitment. From 2001 through 2010 the average spring fawn ratio in Maury was 38 fawns/100 adults, and from 2011 to 2014 average spring fawn ratio was 41. In Paulina the averages were 38 and 38 respectively.

DISCUSSION

The single most unexpected result of MDI was the support we received from all the cooperators to emphasize mule deer in their planning efforts. Because the Department made mule deer a priority, the cooperators were able to use that to leverage funds for projects specifically for mule deer or had side benefits for deer. For example, in 2009 NRCS started focusing some of their Environmental Quality Incentives Program (EQIP) funding on projects that would benefit mule deer. When the Department selected the MDI units and identified those factors which were impacting mule deer habitat, NRCS adopted our MDI units as priority areas for EQIP funding and adopted the habitat factors as scoring criteria for applications within and outside the MDI units. There are numerous other examples of projects which received funding because they were in an MDI unit and would benefit deer.

There was no significant change in the various population parameters as a result of MDI efforts. All of the MDI units showed an increase in buck ratios and some increase in fawn ratios. However this trend was also generally true in the comparison units. The most significant factors affecting fawn recruitment are winter severity and spring precipitation and because of their close proximity these factors would have had similar effects in both the MDI and comparison units.

The lack of substantial change in population parameters also may be due to the time it takes for any wildlife population to respond to habitat change. The benefits of the habitat actions completed may not have been in place long enough to measure a change. Secondarily, the MDI was not implemented under strict research criteria where one variable is changed and all others are held constant. MDI was implemented in a management framework under which the Department attempted to address as many of the factors affecting deer populations as time and money would allow. This was done while still completing standard management actions such as modifying hunting tag numbers to meet buck MOs. Under the management framework it is often difficult to show that any single action had a specific effect.

Although the use of quadrat sampling gave us a better measure of mule deer numbers and a statistically based population estimate, it became very apparent that the technique is highly impacted by variable winter severity. These issues are not unique to quadrat sampling and in fact affect all population monitoring and modeling methodology. The issues observed indicated that we need to improve the techniques used for mule deer population monitoring and the Department has initiated a process to improve the applicability of the technique in the future. However, the observed results during MDI implementation were not conclusive in showing an increase in deer numbers. Some of the items within the future process include identifying mule deer herd ranges across Oregon; testing a population estimation technique which combines quadrat and sightability methodologies which may resolve some of the issues related to variable winter severity; and development of improved population modeling based on herd ranges. Implementation of the two cougar target areas had a positive effect on deer populations in their respective units. This is supported by the rifle harvest data presented and also circumstantially by the comments we have received from the public which are familiar with the units and frequently recreate in them. Since the final years of the target areas we frequently receive

comments that people are seeing more deer, more bucks and bigger bucks with a final statement to the effect that the cougar removal is working. A consistent goal in both target areas was to increase adult survival. During and following the target areas we did not measure adult survival. The only way to measure adult survival is to radio mark a representative sample of deer, this was not done due to the cost of marking and monitoring those deer. In the future the Department will collect survival data from the collars planned to be deployed early 2015 for herd range delineation and combine that effort with future target areas to measure the effect on adult survival.

Changing the buck MO, tag numbers, and archery seasons in Maury did not consistently increase post season buck ratios. This could be due to deer from other units migrating into Maury for the winter and effecting observed buck ratios. It is hoped that herd range delineation efforts will answer that question and give the Department a better idea of how hunting seasons affect buck ratios in the unit. Fawn recruitment did appear to increase slightly after the post season buck MO was increased and tags were reduced. It is unlikely that the increase (38 versus 41) was significant, and considering that Maury exceeded the higher buck MO only two years of the four it has been in place it is unlikely the increased buck ratio affected fawn recruitment.

In 2013 the Department appointed a committee to review archery regulations statewide. One of the concerns of this committee was limited entry archery regulations in Maury, Steens and Warner. After reviewing the effectiveness of these regulations it appeared that the Steens regulation was not having an effect and therefore the limited entry regulation will be dropped in 2015. Limited entry regulations were retained in Maury and Warner where they were put in place as part of tag reductions for all hunters.

MDI Recommendations

Oregon's Mule Deer Initiative (MDI) has been very successful. There is significant interest in mule deer and their management in Oregon and that interest is not restricted to just hunters. Land managers, both public and private, view mule deer as an important piece of the lands they manage and have been willing to commit time and money to support all aspects of the MDI effort. Healthy mule deer habitat is also good habitat for other wildlife: it can also benefit domestic livestock and people interested in the outdoors. Through initiation of the MDI process the Department took a leadership role in identifying the problems and needs of mule deer management. The momentum developed during five years of MDI implementation needs to be expanded.

There were six main categories of actions undertaken. Following is a list of those six categories, results of actions taken, and recommendations future activities. While setting up the MDI, Department biologists identified these six categories as factors affecting mule deer populations. For each MDI unit the Department set up a local committee of individuals familiar with the unit to prioritize items they felt were impacting mule deer. For example: The Steens Mtn. unit is all shrub steppe vegetation with no forest habitats. Under the habitat management category the Steens Mtn. committee identified juniper encroachment as an important factor affecting mule deer and forest health was not considered. On the other hand the Murderers Creek unit has both shrub steppe and forest habitat and the Murderers Creek committee selected both juniper encroachment and forest health as important factors affecting mule deer.

Habitat Management

By providing the leadership to prioritize mule deer management the Department developed a substantial amount of momentum with cooperators to leverage funds and implement projects that either directly or indirectly benefitted mule deer habitat. Within the MDI units 266,142 acres of mule deer habitat were treated at a cost of $18,335,690; 87% of those funds were provided by cooperators.

There is a significant amount of interest in improving habitat condition to benefit mule deer specifically and other wildlife populations. Additionally, many of the treatments designed to improve forest health or shrub steppe vegetation also improve mule deer habitat by enhancing forage quality and quantity. Many of the cooperators had a primary goal of improving native vegetation associations and wanted to work with the Department because the Department could leverage various funding sources and treat more acres. The Department needs to retain the momentum generated through the first five years of the MDI habitat improvement effort and expand that momentum to other Wildlife Management Units (units).

Predator Management

As part of the MDI two cougar target areas were implemented and one coyote control area. The purpose of the target areas was to increase adult survival of mule deer and thereby increase deer numbers in the Steens Mtn. and Warner units. The purpose of the Heppner coyote control area was to increase fawn recruitment to 42 fawns/100 adults.

Cougar Target Areas

Measureable impacts were difficult to document at the end of the removal period. A more comprehensive method of counting and modeling deer populations was implemented within all MDI Units, but as of this time we have not been able to document a significant change in population. It appears that inconsistent winter severity between years effected deer distribution across the sampling areas and consequently affected population estimates. Review of other data indicates there was a change in both age classes of bucks and hunter success rates. Additionally, on the ground observations by landowners, local users and Wildlife District staff indicated more deer and older bucks.

In both the Steens Mtn. and Warner units there was data and circumstantial evidence that indicated increased deer numbers. As mentioned in the population management section the Department implemented a more comprehensive method of counting deer with the hope of being able to detect any population level affects based on other actions taken as part of the MDI effort. At this time the new monitoring did not detect any changes. The Department knew this would be a challenge because unlike elk, where 75% of those killed by cougar are calves, cougar more evenly take all age classes of deer so the results of cougar predation on a deer population is more difficult to measure. It appears that to measure a population change in a cougar target area would require more precise before and after survival estimates. Therefore, the analyses below are based on a combination of other factors considered when making management decisions.

Based on harvest statistics, implementation of the target areas did increase deer numbers and age class of bucks available. In Steens Mtn. deer tags available were similar prior to and during target area implementation. During implementation there was an increase in hunter success and age of bucks in the harvest, both indicating there were more deer on the landscape. In Warner there was a similar increase in hunter success and age of harvested bucks, but rifle tags available were initially reduced. However that reduced opportunity was not enough to account for the increases observed.

Additional circumstantial evidence comes from people that regularly work or recreate in the units. After the first 2 years of target area implementation Department biologists regularly received unsolicited comments that people were seeing more deer and bigger bucks in these units. The biologists did not receive similar comments for other mule deer units they manage.

The Department recommends continued use of cougar target areas to increase mule deer populations. Implementation should be considered both in a maintenance mode for areas previously treated and in new units where mule deer numbers are below population management objectives. It is also necessary to continue modifying and strengthening the methods used to monitor mule deer populations to improve the ability to measure population changes in the future.

Coyote Control

The coyote control efforts did not have a measurable impact on fawn recruitment when compared to the rest of the Heppner unit or the Fossil unit. There are several potential reasons for this.

When having fawns, mule deer does disperse across the landscape and select a wide variety of vegetation associations for birthing and rearing sites. Because of this wide dispersal it is difficult to focus coyote control efforts where they might have a substantial impact during the summer fawning/rearing period. Research from Utah indicates that to increase fawn recruitment, more than 50% of the coyotes must be removed from an area.

The lack of difference between the control area and comparison areas may also be due to a higher pelt price in the fur market and subsequent increase in recreational coyote harvest during the control years. During the control years coyote pelts were averaging $45-$60. With these prices coyote harvest increased substantially throughout eastern Oregon including the Heppner and Fossil units.

Based on the results of the Heppner effort additional coyote control efforts would not be recommended unless sufficient funding were available to remove a substantial portion of the coyote population over a three year period of time. Success of the effort would be measured by increased fawn survival as documented in previous Department research on the Steens. Any removal efforts should be focused on small enough areas to be effective in both reducing the coyote population and measuring a response in the mule deer population.

Disturbance and Harassment

All of MDI Committees felt disturbance, particularly during the winter and early spring could have a detrimental effect on mule deer populations. Generally actions taken were to increase enforcement of winter range closures and Travel Management Areas (TMAs). In two MDI Units more specific measures were taken in addition to increased enforcement.

The Maury MDI Committee was concerned about the disturbance of hunting seasons extending from August to December. Late season hunts have been kept at the level necessary to address property damage.

In the Murderers Creek unit the Murderers Creek-Flagtail TMA was lengthened by one month to include the archery season and the Phillip W. Schneider WA was closed to access from February 1-April 14.

In all MDI units the Department continued to administer road closures that were already in place and cooperated with the Forest Services in their travel management processes for off road vehicles

Based on the results of the South Central Oregon Mule Deer Research Project deer populations could benefit from more emphasis on reducing disturbance. Results of the project showed that of

the mule deer mortality for which cause could be determined 22% was due to illegal harvest, the rate for predation was 32% and 19.5% was legal harvest. Numerous studies have shown that as access increases illegal harvest increases. Restricting access through physical or administrative closure of roads would reduce indirect harassment by motorized vehicles and reduce illegal harvest. Enforcement of road closures is very labor intensive and implementation of administrative closures over a large area is often unpopular.

The Department should work more aggressively pursuing temporary and permanent road closures as a way to reduce harassment, illegal take and to allow for better utilization of available habitat by mule deer. This includes more aggressively pursuing restrictions on ATV/OHV use on public lands in areas where mule deer populations are below management objective, or habitat use by mule deer is being impacted by the public activity, or in sensitive habitats such as winter range and fawning areas. "Shed hunting" is another activity of concern to biologists because it results in disturbance of wildlife during winter months but may be difficult to address.

Disturbance and harassment needs to remain an important category in any future MDI efforts but it may be difficult to make the changes needed on a large enough scale to have a mule deer population level impact.

Law Enforcement

Enforcement was a high priority for all of the local committees. Oregon State Police developed enforcement action plans for each MDI unit. At the start of the process neither OSP nor the Department thought there were major enforcement issues in any of the MDI units. Enforcement actions focused on compliance with hunting regulations, travel management area compliance and poaching. This proved the case with all units except Murderers Creek. In the case of Murderers Creek, Grant County OSP troopers are trying to identify the reason for the lower compliance rates.

Data from the action plans provided baseline information to compare future compliance rates as deer numbers and buck ratios change. Law enforcement must be part of any management strategy for mule deer. Future MDI activities should incorporate enforcement action plans and activities.

Disease and Parasites

As with disturbance and harassment, this category was viewed as a lower priority by the local committees and as such received less attention. One of the reasons for the lower priority is although disease or parisites may important factors affecting deer populations there is often little that can be done to reduce the problem. In portions of mule deer range, such as central Oregon, there appears to be an increased prevalence of diseases such as Adenovirus and blue tongue. Disease monitoring that did occur in the MDI units did not indicate any significant issues; however that monitoring was not as strategic as it could have been. A disease monitoring protocol should be considered for future MDI efforts because it is important to identify causes of mortality so appropriate actions can be taken.

Population Management

Hunting season regulations were changed or modified in 3 of the 5 MDI units. In the Maury the post season buck ratio MO was increased from 15 to 20 bucks/100 does and rifle tags were reduced by approximately 50% (from 825 to 385) . In the North Warner hunt area the buck MO of 25/100 had only been met three times out of the 17 years prior to adoption of the MDI. In order to consistently meet that MO rifle tags were reduced by 50% (from 65 to 32). With the restriction of rifle hunting opportunity in Warner and Maury there was a concurrent reduction in LOP tags available. LOP tags were restricted to ~ 50% of the tags registered landowners in the area were eligible for.

Controlled archery hunts were adopted in the Maury, Warner and Steens Mtn. units. In Maury and Warner the controlled archery hunts reduced archery hunters to about half of the average number for the prior three years; consistent with reductions to rifle hunter and LOP tags. Controlled archery hunts were intended to contribute to meeting buck MOs as well as providing more dependable harvest data to be used in population modeling. In Steens Mtn. the purpose of the controlled archery hunt was to limit the number of hunters to the average for recent years and provide improved harvest data. Telephone survey harvest data from units with low numbers of hunters in general seasons with multiple units is highly variable unless a large number of hunters are called. Telephone harvest surveys ar more efficient and precise for controlled hunts because the hunters are known and the appropriate number can be surveyed.

Regulation changes to meet buck escapement or population objectives will need to be considered in future MDI efforts. In addition to meeting specific biological objectives, hunting regulations are also used to apportion opportunity between the various hunting interests. Through the MDI process landowners, rifle hunters and archers all faced some restrictions to meet the desired biological objectives. Controlled hunts are necessary in some situations to disperse opportunity to the varied groups of hunters. Regulations are developed in an open public process; therefore the public will have the opportunity to review and comment on any changes proposed as part of future MDI activities.

Population monitoring is made up of inventory, consisting of fall herd composition counts, and an estimate of population size and fawn survival measured in the spring. These data are then used along with harvest data and an estimate of adult survival to develop a population model used to predict changes in the population and develop allowable harvest levels for the various seasons. In the units with cougar target areas it was recognized that the traditional method of spring trend counts was not accurate enough to measure a short term population change. In 2010 The Department adopted quadrat sampling methodology which is designed to yield a population estimate with a measure of variance for the area surveyed. In 2011 quadrat sampling methodology was expanded to other MDI units in order to develop baseline population estimates.

Wildlife management units in Oregon were adopted in 1953 to distribute hunters and monitor hunting pressure and were not primarily developed on herd range boundaries. Results from the South Central Mule Deer Research indicated that none of the WMUs in the study area contained

a closed population. As a result of the MDI population monitoring effort the Department has started implementation of improved population estimation techniques across mule deer range. The demands on the Department's deer data are no longer restricted to development of hunting regulations. The Department is commonly asked to provide data for consideration in all types of land development priorities. At times the data is challenged because the presence of deer or other wildlife can result in modification or mitigation of the development interests. Therefore, the Departments needs to use science based monitoring methods and look for ways to improve those techniques.

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APPENDICIES

Appendix A: Habitat Treatments/Actions for each MDI WMU and comparison area.

HEPPNER	ODFW		USFS		NRCS MDI		BLM		USFWS		OTHER (SPECIFY)	
Action	Acres	ODFW $	Acres	USFS $	Acres	NRCS $	Acres Treated	BLM $	Acres Treated	USFWS $	Acres	OTHER $
Juniper Removal	682	$52,514.00			2593	$317,768.79						
Invasive Weed Treatment	2000	$17,500.00	6300	$283,500.00	93.7	$2,053.50						
Shrub/Grass Seeding	2800	$119,000.00	20	$5,600.00	170.3	$23,364.02					1200 safe	$204,000.00
Aspen Stand Improvement	6	$28,489.50			1.9	$8,288.29						
Timber Stand Improvement					423.6	$143,581.27						
Prescribed Burning			8135	$248,820.00								

	ODFW		USFS		NRCS MDI		BLM		USFWS		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	USFS $	Quantity	NRCS $	Quantity	BLM $	Quantity	USFWS $	Quantity	OTHER $
Spring Development (each)					28	$39,853.80						
Guzzler Installation (each)												
Fence Construction (miles)					12.4	$130,830.45						
Shrub Seed Collection (lbs.)												
Feral Horse Removal (each)												

FOSSIL	ODFW		USFS		NRCS		BLM		USFWS		OTHER (SPECIFY)	
Action	Acres	ODFW $	Acres	USFS $	Acres	NRCS $	Acres Treated	BLM $	Acres Treated	USFWS $	Acres	OTHER $
Juniper Removal					7229.9	$853,786.56						
Invasive Weed Treatment					234	$1,268.00						
Shrub/Grass Seeding					2304.8	$227,490.68						
Aspen Stand Improvement												
Timber Stand Improvement					201	$29,525.00						
Prescribed Burning					5379	$168,447.00						

	ODFW		USFS		NRCS		BLM		USFWS		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	USFS $	Quantity	NRCS $	Quantity	BLM $	Quantity	USFWS $	Quantity	OTHER $
Spring Development (each)					44	$72,962.17						
Guzzler Installation (each)												
Fence Construction (miles)					6.2	$47,443.56						
Shrub Seed Collection (lbs.)												
Feral Horse Removal (each)												

MAURY	ODFW		NRCS Other		NRCS SGI		NRCS ASPEN		NRCS MDI		OTHER (SPECIFY)	
Action	Acres	ODFW $	Acres	USFS $	Acres	NRCS $	Acres	NRCS $	Acres	BLM $	Acres	OTHER $
Juniper Removal	9,882	$957,623.00	2336.5	$197,209.00	9145.1	$962,703.00			1698	$169,989.00	25,917	$2,133,027.00
Invasive Weed Treatment	410	$24,124.00										
Shrub/Grass Seeding	475	$8,005.00							71	$4,576.00	301	$9,100.00
Aspen Stand Improvement	90	$9,100.00					1.4	$822.00			56	$12,890.00
Timber Stand Improvement											1,984	$204,656.00
Prescribed Burning									900.6	$32,294.00	5,011	$100,875.00
Juniper Piling/burning	50	$4,723.00			343.4	$58,062.00					1,477	$176,534.00

	ODFW		NRCS Other		NRCS SGI		NRCS ASPEN		NRCS MDI		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	USFS $	Quantity	NRCS $	Quantity	NRCS $	Quantity	BLM $	Quantity	OTHER $
Spring Development (each)	20	$67,713.00	5	$7,210.00					7	$10,094.00	18	$97,795.00
Guzzler Installation (each)			5	$4,877.00					9	$6,950.00		
Fence Construction (miles)	15	$92,246.00	0.85	$8,405.00					2.68	$21,103.00	5.75	$78,708.00
Shrub Seed Collection (lbs.)												
Feral Horse Removal (each)												
Pipeline Installation (miles)			0.13	$1,148.00					1.5	$13,232.00		

PAULINA	ODFW		NRCS Other		NRCS SGI		NRCS ASPEN		NRCS MDI		OTHER (SPECIFY)	
Action	Acres	ODFW $	Acres	USFS $	Acres	NRCS $	Acres	NRCS $	Acres	BLM $	Acres	OTHER $
Juniper Removal					1318.1	$67,259.00			608	$49,157.00		
Invasive Weed Treatment												
Shrub/Grass Seeding												
Aspen Stand Improvement												
Timber Stand Improvement												
Prescribed Burning												

	ODFW		NRCS Other		NRCS SGI		NRCS ASPEN		NRCS MDI		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	USFS $	Quantity	NRCS $	Quantity	NRCS $	Quantity	BLM $	Quantity	OTHER $
Spring Development (each)												
Guzzler Installation (each)					3	$165.00			1	$1,843.00		
Fence Construction (miles)									1.45	$17,251.00		
Shrub Seed Collection (lbs.)												
Feral Horse Removal (each)												
Pipeline Installation (miles)									<1	$62.00		

MURDERER'S CREEK	ODFW		USFS		NRCS MDI		NGO		PRIVATE		OTHER (SPECIFY) SWCD	
Action	Acres	ODFW $	Acres	USFS $	Acres	NRCS MDI $	Acres	NGO $	Acres	PRIVATE $	Acres	OTHER $
Juniper Removal	5988.9	$501,803.90	2854	$485,800.00	4076.2	$435,000.00	194	$16,950.00	150	$11,550.00	1479	$118,320.00
Invasive Weed Treatment	413	$6,939.23								$5,000.00		
Shrub/Grass Seeding	620	$15,891.26										
Aspen Stand Improvement					18	$58,000.00						
Timber Stand Improvement	700	$200,000*										
Prescribed Burning												

	ODFW		USFS		NRCS MDI		NGO		PRIVATE		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	USFS $	Quantity	NRCS MDI $	Quantity	NGO $	Quantity	PRIVATE $	Quantity	OTHER $
Spring Development (each)	1	$1,105.40										
Guzzler Installation (each)												
Fence Construction (miles)												
Shrub Seed Collection (lbs.)												
Feral Horse Removal (each)												

NORTHSIDE	ODFW		USFS		NRCS MDI		NGO		PRIVATE		OTHER (SPECIFY)SWCD	
Action	Acres	ODFW $	Acres	USFS $	Acres	NRCS MDI $	Acres	NGO $	Acres	PRIVATE $	Acres	OTHER $
Juniper Removal					854	$110,800.00						
Invasive Weed Treatment												
Shrub/Grass Seeding	40	$1,530.00										
Aspen Stand Improvement												
Timber Stand Improvement												
Prescribed Burning												

	ODFW		USFS		NRCS MDI		NGO		PRIVATE		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	USFS $	Quantity	NRCS MDI $	Quantity	NGO $	Quantity	PRIVATE $	Quantity	OTHER $
Spring Development (each)												
Guzzler Installation (each)												
Fence Construction (miles)												
Shrub Seed Collection (lbs.)												
Feral Horse Removal (each)												

STEENS MOUNTAIN	ODFW		NRCS SGI		NRCS MDI		BLM		OTHER (DSL)	
Action	Acres	ODFW $	Acres	NRCS $	Acres	NRCS $	Acres	BLM $	Acres	OTHER $
Juniper Removal	1,951	$404,056.00	1054.1	$137,977.00	1549.2	$142,265.00	31,555	$1,960,000.00		
Invasive Weed Treatment			5250.7	$123,937.00			2,580	??		
Shrub/Grass Seeding							8,275	$752,500.00		
Aspen Stand Improvement										
Timber Stand Improvement										
Prescribed Burning							48,687	$764,000.00	292	

	ODFW		NRCS SGI		NRCS MDI		BLM		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	NRCS $	Quantity	NRCS $	Quantity	BLM $	Quantity	OTHER $
Spring Development (each)										
Guzzler Installation (each)										
Fence Construction (miles)							4 miles	??		
Shrub Seed Collection (lbs.)										
Feral Horse Removal (each)										

TROUT CREEK MOUNTAINS	ODFW		NRCS SGI		NRCS MDI		BLM		OTHER (SPECIFY)	
Action	Acres	ODFW $	Acres	NRCS $	Acres	NRCS $	Acres	BLM $	Acres	OTHER $
Juniper Removal										
Invasive Weed Treatment							3300			
Shrub/Grass Seeding							10300			
Aspen Stand Improvement										
Timber Stand Improvement										
Prescribed Burning										

	ODFW		NRCS SGI		NRCS MDI		BLM		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	NRCS $	Quantity	NRCS $	Quantity	BLM $	Quantity	OTHER $
Spring Development (each)										
Guzzler Installation (each)										
Fence Construction (miles)							76			
Shrub Seed Collection (lbs.)										
Feral Horse Removal (each)										

WARNER	ODFW		USFS		NRCS SGI		NRCS MDI		NRCS MH		BLM		USFWS		OTHER (ODA)	
Action	Acres	ODFW $	Acres	USFS $	Acres	NRCS $	Acres	NRCS $	Acres	NRCS $	Acres	BLM $	Acres	USFWS $	Acres	OTHER $
Juniper Removal	3677.5	$152,800.00	3215	$482,400.00	8,664.40	$1,288,511.70	3,884.70	$570,695.71			17500	$1,050,000.00				
Invasive Weed Treatment	3223	$123,928.00	468	$62,270.00							2810	$170,000.00			309	$11,717.00
Shrub/Grass Seeding	375	$14,513.00									200	$9,000.00				
Aspen Stand Improvement	475	$96,478.00	1189	$361,050.00							50	$8,500.00				
Timber Stand Improvement			6505	$635,515.00							200	$34,000.00				
Prescribed Burning			4752	$173,850.00							8250	$660,000.00				
Weed Inventory	6000	$5,000.00	2500	$10,000.00								$10,000.00				
Forest Road Survey		$5,000.00		$60,000.00												

	ODFW		USFS		NRCS SGI		NRCS MDI		NRCS MH		BLM		USFWS		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	USFS $	Quantity	NRCS $	Quantity	NRCS $	Quantity	NRCS $	Quantity	BLM $	Quantity	USFWS $	Quantity	OTHER $
Spring Development (each)																
Guzzler Installation (each)																
Fence Construction (miles)	4	$12,498.00			1.3	$27,074.04										
Shrub Seed Collection (lbs.)																
Feral Horse Removal (each)																
Pipeline Installation (miles)	2	$10,000.00														

INTERSTATE	ODFW		USFS		NRCS SGI		NRCS MDI		NRCS MH		BLM		USFWS		OTHER (ODA)	
Action	Acres	ODFW $	Acres	USFS $	Acres	NRCS $	Acres	NRCS $	Acres	NRCS $	Acres	BLM $	Acres	USFWS $	Acres	OTHER $
Juniper Removal	100	$5,000.00	5008	$751,155.00	6,495.70	$403,814.30	6,110.40	$750,244.60								
Invasive Weed Treatment	454	$30,830.00	3027	$404,518.00					2,159.60	$66,468.42	1500	$90,000.00	502	$18,519.00	4730	$162,453.25
Shrub/Grass Seeding									868.7	$64,277.00						
Aspen Stand Improvement			445	$145,200.00												
Timber Stand Improvement			37,711	$3,107,768.00												
Prescribed Burning			17,701	$766,861.00												
Weed Inventory			1500	$33,750.00								$10,000.00				
Forest Road Survey (miles)			77													

	ODFW		USFS		NRCS SGI		NRCS MDI		NRCS MH		BLM		USFWS		OTHER (SPECIFY)	
Action	Quantity	ODFW $	Quantity	USFS $	Quantity	NRCS $	Quantity	NRCS $	Quantity	NRCS $	Quantity	BLM $	Quantity	USFWS $	Quantity	OTHER $
Spring Development (each)																
Guzzler Installation (each)																
Fence Construction (miles)																
Shrub Seed Collection (lbs.)																
Feral Horse Removal (each)																

Appendix B: OSP Action Plan Summaries

OREGON STATE POLICE
HEPPNER WORKSITE
HEPPNER MANAGEMENT UNIT (48)
MULE DEER ACTION PLAN
2014

SUBMITTED BY
TROOPER BRIAN JEWETT
OREGON STATE POLICE

AREA DESCRIPTION

The Heppner Wildlife Unit is composed of 32% public lands with these holdings falling under United States Forest Service, Bureau of Land Management, and State of Oregon Ownership.

The remaining 68% of the land is under private land management and is under several different forms of management: timber, grazing, and other private uses.

OVERVIEW

The Heppner Wildlife Management Unit has been identified as an area that the Oregon Department of Fish and Wildlife is going to place additional resources in to enhance and restore mule deer populations and habitat. As part of this goal a unit wide enforcement action plan is being developed to enhance these efforts.

In 2010 there were 3,300 tags issued to hunters in the controlled rifle hunt drawing. It is unknown how many archers chose this unit to pursue mule deer during the general archery season.

The action plan is going to be broken down into four separate enforcement areas:

1. Habitat protection.
2. Mule Deer hunting season.
3. Winter range protection.
4. Unlawful taking of mule deer during closed seasons.

Some of these areas will overlap but by breaking it down into these areas of enforcement the goals and efforts of the Oregon State Police will be easier to identify and enable us to better track the success of the action plan.

Over the last six years the hours worked, number of contacts, violations, and compliance rates have been recorded using the Oregon State Police Broslund reporting system.

As you can see from these numbers the compliance rates and hours worked during rifle season vary greatly.

During rifle season the Trooper with responsibilities in the Heppner Management Unit also has responsibilities in the Columbia Basin, Fossil and Ukiah Management Units.

RIFLE SEASON

HEPPNER	2009	2010	2011	2012	2013
Hours	106	14,925	15,350	95	10,950
Contacts	51	122	82	103	172
Violations	6	5	17	15	1
Compliance	882%	96%	79%	85%	99%

ARCHERY SEASON

HEPPNER	2009	2010	2011	2012	2013
Hours	43.5	61.50	46.50	21.50	10.50
Contacts	36	20	13	22	4
Violations	0	2	0	1	2
Compliance	100%	90%	100%	95%	50%

MUZZLELOADER SEASON

HEPPNER	2011	2012	2013
Hours	8	1	11
Contacts	3	2	9
Violations	0	0	0
Compliance	100%	100%	100%

YEARLY TOTALS

HEPPNER	2011	2012	2013
Hours	423.0	283.0	334.0
Contacts	157	176	251
Violations	18	18	3
Compliance	89%	90%	99%

RESOURCES AVAILABLE

DEDICATED RESOURCES:

Heppner Worksite- 1 Fish and Wildlife Trooper 1 ATV vehicle

AVAILABLE RESOURCES:

John Day Work Site: 1 Fish and Wildlife Trooper 1 Wildlife Enforcement

Mule Deer Decoy

1 ATV vehicle

Pendleton Patrol Office- 3 Fish and Wildlife Troopers 3 Wildlife Enforcement Mule Deer Decoys

2 Motorcycles

Hermiston Patrol Office: 1 Fish and Wildlife Trooper Condon Worksite- Vacant

Bend Patrol Office- 1 Fish and Wildlife airplane Baker City Patrol Office- 1 Fish and Wildlife airplane

Oregon Department Fish and Wildlife Heppner Field Office- 3 employees

3 ODFW ATV's

CONCERNS

There has been a downward trend in the number and quality of the mule deer that are harvested in the Heppner Unit. It is not exactly known what factors are responsible for this trend but the Oregon State Police, Oregon Department of Fish and Wildlife, Private Land Owners, and recreational user groups will all need to work together to try and reverse this downward trend.

Oregon Department of Fish and Wildlife District Biologist Steve Cherry has been consulted in the formation of this action plan to ensure that ODFW and OSP are both partnering to establish the best chance of success of the Mule deer initiative and this action plan.

OPERATIONAL TIME PERIOD AND AREA

The entire Heppner Wildlife Unit will be covered by this plan. The action plan with start January 1, 2014 and conclude on December 31, 2014.

OPERATIONAL PLAN

In January, February, and March winter range patrols will be conducted. This is when the Heppner mule deer are most vulnerable to unlawful take and harassment. Most of the Heppner Unit public ground is open to vehicle travel but is often snowed out and inaccessible to Troopers during the winter months. The winter range is low and easier to access and the deer are more concentrated. Finding shed antlers is increasing in popularity and is often done on ATV. ATV harassment on the winter range when deer are already stressed is harmful to herd health. Flights utilizing the OSP plane will be conducted to locate the largest concentrations of deer. Most ground patrols will be conducted by marked pickup or ATV. Landowner contacts around the winter range will be done to help create the partnership in protecting the mule deer during this vulnerable time.

In April, May and June mule deer are transitioning to summer range and beginning to fawn with most of the roads into the summer range just becoming drivable at the same time. This time period would be best utilized by conducting patrols in these areas to minimize harassment to young wildlife.

In July and August mule deer are widely distributed on their summer range. Backcountry patrols will be conducted by foot and horse to identify areas of concern that may be potential problems during hunting seasons. Patrols for disturbance by unlawful ATV activity will also be conducted.

From late August through mid-October patrols looking for tag compliance will be conducted. If an area of concern is developed the Wildlife Enforcement Decoy will be used. ODFW has demonstrated a willingness to help with decoy operations. Two mule deer decoys are ready for use from the Pendleton area command.

Extra patrols from surrounding offices will be used as the need for manpower dictates. Having patrols from the Pendleton and Hermiston offices working much of the Columbia Basin and Ukiah unit would help free up the Heppner patrol to work the Heppner unit.

During late October through December mule deer bucks move to lower ground to locate does and breed. They are more visible than normal and therefore become vulnerable to unlawful take. Patrols will be conducted around areas of high mule deer activity with added emphasis on areas with large bucks.

Meetings with recreational user groups as well as local landowners will be utilized to inform them of the action plan and to ask for their assistance in reporting violations. ODFW has also offered there assistance where ever needed

The Heppner unit is located within the boundaries of Morrow, Umatilla, Wheeler and Grant County. County Justice courts will be used for all crimes and violations. Citations will be marked with an appearance per their respective county.

DATA COLLECTED

The following data will be collected; number of patrol hours, hunters contacted, number of animals checked, number of hunters not in compliance, citations and warnings, number of illegal kills and the number of decoy operations conducted.

COMPLETION DATE

The evaluation of the action plan will be submitted by January 31, 2015.

MEMORANDUM

OREGON STATE POLICE

DATE: January 4, 2009

TO: Sgt. David Pond
Fish & Wildlife Division – Bend

FROM: Sr. Tpr. Amos Madison
Fish & Wildlife Division – Prineville

SUBJECT: Action Plan: 2009 Eastern Oregon Mule Deer Initiative –
Maury WMU (36)

GOAL: To support ODFW's task in addressing a declining mule deer population in the Maury Unit.

OREGON BENCHMARK: Not Applicable

HISTORY:

The Maury wildlife management unit (WMU 36) covers the South-Central portion of Crook County. It is roughly 1,155 Square miles in size and comprises some 739,200 acres of which approximately 61% is public land, and the remaining 39% private. The area consists of a mosaic of vegetation. This vegetation diversity is comprised primarily of Pine/Juniper trees in the Maury Mountains, with the remaining area being predominantly Juniper and sagebrush. It is classified as a high desert steppe. Many of the private ranches in this unit have alfalfa fields which are the primary attractors to deer in this unit. Elevations range from a high of 6100' down to a low of 3400' with the average being 4500'. The majority of all the private property is primarily at the 4500' elevation, or less. Take into account the alfalfa fields on these ranches and a person will find a significant number of deer on these private holdings.

Presently the Maury WMU is managed for a Mule Deer Herd Management Objective (MO) of 5200 animals. This goal has not been achieved for the last 30 years. Presently the estimated deer population is 42% below the MO. In addition, the minimum buck/doe strategy that is managed for this unit is 15 bucks/100 does. Data from the Prineville ODFW office shows that for the last 3 years, they have met or exceeded their buck MO. However, according to District Wildlife Biologist, Brian Ferry, the 2008 post-season counts revealed an estimated survival of less than 12 bucks/100 does. This is below the management objective

and is too early to tell if this was a sampling error or the beginning of a decline in buck numbers.

In 2000 the number of rifle deer tags available to hunters was approximately 1500. Those tags were reduced each year after that to the present level of about 825 tags. Interestingly enough there are about 1100+ hunters that apply for the Maury WMU as their first choice. When you add up the remaining number of hunters that indicate they would be willing to hunt the Maury WMU if given a tag, by looking at other choices, this total increases to 3450+. The Maury WMU is also seeing a steady increase in the number of bow hunters that are hunting this unit. This information is coming from ODFW's phone survey of hunters.

Presently there are not any antlerless deer seasons in the Maury. The last hunts held were in 1988.

There used to be two Oregon State Police game officers assigned to the Prineville office who were able to coordinate and trade off making patrols into the Maury WMU. One of those officers retired in 1996 and that position has been held vacant to date, leaving just one officer to cover the Prineville area. When there used to be two officers, they would also receive additional help from a Bend game officer and a cadet. Since the late 90's the Prineville area has been fortunate if it received any additional game enforcement assistance. This is primarily due to budgetary constraints. Most recently during the fall 2008 seasons the one seasonal game officer that was working in the Ochoco WMU and Maury WMU was eliminated. This seasonal help was primarily responsible for patrolling the Paulina area and the East end of the Maury WMU. It's unknown at this time if there will be any additional Fish & Wildlife Enforcement support provided to augment the Prineville Wildlife Officer.

CONCERNS:

ODFW Biologist Brian Ferry was conferred with about the reduced numbers of deer in the Maury WMU. He cites many reason's for this decline, most of which are biological, such as reduction of habitat, increased predation, and land development, just to name a few. He also feels that a reduction in Fish & Wildlife Enforcement presence is facilitating the poaching of larger bucks out of the unit.

Some other concerns by Biologist Ferry are the increased impact that ATV users are having on the public lands. The Maury WMU has a myriad of roads and open terrain which facilitates ATV's in getting around. This additional pressure put on deer will push them off public summer/winter ranges and onto private ground. Ultimately many of these deer will remain concentrated on private property.

There have also been some recent poaching incidents where bucks have been found with just the antlers cut off. The Maury WMU used to have some tremendously large bucks back in

the 70's and early 80's. But through increased pressure from hunters and illegal poaching there are fewer large bucks than ever before. It has also been noted that each year when there are hunting complaints in the Maury WMU it usually involves someone trespassing onto private property where the deer are usually concentrated.

The following information was taken from the Oregon State Police data base. (Fish & Wildlife officers keep track of their activities based on management units, hunters contacted, and those found to be either in compliance or not.)

The Compliance Index information for the Maury WMU is as follows:

Maury WMA (36)

Rifle	**2003**	**2004**	**2005**	**2006**	**2007**
Rifle	42.5	48.0	24.5	34.0	78.5
Contacts	27.0	32.0	1.0	17.0	91.0
Violations	12.0	4.0	0.0	10.0	10.0
Compliance	55.6%	87.5%	100.0%	41.2%	89.0%
Archery					
Hours	0	0	5	31.5	83
Contacts			0	33.0	131
Violations			0	5.	13
Compliance			100%	84.9%	90.1%

The low hours and contacts reflected in the above table may be due to the demands that other WMU's place upon the Prineville Wildlife Officer. If a shift in enforcement efforts is made into the Maury WMU without additional man power to cover other WMU's, then those other units will subsequently see an increase in complaints associated with people violating the wildlife laws. However, since ODFW has identified Law Enforcement as one of their 5 strategies to increase deer numbers in the Maury WMU, then every effort will be made to assist with this management goal.

OPERATIONAL AREA & TIME PERIOD:

The action plan for addressing declining deer herds in the Maury WMU will be implemented for the entire year, having started the 1st of January 2009 and will continue till the 31st of December 2009.

Additional efforts by Fish & Wildlife Enforcement officers will be attempted during the Archery and Rifle seasons.

OPERATIONAL PLAN:

Wildlife Enforcement patrols will be done through the months of Jan-Mar to monitor any concentrations or known locations of large bucks. Shed hunters are also starting to increase their presence during this time, which places increased pressure on wintering deer. This sport brings with it an increased amount of ATV traffic in and around wintering deer. Persons will be contacted and educated should their actions be causing unnecessary pressure on deer. Their assistance in detecting any violations of game laws will also be solicited. The use of the Department aircraft will also be made, weather permitting, to locate any vehicles that are operating in areas that have wintering deer.

Through the months of April and August continued patrols in the Maury WMU will be made. Continued ATV pressure will also be monitored. This will also be a time when contacts and relationships with local landowners will be renewed. Many of the ranches in the Maury WMU welcome the deer and have actually been instrumental in this unit being selected for the additional resource monitoring by ODFW.

From September through October the Archery and Rifle deer season will commence. Hunting compliances will be monitored through hunter checks. Efforts will also be made to increase Law Enforcement presence by utilizing Crook County Sheriff Deputies. In the past couple years the sheriff's Department has increased their presence in the Maury WMU at the request of local ranchers.

November and December are particularly critical to survival of larger bucks during the rutting season. These bucks make themselves more visible and vulnerable during this time period. Increased patrols will be conducted during this time frame and in the areas of concentrated deer numbers.

A deer decoy has recently been provided to the Prineville Worksite for use. While it is difficult to secure a second officer to assist in decoy operations, every effort will be made to utilize this tool when it is deemed necessary.

During the local Prineville-Oregon Hunters Association meeting, they will be advised of the new direction that deer management in the Maury WMU is headed.

DATA TO BE COLLECTED:

The following data will be collected during patrols; number of patrol hours, contacts, any violations found and ultimately the compliance rate calculated. Plus, any complaints in the Maury WMU that are associated with wildlife that may be associated with illegal kills, citations and warnings. Additional information that may be gathered as time dictates is the number of deer seen, and their age classification and any animals harvested legally during the seasons. This will assist ODFW with their data analysis of deer in the Maury WMU.

Additionally, any decoy operations conducted will have its statistics compiled towards the Maury WMU action plan.

COMPLETION DATE:

An action plan critique will be compiled and completed by the end of January 2010.

MULE DEER ACTION PLAN

OREGON STATE POLICE
MURDERERS CREEK
MANAGEMENT UNIT (46)
MULE DEER ACTION PLAN
2014

SUBMITTED BY
TROOPER MARV RITTER
OREGON STATE POLICE

FISH AND WILDLIFE DIVISION JOHN DAY WORK SITE

CONCERNS

There has been a downward trend in the number and quality of the mule deer that are harvested in the Murderers Creek Unit. There is not a consensus as to what factors are most responsible for this trend, but those concerned with the issue generally agree that the Oregon State Police, Oregon Department of Fish and Wildlife, Private Land Owners, and recreational user groups need to work together to try and reverse this downward trend.

Oregon Department of Fish and Wildlife (ODFW) District Biologist, Ryan Torland, has been consulted in the formation of this Action Plan to ensure that ODFW and OSP are both partnering to establish the best chance of success of ODFW's Mule Deer Initiative (MDI) Plan and this Action Plan.

AREA DESCRIPTION

The Murderers Creek Wildlife Unit is composed of 64% public lands and 36% private land holdings. The public lands include United States Forest Service (USFS), Bureau of Land Management (BLM), and State of Oregon Ownerships. The private lands are utilized for many purposes, including home ownership, recreation, farming, ranching, timber management, etc.

The Phillip W. Schneider Wildlife Area is part of this management unit and is controlled by the Oregon Department of Fish and Wildlife (ODFW). The Wildlife Area contains approximately 50,000 acres, consisting of BLM land, State land, and some Private Land holdings. The Strawberry Mountain Wilderness area is also part of the Murderers Creek Wildlife Unit.

OVERVIEW

ODFW identified the Murderers Creek Wildlife Management Unit as a Mule Deer Initiative unit, with the goal of enhancing habitat and restoring mule deer populations, which are currently estimated at approximately 5,700, to the management objective of 9,000. Increasing enforcement efforts was identified in the Murderers Creek MDI plan as one of the means to help achieve that goal.

The first unit-wide mule deer enforcement action plan was developed in 2009 by Troopers from the Oregon State Police (OSP) Fish & Wildlife Division. The plan was followed by an 'After Action Report', which evaluated the implementation and success, or failure, of the 2009 Action Plan. Mule Deer Action Plans for subsequent years were prepared by Senior Trooper Marv Ritter of the OSP Fish & Wildlife Division. This 2014 action plan is a continuation of those efforts.

The Murderers Creek Unit is one of the most popular deer hunting units in the State. According to the 2014 Oregon Big Game Regulations, 2,575 hunters listed the Murderers Creek Unit as their first choice on their 2013 controlled rifle hunt applications. In 2013, 990 tags were issued to those first choice rifle applicants. In addition, according to ODFW's harvest survey data, in 2013 approximately 897 mule deer archery hunters chose to hunt the Murderers Creek Unit during the general archery season.

This action plan is broken down into four separate enforcement categories:

1. Habitat protection.
   a.) Road closure violations as part of year round closure.
2. Mule Deer hunting seasons.
3. Winter range protection.
4. Unlawful taking of Mule Deer during closed seasons.

While the above enforcement categories are practical from an operational point of view, producing meaningful statistics for some of them is challenging, due, in part, to the fact the Broslund reporting system does not contain some of the categories for reporting purposes and because some of the categories necessarily overlap with one-another.
Nonetheless, since the purpose of this action plan is to aid in the goal of enhancing habitat and restoring mule deer populations, the practical operational considerations were deemed, all things considered, more crucial than purely statistical considerations.

Over the last several years the hours worked by OSP Fish & Wildlife Troopers in the Murderers Creek Unit, the number of contacts made, the number of violations found, the hunter compliance rates, and the illegal harvests have been recorded using the Oregon State Police Broslund reporting system. The charts below reflect those statistics for the past 7 years for all OSP F&W enforcement activities, all OSP mule deer enforcement activities, OSP mule deer rifle season activities, and OSP mule deer archery season activities, respectively. (NOTE: Most of the statistics for 2013 are substantially lower than in previous years, because the only OSP F&W Trooper at the John Day work site missed the entire big game hunting seasons in 2013 due to training-related injuries. As a result, many of the numbers for 2013 are not statistically significant or useful)

ALL OSP F&W ENFORCEMENT ACTIVITIES

Murderers Creek	2007	2008	2009	2010	2011	2012	2013
Hours	459	331	458	574	573	586	128
Contacts	358	165	257	517	237	296	49
Violations	32	37	34	63	53	55	9
Compliance	91.1%	77.6%.	86.8%	878%	77.6%	81%	82%
Illegal Harvest	11	3	8	11	12	3	5

ALL OSP MULE DEER ENFORCEMENT ACTIVITIES

Murderers Creek	2007	2008	2009	2010	2011	2012	2013
Hours	119.5	122.5	205	239.5	311	336	88.5
Contacts	73	65	88	265	100	128	8
Violations	15	12	17	31	25	25	6
Compliance	79.5%	81.5%	80.7%	88.3%	75%	80%	25%
Illegal Harvest	6	3	4	5	8	2	5

OSP MULE DEER RIFLE SEASON ACTIVITIES

Murderers Creek	2007	2008	2009	2010	2011	2012	2013
Hours	117.5	98	176.5	98	48	19.5	48.5
Contacts	73	33	68	112	17	11	2
Violations	15	9	16	10	3	2	2
Compliance	79.5%	73%	76.5%	91.1%	82.4%	82%	0%
Illegal Harvest	6	2	1	3	3	0	0

OSP MULE DEER ARCHERY SEASON ACTIVITIES

Murderers Creek	2007	2008	2009	2010	2011	2012	2013
Hours	2	24.5	28.5	85.5	47	42	3
Contacts	0	32	20	120	47	76	1
Violations	0	3	1	14	7	6	0
Compliance	100.0%	90.63%	95%	88.3%	85.1%	92%	100%
Illegal Harvest	0	1	2	1	0	0	0

Beginning in 2008, users of the Brolund reporting system could record generic 'Mule Deer' activities as well as 'Mule Deer – Rifle' and 'Mule Deer – Archery' activities. It was apparent that for 2008 and 2009 users of the Broslund system had recorded some 'Mule Deer Rifle' activities under the generic 'Mule Deer' category. Therefore, for 2008 and 2009 I combined the generic 'Mule Deer' statistics with the 'Mule Deer Rifle' statistics to come up with the numbers that are shown for 2008 and 2009 in the 'Mule Deer Rifle Season Only' chart shown above.

During mule deer rifle and archery hunting seasons, the John Day area Troopers, who have the primary responsibilities in the Murderers Creek Management Unit, also have responsibilities in all, or portions of, the Northside Management Unit, Desolation Management Unit, Beulah Management Unit, Malheur River Management Unit, Silvies Management Unit, Sumpter Management Unit, Heppner Management Unit, Fossil Management Unit, and Ochoco Management Unit.

A couple of significant changes were implemented within the Murderers Creek Management Unit, beginning in 2011. One of those changes involved the annual closure of State Lands within the Philip W. Schneider Wildlife Area from February 01 through April 14, to all entry, including foot traffic, without a permit from ODFW. The yearly closure was implemented in an effort to lessen the stress of human intrusion on animals while they are wintering in the refuge. Beginning in 2012, BLM also implemented an annual closure of its lands within the refuge, to all entry without a permit, from February 01 through April 14.

Another significant change that was first implemented in 2011, extended the period of restriction for vehicular travel within the Murderers Creek – Flagtail Cooperative Travel Management Area to include the general archery deer and elk season, on a yearly basis.

OPERATIONAL TIME PERIOD AND AREA

The entire Murderers Creek Wildlife Unit will be covered by this plan. The action plan with start January 1, 2014 and conclude on December 31, 2014.

OPERATIONAL PLAN

In January, February, March, early April, and December, winter range patrols should be conducted. This is when the Murderers Creek mule deer are most vulnerable to unlawful take and harassment. Most of the Murderers Creek unit is open to vehicle travel, but large areas of it are often snowed out and inaccessible during the winter months. The winter range is low and easier to access and the deer are more concentrated.

Hunting for shed antlers is increasing in popularity and is often done on foot and/or on ATVs. ATV harassment on the winter range, when deer are already stressed, is harmful to herd health. There have been reports of deer and elk being chased on the winter range by ATV riders. All offenders that are caught violating the motorized vehicle travel restrictions will be charged accordingly. Likewise, all offenders caught violating the Phillip W. Schneider Wildlife Area entry restrictions from February 01, 2014, through April 14, 2014, will be charged accordingly.

Flights utilizing the OSP plane should be conducted to locate the largest concentrations of deer. Most ground patrols will be conducted by marked pickup or ATV. Landowner contacts around the winter range should done to help create the partnership in protecting the mule deer during this vulnerable time.

In April, May and June mule deer are transitioning to summer range and beginning to fawn. Most of the roads into the summer range are just becoming drivable during those months. This time period would generally be best utilized by conducting follow up investigations and fostering private land contacts.

In July and August mule deer are widely distributed on their summer range. Backcountry patrols should be conducted by foot and horse to identify areas of concern that may be potential problems during hunting seasons. Patrols for disturbance by unlawful ATV activity should also be conducted along the wildlife area.

From late August through mid-October patrols looking for tag compliance will be conducted. If an area of concern is developed, the Wildlife Enforcement Decoy should be considered. ODFW has demonstrated a willingness to help with decoy operations. One mule deer decoy is ready for use from the John Day worksite.

Extra patrols from surrounding offices should be considered as the need for manpower dictates. Having patrols from the Burns office working the North end of the Silvies and Malheur River unit would help free up the John Day patrol to work the Murderers Creek unit. Some of the hunting activity occurs in the wilderness area and will require Horseback patrols to check hunters in the field. Personal equipment as well as Oregon Department of Fish and Wildlife equipment will be used for these patrols.

During late October through December mule deer bucks move to lower ground to locate does with which to breed. They are more visible than normal and therefore become vulnerable to unlawful take. Patrols should be conducted around areas of high mule deer activity with added emphasis on areas with large bucks.

Meetings with recreational user groups should be attended to inform them of the action plan and to ask for their assistance in reporting violations. Landowners in the Murderers Creek wildlife unit should also be contacted.

The Murderers Creek unit is in Grant County. The Grant County Justice court will be used for all fish and wildlife crimes and violations. Citations will be marked with an appearance scheduled for Wednesdays, at 2:00pm.

The following resources have been identified to aid in the implementation of this action plan:

RESOURCES AVAILABLE

Dedicated Resources:

John Day Work Site: 1 Fish and Wildlife Trooper
1 Vacant F&W Position
1 Wildlife Enforcement Mule Deer Decoy

Reserve Resources:

Pendleton Patrol Office: **1** Fish and Wildlife Sergeant
3 Fish and Wildlife Troopers 1 Vacant F&W Position
2 Wildlife Enforcement Mule Deer Decoys 2 Motorcycles

Heppner Work Site: 1 Fish and Wildlife Trooper Hermiston Work Site:

1 Fish and Wildlife Trooper

Bums Work Site: 2 Fish and Wildlife Troopers
1 Wildlife Enforcement Mule Deer Decoy
1 Motorcycle

Bend Patrol Office: 1 Fish and Wildlife airplane Baker City Patrol Office:

1 Fish and Wildlife airplane

ODFW John Day Field Office: 4 employees
2 ATV vehicles

DATA COLLECTED

The following data will be collected: Number of patrol hours, number of contacts made, number of hunters not in compliance, number of illegal kills, number of animals checked, and the number of decoy operations conducted.

AFTER ACTION PLAN

The evaluation of this action plan, in the form of an 'After Action Plan', will be submitted by January 31, 2015.

PROPOSED FUTURE ACTIONS

I contacted Ryan Torland, who told me he was unaware of any significant proposed future actions at this time.

MEMORANDUM

OREGON STATE POLICE

DATE: January 24, 2013

TO: Isaac Cyr, Sergeant Baker City

FROM Randy Caldwell, Senior Trooper,
Burns

MEMORANDUM

OREGON STATE POLICE

DATE: January 24, 2013

TO: Isaac Cyr, Sergeant Baker City

SUBJECT: ACTION PLAN EVALUATION:
Steens Mountain Unit Mule Deer

GOAL: Protection of mule deer in the Steens Mountain Unit

OREGON BENCHMARK: There is no Oregon Benchmark for this topic

SUMMARY:

The Steens Mountain unit, unit number 69, southeast of Burns, Oregon is 1,916 Square miles and is comprised of 69% public land. The Steens Mountain Wilderness area has a total of 170,167 acres and has 89,450 acres in wilderness study area. Both areas have no or limited motor vehicle use allowed. Steens Mountain is predominantly a high elevation fault block that rises gradually from the west and falls off sharply along the east slope. Elevations begin near 4200 feet and rise to 9733 feet at the summit. Mule deer use summer range on the upper slopes and winter on the lower slopes often without leaving the Steens Mountain unit.

In 2008 the Oregon Department of Fish and Wildlife selected five wildlife management units to be part of the Mule Deer Initiative (MDI) plan. The Steens Mountain unit was selected as one of the units in the MDI. The goal is to increase the mule deer population in the unit.

Steens Mountain has historically been regarded as one of Oregon's premier mule deer hunting areas. Oregon Department of Fish and Wildlife records show that the mule deer population peaked in the 1950's. The population had gradually declined until 2007. In 2007 ODFW estimated the mule deer population to be at 35% of their management objective. The estimated population for 2007 was 3,850 mule deer. In 2012 the estimated mule deer population was 4800, which is 44% of management objective.

The Oregon State Police action plan to protect mule deer in the Steens Mountain unit was discussed with ODFW district biologist for the area, Rod Klus. Mr. Klus was supportive of the plan and agreed that it would have the greatest chance of success if OSP and ODFW worked closely together on a year round protection plan.

Enforcement presence from 2004 through the 2007 rifle seasons had been limited. Oregon State police records show that an average of 39 hours per rifle season was worked with an average compliance rate of 84.7%. In 2012, 115 hours were worked on mule deer patrols (archery, rifle and winter range) with a 70% compliance rate.

RESULTS FOR 2012:

Patrol Hours-Mule Deer	115 hours
Deer Hunter Contacts	37
Hunters in Compliance	26
Compliance Rate	70.3%
Warnings	10
Citations	6
Total Patrol Hours-All Species	238
Total Contacts	126
Hunters in Compliance	107
Compliance Rate	85%

During the 2012 hunting seasons the Burns worksite had one full time Fish and Wildlife Trooper and one Patrol Trooper from Bend who helped patrol the Burns area during rifle season. Four criminal citations were issued after completing an investigation into a loaning/borrowing of a landowner preference deer tag that had occurred in 2011. Two citations and several warnings were issued during archery season for equipment violations such as lighted sights and mechanical broadheads. Other warnings were given for other miscellaneous violations.

Patrols concentrating enforcement presence on the mule deer winter range were conducted. Many of the landowner contacts were made during this period. OSP also accompanied ODFW for the fall herd composition flights. This enabled us to be up to date on the location of the bulk of the deer on the winter range.

During other seasons an effort was made to spend time in the Steens Unit. During contacts other hunters and fishermen were made aware of the Steens MDI.

DISCUSSION:

Wilderness area patrols were not conducted due to manpower and time constraints.

ODFW helped monitor the Steens unit during rifle season, conducting many hunter checks, when other calls kept us out of the area.

ODFW biologist Rod Klus was contacted regarding the future of the action plan. He is supportive of the plan and would like to see it continue. We discussed expanding our patrol coverage to more of the wilderness area next year.

RECOMMENDATIONS:

For 2013 archery season in the Steens Mountain Unit will remain to be a limited entry tag. Archers will need to have a controlled Steens archery deer tag to hunt for buck deer or elk. This is the fourth year of this program and more enforcement presence will be needed to ensure the success of this program.

An additional Fish and Wildlife Trooper is scheduled to be stationed in Burns by the start of the big game seasons. Wilderness patrols will be conducted in the South Steens area and Kiger Gorge to check for tag compliance. The South Steens area has had the most pressure observed during past archery seasons. However in 2012 most of the pressure was concentrated around Fish Lake and Kiger Gorge. Wilderness patrols will again be contingent on manpower and time constraints.

Decoy operations may be conducted if an area of low tag compliance is identified or to address specific problem areas.

A landowner in the Steens Unit has granted OSP access through the ranch to more quickly reach the back edges of the wilderness area in the South Steens. This access will be utilized during the archery and rifle seasons.

I recommend that the action plan be continued in 2013.

RCC
Action Plan

MEMORANDUM

OREGON STATE POLICE

DATE: January 23, 2014

TO: Isaac Cyr, Sergeant Baker City

FROM: Randy Caldwell, Senior Trooper Burns

SUBJECT: **ACTION PLAN EVALUATION: Steens Mountain Unit Mule Deer**

GOAL: Protection of mule deer in the Steens Mountain Unit OREGON

BENCHMARK: There is no Oregon Benchmark for this topic SUMMARY:

The Steens Mountain unit, unit number 69, southeast of Burns, Oregon is 1,916 square miles and is comprised of 69% public land. The Steens Mountain Wilderness area has a total of 170,167 acres and has 89,450 acres in wilderness study area. Both areas have no or limited motor vehicle use allowed. Steens Mountain is predominantly a high elevation fault block that rises gradually from the west and falls off sharply along the east slope. Elevations begin near 4200 feet and rise to 9733 feet at the summit. Mule deer use summer range on the upper slopes and winter on the lower slopes often without leaving the Steens Mountain unit.

Steens Mountain has historically been regarded as one of Oregon's premier mule deer hunting areas. Oregon Department of Fish and Wildlife records show that the mule deer population peaked in the 1950's. The population had gradually declined until 2007. In 2007 ODFW estimated the mule deer population to be at 35% of their management objective. The estimated population for 2007 was 3,850 mule deer. In 2012 the estimated mule deer population was 4800, which is 44% of management objective.

In 2008 the Oregon Department of Fish and Wildlife selected five wildlife management units to be part of the Mule Deer Initiative (MDI) plan. The Steens Mountain unit was selected as one of the units in the MDI. The goal is to increase the mule deer population in the unit. The Oregon State Police action plan to protect mule deer in the Steens Mountain unit was discussed with ODFW district biologist for the area, Rod Klus. Mr. Klus was supportive of the plan and agreed that it would have the greatest chance of success if OSP and ODFW worked closely together on a year round protection plan.

Enforcement presence in 2012 totaled 115 hours worked on mule deer patrols (archery, rifle and winter range) with a 70% compliance rate. 238 total hours for all species were worked in the Steens Unit. In 2013, 126 hours were worked on mule deer patrols (archery,

rifle and winter range) with a 100% compliance rate on contacts. 284 hours for all species were worked.

RESULTS for 2013:

Patrol Hours-	126 hours
Mule Deer Deer hunter contacts	17
Hunters in compliance	17
Compliance rate	100%
Warnings	0
Citations	0

Total patrol hours all species	284
Total contacts	91
Hunters in compliance	78
Compliance rate	85%

During the 2013 hunting seasons the Burns worksite had two full time Fish and Wildlife Troopers who patrolled the Burns area during hunting seasons. Hunters checked were compliant and many had been contacted in previous seasons. Remains of two mule deer were found after the antelope season; however, no suspects were developed. Citations were issued for ATV violations, bobcat and upland bird violations but none that were directly related to mule deer.

Patrols concentrating enforcement presence on the mule deer winter range were conducted. Many of the landowner contacts were made during this period. OSP also accompanied ODFW for the fall herd composition flights. This enabled us to be up to date on the location of the bulk of the deer on the winter range which remained at higher elevations longer than usual due to the lack of early snowfall and a good fall green-up at mid-elevations.

During other seasons an effort was made to spend time in the Steens Unit. During contacts other hunters and fishermen were made aware of the Steens MDI.

DISCUSSION:

Wilderness area patrols were not conducted due to manpower and time constraints.

ODFW helped monitor the Steens unit during rifle season, conducting many hunter checks, when other calls kept us out of the area.

ODFW biologist Rod Klus was contacted regarding the future of the action plan. He is supportive of the plan and would like to see it continue. We discussed expanding our patrol coverage to more of the wilderness area next year.

RECOMMENDATIONS:

For 2014, archery season in the Steens Mountain Unit will continue to be a limited entry tag. Archers will need to have a controlled Steens archery deer tag to hunt for buck deer or elk. This is the fifth year of this program and more enforcement presence will be needed to ensure the success of this program.

Wilderness patrols will be conducted in the South Steens area and Kiger Gorge to check for tag compliance. The South Steens area has had the most pressure observed during past archery seasons. However in 2012 most of the pressure was concentrated around Fish Lake and Kiger Gorge. Wilderness patrols will again be contingent on manpower and time constraints.

Decoy operations may be conducted if an area of low tag compliance is identified or to address specific problem areas.

I recommend that the action plan be continued in 2014.

RCC
Action Plan

MEMORANDUM

OREGON STATE POLICE

DATE: February 19, 2009

TO: David Gifford, Lieutenant Southwest Region Headquarters

FROM: Randall G. Hand, Sergeant Klamath Falls Patrol Office

SUBJECT: **ACTION PLAN: WARNER UNIT DEER PROTECTION**

GOAL: The goal is to provide a measure of the illegal deer take in the Warner Unit

OREGON BENCHMARK:

The action plan compliments Oregon Benchmark 90, the number of native fish and wildlife species that are healthy.

HISTORY/CONCERN:

The Oregon Department of Fish and Wildlife is charged with management of Oregon's mule deer. ODFW has implemented a variety of hunter management strategies over the years to deal with the demand for the opportunity to hunt mule deer. Since 1991 hunters have had to draw through a lottery process for all deer tags in eastern Oregon.

After years of declining mule deer populations, Oregon Department of Fish and Wildlife has implemented a Mule Deer Initiative. Five wildlife management units have been selected to implement a variety of strategies to improve mule deer populations. In our patrol area, the Warner Unit has been selected.

The population management objective (MO) for the Warner Unit is 5500 deer. In 1980 the estimated population was 8,120 deer. The most recent population estimate (2008) was 2,958 deer. For the purposes of deer management, the Warner Unit has been split into two sub-units with the dividing boundary being Highway 140. The unit north of Highway 140 is managed for a post-season buck management objective of 25 bucks per hundred does while the unit south of Highway 140 is managed for 15 bucks per hundred does. Since being divided, North Warner has not met the buck management objective in any year. South Warner has consistently met or exceeded buck management objectives during the same time period.

In discussing the Warner Unit mule deer situation, ODFW Biologist Craig Foster states he does not believe that poaching is an issue, but would like to make sure his assumption is correct.

In discussing the Warner Unit mule deer situation with Trooper Curtis Weaver, he also does not believe poaching is an issue. Trooper Weaver stated that most of the illegal deer harvest in his patrol area occurs in the Interstate Unit and even this certainly does not appear to be at the levels seen in North Lake County (Fort Rock and Silver Lake Units).

Several WED operations have been run in the Warner Unit over the past several years. All operations in the North Warner were not successful in locating hunters without valid tags. The hunter density was low and the few vehicles that did manage to drive by did not stop for the WED. Of those operations in the South Warner, none turned up a hunter without a valid tag.

OPERATIONAL AREA/TIME PERIOD:

The operational area shall be the Warner Unit.

This plan is to compliment Oregon Department of Fish and Wildlife's Mule Deer Initiative. The overall time period for this plan shall be commensurate with their Initiative.

OPERATIONAL PLAN:

In 2009, Trooper Curtis Weaver will do a notebook review to formally document any deer unlawfully killed in the Warner Unit for the time he has been assigned to Lakeview. This shall be reported by year.

Beginning in 2010, the Lakeview Fish and Wildlife Trooper shall monitor and document all deer unlawfully killed in the Warner Unit and submit the results in an Action Plan Evaluation at the end of each year.

As time allows during deer season the Wildlife Enforcement Decoy will be operated in the Warner Unit (north and south) to determine the tag compliance rate.

DATA TO BE COLLECTED:

Numbers of deer unlawfully killed in the Warner Unit.

Number of WED operations

Hunters contacted

Hunters without valid tags

COMPLETION DATE:

Annual reports shall be filed no later than January 31 of each year beginning in 2010. The final evaluation shall be completed upon the full completion of ODFW's Mule Deer Action Plan.

RGH

Appendix C: Population Data for MDI WMU's and Comparison Areas 2001-2014.

HEPPNER Pop'n MO 12,000; Buck Ratio MO 12				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	11	43	29	12825
2002	9	37	30	11475
2003	16	43	29	10800
2004	10	45	24	9450
2005	9	45	29	6720
2006	14	52	35	7560
2007	10	46	29	6960
2008	15	49	33	7080
2009	15	56	36	7200
2010	12	54	35	7800
2011	13	64	37	8040
2012	17	60	46	8760
2013	17	51	35	8160
2014	15	47	38	9100

FOSSIL Pop'n MO 10,000; Buck Ratio MO 12				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	11	36	32	11900
2002	10	35	25	10500
2003	10	42	22	9800
2004	12	40	22	9800
2005	15	54	27	3900
2006	14	51	27	5000
2007	15	52	35	5000
2008	12	49	34	5000
2009	21	50	39	5200
2010	13	49	42	5800
2011	13	59	44	6100
2012	19	61	49	7100
2013	15	52	32	7600
2014	17	43	27	8400

MAURY Pop'n MO 5,200; Buck Ratio MO 20[1]				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	13	56	32	
2002	18	60	37	4,500
2003	13	56	38	4,700
2004	12	52	32	4,500
2005	11	62	48	4,800
2006	18	64	42	3,800
2007	21	55	35	3,500
2008	17	56	32	3,500
2009	12	58	45	3,000
2010	16	57	41	3,000
2011	26	73	47	6,300
2012	18	52	32	5,600
2013	16	67	44	5,600
2014	21	50	54	5,600

[1]- Buck Ratio MO changed from 15 to 20 in 2011.

PAULINA Pop'n MO 16,500; Buck Ratio MO 15				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	17	63	36	15,400
2002	16	57	41	15,400
2003	13	59	33	14,300
2004	13	57	42	13,800
2005	16	65	53	13,800
2006	19	72	49	13,100
2007	17	59	42	11,600
2008	18	59	35	10,300
2009	10	54	37	10,000
2010	13	57	45	9,800
2011	17	50	43	9,300
2012	17	56	38	10,300
2013	20	57	37	10,700
2014	18	64	38	7,920

MURDERER'S CREEK Pop'n MO 9,000; Buck Ratio MO 15				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	11	54	25	6478
2002	11	54	24	6256
2003	16	85	30	5823
2004	11	78	38	5823
2005	12	73	53	6695
2006	16	75	49	6968
2007	16	49	36	6820
2008	12	50	36	5207
2009	12	62	39	5037
2010	14	72	36	5303
2011	16	58	45	5885
2012	16	60	39	5904
2013	13	48	31	5290
2014	17	64	39	5699

NORTHSIDE Pop'n MO 15,500; Buck Ratio MO 15				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	17	54	33	9685
2002	17	54	29	8358
2003	17	56	34	8402
2004	11	56	39	7767
2005	12	67	50	7950
2006	20	72	48	7954
2007	17	51	47	8137
2008	11	58	39	7358
2009	15	58	43	7325
2010	16	55	38	7085
2011	20	69	39	7228
2012	14	61	38	7144
2013	13	52	35	6837
2014	11	60	40	6904

STEENS MOUNTAIN				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	31	44	33	5,792
2002	22	65	21	4,935
2003	24	55	20	4,317
2004	34	44	20	4,398
2005	51	55	32	4,456
2006	29	69	38	4,296
2007	47	59	21	3,840
2008	29	35	15	3,728
2009	28	68	24	3,929
2010	37	57	33	4,375
2011	27	58	43	4,785
2012	27	66	40	4,957
2013	35	37	21	5,257
2014	31	52	29	

TROUT CREEK MOUNTAINS				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	40	37	21	1,166
2002	24	44	13	991
2003	49	45	13	1,008
2004	48	55	29	1,111
2005	47	41	44	1,171
2006	19	77	44	1,156
2007	24	41	28	996
2008	30	14	11	966
2009	15	50	26	964
2010	29	65	31	1,069
2011	37	41	40	1,174
2012	55	60	37	1,127
2013	46	38	21	1,157
2014	57	56	27	

WARNER Pop'n MO 5,500; Buck Ratio MO N-25, S-15				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	21	49	32	
2002	19	66	30	4,250
2003	22	41	15	3,450
2004	13	55	24	3,000
2005	15	56	42	2,600
2006	18	70	35	1,630
2007	24	48	24	2,270
2008	14	37	14	1,036
2009	15	50	36	2,958
2010	24	60	23	2,389
2011	16	56	38	3,157
2012	23	51	31	2,468
2013	25	56	28	3,814
2014	27	59	27	1,986

INTERSTATE Pop'n MO 14,800; Buck Ratio MO 15				
Year	Buck Ratio	Fall Fawn: 100 Does	Spring Fawn: 100 Adults	Pop. Est.
2001	23	59	30	
2002	24	76	35	6,900
2003	19	49	21	6,800
2004	15	63	26	6,250
2005	16	73	43	6,000
2006	18	113	37	6,685
2007	20	62	28	6,685
2008	18	39	15	5,841
2009	19	66	30	11,004
2010	15	44	24	10,424
2011	21	67	34	5,675
2012	24	52	25	4,061
2013	21	56	23	5,538
2014	19	59	26	3,816

Appendix D: Harvest Data for MDI WMU's and Comparison Areas 2001-2014.

HEPPNER

	Combined Rifle (100 Series)				General Archery				LE Archery				Combined Antlerless (600 Series)				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	3,700	1211		33	1,027	24	78	10					264		199	75	150	16	46	41
2002	3,588	1075		30	1,171	130	111	21					177		139	79	137	11	47	42
2003	3,295	734		22	725	49		7					133		104	78	111	14	32	41
2004	3,072	621		20	635	46		7									87	8	28	41
2005	2,495	1008		40	703	130		18									86	11		13
2006	2,635	924		35	692	66		10									90	28		31
2007	2,626	995		38	691	71		10									79	18		23
2008	2,600	905		35	697	86		12									86	30	2	25
2009	2,658	885		33	873	49		6					78		44	56	91	17		19
2010	2,667	764		29	790	82		10					72		48	67	106	24		23
2011	2,600	841		32	821	129		16					63		51	81	105	29		28
2012	2861	924		32	823	84		10					116	7	70	66	111	28		25
2013	2884	938		33	893	79		9					122	8	73	66	155	39		25

FOSSIL

	Combined Rifle (100 Series)				General Archery				LE Archery				Combined Antlerless (600 Series)				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	1,957	869		44	111	16		14					192		160	83				
2002	1,753	732		42	169	0		0					146		126	86				
2003	1,871	770		41	235	37		16					155		127	82				
2004	1,731	578		33	152	33		22								0				
2005	1,660	906		55	216	65		30								0				
2006	1,717	707		41	132	44		33								0				
2007	1,671	740		44	245	47		19					111		86	77				
2008	1,582	763		48	293	86		29					105		81	77				
2009	1,719	663		39	270	74		27					114		87	76				
2010	1,711	594		35	221	24		11					101		74	73				
2011	1,675	954		57	215	70		33					97		77	79				
2012	1846	903		49	206	61		30					92		80	87	42	10		25
2013	1824	856		47	225	62	3	29					103		78	75.72816	25	10		38

MURDERER'S CREEK

	Combined Rifle (100 Series)				General Archery				LE Archery				Combined Antlerless (600 Series)				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	1,164	416		36	717	94		13												
2002	1,152	595		52	833	135		16												
2003	1,229	441		36	893	106		12												
2004	1,022	330		32	1,020	185		18												
2005	1,007	558		55	703	195		28												
2006	1,166	596		51	912	132		14												
2007	1,103	528		48	893	198		22												
2008	1,141	468		41	868	98		11												
2009	953	443		46	1,217	185		15												
2010	923	384		42	813	220		27												
2011	954	413		43	896	108		12												
2012	941	416		44	708	120	1	17					21		14	65				
2013	957	490		51	805	106		13					17		13	75				

NORTHSIDE

	Combined Rifle (100 Series)				General Archery				LE Archery				Combined Antlerless (600 Series)				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	1,538	534		35	549	102		19					144							
2002	1,614	594		37	860	204		24					168							
2003	1,554	611		39	563	79		14					196							
2004	1,483	350		24	627	98		16												
2005	1,215	611		50	552	119		22												
2006	1,364	477		35	747	154		21					136							
2007	1,289	517		40	703	93		13					129							
2008	1,310	600		46	697	122		18					136							
2009	1,216	283		23	651	110		17					74							
2010	1,246	414		33	662	81		12					56							
2011	1,205	458		38	444	105		24					79		56	71				
2012	1,265	426		34	601	98		16					65		54	83				
2013	1,278	559		44	627	84		13					63		57	90				

MAURY

	Combined Rifle (100 Series)				General Archery				LE Archery				Combined Antlerless (600 Series)				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	1,119	287		26	62	0		0												
2002	1,089	248		23	93	19		20												
2003	1,110	218		20	92	21		23												
2004	822	199		24	11	11		100												
2005	662	171		26	108	22		20												
2006	685	189		28	121	33		27												
2007	689	234		34	152	24		16												
2008	724	199		27	183	36		20												
2009	380	120		32	221	37		17												
2010	363	164		45	23	12		52												
2011	348	136		39					77	8		10								
2012	378	144		38	20	2		10	92	26		28								
2013	393	183		47	11	1		9	84	11		13								

PAULINA

	Combined Rifle (100 Series)				General Archery				LE Archery				Combined Antlerless (600 Series)				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	3,262	729		22	714	179		25	24		8	33					195		157	81
2002	3,150	788		25	555	56		10	37		7	19					219		169	77
2003	3,223	594		18	580	106		18	50		5	10					292		152	52
2004	3,061	548		18	483	55		11	46		22	48					264		169	64
2005	2,639	980		37	595	109		18	39		17	44					131		89	68
2006	2,778	534		19	703	176		25	35		6	17					153		80	52
2007	2,748	817		30	641	163		25	33		21	64					122		96	79
2008	2,752	515		19	795	61		8	31		10	32					119		73	61
2009	2,355	470		20	651	147		23	31		9	29					73		48	66
2010	2,187	364		17	581	117		20	18		14	78					33		22	67
2011	1,812	451		25					10		6	60					37		14	38
2012	1925	508	1	26	569	121		21	17		7	41					34		25	73
2013	1908	510		27	553	94		17	14		7	50					27		20	74

STEENS MT.

	Combined Rifle (100 Series)				General Archery				LE Archery				Combined Antlerless (600 Series)				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	441	234		53	101	8		8												
2002	352	208		59	133	39		29												
2003	378	153		40	85	28		33												
2004	295	138		47	87	11		13												
2005	346	164		47	54	0		0												
2006	340	195		57	88	11		13												
2007	330	146		44	58	12		21												
2008	323	128		40	37	0		0												
2009	314	136		43	111	12		11												
2010	312	137		44	23	0		0	48	3		6								
2011	311	155		50					55	6		11								
2012	305	173	1	57	10	0		0	63	10		16	11		8	73				
2013	304	159		52	12	6		50	60	10		17	8		6	75				

TROUT CREEK MOUNTAINS

	Combined Rifle (100 Series)				General Archery				LE Archery				Combined Antlerless (600 Series)				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	69	47		68	8	8		100												
2002	75	50		67		0		0												
2003	78	42		54	33	7		21												
2004	84	51		61	13	11		85												
2005	83	53		64	11	0		0												
2006	80	42		53		0		0												
2007	82	55		67		0		0												
2008	78	51		65	24	0		0												
2009	79	56		71	49	0		0	62	2		3								
2010	80	43		54					61	6		10								
2011	77	41		53					63	0		0								
2012	80	55		69					55	7		13								
2013	76	48		63					64	5		8								

NORTH WARNER

	Combined Rifle (100 Series)				General Archery*				LE Archery				Combined Antlerless (600 Series)*				Muzzleloader			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	215	97		45	150	44	0	29					27	14	7	78	26	12	0	46
2002	219	108		49	192	40	0	20					27	8	9	63	28	13	0	46
2003	174	68		39	186	70	0	38					26	12	6	69	20	5	2	35
2004	121	47		39	109	11	0	10						0		0	26	18		69
2005	99	54		55	151	33	0	22					20	7	5	60	26	18	0	69
2006	99	51		52	121	11	0	9					23	10	4	61				
2007	105	60		57	117	24	0	21					21	12	3	71				
2008	87	42		48	171	36	0	21					15	2	4	40				
2009	55	31		56	86	12	0	14					23	8	8	70				
2010	54	24	6	56					37			0								
2011	56	35		63					45	20		44								
2012	64	43	2	70					47	12		0								
2013	61	48		79					35	9		27								

*Combined North & South Warner Totals

SOUTH WARNER

	Combined Rifle (100 Series)				General Archery*				LE Archery				Combined Antlerless (600 Series)*				Muzzleloader*			
Year	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success	# Hunters	Buck Harvest	Doe Harvest	% Success
2001	498	163		33	150	44	0	29									26	12		46
2002	481	128		27	192	40	0	20									28	13		46
2003	377	120		32	186	70	0	38									20	5	2	35
2004	282	72		26	109	11	0	10									26	18		69
2005	276	112		41	151	33	0	22									26	18		69
2006	271	89		33	121	11	0	9												
2007	283	77		27	117	24	0	21												
2008	195	50		26	171	36	0	21												
2009	255	93		36	86	12	0	14												
2010	205	93		45					17	6	2	47								
2011	192	90		49					20	4		20								
2012	215	106	1	50					33	6		18								
2013	223	113		51					40	8		21								

*Combined North & South Warner Totals

Appendix E: Action Plan Committees for All MDI WMUs

Heppner:

Wayne Elliott	Oregon Hunters Association
Jim Jerome	Oregon Hunters Association
Ken Hand	Mule Deer Foundation
Buster Gibson	Wildlife Services
Kevin Hughes	Cattlemen's Association
Dennis Newman	SWCD
Randy Scarlett	U.S. Forest Service
Dan Tippy	Bureau of Land Management
Mike Mayer	Oregon State Police

Maury:

Greg Erickson	Mule Deer Foundation
Ken Fahlgren	Crook County Commissioner
Monty Greg	Ochoco National Forest
Steve Hagan	Oregon Hunters Association (State Board)
Ken Hand	Mule Deer Foundation
Rance Kaster	Landowner
Amos Madison	Oregon State Police
Kurt McCormack	Crook County Stock Growers, Landowner
Ron Powell	Rocky Mountain Elk Foundation
Lyle Rilling	Oregon Hunters Association (Local Chapter)
Dede Steele	Ochoco National Forest
Matt Smith	Landowner
Dan Tippy	Bureau of Land Management

Murderer's Creek:

Dean Elliott	Oregon Hunters Association (local)
Wayne Elliott	Oregon Hunters Association (state)
Ken Hand	Mule Deer Foundation
Rene Mabe	United States Forest Service
Dan Tippy	Bureau of Land Management
Linda Brown	Warm Springs Tribe
Lorraine Voigt	Natural Resource Conservation Service
Roger Ediger	Farm Bureau/ Private Landowner
Ken Holliday	Private Landowner
J.C. Oliver	Private landowner

Steens Mountain:

Randy Caldwell	Oregon State Police
Stacey Davies	Steens Mountain Advisory Council, Landowner Representative
Steve Grasty	Harney County Judge
Ken Hand	Mule Deer Foundation
Rich Jenkins	Landowner
Dave McDonald	Oregon Hunters Association (State Board)
Matt Obradovich	Bureau of Land Management
Earl Tiller	Oregon Hunters Association (Local Chapter)

Warner:

Dave Aikins	Oregon Hunters Association
Fred Craig	Oregon Hunters Association (State Board)
Lee Fledderjohann	Collins Timber
Todd Forbes	Bureau of Land Management
Ken Hand	Mule Deer Foundation
Roger Linton	Lake County Umbrella Watershed Council
Amy Markus	Fremont/Winema National Forest
Mike Ramsey	Fremont/Winema National Forest
Keith Reed	Oregon Hunters Association
Pete Schreder	Oregon State University Extension
Sonny Simms	Landowner
John Taylor	Landowner
Curtis Weaver	Oregon State Police
Brad Winters	Lake County Commissioner