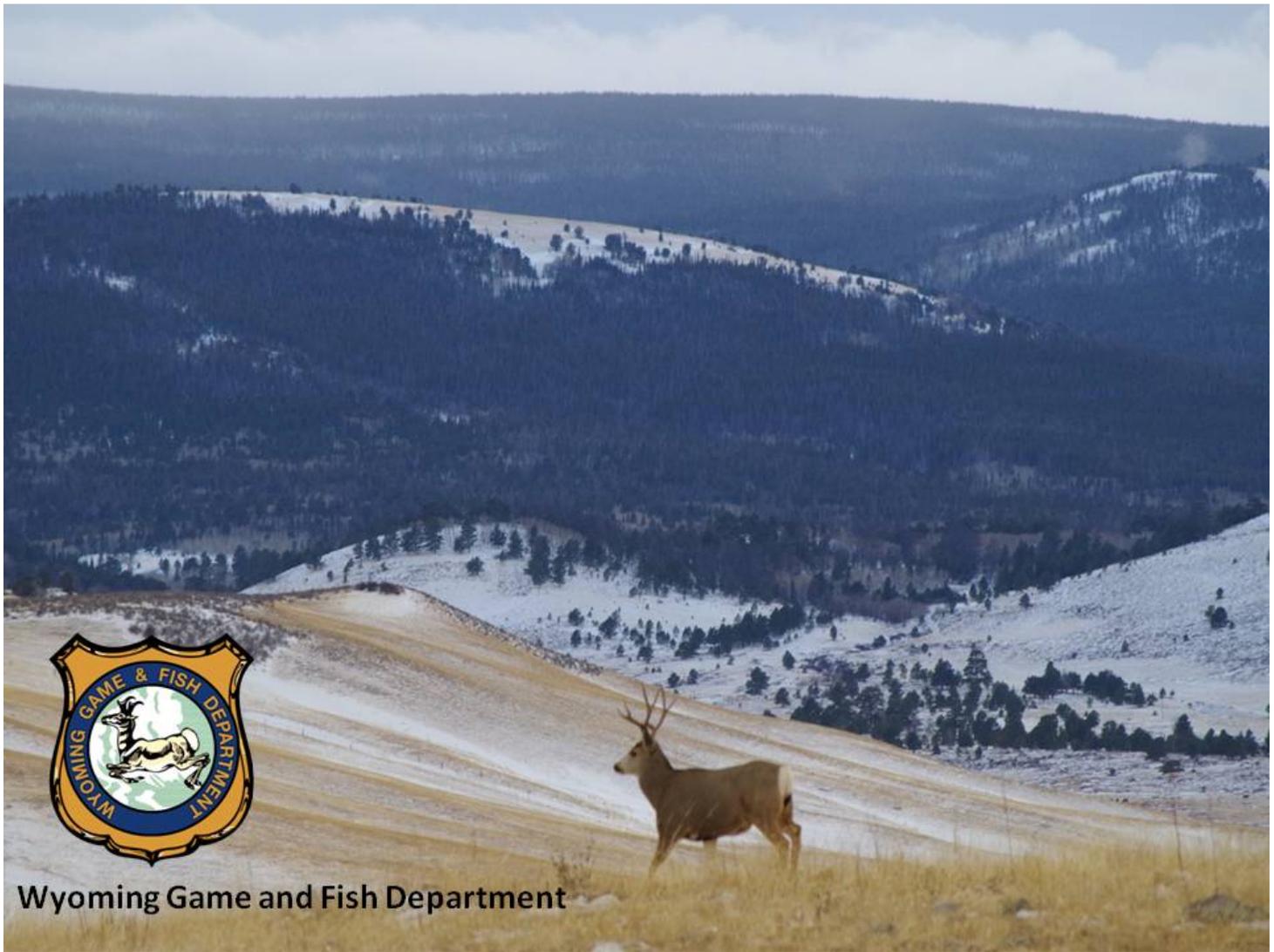


# Sheep Mountain Mule Deer Initiative Management Recommendations

2015 – v.072815



Wyoming Game and Fish Department



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## ACKNOWLEDGEMENTS

The Wyoming Game and Fish Department (WGFD) sincerely thanks all those who participated in the workshops and/or provided input in generating these management recommendations for Sheep Mountain Mule Deer Initiative. In the spirit of the North American Wildlife Conservation Model, the WGFD is committed to the continuation of this collaborative process as we all strive to sustain a healthy mule deer population within the Sheep Mountain herd unit (SMHU).

We wish to acknowledge the many stakeholders who had enough personal interest to forego evenings at home to travel to our workshops, in sometimes rough weather, and actively make contributions to this effort. We are also grateful to stakeholders who took time to complete our mule deer hunter attitude survey. WGFD has benefited a great deal from interactions with concerned stakeholders and the results of the mule deer hunter survey. We are especially grateful to the many individual stakeholders who contributed to this process, mule deer are truly a resource which belongs to everyone. We also would like to recognize the contributions of the stakeholders groups as they identified themselves.

### Attending Stakeholder Groups

- *Backcountry Hunters and Anglers*
- *Bow Hunters of Wyoming*
- *Bureau of Land Management*
- *Concerned Citizens*
- *Conservation Districts*
- *Forest Service*
- *Individual Hunters*
- *Muley Fanatics Foundation*
- *Landowners*
- *Local and Statewide Media*
- *Outfitter Organizations*
- *Rocky Mountain Elk Foundation*
- *Sportsmen*
- *The Mule Deer Foundation*
- *University of Wyoming Cooperative Extension*
- *University of Wyoming Students*
- *Wyoming Wildlife Federation*
- *Wyoming Department of Transportation*

## **INTRODUCTION**

In August of 2014, the Wyoming Game and Fish Department (WGFD) implemented the Sheep Mountain Mule Deer Initiative (SMMDI) to increase public involvement in the management direction of the Sheep Mountain mule deer herd. Primary goals were to more effectively communicate with all interested stakeholders regarding Sheep Mountain mule deer management and develop a management recommendations document for this herd unit. Recommendations in this document for the Sheep Mountain management are tiered from the statewide Mule Deer Initiative approved by the Wyoming Game and Fish Commission in July 2007.

([https://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/MDI\\_SECUREINGFUTURE0006580.pdf](https://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/MDI_SECUREINGFUTURE0006580.pdf)).

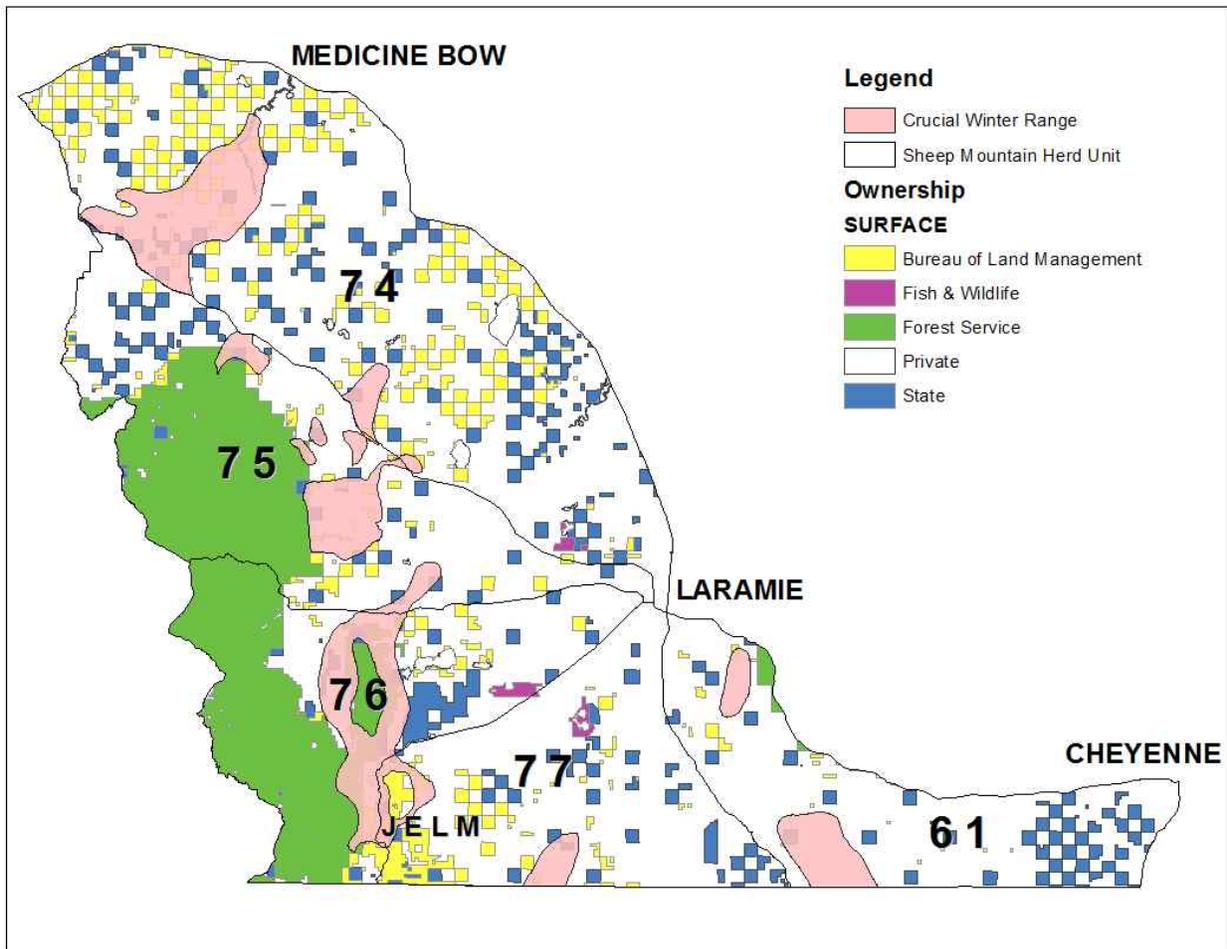
WGFD engaged interested stakeholders in public workshops using the “collaborative learning” enabling stakeholders and WGFD to discuss issues in an open forum that allowing for meaningful dialogue and active learning. From August 2014 through June 2015, WGFD conducted a series of five workshops in Laramie and Cheyenne (Appendix A). Meeting notes from all SMMDI meetings are available at the following weblink:

<https://wgfd.wyo.gov/web2011/wildlife-1002439.aspx> . The ultimate goal of these workshops was to involve the public in Sheep Mountain mule deer management and develop this document to guide future mule deer management within the SMHU.

The WGFD surveyed Sheep Mountain mule deer hunters following the 2014 hunting season to better understand their perspectives on a variety of issues affecting management of this herd (Appendix B). The results of this survey were used to formulate the management recommendations within this document.

This document is based on management issues and actions identified through the collaborative learning process, hunter survey and by WGFD wildlife managers. Deer managers have little effect on weather, climate and human population growth. However, there is an opportunity for deer managers to address many of the management issues identified during this process which include: population management, habitat management, predator management, human disturbance, and hunter recruitment.

The Sheep Mountain mule deer herd unit is comprised of hunt areas 61, 74, 75, 76 and 77 (Figure 1). Historically, mule deer numbers in the SMHU have been relatively low in comparison to the mule deer numbers for many of Wyoming’s other herd units. However, the SMHU has historically been a very important herd unit for providing both mule deer hunting and non-consumptive recreational opportunities, due to its proximity to Wyoming’s population centers of Laramie and Cheyenne. Current mule deer numbers in the SMHU, as well throughout most of Wyoming, are lower than desired by the public and wildlife managers. Recent hunter comments have called for increased mule deer populations within the Sheep Mountain mule deer herd.



**Figure 1. Sheep Mountain mule deer herd unit boundary and hunt areas, Wyoming.**

In Wyoming, management of big game species is guided by the “Management by Objective” strategy. In the Sheep Mountain herd, the WGFD manages the mule deer population within 20% of the WGFC approved “post-season” population size of 15,000 mule deer (the number of deer in the population after the hunting season). The current population objective has been in place since 1987. This post-season objective was reviewed in 2015 as part of the SMMDI effort. In the Sheep Mountain herd, it was estimated there were approximately 5,600 mule deer after the 2014 hunting season. Based on trends of mule deer numbers, harvest, and fawn production and recruitment, this mule deer population has been declining since 2009 (Figure 2). This decline is due to a combination of the factors or issues addressed in this document. Although all of the issues identified are important, many stakeholders in the collaborative process involved recognized the importance of degraded habitat conditions and fawn recruitment as the primary factors which have contributed to the decline in mule deer numbers. The Sheep Mountain mule deer herd is managed to provide “recreational” hunting opportunity. This means WGFD establishes hunting seasons to manage for observed postseason buck:doe ratios between 20-29 bucks for every 100 does. Observed buck:doe ratios have met or exceeded 20 bucks:100 does during 20 of the past 24 years (Figure 3). Since 1990, the buck: doe ratio has averaged 25 bucks: 100 does.

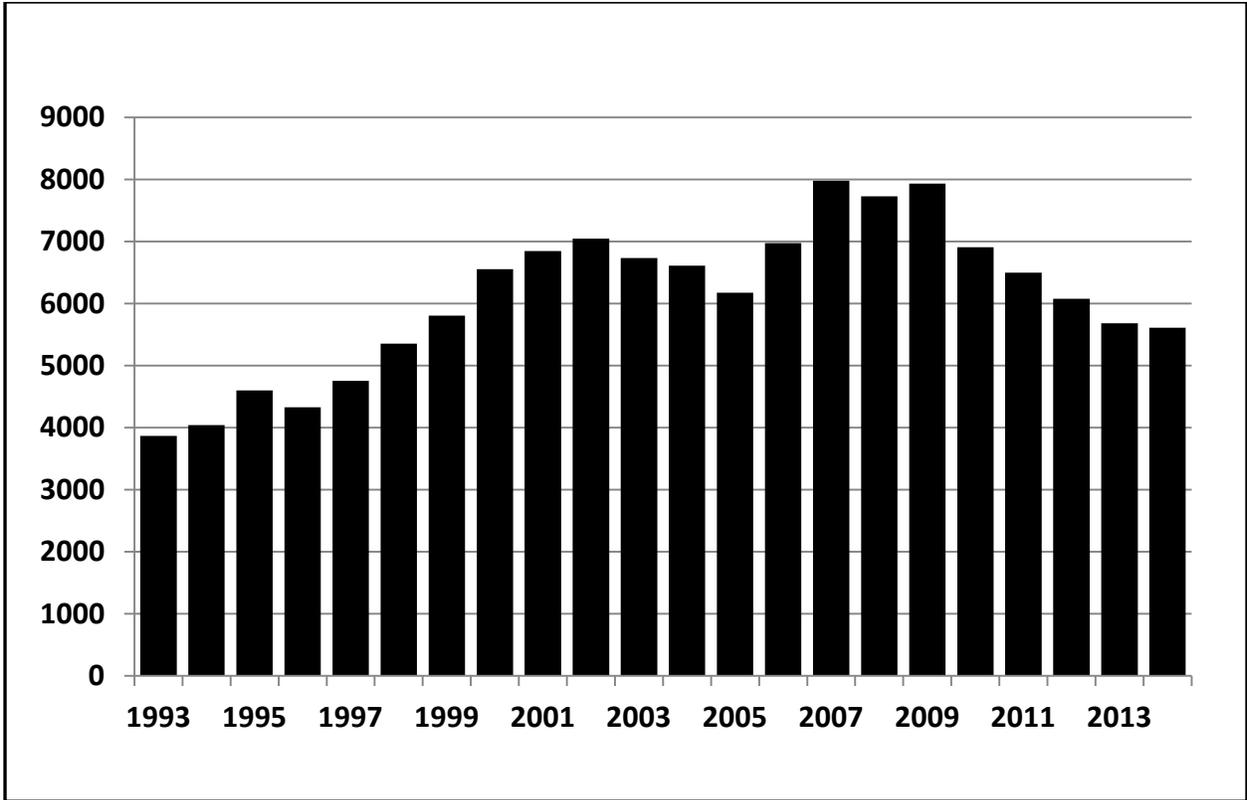


Figure 2. Sheep Mountain mule deer herd unit population estimates (1993-2014).

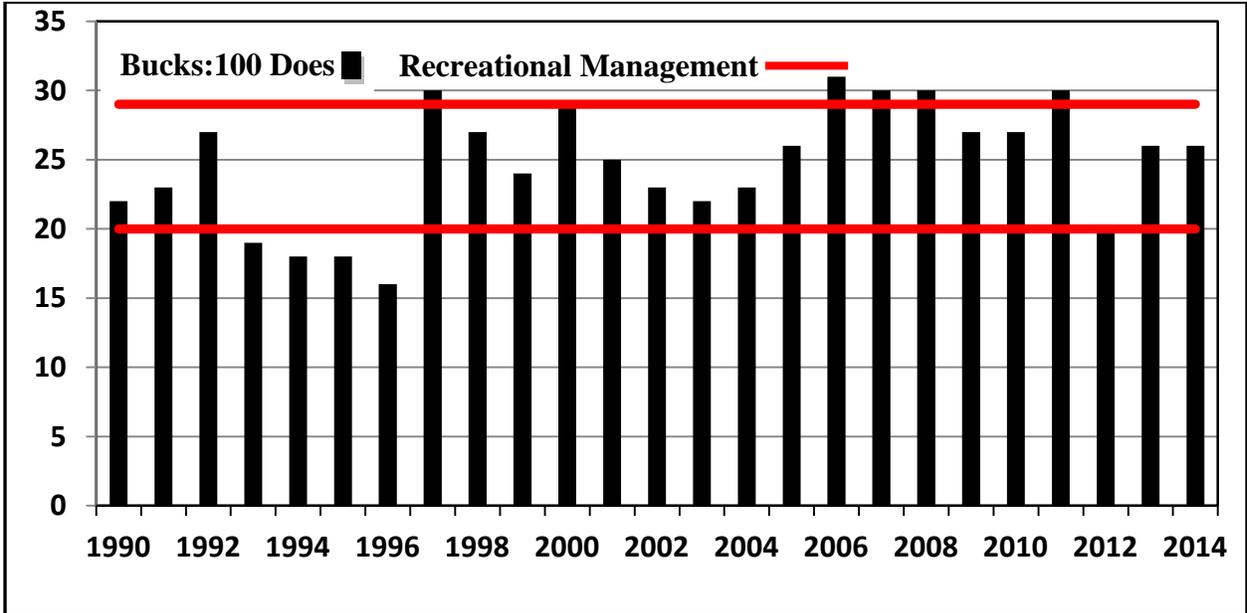


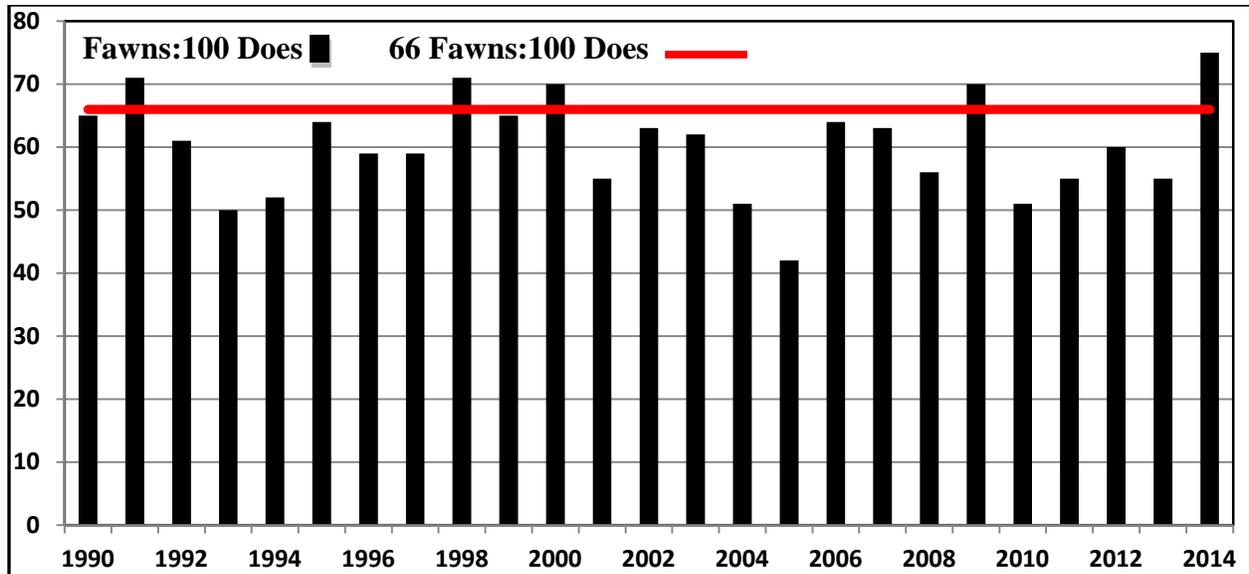
Figure 3. Buck/Doe ratios in the Sheep Mountain herd unit (1990-2014).

***Its all about fawns!*** Postseason mule deer fawn: adult female ratios (an index of fawn production) have declined over the past 30 years across the western United States (Bartman 1997). Mule deer populations have also declined since the early 1970s, mirroring fawn production and recruitment. Winter fawn survival is highly variable, however, and has not shown a trend, but high variance in a population parameter will often contribute to declining population size (Unsworth et al. 1999, Lukacs et al. 2009). Therefore, declining recruitment is most likely due to changing quality and availability of summer and transition ranges. Predation can also contribute to decreased fawn survival and must be considered.

Transition and summer habitat availability and quality are considered the limiting factors in mule deer population growth in the Sheep Mountain herd. Summer and transition habitat quality are critical to ensure mule deer enter the winter months with adequate fat reserves to maximize over-winter survival and, to produce healthy fawns the next spring. High winter mortality is an obvious indication of severe winter conditions and/or poor habitat quality. The effects of winter malnutrition in mule deer populations may be expressed in reduced fawn production, even without extensive winter starvation (Wallmo and Gill, 1971). Habitat management and improvement, therefore, is a major component of the SMHU management recommendations and efforts will be aimed at all seasonal habitat types in an attempt to improve year-round habitat quality in the Sheep Mountain herd to increase over-winter survival and fawn recruitment.

Mule deer fawn recruitment in the SMHU is a major concern. An annual ratio of 66 fawns per 100 does is required to sustain a hunted mule deer population and a fawn ratio above 66/100 is required for the herd to increase (Unsworth et. al., 1999). Since 1990, observed fawn ratios in the Sheep Mountain herd have averaged 60 fawns/100 does and have exceeded 66 fawns per 100 does only five times (Figure 4). This decreasing trend in fawn production is primarily due to poor habitat conditions, but the effect of other factors such as predation cannot be ignored. It is clear predation can suppress mule deer population growth and recovery after a significant mortality event such as a severe winter (Ballard et al. 2001).

The management challenges and considerations in the SMHU are complex and includes not only the biology of mule deer, our ability to sustain them but the socio/political expectations and desires of landowners, hunters, and others who enjoy them. Part of complexity is change and for that reason this plan is not static, but is a “living” document and therefore will change as needed to best address emerging or changing issues and conditions. Because of this complexity and need for change, it is critical all who are affected continue to be engaged in the collaborative process.



**FIGURE 3. Fawn/Doe ratios in the Sheep Mountain Herd (1990-2014).**

During the workshops, stakeholders identified five major factors contributing to reduced hunter satisfaction and declining mule deer numbers including: population management, habitat management, predator management, human disturbance, and youth hunter recruitment/retention. Through implementation of these recommendations, WGFD will focus on the following management needs:

- 1) Identify factors that limit mule deer populations and impact the condition of their habitats;
- 2) Secure adequate funding to effectively implement management strategies;
- 3) Explore and expand partnerships with federal land management agencies, landowners, sportspersons and others; and
- 4) Continue to encourage public involvement and support of mule deer management actions.

The following proposed WGFD management recommendations to be implemented are in response to input received during the collaborative process and deer hunter survey. In this document, we present recommendations for improvement that are feasible considering WGFD resources and statutory authorities.

## **MANAGEMENT RECOMMENDATIONS**

### **HABITAT MANAGEMENT**

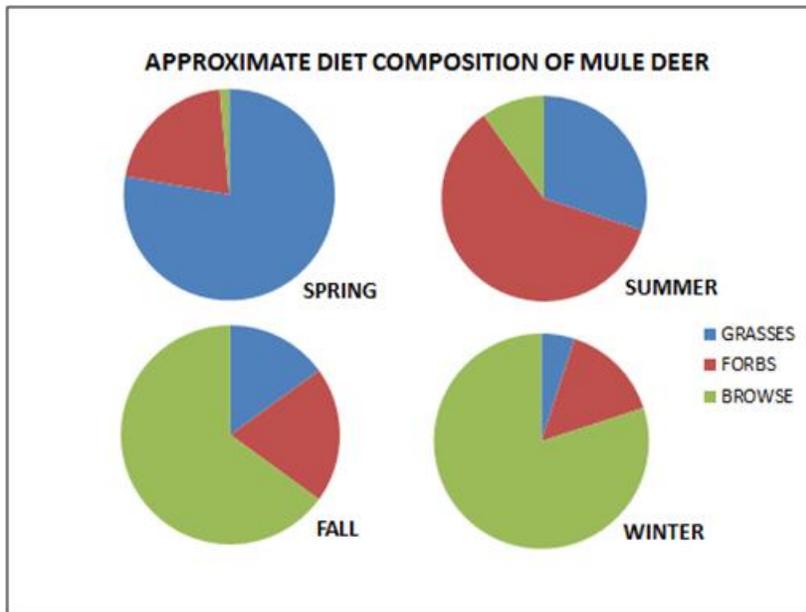
Efforts to improve mule deer habitats on all seasonal ranges within the boundaries of the herd unit will aid in arresting the population decline and hopefully recover the SMHU population to the desired level. Habitat modifications, both prescribed by land managers and naturally occurring, are ongoing within the SMHU. The cumulative impacts of these habitat modifications should be considered when designing new projects. To assist with planning future projects, the Sheep Mountain MDI group identified important vegetation and habitat attributes, including desired conditions specific to enhancing mule deer habitats.

The Sheep Mountain MDI area has a mixed ownership of private, federal (U.S. Forest Service (USFS), Bureau of Land Management (BLM)) and state lands (Figure 1). Collaboration among these land management entities is essential to develop successful landscape-level habitat improvements.

Mule deer are primarily browsers, with the majority of their diet being comprised of forbs and browse. Because deer have a smaller rumen than other ungulates in relation to their body size, they are forced to be much more selective and specific in their dietary intake. Deer must select the most nutritious plants and parts of plants instead of consuming large quantities of low-quality feed such as mature grass. The seasonal mule deer diet varies from a growth promoting (high protein and phosphorous) diet in spring, to a fattening (high carbohydrate, fat and energy) diet in fall, to a maintenance (low protein and energy) diet in winter. Seasonal use of plant types varies from high grass use in spring, high forb use in summer and fall to high shrub use in winter (Figure 5).

Plant communities consisting of mixed species are more beneficial for deer than single species plant communities. Disturbance is essential for maintaining high quality deer habitat by creating a mosaic of plant communities in multiple seral stages across the landscape and increasing plant vigor and nutrition.

Habitat types within the SMHU vary from high elevation forests to mixed mountain shrub and sagebrush habitats in mid elevations. Moving to the valley floor, environments are dominated by cool season grasslands with irrigated croplands intermixed throughout. Most irrigated cropland consists of native and introduced grass and alfalfa for hay production. Many of the mule deer in the SMHU area migrate between relatively moist higher elevation, summer range habitats and lower, drier, foothill or basin wintering areas. In most of the SMHU, this movement primarily occurs in April and May and again in October and November. In many areas, deer making seasonal movements will use mid-elevation, mixed mountain shrub transitional ranges that can provide high quality forage.



**Figure 5. Diet composition of mule deer by season**

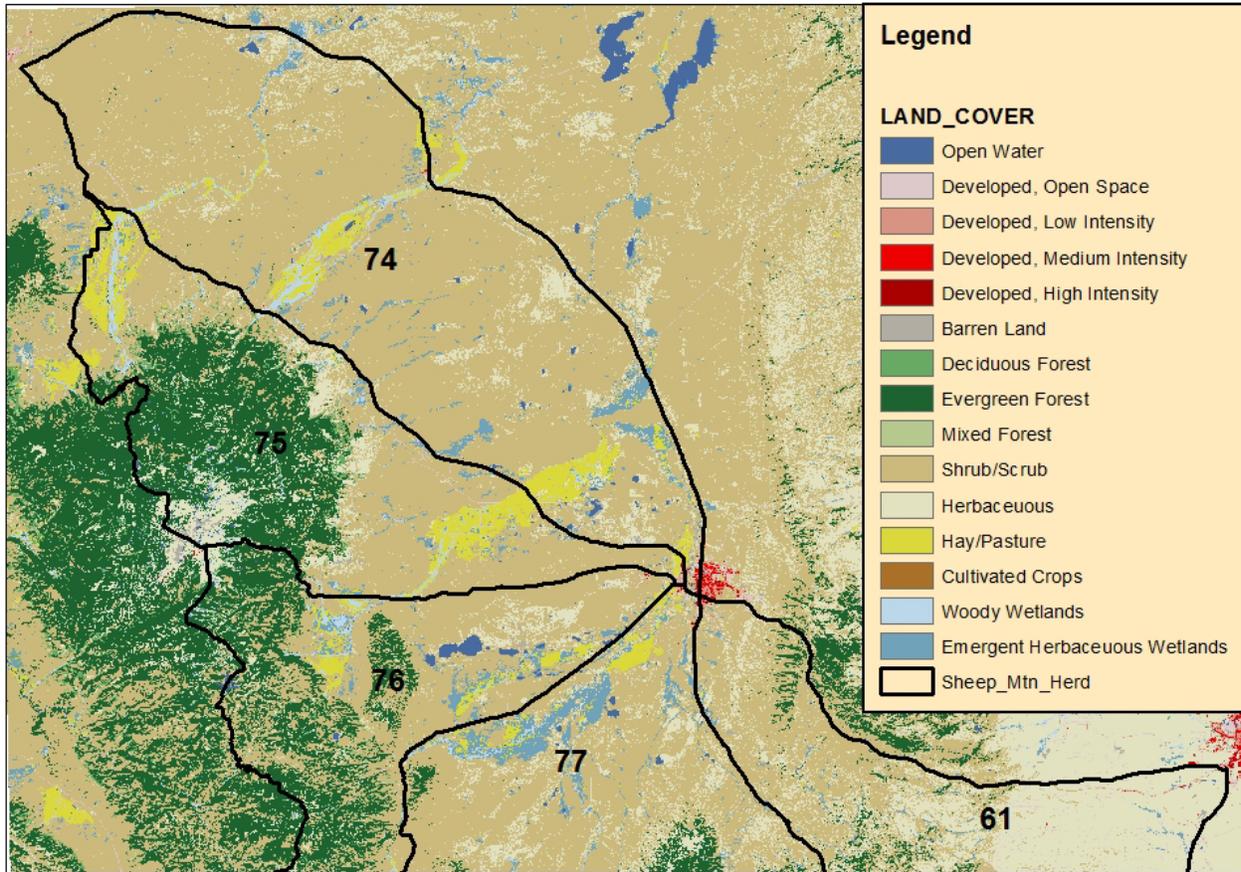
Mule deer habitats in the SMHU are categorized into summer, transition and winter. Currently, the SMHU only has crucial winter range and winter yearlong maps available due to a paucity of radio collar data from mule deer (Figure 1). High elevation habitat types in the SMHU area utilized by mule deer as summer range include coniferous forests (lodgepole pine, subalpine and Douglas fir, spruce, other spp.) and smaller parcels of deciduous forest, mainly quaking aspen, in the Snowy Range Mountains (Figure 6). Mature forests are used for thermal and hiding cover while open meadow or shrub habitats are utilized for foraging. Poor diet quality in summer and fall habitats can result in lower fawn productivity and recruitment into the herd.

Transition ranges should provide abundant, high quality forage that can improve the condition of deer prior to arriving on winter ranges and help deer increase physiological condition in the spring. In the fall, mule deer will typically reside at mid-slope elevations through the breeding season. Lands in these transition ranges are comprised of private, State of Wyoming, fringe areas of USFS lands and lands administered by the BLM. Shrubby vegetation such as antelope bitterbrush, true mountain mahogany, serviceberry and sagebrush species, requires more energy to process. However, it is high in protein and carbohydrates and is preferred by mule deer as they increase fat stores in preparation for winter.

During mild winters (i.e. minimal amounts of snow), mule deer will use transitional ranges for extended periods. In the SMHU, snow depths directly influence the choice of traditional wintering areas as mule deer search for areas where energy costs are lower and food availability (specifically exposed shrubs) is higher. There are several areas traditionally selected by mule deer as winter range including: the Jelm, Sheep Mountain, Cooper Creek and Medicine Bow River winter ranges. During winter and early spring when little ground forage is available due to snow cover, mule deer are on a sub-optimal diet of twigs and branches from browse species. In

addition to sagebrush, important winter browse species include antelope bitterbrush, true mountain mahogany and serviceberry.

As snow recedes and grasses and forbs emerge in spring, mule deer stop eating shrubs of relatively low nutritional value and start consuming more palatable, succulent and nutritionally rich herbaceous plants. By following snowmelt patterns to higher elevations, animals access high-quality emerging plant, capitalizing on high protein levels found in grasses and forbs. This is often referred to as “following the green wave”.



*Figure 6. Vegetation types in SMMDI area*

### ***Project Proposals and Funding***

Habitat improvement projects have been completed throughout the SMHU by federal, state, NGOs, and private landowners, often in cooperation with each other. Projects will continue in a collaborative manner desired by the participants of the SMMDI. Projects will be designed at a landscape scale and will require the involvement of multiple stakeholders/partners. As new projects are planned managers will evaluate completed projects to ensure projects are meeting wildlife habitat goals and objectives. At the May 2015 SMMDI meeting participants agreed to have all proposed habitat projects within the SMHU presented to the SMMDI group between July 15<sup>th</sup> and August 5<sup>th</sup> of each year. Once funding becomes available from WGFC for projects, project sponsors can submit projects to the WGFD for evaluation.

### ***Habitat Project Planning and Monitoring***

To best plan future habitat improvement projects, the identified important vegetation and habitat attributes specific to enhancing conditions for mule deer are:

1. Shrub nutritive quality
2. Vegetation production and utilization
3. Species diversity
4. Species density
5. Aspen regeneration
6. Riparian habitat
7. Animal movement barriers and human disturbance

Within each attribute, the “desired habitat conditions” were identified to guide habitat enhancements and project designs for the SMMDI (Table 1). Desired habitat conditions focus on the seasonal ranges where habitat projects would have the greatest impact on mule deer.

The ability to monitor habitat treatments to achieve desired habitat conditions and ultimately improve mule deer health is a crucial aspect of this plan. Participants in the SMMDI process recognize the need to manage for habitat resiliency. Resiliency can be affected by short and long-term drought, climate change and invasion of non-native vegetation. The WGFD is currently in the process of developing habitat assessment techniques and revising weather and habitat monitoring, collection and reporting methods. A list of potential monitoring methods was developed by WGFD habitat biologists in spring of 2015 and identifies and includes those employed by the federal agency partners and methods available to private landowners (Table 1) (Appendix C).

A process was needed that would facilitate continued learning and adaptation in a constructive manner and that would lend itself to a long-term multi-stakeholder collaboration. In the SMMDI process, all stakeholders can convene to revisit issues, continue learning and adapt. An adaptive management process is possible when there are ongoing efforts to collect information to evaluate if strategies are effective. In the SMMDI context, monitoring data will be collected before and after project implementation. This data will be used to estimate whether objectives are met or whether alternative methods should be considered. This approach will allow SMMDI stakeholders to:

- Learn about proposed projects and determine which of the desired conditions they will address.
- Learn whether the objectives of implemented projects related to SMMDI efforts and other efforts are achieved and which benefits are attained based on project monitoring data.
- Explore alternative strategies if objectives and benefits are not achieved.
- Continue learning about new and additional science and methods.
- Reexamine the SMMDI process and objective and alter or expand its purpose and methods as it deems fit.
- Provide a venue or forum where anyone can present new information or seek input regarding mule deer habitat and/or other issues.

To create this adaptive management process, Table 2 was adopted to illustrate the continuous nature of the SMMDI habitat management process.

**Table 1. Habitat features with examples of desired conditions and methods to monitor success of the project in meeting the objective. Full descriptions of techniques can be found in the respective references. (S=Summer Range, T=Transition Range, W=Winter Range).**

**Management Recommendations: To Improve Habitat Conditions to Increase the Population Size and Health of Mule Deer**

**Shrub Nutritive Quality**

<b><u>Desired Conditions</u></b>	<b><u>Monitoring Methods</u></b>	<b><u>References</u></b>
<ul style="list-style-type: none"> <li>• Improve digestibility and protein content of browse (T, W)</li> <li>• Increase young age class of preferred browse species (S, T, W)</li> </ul>	<ul style="list-style-type: none"> <li>• Fecal analysis</li> <li>• Lab analysis of nutritive content (forage analysis)</li> <li>• Browse utilization transects</li> <li>• Shrub stand age classification</li> </ul>	<ul style="list-style-type: none"> <li>• Wyoming Game and Fish Department 1982</li> </ul>

**Vegetative Production and Utilization**

<b><u>Desired Conditions</u></b>	<b><u>Monitoring Methods</u></b>	<b><u>References</u></b>
<ul style="list-style-type: none"> <li>• Increase herbaceous production (S, T)</li> <li>• Increase shrub production (S, T, W)</li> <li>• Adequate size/scale of treatment to minimize impact of grazing ungulates (S, T, W)</li> </ul>	<ul style="list-style-type: none"> <li>• Harvest method</li> <li>• Ocular estimation</li> <li>• Browse transect (fall production surveys, spring utilization surveys)</li> <li>• Exclusion cages</li> <li>• Robel pole</li> <li>• Hedging class</li> </ul>	<ul style="list-style-type: none"> <li>• Interagency Technical Reference 1999</li> <li>• Wyoming Range Service Team 2008</li> <li>• Wyoming Game and Fish Department 1982</li> </ul>

**Species Diversity**

<b><u>Desired Conditions</u></b>	<b><u>Monitoring Methods</u></b>	<b><u>References</u></b>
<ul style="list-style-type: none"> <li>• Increase diversity of plant types, ages and sizes preferred by mule deer (S, T, W)</li> <li>• Increase desired forb cover/ diversity (S, T)</li> <li>• Establish diverse shrub size, age, species and density within that community type (S, T, W)</li> </ul>	<ul style="list-style-type: none"> <li>• Sample point</li> <li>• Photo point</li> <li>• Line-Intercept (cover by life form, age, species)</li> <li>• Daubenmire plots</li> <li>• 3 x 3 Plot</li> <li>• Pace frequency</li> <li>• Sage grouse protocol transect</li> </ul>	<ul style="list-style-type: none"> <li>• Interagency Technical Reference 1999</li> <li>• Wyoming Range Service Team 2008</li> <li>• Booth et al. 2006</li> <li>• <a href="http://www.xerces.org/pollinator-conservation">www.xerces.org/pollinator-conservation</a></li> </ul>

<ul style="list-style-type: none"> <li>• Increase native shrub and herbaceous cover in beetle kill and lodgepole stands (S, T)</li> <li>• Decrease/minimize invasive species (S, T, W)</li> </ul>	<ul style="list-style-type: none"> <li>• Rooted/Nested frequency transect</li> <li>• Sample pollinator monitoring protocol</li> </ul>	
<b><u>Species Density</u></b>		
<b><u>Desired Conditions</u></b> <ul style="list-style-type: none"> <li>• Increase density of species preferred by mule deer (S, T, W)</li> </ul>	<b><u>Monitoring Methods</u></b> <ul style="list-style-type: none"> <li>• Belt transect</li> <li>• Rooted/Nested frequency</li> <li>• SampleFreq</li> <li>• Pace frequency</li> </ul>	<b><u>References</u></b> <ul style="list-style-type: none"> <li>• Interagency Technical Reference 1999</li> <li>• Wyoming Range Service Team 2008</li> <li>• Booth et al. 2006</li> </ul>
<b><u>Aspen Regeneration</u></b>		
<b><u>Desired Conditions</u></b> <ul style="list-style-type: none"> <li>• Create more young age class aspen stands (S, T)</li> <li>• Increase aspen density (S, T)</li> <li>• Increase aspen acreage (S, T)</li> <li>• Maintain healthy aspen stands (S, T)</li> </ul>	<b><u>Monitoring Methods</u></b> <ul style="list-style-type: none"> <li>• Aerial photography</li> <li>• GIS mapping</li> <li>• Aspen density measurement (plants/ft<sup>2</sup>)</li> <li>• Ocular assessments documenting disease</li> <li>• Age class</li> </ul>	<b><u>References</u></b> <ul style="list-style-type: none"> <li>• Wyoming Game and Fish Department 1982</li> </ul>
<b><u>Riparian Habitat</u></b>		
<b><u>Desired Conditions</u></b> <ul style="list-style-type: none"> <li>• Improve stream health (S, T, W)</li> <li>• Increase bank stability (S, T, W)</li> <li>• Improve hydrology (S, T, W)</li> </ul>	<b><u>Monitoring Methods</u></b> <ul style="list-style-type: none"> <li>• Proper functioning condition</li> <li>• Greenline stability</li> <li>• Macroinvertebrate sampling</li> <li>• Channel cross-section mapping</li> <li>• Aerial photos</li> <li>• Photo points</li> </ul>	<b><u>References</u></b> <ul style="list-style-type: none"> <li>• Winward 2000</li> <li>• Prichard et al. 1998</li> <li>• Barbour et al. 1999</li> </ul>

## **Animal Barriers and Disturbance**

### **Desired Conditions**

- Increase wildlife-friendly fences (S, T, W)
- Decrease motorized disturbance (W)
- Increase habitat effectiveness (S, T, W)

### **Monitoring Methods**

- GIS mapping and effectiveness monitoring (BLM may have to interpret)
- Record number of miles of fences removed, converted and constructed
- Record effectiveness of closures with periodic inspections

### **References**

- Paige 2012

## Proposed Adaptive Management Schedule

<u>Period</u>	<u>Action</u>	<u>Subjects</u>	<u>Result</u>
Fall Winter Spring	Plan	Vision, Goal, Objectives, Criteria for Success, Adaptive Management, Decision Making Process, Funding Methods, Habitat Strategies, Monitoring Strategies, Next Steps	SMMDI Plan
Summer	Do	<ul style="list-style-type: none"> <li>• Project implementation</li> <li>• Base line and project monitoring</li> <li>• Project development for private and public lands</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring data</li> <li>• New projects based on SMMDI strategies</li> </ul>
Fall	Evaluate Analyze	<ul style="list-style-type: none"> <li>• Monitoring data</li> <li>• Project proposals</li> <li>• Project implementation experiences</li> <li>• New research</li> </ul>	<ul style="list-style-type: none"> <li>• New projects for 2015</li> <li>• Adjusted (if necessary) implementation based on experience and research</li> </ul>
Spring	Plan	<ul style="list-style-type: none"> <li>• Funding and implementation of new projects for inclusion in next plan</li> <li>• Adjusted monitoring methods</li> </ul>	<ul style="list-style-type: none"> <li>• Revise the SMMDI plan as needed</li> </ul>
Fall	Evaluate Analyze	<ul style="list-style-type: none"> <li>• Monitoring data</li> <li>• Project proposals</li> <li>• Project implementation experiences</li> <li>• New research</li> </ul>	<ul style="list-style-type: none"> <li>• New projects for 2015</li> <li>• Adjusted (if necessary) implementation based on experience and research</li> </ul>
Ongoing	Plan Evaluate Analyze	<ul style="list-style-type: none"> <li>• Can meet as needed to discuss any issue</li> </ul>	<ul style="list-style-type: none"> <li>• Deliberations will improve methods and results will be included in the plan</li> </ul>

**Figure 7. Adaptive Management Schedule for Sheep Mountain herd unit mule deer habitat improvement and implementation, Wyoming.**

## **POPULATION MANAGEMENT**

In addition to habitat, a number of other factors can affect mule deer population dynamics, including: hunting season frameworks, disease, hunter experience and competition with livestock and other wildlife. Many of these can be influenced and their relative importance in affecting population change will depend on the role each factor plays within individual mule deer populations. For example, a population of mule deer where hunting has a negligible effect on survival rates is unlikely to respond to more conservative or restrictive hunting seasons. For best management, mule deer managers need an adequate population monitoring program that allows for early detection of population changes. Monitoring should also be conducted to provide for adaptive learning as various management actions are implemented.

### ***Herd Management by Objective***

The Department manages ungulate herds using herd objectives. The primary objectives used consist of: post season population estimate, post season trend count or a hunter/landowner satisfaction objective. There are several secondary objectives utilized in concert with the previously mentioned primary population objectives including: hunter success, hunter effort or buck quality. When proposing herd objectives, managers must take numerous factors into consideration. Some of these factors include: current population estimate and its accuracy, public desires, carrying capacity (or the number of deer the habitat can support), trends in herd productivity, survival, habitat and climate data. Currently, the SMHU is managed using a post season herd objective of 15,000 mule deer ( $\pm 20\%$  a range of 12,000 – 18,000 mule deer). The current SMHU estimate is 5,600 mule deer, and is 63% below the current herd objective. Objectives are reviewed, and if necessary, changed every 5 years so they are biologically achievable within that time frame. For this mule deer herd to increase by nearly threefold to 15,000 is not biologically achievable within this time frame. Therefore, WGFD through an exhaustive public review process started in December 2014 is recommended a change to the current herd objective.

### **Management recommendations:**

- Changed the SMHU herd objective from 15,000 to **10,000**  $\pm 20\%$  mule deer. This is a more biologically achievable goal over a five year period.
- The herd objective for the SMHU will be collaboratively reviewed in 2020.
- WGFD will continue to monitor the following secondary objectives: hunter satisfaction, hunter success, hunter effort, buck quality (Type I-III).
  - Type I = Antler Spread  $\leq 19$  inches
  - Type II = Antler Spread between 20-25
  - Type III = Antler Spread  $\geq 26$  inches

### ***Recruitment/Survival***

#### **A. Recruitment**

Mule deer fawn recruitment in the SMHU is a major concern. An annual ratio of 66 fawns/100 does is required to sustain a hunted mule deer population and a fawn ratio above 66/100 is required for the herd to increase (Unsworth et. al., 1999). Since 1990, observed fawn ratios in the

Sheep Mountain have averaged 60 fawns/100 does and have exceeded 66 fawns/100 does only five times (Figure 3). This is primarily due to a reduced amount of usable habitat and poor habitat conditions, but the effect of other factors such as predation cannot be ignored. It is clear predation can suppress mule deer population growth and recovery after a significant mortality event such as a severe winter (Ballard et al. 2001). While increased moisture/precipitation to improve habitat conditions cannot be controlled, there are several things that can be done to improve fawn recruitment.

Management recommendations:

- Improve summer and transition range habitat quality and quantity to increase adult female body condition and their ability to produce more and healthier fawns (see *Habitat* section).
- Provide liberal harvest opportunities for black bear and mountain lion within areas that the Department believes will increase adult female and juvenile survival (see *Predation* section and Table 2).
  - Currently the Department does not collect annual survival data or cause specific mortality data to guide predator management efforts.
- Decrease coyote populations, particularly within parturition areas (see *Predation* section and Table 2).

B. Survival

Survival rates are not well understood within the SMHU. There has been no research to monitor and estimate survival rates for either adult females or juveniles. This creates uncertainty about the effect of predation, survival, and habitat conditions have on survival rates. Obtaining survival rates for adult females would vastly improve annual population estimates (see *Research Needs* section).

Management recommendations:

- Improve summer and transition range habitat quality and quantity to increase adult female body condition and their ability to produce more and healthier fawns (see *Habitat* section).
- Provide liberal harvest opportunities for black bear and mountain lion within areas where the Department believes this will increase adult female and juvenile survival (see *Predation* section and Table 2).
  - Currently the Department does not collect annual survival data or cause specific mortality data to guide predator management efforts.
- Manage coyote populations, particularly within parturition areas (see *Predation* section and Table 2).
- Conduct winter mortality transects using Department personnel and volunteers to create an index of winter severity. These surveys will be conducted in late spring or early summer.

## *Interspecies Competition*

### A. Elk

Mule deer competing for important resources with elk is an important consideration, though this competition is not solely responsible for mule deer declines within the SMHU. Several mule deer populations in Wyoming have declined where elk do not exist. Nevertheless, habitat changes such as decadent browse species in late successional stages and increased grass-pine habitats favor elk over mule deer (deVos et al. 2003.) Current research has demonstrated some avoidance of elk by mule deer throughout the year, but elk have not been identified as a significant factor in the decline of mule deer in any research project to date. Previous studies have focused on winter range competition and avoidance and have yielded no significant results. Upcoming research efforts are focusing on summer and transition ranges where deer/elk interactions are hypothesized to have the greatest impact on mule deer. Regardless, elk populations within the Snowy Range have increased in recent years well above their historic levels. WGFD has been managing the Snowy Range elk population to reduce it to its herd objective through aggressive harvest management strategies. The Snowy Range elk herd appears to be decreasing towards the established herd objective.

### Management Recommendations

- Manage the Snowy Range elk herd toward herd objective using harvest. Currently, the Snowy Range herd objective is  $6,000 \pm 20\%$  (4,800 – 7,200) elk. The Snowy Range herd population is estimated to be approximately 8,000 (13% above the upper end of objective range) in 2014 post hunting season. Reduction of this elk herd will be difficult given that this elk population is highly productive with over 40 calves per 100 cows for several years. Additionally, this may cause user conflicts between deer and elk hunters.
- Continue to collect data on Snowy Range elk herd to provide data for population models for this population so WGFD can accurately manage elk herds.
- Use additional reduced price cow calf licenses and different hunt time frames to focus elk harvest when and where necessary to achieve management objectives.
- Increase mule deer habitat, particularly transition and summer range to reduce competition amongst deer and elk.

### B. Moose

Moose are new to southeast Wyoming and their impacts to mule deer and mule deer habitats are not fully understood. Moose were introduced into northern Colorado in 1978 and 1979, and from that introduction moose moved into the Snowy Range. Moose observations within the Sheep Mountain mule deer herd began in the early to mid 1980's. Unlike other areas in the West where Shiras moose and mule deer co-evolved, the Snowy Range has had no documentation of moose until after the introduction effort in the late 1970's. Baigas's (2008) research and numerous WGFD field observations have demonstrated that moose do overlap with mule deer and their habitats, particularly in the late winter months when moose utilize mountain shrubs, including antelope bitterbrush communities. Given decreasing moose populations in other herds across the state, managing to decrease the moose herd within the Snowy Range would be highly controversial. This herd is extremely popular with hunters and provides some of the best bull

moose hunting opportunity within the state. More will be learned about this moose population as a result of a research project that began in March 2015 with the capture of 30 cow moose.

### Management Recommendations

- Continue to monitor moose populations over time and document competition with mule deer. A recent moose population survey for hunt areas 38 and 41 was conducted in March of 2015 and estimated approximately 300 moose.
  - Utilize ground and aerial observations.
  - Research GPS collar locations.
  - Record moose scat presence on mule deer winter range, possibly while conducting winter range transects.
  - Monitor harvest statistics.

### C. White-tailed deer

Some hunters and wildlife managers have speculated on the impact of increasing white-tailed deer populations with mule deer. Although white-tailed deer and mule deer have similar diets, whitetails generally are associated with more mesic habitat types and agricultural lands at lower elevations (i.e. river and stream riparian areas) than mule deer (Mackie 1981). Wood et al. (1989) found little evidence for direct competition between sympatric mule deer and white-tailed deer in eastern Montana, where mule deer and white-tailed deer maintained spatial separation. Conversely, Geist (1990) hypothesized hybridization between white-tailed deer and mule deer will ultimately lead to the demise of mule deer. Hefflefinger (2000) demonstrated that while hybridization between mule deer and white-tailed deer does occur, it is very rare and is not considered a threat to mule deer. Nevertheless, WGFD will not actively encourage expansion of white-tailed deer in the SMHU. Currently, the Department does not collect detailed population data on white-tailed deer. Populations within the Sheep Mountain herd are relatively small and isolated to mesic/riparian areas.

### Management Recommendations

- Continue to monitor white-tailed deer (WTD) populations over time and document potential instances of disturbance/competition with mule deer.
  - Utilize aerial and ground observations/surveys.
  - Monitor harvest statistics.
- Continue to manage for mule deer as the priority deer species within the Sheep Mountain herd.
  - Manage WTD populations to be stable to decreasing within SMHU.
  - Maximize WTD hunter opportunity within SMHU.

### D. Livestock

Several research efforts have investigated potential competition for forage between livestock and mule deer. There is generally less forage overlap between mule deer and cattle than between elk and cattle (Torstenson et al. 2006). However, heavy livestock grazing can significantly reduce

forage and cover available to mule deer on summer and transition range, particularly during low precipitation years. Forage competition is more likely to occur with domestic browsers such as sheep and goats. Skovlin et al. (1968) found both elk and deer use of pastures decreased with increased use by cattle. However, cattle grazing is used by some wildlife management agencies to improve plant vigor and increase habitat capacity on elk winter ranges. Competition for space is another consideration that has been studied both spatially and temporally (Skovlin et.al. 1968, Dusek 1975, Austin and Urness 1986, Peek and Krausman 1996, Coe et. al. 2001, Stewart et. al 2002, Coe et. al. 2004). During certain critical periods, the presence of domestic livestock and associated human activity may have an impact on mule deer use of habitat.

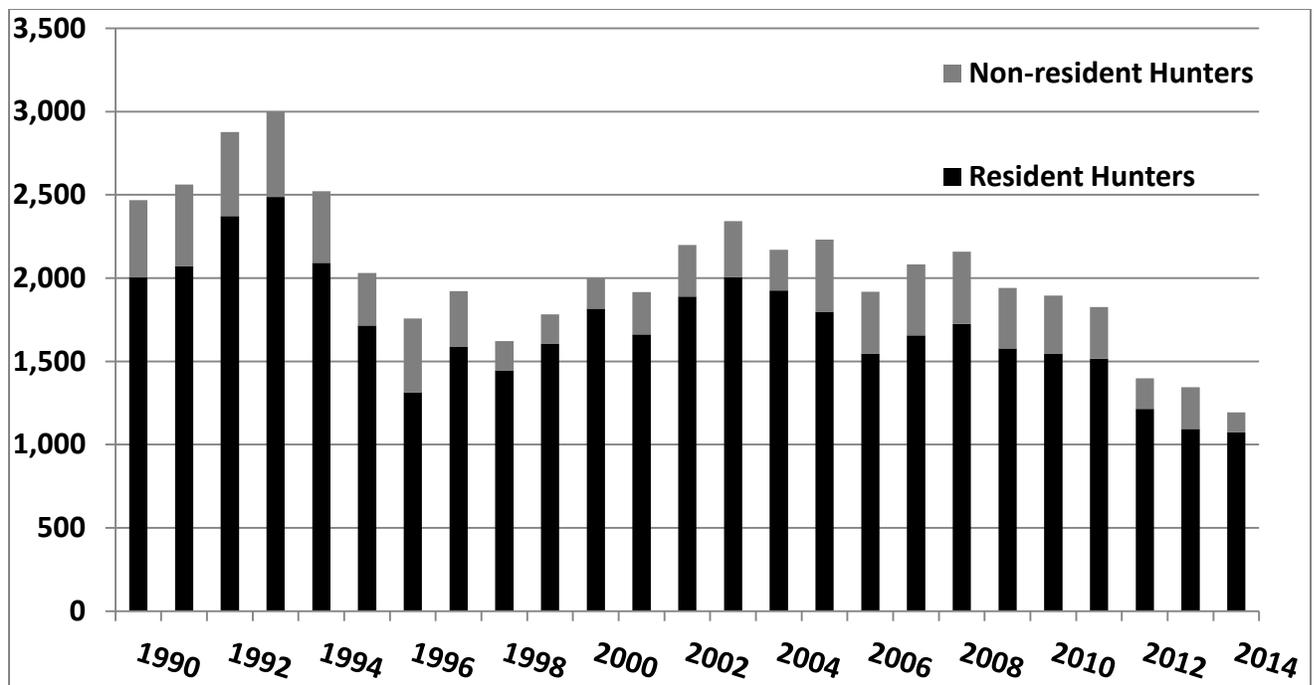
### Management Recommendations

- Continue to work with land management agencies to ensure that range management plans (RMPs) prioritize mule deer habitats.
- Work with private landowners to develop grazing plans to benefit both wildlife and livestock.
  - Rotational grazing, rest rotation, cross fencing, riparian fencing, offsite water, etc.
  - Seek funding to assist willing landowners in these management efforts.
- Recommend to land managers that livestock not be placed in important parturition and winter habitats.
- Require grazing deferments within habitat project boundaries to ensure project objectives are met (e.g. aspen project achieve necessary stems per acre).
  - Identify other potential areas to place livestock in the interim, i.e. grass banking.
- Work with land management agencies and livestock operators to ensure fencing is compatible with both livestock and mule deer.

### ***Hunter Experience/Season Framework***

Ultimately, mule deer are managed for the people of Wyoming, many of them are hunters who eagerly look forward to an annual mule deer hunt. To develop a better understanding of the motivations and management preferences of Sheep Mountain mule deer hunters, WGFD developed a mule deer hunter attitude survey and invited people to participate in fall of 2014 (Appendix B).

Based on the hunter survey (Appendix B), the main reasons people hunt mule deer in the SMHU are to: obtain meat, hunt with friends and family and be close to nature. The primary motivation for those hunting within this herd are the outdoor experience, harvest success and the presence of numerous and large bucks. When asked to provide the number of points on a side and antler spread of a “trophy” mule deer, results varied greatly with a 24 inch 4 point being the average response. Respondents were overall dissatisfied with their mule deer hunting experience with 60+% answering either somewhat or very dissatisfied. This does not match WGFD hunter harvest survey results indicating 50% hunter satisfaction with the 2014 season. Those surveyed also feel that the total population of mule deer has decreased to an unsatisfactory level and are not pleased with the number or quality of bucks observed or harvested. Responses for “hunter crowding” state there are more hunters or too many hunters in some responses, but hunter numbers are acceptable in other responses. This is interesting since the number of hunters within this mule deer herd is at an all time low (Figure 8).



**Figure 8. Hunter numbers within the Sheep Mountain mule deer herd unit, Wyoming.**

Overall, respondents desired increased populations of mule deer, increased number of total bucks and trophy bucks and people would be willing to accept more hunting limitations to accomplish this. A limited quota hunting season framework was supported by people to accomplish these goals. Respondents stated they would likely go to another nearby general deer season or limited quota deer hunt if they were unable to hunt within the SMHU, but would not cease deer hunting.

Given these survey results, it is obvious stakeholders involved in the SMMDI process are willing to accept limitations to obtain more and larger bucks within the SMHU. The only provided the options of the current general hunting season framework and the option of a limited quota hunting season. There are other tools that can be used within the general season framework that can increase buck survival while still providing maximum hunting opportunity. Some of these tools include: antler point restrictions (APRs), which are currently being used in the SMHU, reducing motorized hunting access to reduce harvest vulnerability, season length and timing to reduce or increase harvest depending on how it is applied, and the use of limited range weapons (archery and muzzleloader) to decrease harvest and, in some cases, participation.

While limited quota hunts were preferred, Laramie Regional mule deer managers will wait until the Platte Valley limited quota season is fully evaluated after the 2015 deer season. The SMHU provides the last large public land general deer hunting opportunity within the Laramie Region. Larger statewide discussions of statewide hunter management and distribution will need to occur prior to placing the SMHU area into a limited quota hunting framework. Forty percent of Laramie Region mule deer hunt areas are currently managed using a limited quota season framework.

### Management Recommendations:

- Hold a hunting season framework workshop to explain the various management tools available and their associated pros and cons.
- Consider using a field survey to use in concert with the existing hunter harvest survey to augment and validate annual hunter satisfaction and season preferences.
- Have statewide discussions regarding mule deer hunter management and opportunity.

### *Disease*

#### A. Chronic Wasting Disease (CWD)

Chronic Wasting Disease (CWD) is a chronic, fatal disease of the central nervous system of mule deer, white-tailed deer, Rocky Mountain elk and (rarely) moose. CWD belongs to the group of diseases called transmissible spongiform encephalopathies (TSEs). These disorders are thought to be caused by abnormal proteins called prion proteins. Prion proteins are neither bacteria nor viruses. They are proteins devoid of nucleic acid, thus they are not living organisms. Prion proteins have similar amino acid sequences to normal cellular proteins but in a different conformation. The functional role of the normal cellular proteins is unknown. Prion proteins cause a conformational change in the normal cellular protein and disease is induced when the normal cellular protein is converted into the prion protein, and can no longer serve its purpose. This eventually causes brain cells to die. As more and more cells die, the disease can be observed to progress, ultimately ending in death.

Although CWD has existed for at least 40 years, we still do not know how the disease will ultimately impact deer and elk populations. Early mathematical modeling suggested that CWD could eliminate entire populations of deer or elk. Few scientists today believe that is likely. Rather, more recent models suggest that CWD will eventually decrease the population, sometimes substantially, but over time the population will rebound and stabilize, albeit at levels less than those prior to the disease's arrival. CWD is present within the SMHU, however, the prevalence rate isn't well understood based on a low and suspected bias sample size (mostly sick looking animals were tested).

### Management Recommendations:

- Continue to collect hunter samples at check stations for mule deer and other cervids harvested within the SMMDH and monitor trends in data.
- Continue to submit sick animals (targeted surveillance) to wildlife health lab for testing.

#### B. Epizootic Hemorrhagic Disease (EHD)

Hemorrhagic disease is often observed in pronghorn caused by infection with either epizootic hemorrhagic disease virus (EHDV) or bluetongue virus (BTV). Hemorrhagic disease caused by EHDV/BTV in Wyoming and the Rocky Mountain west is seasonal, occurring in late summer to early fall (corresponding with the presence of arthropod vectors), and tends to occur in epizootics with high morbidity and mortality in affected pronghorn populations. Outbreaks of disease tend to occur at lower elevations (usually <7,000ft) and are observed at fairly predictable 4–7 year cycles, with smaller disease events and sometimes no detectable disease events in intervening years.

Hemorrhagic disease is a major cause of morbidity and mortality in susceptible species in Wyoming and the Rocky Mountain west, but significant mortality events are cyclical and there is no data to suggest that these events affect population stability or are limiting populations. At present, there is insufficient information to warrant management actions to control or prevent disease events or outbreaks in wildlife, but hemorrhagic disease has the potential to negatively impact small, threatened or endangered populations or species in the future. Continued disease surveillance is recommended and warranted.

Management Recommendations:

- Continue to submit sick animals to wildlife health lab for testing.

***Research/Data Needs***

There has been little mule deer research conducted within the SMHU area. There is a paucity of data for the following: seasonal and daily movements, annual adult female survival, juvenile survival, body condition/health, abundance and cause specific mortality data for adult female and juvenile mule deer. Classification data suggests low annual fawn recruitment, but the reasoning for this is not completely understood by managers. With increased quality and quantity of data for this herd, mule deer managers can better identify the factors that influence this population most significantly and focus management efforts on these factors. The following listed items should be considered a wish list since currently there is inadequate funding to accomplish all of the data needs for this herd.

Management Recommendations:

- Conduct a sightability survey for the SMHU to generate a reliable abundance estimate and to anchor and improve the SMHU spreadsheet population model.
- Collect mule deer movement data to develop a better understanding of seasonal and daily movements within the SMHU.
  - Determine potential migration bottlenecks.
  - Determine migration movements and stopovers to focus wildlife friendly fence conversions and habitat improvement projects.
- Determine cause-specific neonatal within the SMHU. Additionally, during capture efforts, note all fawn sightings to generate baseline reproductive rates to compare to December classification data. Determine annual juvenile survival to improve the function of the spreadsheet model.
- Determine the body condition/health of adult females in relation to their habitats and their associated reproductive success.
- Determine adult female annual survival to improve the function of the spreadsheet model.

## **PREDATOR MANAGEMENT**

Relationships between predator and prey populations are dynamic and complex. The influence of predation depends, to a large degree, on the size of a mule deer population in relation to the habitat's carrying capacity (Table 3). This relationship is affected by changes in habitat quality and quantity, weather patterns (prolonged drought or severe winters), competition for forage, species and densities of predators, and abundance of alternate prey species. Managers must consider these factors in determining whether predator management could potentially benefit a mule deer population and in prescribing effective methods of predator management. Predation, particularly by coyotes and mountain lions, was identified by both the collaborative groups and the mule deer hunter survey as a significant issue.

**Table 3. Guidelines for determining whether predator management activities can be expected to increase mule deer numbers (adapted from Ballard et al. 2003).**

<b>Increased deer numbers likely</b>	<b>Increased deer numbers unlikely</b>
Deer population below carrying capacity	Deer population near carrying capacity
Predation identified as a major cause of mortality	Predation not identified as a major cause of mortality
Predator management efforts can result in a significant decline in predator numbers (e.g., $\geq 70\%$ of existing coyote population)	Predator management efforts unlikely to achieve a significant reduction in predator numbers
Predator management efforts timed just prior to predator or prey reproductive periods	Predator management efforts haphazardly scheduled throughout the year
Predator management efforts focused on a small area (generally $< 400$ mi <sup>2</sup> )	

A mule deer population that is chronically depressed, in otherwise favorable habitat conditions, may respond to predator management especially if control actions target the predator(s) that is limiting the population (Ballard et al. 2001, Cougar Management Guidelines Working Group, 2005). Hurley et al. (2011) studied the effects of coyote and mountain lion removal on mule deer population growth in Idaho. Mountain lion removal increased winter fawn survival and slightly increased adult doe survival; however removal efforts had minimal positive effect on mule deer population growth rates over the long-term (nine years). This study also indicated that a decrease in the number of coyotes resulted in increased fawn survival throughout summer, but did not increase fawn survival throughout the winter and fawn recruitment into the population did not increase.

In accordance with WGFC Policy VIIR (September 8, 2006), predator control (coyotes) may be considered to increase mule deer recruitment and/or survival, if post-hunting season fawn: doe ratios are less than 65:100, or after sudden population losses (winter die-off) greater than 25%. Control actions may also be considered when productivity and fawn survival data are not available and the population is more than 15% below the objective level. The need for predator management should be objectively evaluated by considering whether other natural factors may also be influencing mule deer productivity and population trends. Studies are encouraged to assess the effectiveness of predator control actions.

### Management Recommendations:

- Identify cause specific mortality for adult females through the use of radio collar data.
- Identify cause specific mortality for fawns through the use of expandable radio collars on fawns of known females to identify cause specific mortality.
- Research whether these impacts are related to habitat quantity/quality

### A. Evaluate and address predator effects on mule deer.

- We are currently working with and will continue to work with the Albany County Predator Board to reduce coyotes in identified mule deer parturition areas to increase fawn recruitment when doe: fawn ratios are below 65:100 as described in the Wyoming Game and Fish Commission Policy VIIR (September 8, 2006).
- In 2007, Lion Hunt Area 7 was split into north and south hunt areas (HA) to better distribute harvest pressure. Higher hunting pressure south of Wyoming Highway 130 often resulted in the annual mortality limit (AML) for HA 7 being filled, when potential opportunities to harvest lions north of the highway were unfilled. These hunt areas do not represent true subpopulations, but merely help distribute harvest pressure. The mountain lion AML in hunt area 31 was increased from 6 to 11 in 2012 because of concerns identified in the Platte Valley Mule Deer Initiative. For the 2013-2015 seasons, the season length in both hunt areas 31 and 7 were extended to year round harvest and additional reduced price licenses were available in both hunt areas. Over the last 5 years, the AML was not filled in HA 7 with an average harvest of 10 lions (HA 7 AML is 14). HA 31 reached the annual mortality 1 out of the 5 years with an average AML of 5.
- The Platte Valley Mule Deer Plan (WGFD 2012) identified increasing the black bear mortality limits in BMU 502 if fawn ratios continued to be less than 65 fawns per 100 does in 2013, as an action to enhance the mule deer population. Although predation rates by black bear on mule deer fawns is unknown, it is assumed black bear opportunistically prey on mule deer neonates and cumulatively contribute to lower survival rates for mule deer fawns. The management objective for the 2014-2016 hunting season will be to increase overall annual harvest rates for black bears in BMU 502. A proposed increase from 4 to 5 females in the spring mortality limit and from 3 to 6 females for the fall mortality limit will facilitate an increase in the overall harvest rates annually.

### **HUMAN DISTURBANCE**

Human activity can impact habitat suitability for mule deer in four ways: displacing wildlife through habitat loss, reducing habitat suitability by altering the physical characteristics of that habitat, displacing wildlife by altering mule deer's perception of habitat suitability or reducing the permeability of the landscape that enables necessary mule deer movements.

Human-caused disturbance increases stress on mule deer and if the disturbance is great enough, it will displace them from important habitats (Freddy et al. 1986, Sawyer et al. 2009). When undisturbed mule deer select habitats, they do so to optimize food availability, nutrition and escape cover. This ensures they are able to minimize energy expenditures and weight loss and increase their chances of survival. It is, therefore, important as we consider habitat

and mule deer population needs to evaluate the various disturbance impacts to wintering or fawn rearing mule deer.

Current levels of human influence and ever-increasing human populations clearly limit the potential for restoring mule deer populations to levels observed in the mid-20<sup>th</sup> century. Nevertheless, opportunities exist for conservation and management actions that can reduce impacts of human encroachment or restore habitat values and thereby maintain or increase mule deer numbers.

### ***Fences***

Fences can impede mule deer seasonal migration as well as daily movements to food, water and cover, but in certain scenarios they are necessary to protect crops, livestock and roadways. There are various fence designs that the WGFD recommends for different situations. The WGFD recommends the Wyoming Department of Transportation (WYDOT) fence standard Type E for right-of-way fencing along roadways. Currently WYDOT does not have an approved fence type that fully meets WGFD wildlife friendly fencing criteria. Of the approved WYDOT fence designs, the Type E fence comes closest to meeting WGFD standards. The Type E fence is a four wire fence that has a height of 45 inches with wire spacing, from the ground up, of 16, 25, 33 and 45 inches. This type of fence will contain most livestock while also allowing big game animals to cross roadways without becoming trapped. On roadways with high traffic, such as interstates, and where mule deer can be directed to crossing structures, eight-foot woven and smooth wire fence will exclude big game animals from entering the roadway and direct them to under passes where they can safely cross. All pasture fences on mule deer range should be carefully evaluated to determine if they are necessary. If so, the total height should not exceed 38 inches with a minimum space of 10 inches (12 inches is preferred) between the top two strands, and the bottom wire should be a minimum of 10 inches when shared with domestic sheep, otherwise a minimum of 16 inches. If the fence is in a migration corridor, a let-down fence would be appropriate. Any fence type can be constructed as a let-down; however, letting them down and putting them back up takes considerable time.

### **Management recommendations:**

- Cooperate with private landowners and land management agencies to modify and replace current fences as well as construct new fences to standards that are less restrictive to wildlife movement. WGFD will provide assistance as needed to remove fences identified as unnecessary.

### ***Roadways***

Mule deer are mostly affected by roadways through collision caused mortality, disruption of migration routes and fragmentation of habitat; under some circumstances these impacts can lead to population declines (Sawyer et al. 2005, Forman et al. 2003). Deer-vehicle collision not only impacts local mule deer populations, but can also be costly to society at an estimated US \$8,000 per incident (Romin and Bissonette 1996, Huijser et al 2008). Mule deer mortalities are mostly due to the lack of crossing structures and improper fencing of right-of-ways that either allow deer onto high traffic roadways or trap deer once they are in the right-of-way.

Tools available to wildlife and highway managers include fencing, speed limits, signs and crossing structures. A reduction in speed limits either seasonally or nightly can be effective in

reducing wildlife collisions. Permanent deer crossing signs tend to be ignored after a period of time (Gordon et al. 2004). Portable dynamic signs can be placed temporarily as needed, warning drivers and increasing their response time. Crossing structures, such as over passes and under passes, can be very effective when properly installed, but have high up-front costs. However, when compared to the annual cost of each wildlife-vehicle collision, it can be cost effective (Sawyer et al. 2012). Because mule deer have a strong fidelity to their migration routes, the location of crossing structures is critical (Sawyer et al. 2009).

Management recommendations:

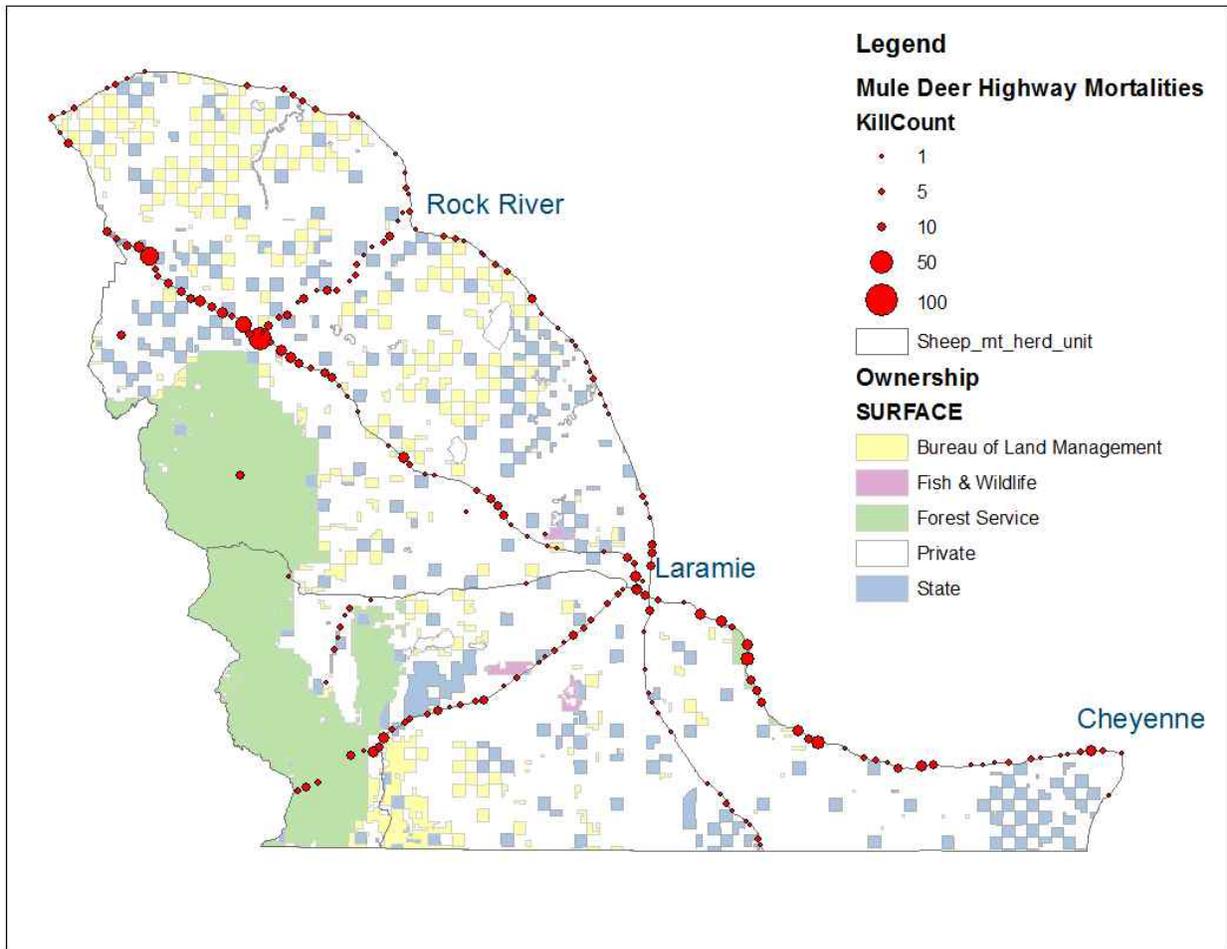
- Use radio collar data to identify movement corridors.
- Coordinate with WYDOT to identify areas of high mortality. In the SMMDH, WYDOT documented 980 mule deer mortalities along roadways from 1/30/06 – 3/18/15. This is not a total count, as some mule deer hit by vehicles die outside the right-of-way, but it is a minimum count that can be analyzed to address areas of higher mortalities (Figure 9).
- Coordinate with WYDOT to deploy portable dynamic message signs and/or reduce speed limits.

***Rural Development***

Mule deer need large tracts of open space. The conversion of large traditional ranches into smaller residential tracts increases wildlife disturbances, fences and fragmentation of usable habitat (Theobald et al. 1997). This is occurring across the west as human populations increase (Theobald and Romme 2007) and the SMMDH is no exception (Figure 10).

Management recommendations:

- Cooperate with conservation organizations to buy conservation easements in areas of importance to the SMMDH.
- Continue to inform stakeholders about the consequences of ex-urban development in important mule deer habitats.



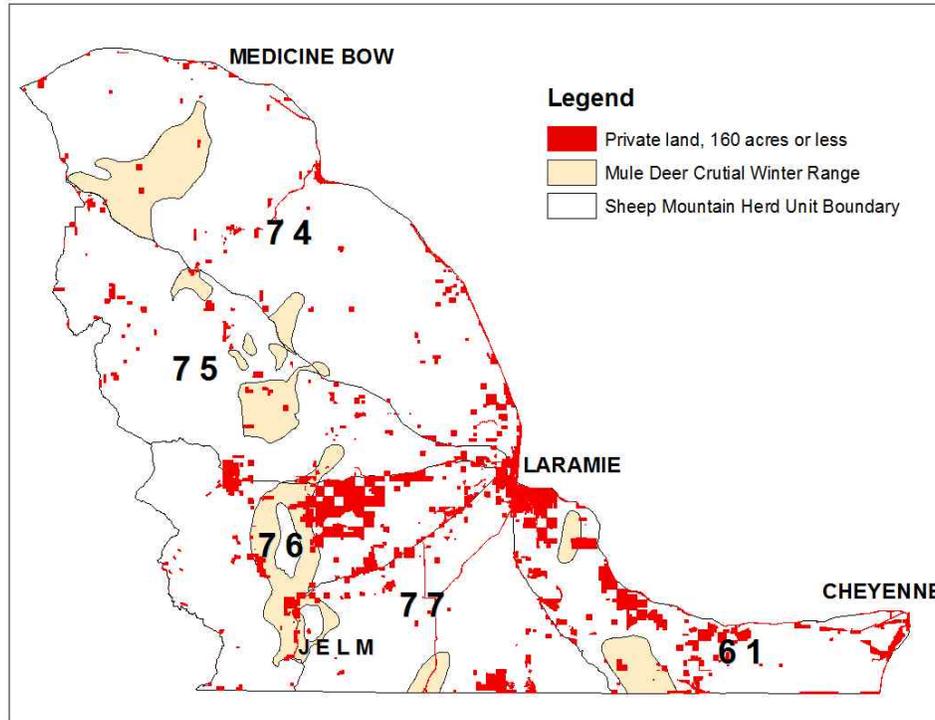
**Figure 9. Highway mortalities within the SMMDI area 1/30/06 – 3/18/15**

***Energy Development***

The State of Wyoming, including Albany and Carbon County, has a long history of energy development in the SMMDH. The largest development of energy has been wind energy, but there is also mining and some natural gas activity. Extensive energy development can have negative impacts to mule deer populations through the loss and fragmentation of habitat (Sawyer et al. 2002). Extensive energy development can cause mule deer to decrease their use of stopover sites, change established routes as they maneuver around development and increase their travel time through developed areas. If energy development is minimal to moderately intensive, it can act as a semi-permeable barrier and have few measurable effects to a population of migratory mule deer (Sawyer et al. 2012).

Management recommendations:

- Engage with energy companies and land agencies to best mitigate impacts on wildlife.
- Comment on energy project proposals that may impact mule deer and/or their habitats.



**Figure 10. Private land consisting of 160 acres or less and mule deer crucial winter range within the SMMDH.**

***Antler Shed Hunting/Collecting***

Shed antler hunting has become an ever increasing popular activity both as a form of recreation and a competitive business enterprise. It has even developed into a competitive sport. Shed mule deer antler hunting occurs during the critical winter period when mule deer are on a starvation diet. They must minimize physical activity to economize energy expenditure and weight loss in order to survive until spring green-up. Antler hunting during this period increases stress and likely mule deer mortality. Shed antler hunting within the SMMDH has increased dramatically over the past several years and seems most prevalent in the Jelm area where a majority of the SMMDH deer winter. This issue has come up within the SMMDI meetings, public season setting meetings and phone calls to the Laramie regional office.

**Management Recommendations:**

- WGFD will seek guidance and direction regarding inclusion of the Snowy Range big game herd units in the regulated antler hunting area.
- An antler shed hunting season would require a change in legislative statute.
- The Travel, Recreation, Wildlife, and Cultural Resources Committee will review information regarding antler shed collection in the interim session. If they decide this is an issue that requires resolution they would have to introduce a bill during the next legislative session.

### ***All Terrain Vehicles/Off Highway Vehicles***

With the advent of vehicles, especially ATVs or OHVs, people are able to access difficult landscapes with more ease. Increased motorized access provides recreation opportunity for some big game hunters, antler hunters, wildlife photographers and others enjoying the outdoors. It also increases stress on mule deer primarily during the winter months (December – May) when they are physiologically in decline and are increasingly susceptible to death due to stress. Mule deer may respond to off-road activity by seeking dense cover, rather than running from the activity. Spending more time in dense cover in reaction to any off-road activity could result in reduced foraging opportunities and a subsequent reduction in opportunities to put on fat reserves during summer that are needed for winter survival (Wisdom 2005). Elk show a stronger avoidance behavior to vehicular disturbance while deer tend to avoid areas of moderate to high elk density. Since elk, in general, tend to avoid roads, mule deer tend to frequent habitats near roads that are generally absent of elk. (Wisdom 2005).

#### **A. Reduce and mitigate the impacts of ATV/OHVs**

WGFD will increase efforts to reduce and mitigate the impacts of ATV/OHVs to mule deer through cooperation with land management agencies. WGFD will work to inform the public on the importance of protecting sensitive areas, such as crucial winter areas and parturition areas, and how motorized disturbance affects mule deer and hunter success and experience. WGFD will notify the public of sensitive areas and increase protective measures, such as signing and law enforcement. WGFD will discourage activities that congregate mule deer, such as artificial feeding. Poorly regulated year round OHV use on occupied mule deer winter ranges were most frequently recognized by workshop participants in the Sheep Mountain MDI. It is important to note that WGFD does not have regulatory authority over ATV/OHV use on lands other than Wyoming Office of State Lands and Investment lands and WGFC owned lands. Strategies for watershed planning might simply focus on restricting recreational activity to specified trails or roads. Study results suggest that the effectiveness of such of such strategy would depend on how much area is affected by the network of trails or roads (Wisdom 2005).

#### **Management Recommendations:**

- WGFD will identify mule deer transition, parturition, stopover, and crucial winter ranges needing additional protection from human disturbance.
- WGFD will meet with local USFS and plan joint public meetings to give the public more opportunity to provide input and gain buy in to the process and outcome.
- WGFD will work with all land management agencies on travel planning efforts occurring within the SMMDI area.

#### **B. Travel Management and Education**

WGFD will work with federal partners and the public to develop/coordinate on travel plans. Travel planning efforts should focus on identification of illegal roads, unneeded or duplicate roads, appropriate timing and type of OHV use and increased enforcement during key times (winter/fawning, hunting season) of the year. WGFD will work to better educate the public

about OHV impacts to wildlife and habitat. Currently, WGFD manages motorized travel on the Forbes and Wick WHMA's for the benefit of mule deer and other wildlife.

#### Management Recommendations:

- WGFD will increase education efforts regarding the impacts motorized vehicle activity has on mule deer survival and hunt quality. This outreach effort will include additional communication with local OHV organizations to stress the positive impacts of self-policing. Information will be provided to hunters regarding impacts of high road densities and vehicle disturbance on hunt quality and mule deer production/survival. The WGFD will also stress the importance of providing public input to federal land management agencies regarding enforcement concerns.
- WGFD will continue to convey concerns from sportsmen about OHV abuses to land management agencies.
- The WGFD will work with federal land management agencies to develop travel management plans that support seasonal closures to improve habitat conditions and provide "sanctuaries."
- WGFD will continue to enforce travel restrictions on WGFC and Office of the State Lands and Investment lands.
- Continue to assist USFS and BLM in enforcing their travel management rules by providing information to their enforcement personnel regarding observed violations

#### Hunter Recruitment/Retention

##### *Youth Hunter Opportunity*

There has been much discussion around the state on how to address youth hunter retention in regards to mule deer hunting. In recent years, many young hunters looked forward to harvesting a mule deer in one of the Sheep Mountain hunt areas. As deer numbers have dropped, so has the number of hunters. Where deer numbers allow, the WGFD recently held youth only deer seasons for any deer. These types of hunts increase the potential for a quality hunt, regardless of success, and the likelihood of lifetime hunting experiences. Although there has been some concern from sportsmen about the harvesting of doe mule deer, there has been little debate regarding the need to maintain youth hunter opportunities.

#### Management recommendations:

- Evaluate the feasibility of holding youth only mule deer seasons within the Sheep Mountain herd units
- Consider a population estimate threshold for considering youth only seasons
  - Consider offering youth hunting seasons if herd is meeting population objective

## **MONITORING PROGRESS AND PROVIDING FEEDBACK/OUTREACH**

WGFD staff will continue to provide information on the progress of population management and habitat management activities and data, and any other new developments within the SMHU.

### ***Outreach***

WGFD staff will keep stakeholders informed of upcoming meetings, projects, and seminars using the following:

- Email
- Mail
- Newspaper Advertising
- Regional Website Posting

### ***Annual Meetings and Reporting***

It was decided at the May 15, 2015 meeting that WGFD staff would create an annual report by March 1<sup>st</sup> of each year to report updates on population management data and status of habitat projects. Annual Meetings will occur within the month of March. Annual reports will cover the following:

- Suggested Information
  - Classification data (included in graph)
  - Harvest report data (included in graph)
    - Hunter effort
    - Hunter success
    - Harvest
    - Hunter satisfaction
- Habitat project updates
- Predator management efforts and harvest
- Other Related News

### ***Annual Habitat Project Meetings***

Each year WGFD staff will ask all SMHU MDI stakeholders if there are any habitat project proposals. These proposals will be presented to SMHU MDI stakeholders for review in late summer/early fall of each year. Projects endorsed by the group will be reviewed internally by a WGFD committee for project funding.

## **ADAPTIVE MANGEMENT**

Adaptive management has been mentioned several times throughout this document and will be used as a guiding principle in the SMMDI effort (Figure 7). This document is not designed to be static, but rather a dynamic document that will change as new information and new issues arise. The SMMDI is a dynamic process designed to improve mule deer populations and mule deer hunting. If an issue develops within the SMMDI area, any stakeholder can convene the SMMDI group to meet and discuss the issue. Throughout the SMMDI mule deer management effort process, there will be successes and failures. However, adaptive management will ensure that we learn from these experiences to better benefit the SMMDH.

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## APPENDIX A

### WGFD Sheep Mountain MDI Meeting

August 5-6, 2014

### Cheyenne and Laramie Meetings

#### **Mule Deer Meetings Summary of Main Points for all Groups:**

- **Habitat quality and quantity, particularly summer and transition ranges**
- **Understanding cause specific mortality, what's killing deer, particularly fawns**
- **Reduce Hunter Crowding**
- **Manage Predators**
- **Interspecies Competition (elk, moose)**
- **Youth Involvement, education, and recruitment**
- **Travel management (reduce motorized travel impacts to deer and hunters)**

#### **Group 1 (Cheyenne)**

##### **Top 3 concerns:**

- Identify fawn mortality causes
- Habitat effectiveness, especially transitional range
- Elk herd impacts, competition

##### **Additional Comments**

- There has been an increase in road density in the winter range and timing of impacts
- Increase in ATVs
- Importance of stopover habitats/ transition range
- What's the difference between areas that are producing mule deer (like Alberta) and Sheep Mountain?
- Apply lessons learned from Wyoming Range and Platte Valley MDI.
- Involve public in mortality survey transects on winter range
- Poaching impacts, what impact does poaching have on the population?
- Highway mortality
- Improve Habitat through:
  - Clear cutting
  - Rx Fire
- Predation:
  - Increase in Mountain Lions
- Drought Impacts
- Disease impacts
- Identify cause specific Fawn mortality
- Season structure changes
  - Closures

- Population objective/ management
- Estimation of carrying capacity
- Manage for increase of 66:100 rather than objective management, manage for a fawn ratio objective instead of a population objective
- Want high buck: doe ratio and higher density of deer
- Older age class bucks preferred
- Low hunter success rate non-factor – hunter success so low not impacting bucks
- Elk herds impact to mule deer population
  - Food and space competition
  - Resident elk herd impacts
  - Fawning period impacts
  - Mule deer pushed to less desirable habitat

## **GROUP 2 (Cheyenne)**

### **Top 3 concerns:**

- Habitat Health
- Predators
- Youth Involvement:
  - Education
  - Hunting
  - Outdoor recreation

### **Additional Comments**

- Food quality and quantity i.e. browse
- Like limited quota
  - Interstate herd- Colorado is limited quota and WY is general causing higher harvest of bucks in WY
- Does not like LQ
  - Landowner preference
  - Luck of draw
  - Leads to high preference points
  - Not passing on deer
  - Recruitment problems for youth recruitment
- Increase elk harvest
- Partnerships with NGOs federal government, private landowners to improve habitat, more public pressure on USFS and BLM
- Better rehabilitation after fire
- Address physical barriers i.e. roads, fences
- Remove woven wire fence
- Travel management on private and federal lands
- Seasonal road closures in winter range
- Shed hunting on crucial winter range- closure state wide
- Predators
  - Increase female lion harvest
  - Increase coyote control

- Increase restrictions on snares and leg holds
- Like the 3pt or better- improved buck quality
- Trophy buck is in the eye of the beholder – trophy mule deer is defined differently by different people
- Reduce hunter crowding
  - Limited Quota
  - Restrict vehicle access
- Increase access to private land
- Youth only season
- Increase youth participation
- Eliminate any deer opportunity during archery season
- Would like a early season for youth opportunity
- Disease – is disease impacting this mule deer herd (CWD, EHD, etc.)

### **GROUP 3 (Laramie)**

#### **Top 3 concerns:**

- Habitat
- Travel management
- Predation

#### **Additional Comments**

- Road closures in fawning areas and winter range
  - Address the 3,000 acres of the Sheep Mountain Big Game Refuge, west of the fox creek road, that the USFS no longer acknowledges
  - Non-motorized
  - Change USFS use plan
  - Need more gates, signs and enforcement of the winter range closures
- Stronger voice on USFS land management
- Landowner outreach and education
- Predator management
  - Coyotes- put bounty
  - Mountain lions – put Anderson et. al. on web
- Habitat management
  - Cheatgrass control
  - Prescribe fire
  - Water developments
- Shed hunting restrictions/ state closure
- Mule deer specific treatments
- ORV and ATV restrictions
  - Management plan on ALL lands fed and private
  - Restrict vehicles in parturition areas and winter range
- Hunting seasons
  - Limited quota – for and against
  - Quality vs. quantity
  - Restrictions the same for archery and rifle

- Full closure of deer season
- Like 3 point or better
- Elk displace deer through competition of space and forage

#### **GROUP 4 (Laramie)**

##### **Top 3 concerns:**

- Hunter Management
- Cause specific mortality study
- Habitat

##### **Additional Comments**

- Habitat
  - RX burning
  - Cheatgrass control
  - Bitterbrush is heavily browsed
  - Sagebrush is heavily browsed
  - Seeding after burn
  - Small transition range/little feed and need to target habitat projects here
  - Information and education dissemination
  - Direct to landowners –send mule deer habitat data to landowners
  - Especially in deer use areas
  - Website info – mule deer habitat data available online
  - Incentives – provide incentive to landowners who want to manage for mule deer on their land
- Predation
  - Lots of mountain lions in sheep mountain area
  - Need more lion hunters
  - Raise quota but we are also not meeting the current quota
  - Need data on predator effects on mule deer specifically fawns
  - Need predator population data
- Disturbance
  - road densities are too high, need travel management
  - reduce speed limits to reduce collisions
  - OHV use is causing noise disturbance
  - Decrease people densities
  - Increase enforcement in closed areas
  - Restrict antler hunters- state wide closure
  - Habitat fragmentation
- Competition
  - High elk populations
  - Moose
  - Pronghorn
  - Browse competition
- Increase fawn survival

- Predation
- Habitat
- Decrease mortality
  - Hunting regulations
- Enforcement
  - Funding
  - Increase G&F presence
  - USFS LEO #s
  - Education
  - Increase gates and signs
  - Self policing
- Access
  - Private land act as refuges
  - Increase PLPW program
  - Easements to public land through private
  - Corner hoping
- Overcrowding of hunters
- Hunter education/ manage expectations
  - % of deer classified that meet public perception of a “big deer”
  - More analysis of hunter satisfaction survey
  - Change the way hunter effort is measured
  - Consistent data collection
- There feels like there is over crowding but there are less hunters
  - Too much vehicle access
  - Different equipment from 50 years ago
  - Season overlaps elk season
  - Trophy versus subsistence hunting/ folks spend more time in field for trophy
- Better understanding needed of interstate movements with Colorado

## APPENDIX B

# Sheep Mountain Mule Deer Management Summary – 2015 Attitude Survey January 2015

### SUMMARY OF SURVEY RESULTS

Wyoming Game and Fish Department (WGFD) developed a written survey to assess the attitudes of Sheep Mountain herd unit (SMHU) mule deer hunters and other stakeholders. In late October 2014, 564 known stakeholders (hunters, landowners, agencies, NGO's) were invited via email and postcard to participate in the survey on the WGFD website. This survey link was also advertised to include anyone who wished to provide feedback regarding Sheep Mountain mule deer management. A total of 92 responses were totaled. While 92 stakeholders responded, not all of their responses were complete. Some respondents failed to answer every question within survey. A response rate was not possible to calculate given that anyone who wished to take the survey could.

#### Results Summary:

The main reasons for why respondents hunt are similar to those of other mule deer surveys with the top three reasons being to: obtain meat, hunt with friends and family, and be close to nature. Motivation for hunting within this herd relies primarily upon the outdoor experience, harvest success, and the presence of numerous and large bucks. When asked to provide the number of points on a side and antler spread of a trophy mule deer, results varied greatly with a 24 inch 4 point being the average response. Respondents were overall dissatisfied with their mule deer hunting experience with 60+% answering either somewhat dissatisfied or very dissatisfied. Respondents also believe the total population of mule deer had decreased to an unsatisfactory level and were not pleased with the number or quality of bucks observed or harvested. Responses for hunter crowding stated there are more hunters or too many hunters in some responses, but hunter numbers are acceptable in other responses. This is an interesting perception since the numbers of hunter's within this mule deer herd unit are at an all time low.

Overall respondents desired an increased number of mule deer, an increased number of total bucks, and an increased number trophy bucks. Responses indicated people would be willing to accept more hunting limitations to accomplish this. A limited quota hunting season framework was supported by respondents (61% n=48) to accomplish these goals. Respondents stated that they would likely go to another nearby general deer season or limited quota deer hunt if they were unable to hunt within the Sheep Mountain herd, and would not cease deer hunting. Respondents were equally divided on Type 9 archery only hunts. People recognized antlerless harvest as a useful management tool when appropriate.

Habitat quality and quantity was very important and is thought to be a contributing factor to declining mule deer numbers. Respondents felt that habitat should be the primary factor in determining how many mule deer should be managed for within the SMHU. Other factors respondents indicated had major impacts on this herd were competition with other ungulates (moose, elk, etc.), mountain lion predation, coyote predation, and winterkill (malnutrition/exposure). Factors such as: CWD, highway mortality, and poaching were considered to have minor impacts. Respondents feel that private land owners and the US Forest service have the most influence on mule deer winter range within the SMHU.

Fifty-seven percent of respondents found ATV uses levels/experiences unacceptable and 82% would support further restrictions and/or regulations to address this issue. Seventy-three percent of respondents also felt that antler shed collection has an impact and 79% believed it should be restricted and/or regulated.

## **OVERALL RESULTS**

Q1. Did you hunt mule deer in Wyoming in the past 5 years?

<b>83 Responses</b>	<b>%</b>	<b>n</b>
<b>Yes</b>	86	71
<b>No</b>	14	12
<b>Don't Know</b>	0	0

Q2. How many years, out of the last 5 years, did you hunt mule deer in Wyoming?

<b>79 Responses</b>	<b>Range</b>	<b>Average</b>	<b>Median</b>
	1-5	3.7	4

Q3. Thinking about when you've hunted mule deer, what is your most important reason for hunting? Would you say it is...?

<b>79 Responses</b>	<b>%</b>	<b>n</b>
<b>For the meat</b>	37	29
<b>For the trophy</b>	16	13
<b>To be with family and friends</b>	23	18
<b>To be close to nature</b>	24	19
<b>Don't know</b>	0	0

Q4. What do you look for in a quality mule deer hunt? (could select more than 1)

<b>158 Responses</b>	<b>%</b>	<b>n</b>
<b>Harvest Success</b>	23	37
<b>Recreation</b>	13	21
<b>Opportunity to spend time with family/companions</b>	17	27
<b>Presence of large antlered bucks</b>	20	30
<b>Outdoor Experience</b>	27	43

Q5. What is the minimum number of points on one side that a buck should have for you to consider it a trophy?

<b>78 Responses</b>	<b>Range</b>	<b>Average</b>	<b>Median</b>
	1-6	3.8	4

Q6. What is the minimum antler spread, in inches, that a buck should have for you to consider it a trophy buck?

<b>78 Responses</b>	<b>Range</b>	<b>Average</b>	<b>Median</b>
	1-30	23.7	24

Q7. How many years, out of the past 5 years, did you hunt mule deer in the Sheep Mountain/Laramie area?

<b>78 Responses</b>	<b>Range</b>	<b>Average</b>	<b>Median</b>
	0-5	2.7	3

Q8. How many years total have you been hunting mule deer in the Sheep Mountain/Laramie area?

<b>78 Responses</b>	<b>Range</b>	<b>Average</b>	<b>Median</b>
	0-49	14.4	10

Q9. In the past 5 years, about how many days per year did you typically hunt mule deer in the Sheep Mountain/Laramie area?

<b>79 Responses</b>	<b>Range</b>	<b>Average</b>	<b>Median</b>
	0-37	6.6	5

Q10. In what hunt area in the Sheep Mountain/Laramie area have you hunted mule deer most often in the past 5 years?

70 Responses	%	n
61	1	1
74	14	10
75	41	29
76	35	24
77	9	6

Q11. How far, in miles, do you typically travel, one way, from home to hunt mule deer in the Sheep Mountain/Laramie area?

76 Responses	Range	Average	Median
	2-2200	197.4	60

Q12. How many general hunt areas did you hunt mule deer outside of the Sheep Mountain/Laramie area this past hunting season?

76 Responses	Range	Average	Median
	0-4	0.6	0

\*47 (62%) of respondents hunt only the Sheep Mountain area for a general hunt area.

Q13. What is the primary reason you choose to hunt mule deer in the Sheep Mountain/Laramie area? (Write in question)

Actual Comments

I hunt Elk in same area

Close to home.  
proximity to residence

It is close to home.

Close to Laramie (home)

I'm mainly hunting elk, but the deer season is open during the same time. So I go ahead and get a deer license just in case I happen to find a nice deer.

convenience

It's close and generally good hunting

Close to home and you don't see people on Sheep Mountain.

Close to home

N/A

This is the area my buddy who is a Laramie native knows. We used to hunt area 78 sometimes before it became limited quota. My buddy has a cabin in 78 a bit west of Fox Park.

Close to home and in past there has been a good chance of seeing nice bucks

Close proximity to where I reside. We've hunted those areas since I was very young and I feel comfortable with the area and the terrain. Until about 5 years ago, we were very successful as a hunting party. The last few years, the number of deer has lacked, as well as larger "trophy" deer. I don't trophy hunt but I notice fewer deer. We camp in the area as well. Even during non-hunting months, we see fewer deer.

Access

I was raised in the Laramie Peak area and that is where my family has hunted for the last 80 years.

Own land in area 74 so it is a good opportunity to take my kids hunting where they have limited competition from other hunters.

It is close to Laramie, where I live.

I believe I hunt area 78 but I am interested in the surrounding areas

I own a cabin in centennial

Proximity to home

Proximity to Cheyenne.

I don't hunt the areas listed, however I am interested in how G&F manages mule deer hunting in any and all areas of Wyoming. I will be applying for a cow Moose tag in the Moose area #38/41 and if successful in the drawing, I may purchase a deer tag in one of the areas if general tags are offered.

That is where I hunt Elk.

I only photograph, film, and look for sheds from this herd because, in my opinion, there is not a huntable population present.

Ease of access. I live in Laramie so it's close.

Family cabin in the area

I live nearby and there are good bucks in the hunt areas that I hunt.

Second choice. Didn't get drawn for my first choice "W"

n/a

Close to home; overlap with archery elk units.

I have a cabin in Keystone

Familiarity with the area.

used to be some decent bucks

It is close to home. We know the area. Public land to hunt. There used to be a good herd.

To hunt with my brother

I have not hunted deer in this area because when I scouted this area, there were very few deer located.

It's where I hunt elk.

Have access to property to hunt

Ease of access, herd quality in the past

I have a cabin in the area

In the past, when I have hunted the area, it is due to proximity to my home, knowledge of the area, and good access (both public and private) close

I hunt elk there as well.

close to home

I hunt elk in this area during archery season. I buy a deer license incase I have an opportunity to shoot a deer while elk hunting. Also because of easy access to public land.

I don't hunt Sheep Mountain/Laramie area, but hunt the units surrounding Rawlins. I'm mainly interested in the Sheep Mountain mule deer initiative because my job entails managing the habitat in the area.

large deer

Was in Laramie for a football game.

I was born and raised in the area and I continue to live in the area.

proximity

I hunted mule deer in the Sheep Mountain/Laramie area in conjunction with hunting elk.

It is close to home and I have a cabin in Area 76.

Has been a good area for deer going back to 1980's

Familiarity with area

I hunt mule deer on sheep mountain because you have to hunt on foot. The rest of the immediate area is thick with individuals on ATVs. I do not agree with hunting from an ATV. There are numerous rules and limitations put into place, but the use of ATVs simply puts more hunters

into contact with one another. I like to hunt alone, and to not come into contact with other hunters. I wish that there were more areas that excluded ATVs and only allowed hunting by foot. I know that the ATV crowd brings in good funds for the State, but it is simply a different hunting experience that the one that I am seeking.

I actually got stuck hunting there because the area I've previously hunted with family became limited quota in 2013 so myself and my buddy (fellow out of state hunter) were just kind of stuck hunting away from the rest of the family (they all live in Wyoming) I didn't even put in for a tag in 2014.

Information from another person that had hunted the area.

closest general areas (both elk & deer to cheyenne. we like to do combo hunts for elk & deer both with a rifle & bow

It's fairly close to home.

landscape

I can also elk hunt and fish at the same time. I'd say for the amount of deer in the area I'm nit really deer hunting though I'm just donating my money to the G&F.

This is my home area. I have spent many years trying to understand the deer in area 76. I for the most part, just like the area.

Archery elk and deer are open the same time

Same Elk Area

I live here

didnt get tags for 79, 74 second draw

Hunting Antelope in the same area

love the area and past success

It is close to home and know the area well

Access to private property and quality of the experience

Q14. What were all the reasons you chose to hunt mule deer in the Sheep Mountain/Laramie area in the past 5 years? (Could select multiple)

<b>Responses 260</b>	<b>%</b>	<b>n</b>
<b>Recommended by family/friend</b>	4	10
<b>Close to home</b>	19	50
<b>Access</b>	17	45
<b>Hunted in same area before</b>	18	46
<b>Good chance of getting deer</b>	5	13
<b>Large antlered bucks in the area</b>	5	14
<b>Hunting other game in addition to deer</b>	13	35
<b>Few other hunters in area</b>	3	9
<b>Aesthetic reasons</b>	4	10
<b>Season dates worked well with schedule</b>	7	18
<b>Liked the regulations governing the area</b>	0	0
<b>Other</b>	4	10

Q15. How satisfied or dissatisfied were you with the overall quality of your mule deer hunting experience in the Sheep Mountain/Laramie area during the last season you hunted there?

<b>Responses 76</b>	<b>%</b>	<b>n</b>
<b>Very satisfied</b>	5	4
<b>Somewhat satisfied</b>	13	10
<b>Neither satisfied or dissatisfied</b>	20	15
<b>Somewhat dissatisfied</b>	32	24
<b>Very dissatisfied</b>	30	23

Q16. What led to your level of satisfaction/dissatisfaction with the quality of your mule deer hunting experience in the Sheep Mountain/Laramie area? (Write in question)

Actual Comments

Too many hunters and very few deer

harvested a deer

See previous.

I'm primarily archery hunting for elk in the area. I purchase a deer permit in the event a deer is in the area I prefer to hunt

The number and quality of the deer herd has declined over the last 10 years.

Just a great day out!

I did not see any mule deer bucks, I saw several hunters

I hunt hard and a long ways off the road. I've seen two bucks in the past three years. When given the opportunity I can't pull the trigger cause I feel like I'm killing one of the few deer left.

Fewer deer, very few mature buck deer (+4 year old being mature in my mind). Doe deer with single or no fawns. In the 60's, 70's & 80's we had a good population of Mule Deer with very few elk. Now we have 90% less Mule Deer and 500% more elk. I am old enough to recall that 1968 was the first year in these units to hunt elk off National Forest.

For three of the last 5 years our family members have taken nice deer. The last 2 years legal bucks were hard to find.

Deer numbers are still down. We were not seeing many bucks in area 78 where we held tags for the season. Was disappointed that there was no antler restrictions in the limited quota area. I would like to see 3 pt or better even in limited quota area as I feel the buck to doe ratio is also low.

I did not see any bucks, not even a spike or two point.

Buck only

I bowhunt, and love the fact that I rarely see another hunter.

The amount of deer spotted and the number of hunters in the same area.

Access and proximity to home remained positives. Noticeable difference in the overall herd #s was a negative

Lack of numbers and quality. Worse we have ever seen.

lack of deer

Elk season opened same day

Opportunities at lots of deer, but few large bucks

I do not see many legal deer but I enjoy the outing in an area with good access.

I didn't get a deer, but i enjoyed my time in the mountains.

Didn't see many bucks

Enjoy the out doors, and harvesting a deer is a bonus

Saw many deer including large bucks. Harvested one.

I have not harvested a deer so I have been disappointed.

I didn't hunt as much as I should have and I am very inexperienced in deer hunting so I didn't get a deer or see many.

I generally am lucky to see 1 deer a day, and very rarely a buck. If it is a buck it's generally a spike or little 2 point. I used to see 30+ deer a day, but now don't even come close to that number. I don't remember the last time I saw a deer that was larger than a 2 point. I usually see little two points hanging in others hunting camps, which leads me to believe that other hunters are not seeing many deer, or large ones either. I would like to see more deer in general and larger bucks specifically.

I did not hunt the area, because I know deer numbers are down significantly in these hunting units.

Very few large bucks.

Got a couple nice bucks, saw a few more.

The overall absence of numbers of deer and, in particular, older age class bucks  
very few deer

I trailed a group of mule deer off an on over three days. This was all on Sheep Mountain. I saw only does, fauns, and fork horns. I am somewhat dissatisfied because I did not see a buck with three points that I could take. I was very happy to be outside, and to be hunting, but it would have been better to take an animal. I understand what the WGFD is doing with the three point restriction. I hope that the mule deer numbers increase in future years so that hunters like myself are able to take deer from a healthy and stable population.

Deer numbers and mature bucks are down

The encounter with quality deer has declined over the last 10 to 15 years.

Lack of large bucks

Saw very few deer. The season is short.

never saw any deer as in past years

biggest muley yet, 3x4 25 i. wide 7 1/2 years old

Where I hunt I do not see many deer. But I do like that it's 3 points or better, so the population will grow.

Numbers exclusively

Population is way down from what it used to be/what it should be. I don't know if it is wolves, other predators, or CWD but the situation is just not right. The last thing the herd needs is more predators at this point.

I have always loved hunting in that area. I have hunted it since I was 14 years old. I am just disappointed that the mule deer population went down and is now on the rise again. The herds still are not that big but you let bow hunters shoot doe deer and not gun then put a point requirement on them. That tells me that there are not enough deer but selling tags are more important than the population is.

very few deer

no deer, not even does.

I enjoy the area and there are deer there if you show some patience. I don't expect to be handed a deer.

To many hunters to many Does and Fawns killed in archery season

Quality older age class deer, not as many deer as in the past. But excellent fawn/doe ratio for 2014.

hunted hard, looked over a lot of country. saw one legal deer after 6 days of hunting. After a lifetime of hunting I have never seen the deer hunting so poor.

It has become much harder to find shootable deer in this area. However, I do enjoy the time in the mountains and being with my friend. I seem to harvest only about 1 out of 3 years.

Herd numbers seem down in recent years. I blame this on habitat. This has shorten the season. I use to hunt deer right before the beginning of the rifle elk season but cannot do this any more because of a shift in season dates.

did not see very many mule deer in the area. Only saw one Buck and it was harvested.

number of deer and hunter pressure. Too short of a season

I never saw a buck until four days after season.

We saw very few deer in total this year. We hunted more days and harder than in years past. It was disheartening to work so hard and never see a deer on the hunt. We did find a few while elk hunting in the area later in the season.

Did not see very many mule deer. Only saw one buck and it was harvested by another person

lack of deer, lack of mature deer

low deer numbers

Lack of deer, too many deer hunters

We saw does, but no bucks

Very few sightings of deer.

There is a lot of people hunting both deer and elk in this area, hard to get away from them. I do see doe and fawn deer, in small numbers, but almost never see a buck. It has been several years since I have seen a buck mule deer, and even longer since I have seen a large buck.

After choosing hunt area and purchasing the general license, WGFD changed the hunt areas. My hunt area was drastically reduced. I was limited to hunting an area that I was not familiar with and one that I had not planned on hunting.

Deer numbers are way down and we need to do more to get the population numbers back up. There aren't many bucks 3 points or more in the area.

Not many deer. Small bucks if any

to few deer sightings. also area 78 should be general area with point restriction like area 76 so you can hunt both not just one. seem to be more deer in area 78 but too restrictive with limited draw

Not many deer, even less mature bucks.

Just didn't see many deer at all. It was just tough hunting because of our unfamiliarity of the area.

never saw any trophy quality bucks

Q17. Are there any things that have caused you not to hunt mule deer in the Sheep Mountain/Laramie area as much as you would like in the past 5 years?

<b>Responses 38</b>	<b>%</b>	<b>n</b>
<b>No, hunted as much as I liked</b>	8	3
<b>Lack of Access</b>	3	1
<b>Poor health/age</b>	5	2
<b>Poor behavior of other hunters/fear of injury from other hunters</b>	0	0
<b>Too crowded</b>	11	4
<b>Not enough game</b>	29	11
<b>Pollution/litter</b>	3	1
<b>Cost of equipment</b>	0	0
<b>Cost of licenses</b>	0	0
<b>Complicated regulations/difficulty understanding regulations</b>	0	0
<b>Finding somebody to go with</b>	0	0
<b>Having to travel too far</b>	3	1
<b>Weather</b>	3	1
<b>Bag limits</b>	0	0
<b>Season lengths/dates of season</b>	11	4
<b>Don't know</b>	3	1
<b>Other</b>	24	9

Q18. Do you think the Wyoming Game and Fish Department is doing an excellent, good, fair, or poor job of managing the mule deer population in the Sheep Mountain/Laramie area? (Write in question)

<b>Responses</b>	<b>%</b>	<b>n</b>
<b>Excellent</b>	5	4
<b>Good</b>	33	26
<b>Fair</b>	35	27
<b>Poor</b>	27	21

## Q19. Why did you rate the Department's management of the mule deer population in the Sheep Mountain/Laramie area as excellent, good, fair, or poor?

### Actual Comments

I think the department is doing all that could be expected, given the constraints that they face (i.e. intermingled land patterns, many different management priorities, lack of a good understanding of wildlife management from the public.)

Lack of animals

Do away with wolves. More needs to be done to foster the herd.

Population seems to be good but more mature bucks would be better.

Being some of the few general areas in southeast Wyoming this area get hunted very hard. The number of small bucks that get harvested is very high. I believe the 3 point or better restriction has helped but I would rather see 4 point or better.

didn't see as many bucks as past

The paper trail shows the deer heard is down for years. I have tried to get g&f in the field for years with no response. The USFS controls the habitat and manages it for atvs. The g&f can't even give a citation for off road use. What do they care.

I rated good because I feel something should have been done much earlier that is being done. I have all of the confidence in the G&F with the work and studies they do. Unfortunately these areas being on the east side of the Snowy Range their hands are tied to economics not sound educated biological studies. "Making very many changes to the regulations in these areas would be political and economical suicide for the G&F". That is an old quote from a past G&F Director.

They are trying but there's been too much over harvest.

no deer sighted

The number of deer seen during the summer and fall is pretty minimal. I tend to see more during the winter but I feel they are migrating in from Colorado. I would like to see either shorter seasons for the general hunt or some sort of point rule implemented. I would even be OK with turning it into a limited quota area for a few years. I see more moose and elk than deer, and just a few years ago the opposite was true.

Seems as there are fewer deer every year

The number of bucks we did see was noticeably up from previous years. Although I didn't hunt this year I still came up to spend time in camp with family and we saw more deer this year than any two previous years combined

Killing of Does and Fawns in archery season

Allow too many hunters for the number of deer in the area.

Good

more units should be 3 points or better

It is limited to buck only very rare to see but see lots of does mostly does ratio is out of balance like to see any deer or does only?

Only recently did they drop doe harvest and shorten season. Should have done so years ago

I think it should be closed to deer hunting for a couple years to let the population grow.

I do not feel it is all the department's fault. A lot of it is due to disease

there are lots of deer

Fair

I think predation, bears, lions, coyote, wolf are a great problem in this area. I am not sure what the answer is to this though.

Lack of deer seen while hunting.

spent 16 days hunting & saw only 3 bucks in area 76 and about 15 deer total. I am disabled so it is very hard to get off the roads (2 track or otherwise) too many non hunters ripping up the trails with atvs need some speed regulations for them.

Deer numbers have dropped a lot since I started hunting in the area but it still is a general license. It should be a limited quota area. Just my opinion.

They are very conscientious about managing the herd. Public expectation can be unreasonably high.

I realize there have been a lot of factors that led to the decline in this herd unit, including predation/overharvest of does/drought/habitat/disease, but I believe all mule deer units in the state need to be micro managed like the antelope areas are. The mule deer across the west is an icon that needs to be saved, and the elk need to be knocked down if it is going to happen. If my kids are going to be able to enjoy the species like I did growing up, there needs to be drastic improvements to the management and financial resources given to the G&F for management purposes. Non-hunters/sportsmen need to step up and help the cause.

They need to increase the mountain lion tag numbers so the mountain lion population will be better maintained. Mountain lions are hurting the mule deer population. Horn restrictions should have been implemented years ago.

Lot of things are out of the control of the Game & Fish

I do not know what else they can do to help.

Lack of Deer!

I watch the regulations relating to management of the doe:buck ratio.

The numbers have been known to be declining since 2001 and nothing has been done differently until last season. The highest producer of revenue for the WGFD is deer (every year) when you look at license revenue minus the program cost ONLY and its taken 14 years to ask questions about deer management. The WGFD has shot themselves in the foot by not changing or researching anything about the one species that makes them a lot of money and yet still complains about revenues.

Area 74. Short season is good. Better than limited quota. The three point rule is not very good. Not sure how you'd enforce it, but shooting three year old or older deer would be better. We got a 28" 2 point three years ago and he'd be illegal now. And he is the perfect deer to harvest. Really, you are doing pretty well. But the area is mostly private so the landowners control the harvest. Their conservative management is good.

I'm not sure what the reason might be for not seeing a buck at all, and very few does and fawns. I also did not see many elk in elk hunt area 10. The area where we hunted didn't have much forage like the forage I've seen deer feeding on in the western mountains of WY. Lack of quality and quantity of forage may be more the issue than management of the deer herd.

I think you are doing the best you can and adjust the permits and regulations when you need to. You can't control drought, fire, and all of nature. I probably don't know everything you are doing.

No deer, much less quality. We hunt for the experience with friends and family and scenery as well as the hopes of seeing game and taking a trophy class deer, but the deer sightings were few and far between.

As deer populations have appeared to decline in Area 76 WGFD has responded by shortening season and imposing 3-point rule for bucks. This seems reasonable to me.

letting people hunt doe deer and shooting small deer

I have watch the decline of deer in the Laramie Peak area for the last 25 years. I feel there should have been an opportunity for improvement within this time frame.

with the habitat and burns areas in the last 10 years their should be a better population.

It seems as there is no management being done at all.

Only gave a fair because the mule deer herd is declining

I trust the department's management though I would have expected a few days of any deer after we saw over 100 does in the 5 days of hunting in 2012.

I think past management decisions have greatly affected the current health of the herd. I think the Game and Fish is working harder now to address some of those issues but there is still a lot of work to do to return our herds and habitat to levels they were in the past. Limited quota, point restrictions and shorter seasons have been a good start.

Few deer sightings.

fair it does not have the deer it use to

WGF has increase the minimum points to 3, I would like to see more actions taken to protect the herd

The deer herd has gotten smaller every year and finding a nice buck is almost impossible.

Only time I hunted area

The Dept recognizes the need for changes in herd management and is pursuing solutions w-partners. All the while still offering good hunting experiences

poor habitat

Letting doe deer being shoot with low numbers

Lack of buck, saw bucks in other units around Sheep Mtn.

there are no deer. if they were managing, I'd hope to think there would be some deer

poor - the area does not have a population of deer to sustain a general season

They have to react to mother nature effects on the deer herd and seem to do a good job.

need some research done to learn about the deer, I think the results from the Red Desert to Hoback migration proves we could be counting the wrong deer.

I would say that they are doing an excellent job, with one exception. I wish that there was a greater WGFD and USFS presence in the National Forest. I don't like walking through places where ATVs have departed approved surfaces. If those guys want to hunt certain areas, then they need to get off their machines and walk. There are not enough salaried WGFD and USFS personnel to enforce the regulations that

are in place. You have tons of people up there, and only a few are breaking the rules, but there are very few WGFD and USFS personnel to enforce the rules. This is a simple issue of a lack of funding and positions.

Because they can not control the 10 years of drought we had and they can not control people building trophy homes in the and around good mule deer winter range.

We see biologists and wardens regularly and year-round in the area. I know if funds were unlimited, there would be more options. I hope that G&F is doing the best they can with the funds and time available. However, the continued decline in number of deer is of concern. So is the condition of the forest in general in these areas.

The number of deer seems small.

I rate it as poor because numbers are down significantly.

Not doing enough fast enough to help the mule deer herd recover

Managing wildlife is difficult having to deal with weather, habitat, mortality from predators, poaching, to list a few.

Because the population of mule deer seems to be very low compared to when I first began hunting in that area.

Q20. In your opinion, has the way the Department manages mule deer in the Sheep Mountain/Laramie area improved, remained the same, or gotten worse in the past 5 years?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Improved</b>	25	20
<b>Remained the same</b>	29	23
<b>Gotten worse</b>	30	24
<b>Don't know</b>	15	12

Q21. The number of bucks in the area was adequate in the past 5 years.

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Strongly agree</b>	0	0
<b>Moderately agree</b>	8	6
<b>Neither agree nor disagree</b>	19	15
<b>Moderately disagree</b>	31	24
<b>Strongly disagree</b>	42	33

Q22. You heard about or saw big antlered bucks in the area in the past 5 years.

<b>Responses 77</b>	<b>%</b>	<b>n</b>
<b>Strongly agree</b>	10	8
<b>Moderately agree</b>	18	14
<b>Neither agree nor disagree</b>	22	17
<b>Moderately disagree</b>	23	18
<b>Strongly disagree</b>	26	20

Q23. There were too many other hunters where you hunted most often in the Sheep Mountain/Laramie area.

<b>Responses</b>	<b>%</b>	<b>n</b>
<b>Strongly agree</b>	14	11
<b>Moderately agree</b>	23	18
<b>Neither agree nor disagree</b>	39	30
<b>Moderately disagree</b>	18	14
<b>Strongly disagree</b>	5	4

**In your opinion, has each of the following increased, stayed the same, or decreased in the past 5 years in the Sheep Mountain/Laramie area you hunted?**

Q24. Total number of mule deer.

<b>Responses 77</b>	<b>%</b>	<b>n</b>
<b>Increased</b>	10	8
<b>Stayed the same</b>	14	11
<b>Decreased</b>	63	50
<b>Don't know</b>	13	10

Q25. Number of mule deer harvested by hunters each year.

<b>Responses 77</b>	<b>%</b>	<b>n</b>
<b>Increased</b>	3	2
<b>Stayed the same</b>	10	8
<b>Decreased</b>	49	38
<b>Don't know</b>	38	29

Q26. Number of hunters in the field.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Increased</b>	25	20
<b>Stayed the same</b>	32	25
<b>Decreased</b>	24	19
<b>Don't know</b>	19	15

Q27. The number of bucks.

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Increased</b>	8	6
<b>Stayed the same</b>	10	8
<b>Decreased</b>	64	50
<b>Don't know</b>	18	14

Q28. In your opinion, why has the total number of mule deer [increased/stayed the same/decreased] in the past 5 years? (Write in question)

Actual Comments

Winter Kill is my understanding  
 Winter kill and too many tags.  
 Mountain lions in area.  
 poor habit  
 Lots of reasons.....CWD, loss of habitat/winter range, more predators, increased ATV/UTV use  
 CWD  
 I don't see as many as I used to.  
 lack of habitat  
 Really don't know  
 Increased  
 Too many hunters. And since there is a lack of quality bucks the hunters are shooting the 1st deer with antlers they see. I feel that the bucks are not being given a chance to mature.  
 1 million dollar question. I would say drought followed by a hard winter.  
 I am not a biologist and don't study these things, so it would be hard for me to give you an educated answer. anything I may say is speculation. There is no increase in sign of predatory animals such as Mountain Lion or wolf, I don't see any infact. the winters have been reasonably mild for the last 5 or more years. I have seen no sign of out of control disease in the heard. Habitat has suffered only to beetle kill trees but seems to still be plenty of water, food, and cover or protective habitat. There does not seem to be such a huge increase in elk or moose population that would cause the deer to be driven from this area. What I am saying is it appears to me there are not natural reasons for the decrease in number of deer I see, which to me means there has been mismanagement on the side of the state, and irresponsibility on the side of the hunters. Too many deer are allowed to be harvested with an over the counter license, and people are harvesting any legal deer they see regardless of size. It might be appropriate to make area 75 (where I spend most of my time) a limited draw area and maybe minimum number of points for a buck to be legal. Understand I am someone who enjoys the simplicity of buying a tag over the counter and being able to look for deer while I am elk hunting. I also don't encourage more regulation in hunting laws in Wyoming, that is why I liver here and not Colorado. I just don't see many deer anymore. I did not bother to buy a deer license this year because I did not expect to see any, and with the exception of one doe, I was right. \$0.02 worth.  
 I can't say. I have only hunted area 76 for the past two years. I saw a big four point buck in the 2013 season, but my fried could not get off a shot before he took off. My two years of exposure to the area are not enough to tell you how the numbers are trending.  
 Habitat conditions have most likely influenced the total population size in the area, both north of the Wyoming line and south along the front range where apparently a large portion of these deer winter. We'll see if some of the recent larger scale habitat treatments (wildfires along the foothills area, both in Wyoming and Colorado) affect the herd, I think that it's too early to tell.  
 I have no idea. Drought and forage quality was down until last year and this. There have been at least two major fires in the area. I hear about CWD but have never seen a deer in the field that looked to be in bad shape or sick and I have not found any evidence of carcasses from sick or poached deer. I know there are mountain lions in the area and killed one in 1998. I do not have a strong opinion or suspicion as to why numbers seem to be down.  
 I don't know the numbers.  
 Possibly because the number of elk & moose have increased and pushed them, and/or the increased number of hunters.

The NFS stopped clear cutting which has impacted food supply and too much poaching.

I think they have been over hunted and do not have adequate security in there winter range. There are roads and illegal motorized routes every where on the critical FS winter range. Where are these deer suppose to go for security. Terrible winter range habitat management. Why doesn't the FS take strong steps to protect this critical deer habitat. It's extremely disappointing to see this area degrade year after year and watch the deer begin to disappear with the FS doing nothing to protect it.

predators, drought, and too many tags issued in the years leading up to the 5 years concerned in this survey.

mountain lion & and coyote depredation has increased. Hunters in this area tend to shoot any legal buck

Do not know

Habitat hasn't changed, and harvest doesn't have a large effect on population.

Loss of habitat, diseases, and being out competed by elk that are overpopulated.

I believe the relief from drought and implementation of a point restriction, in addition to stopping the harvest of does during rifle season has helped. Need to stop doe harvest and young buck harvest during archery season too, lots of road hunters shooting deer with a crossbow from vehicles.

winter-kill, predation, harvest, and habitat conditions. Not necessarily in this order.

Chronic wasting disease

Because everyone can buy a tag and hunt there

I can only guess overharvest.

I have not seen a big increase in deer overall

I don't know whether the number has increased/decreased/stayed the same. In two years of hunting both mule deer and elk in the vicinity of Centennial Ridge, Pine Creek, and Gold Creek I saw very few does and fawns, no bucks, and very few elk. I walked several miles morning and evening.

not sure

Too many antlerless deer tags in the past, habitat loss, increased predators, poor winter range conditions, poor fawning ground conditions, more bucks that can't breed (stag) I have seen harvested.

Decreases are largely habitat driven. The number of big buck seen can be weather dependent since many big mule deer migrate out of Colorado into this area.

The number of mule deer has definitely decreased in 74. I spend over 50 days per year in there and it is down significantly. The deer have also moved more into riparian areas and away from mahogany.

Doe population has gotten higher due to buck only hunts

There are many reasons that I believe the deer herd has declined in the past years. Weather, predators, but I think one of the greatest impacts is the number of elk. The elk population has increased and I believe this pushes the deer off of their prime winter range. When they get pushed off of the winter range they don't survive the winters as well.

I am not sure.

Killing of does and Fawns in archery seson

I think the mule deer population hit it's bottom 3 years ago. Since then we have had good spring moisture and adequate snowfall which increases the quality and quantity of the vegetation.

Drought, too many does harvested, too many elk

decreased

Stayed THE SAME OR SLIGHTLY DECREASED. not MANY TO START WITH

Decreased

Lack of habitat, over-run with high elk numbers, and to many predators

decreased poor habitat possibly influx of whitetail deer

My field observations and pictures on my trail camera seem to indicate the numbers are about the same as they've been for the last several years, at least in the tiny portion of the hunt unit that I observe.

To many young deer being harvested

Game and Fish haven't properly managed the mountain lion population and need to increase mountain lion tags to help the mule deer population increase.

disease

seems to have decreased

Many factors.

no opinion

Season is too short resulting in young deer harvest

Elk competition - you see elk where we used to hunt deer. ATVs and shed hunters in winter range areas - we don't have a problem with shed hunters effecting elk. the elk don't really shed until April, when they've made it through the worst part of winter and green grass is starting to grow. Deer shed hunters are chasing them at the worst possible time of year. Finally, clear cuts have grown in.

Prediation.

less tags issued

Winter kill, habitat quality-(compatisation with domestic grazing, disease, predators-(mountain lion and bear).

I think changes in management tactics has helped. 3 point minimum was needed very badly. I think that's a big reason we're seeing more quality bucks

Stayed the same

Weather and predators. Coyotes and Bears are really numerous.

Per earlier note, predators or CWD must be playing a factor. Hunting regulations to protect bucks should help. More habitat initiatives probably are needed. Also it might make sense to limit the # of permits further, so that those who do draw a permit can have a better chance of success.

don't know for sure. no clear cuts, lions, elk

I'm not sure. There used to be so many hunters up there. I always thought maybe it should be more managed. Now there are fewer deer so there are fewer hunters. Also, I think the logging/forest condition has to play a role. I'm glad they're logging the beetle kill out, but I hate that it has such impact on seeing animals.

Not sure

**The remainder of the questions in this survey are about mule deer in the Sheep Mountain/Laramie area in general, which includes all hunt areas in the Sheep Mountain/Laramie are, not just the hunt area where you hunted most.**

Q29. How acceptable or unacceptable is the number of mule deer in the Sheep Mountain/Laramie area?

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Very acceptable</b>	0	0
<b>Acceptable</b>	12	9
<b>Unsure/neither</b>	28	22
<b>Unacceptable</b>	45	35
<b>Very unacceptable</b>	15	12

Q30. What are the reasons you think the number of mule deer in the Sheep Mountain/Laramie area is [acceptable/unacceptable]? (Write in question)

Actual Comments

There isn't much pressure on them during the hunting seasons. I have observed that the bucks move to other locations when the season(s) begin. I normally see only does and fawns. Very, very rarely have seen a buck except up to August before the hunts begin.

In this area, I only have knowledge of area 76.

there are no huntable deer. even during the rut you don't see the numbers of deer, let alone the numbers of bucks where they used to rut. why waste my time if they aren't even there during the rut.

Over hunted

habitat conditions

Herd size fluctuates over time, so some decline at some point due to many reasons is somewhat expected. However, recently it seems like there are a lot of things stacked against the mule deer herd. Increase in whitetail in the area is also a factor

Predators, too many does harvested, too many elk

Not seeing them while in the area.

The numbers have gone up and we've seen more and more deer

I see plenty of deer.

Don't know if winter die off has caused it have to let experts decide that

I don't see as many as I used to.

There are plenty of deer just not bucks.

While habitat conditions are bad from the prolonged drought, the new sunlight getting to the forest floor due to falling beetle killed trees is providing new forage. Need to burn the whole set of hills and get things cleaned up. Visiting here in the 80's we saw a ton more deer, including more mature deer, and we are not even close to the carrying capacity of the forest in it's current condition. Fire would help even more--

Needs to be more mule deer.

There is still room to grow the herd and we should do so. By reducing the number of elk, keeping moose numbers where they are and if we continue to have good moisture we can have more deer. We won't have deer numbers like in the 1960s and 70's but the available habitat can support more deer.

have not hunted in other areas

Since the NFS has stopped clear cutting the mule deer food supply has disappeared.

Weather and the predators.

I used to see a huge amount of deer in the area, along with big bucks.

should be able to at least see a few deer each day not just one or two every 3 or 4 days

I hardly see any deer in this area anymore.

I accept that populations will fluctuate. I am not one who believes Nature or WGFD "owes" be a bountiful deer herd. Although populations are down I do not take it personally.

to many deer killed need limited quota areas

seeing a good mix of does fawns young and mature deer

It is very rare to even get to see a mule deer in the area

Record low harvest.

regardless of the current carrying capacity estimate, the total population estimate is miniscule. in addition, counts are done on some deer that spend at least a portion of the year in Colorado and that may be during the hunting season

Mule deer numbers are largely habitat and weather dependent which is often outside of the control of the Department. I

old enough to remember when the deer hunting in this area was fantastic. If this is the best you can do we are hurting. My children don't buy deer tags anymore. Waste of money.

Drastic increase of elk and competition with elk for habitat. I own property in area 75. The deer will not stay on my place when the elk move in. It is not competition for forage, it is competition for bedding areas, for quiet space for non-aggressive behavior. In the 60's, 70's & 80's we had a good population of Mule Deer with very few elk. Now we have 90% less Mule Deer and 500% more elk. I am old enough to recall that 1968 was the first year in these units to hunt elk off National Forest. Increase in Mountain Lion populations took a huge toll on my deer 10 to 12 years ago. The deer population has not returned so I can not say if the Lion population has decreased because they have no reason to return where there is no food source. Over mature forage not regenerating.

No mule deer left in the area

Unacceptable. Winter-kill, predation, over-harvest, habitat conditions, and competition with other animals. Not necessarily in this order.

Too many have either been hunted or died of natural causes. Since the area is still general too many deer are being taken out of an already reduced population, making it harder for the deer to recover.

Do not know other areas.

We see so fewer deer. The deer we see seem to be in good health although we see fewer/smaller bucks.

There are deer up there, not big numbers, but there are a few. There are just not a lot of 3 point or better bucks. That is the current rule, in effort to grow the herd. I understand the plan, and I do not have a problem with it. I look forward to future years, with better herd numbers.

There aren't as many mule deer in the area as there used to be. It seems like there is a huge decrease in the population and it's unacceptable.

no idea

I see almost no deer and never see any bucks. Not like it used to be.

to many tags

Only time I hunted area

Used to see at least a couple of big bucks every year, now rarely see one.

I don't know whether the number has increased/decreased/stayed the same. In two years of hunting both mule deer and elk in the vicinity of Centennial Ridge, Pine Creek, and Gold Creek I saw very few does and fawns, no bucks, and very few elk. I walked several miles morning and evening. Also, I don't know why the deer numbers appear to be low, but suspect lack of the right forage could be part of the problem.

I saw quite a few books this year.

not seeing many deer daily where I have in the past

I don't know how many the habitat is supposed to support.

poor habitat

You don't see them in areas you used to. Even walking into old haunts doesn't produce anymore. Yet everywhere I step, I'm stepping on elk tracks.

If there has been a decrease it may be because of such dry conditions.

Predators, drought, and too many tags issued in prior years

Lets get the number back up

How are we defining acceptable? Buck/doe ratios? Doe/fawn ratios? I think the Game and Fish is seeing a shift in hunter perception towards trophy hunting mentality and the general public is measuring success by how many large antlered bucks they see, and how easily they can harvest them. There is very little concern for the overall health of the mule deer population, and especially whether the population is appropriate for the available habitat. To be acceptable, it seems that the overall opinion would be that the deer population be extremely far above objective so that there is an excess of large "trophy" antlered bucks that require very little effort to kill.

NUMBER OF ANIMALS SEEN ALL TIMES OF THE YEAR, NOT JUST HUNTING SEASON

Overall population is good but mature deer are scarce.

Due to the fact that just seeing a doe is a big deal these days. I hunted several days that I did not see any deer at all.

Too few. We're shutting down hunting on 40,000 acres in 2015 due to lower numbers.

Don't see many and I hunt all day walking or standing in the field

Deer numbers are getting low enough where hunters are no longer purchasing deer tags or even hunting deer. We are losing our younger hunters as they don't even see enough deer to keep them interested in hunting. I think mule deer management has taken a back seat to elk management because elk tags provide more revenue.

it used to be a thriving herd and is now dwindling towards nothing

would like to see more deer

Too few deer.

same as question above

The number of deer seen in the field has been going down and number of trophy buck along with this trend.

Not sure

Q31. How acceptable or unacceptable is the number of mule deer harvested in the Sheep Mountain/Laramie area each year?

Responses 78	%	n
Very acceptable	1	1
Acceptable	8	6
Unsure/neither	59	46
Unacceptable	26	20
Very unacceptable	6	5

Q32. What are the reasons you think the number of mule deer harvested in the Sheep Mountain/Laramie area each year is [acceptable/unacceptable]? (Write in question)

Actual Comments

I'm not sure of harvest #s  
do not know the numbers  
Not sure how many were harvested  
No mule deer left - need to restrict harvest for a few years  
very few harvested  
we had ample oportunities to harvest deer  
CWD  
Not sure what is harvested.  
N/A  
acceptable currently as deer numbers are down. I would like to see fewer deer harvested and concentrate on rebuilding the mule deer herd in the area.  
Very few deer that meet the minimum antler size  
no enough  
Not sure. Most people I know are unsuccessful because they are not seeing animals.  
Forage  
They are just not there.  
I only saw one harvested  
Should get at least one every other year.  
I've not tracked harvest reports in general. I know my family/friends have killed far fewer and far smaller bucks.  
I have not accessed harvest data or compared it over time so I do not have a strong opinion.  
Lack of deer  
numbers  
there should be a limited harvest  
Lack of deer and lack of effort on the hunter's part.  
too many tags  
Overall number of deer harvested  
unknown  
Not many quality bucks.  
It's unacceptable because there are so few deer in this area.  
depredation & hunter selection  
No older age class bucks.  
too many harvested  
Without a little more information, that's a hard question to answer. How are the post season buck/doe and doe/fawn ratios? Is the population growing? Is it appropriate for the available habitat? I'll leave it to the professional biologists to determine if the harvest is acceptable on a short and long-term basis, based on hard science rather than opinions and anecdotal observations.  
No info  
not sure  
too few deer  
Don't know  
no idea  
My party's ability to harvest seems to have declined in the last 5 years.  
I do not know how many deer were harvested.  
Need more deer  
management  
poor habitat  
acceptable

no huntable deer  
 low herd numbers  
 control and access to area  
 dont know  
 Don't know enough about all areas. in over 120,000 acres of 74, only 4 bucks were taken this year. We made that choice.  
 better now that there are point restrictions, gives the bucks a chance to grow up  
 I don't know the actual number of harvest in this area. I would speculate the harvest number is too high for the population that exist.  
 Don't know harvest numbers.  
 personal experience  
 Should be more deer so people could harvest more.  
 because the herd is far below objective and deer are still being harvested  
 it is too many and it should not be legal to harvest does  
 Weather and predators  
 Well, when 100s of deer were taken out of one or two areas and now there are less than 150 in all areas according to the meetings you held.  
 I think that's your answer

**Q33. How acceptable or unacceptable is the number of hunters in the field in the Sheep Mountain/Laramie area?**

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Very acceptable</b>	4	3
<b>Acceptable</b>	33	26
<b>Unsure/neither</b>	37	29
<b>Unacceptable</b>	24	19
<b>Very unacceptable</b>	1	1

**Q34. What are the reasons you think the number of hunters in the field in the Sheep Mountain/Laramie area is [acceptable/unacceptable]? (Write in question)**

Actual Comments

Unknown  
 Due to lack of deer, I don't see or hear of many hunter in the field.  
 Rugged areas you have to do a lot of walking  
 too close to population - too many permits offered for area  
 The fewer the people the better the chances of getting a deer.  
 elk hunters  
 no deer, no hunters.  
 The overlapping general elk season puts too many hunters in the field.  
 Too many people in the field and camps everywhere, not enjoyable. Pressure to shoot the first legal deer you see or you may not see another legal deer. No older age bucks.  
 seems like too many  
 There are a lot of guys, but it's close to Laramie and Cheyenne so you have to deal with it.  
 It is about what I'd expect given the proximity to Laramie.  
 Too many hunters and not nearly enough deer to be hunted  
 Hunter always think there are too many other hunters, but few leave the road.  
 not enough quality deer for the number of tags issued  
 Too many people

It should be a draw area because there aren't enough deer to support that many hunters.  
Acceptable because there are fewer hunters with fewer deer available.  
The hunters are down because the deer numbers are so low.  
It's a general area that anyone can hunt. I feel everyone has the right to hunt, so I can't say if the numbers are too many, just right, or not enough  
unknown  
general tags provide for too many people, make it more of a lottery hunt--\$20 application fee non-refundable  
There is no quality of hunt any more - no animals and to many hunters  
there are few hunters. i like that.  
I don't know how many hunters hunted the area. I didn't encounter many hunters while hunting - five away from roads in the two years I hunted.  
it should not be a general license area due to current population estimates  
wasn't overcrowded  
about the same  
Limited access/private property.  
Too Many  
not over crowded  
too many ATVs  
too many  
hunters remain at same numbers  
Too many hunters looking for a very few deer. Shooting the first legal animal they see. If hunter days is what the G&F is looking for then keep it the way it is. If you want to manage for quality of deer and quality of hunt, make changes. Limit hunters and or days.  
not alot  
Deer hunting licenses are at an acceptable level currently. I would like to see fewer tags given in the limited quota areas as our numbers are still too low in my opinion to support harvest at current levels.  
most are road hunters  
See few hunters  
I see a lot of people there. Obviously because it is public land with ease access. I am seeing more and more people, even back away from the driveable roads the number of hunters seems to be increasing. Elk season overlaps deer season and I am usually hunting elk so it is impossible to tell if all the hunters are hunting elk, deer, or both.  
Generally I can hunt without bumping others.  
Don't spend much time in the area during the season, so I can't really answer that. My overall impression is that there is very little good areas to hunt mule deer in the area that are accessible to the public, and that the available hunting areas are shrinking all of the time. Even with a stable number of hunters using the area, overall they are probably being squeezed into less areas to hunt, which could (and probably already is) leading to overcrowding issues and less hunter satisfaction.  
I rarely see hunters on USFS portion of Sheep Mtn. There is some pressure on the Forbes but that doesn't bother me. I have noticed a decrease in horse packer trucks/trailers parked at Forbes access area in last couple of years. That's okay with me, too. Those guys hunt on top of Sheep Mtn. and I hunt the west slope and foothills. I have had minimal encounters or sightings of other hunters.  
I do not know how many hunters were in the field.  
there aren't any deer hunters, only elk  
see more elk hunters  
Being general areas when other areas in the region are limited quota.  
most i have seen are elk hunting  
acceptable  
it's public land anyone can hunt it  
everyone should have at least a chance to hunt  
Don't know how many are mule deer hunting since elk season is open as well.  
Because its public land  
It's a good thing to have more people interested in hunting, but on the flip side, too many people in one area can ruin overall hunting experiences

few hunters means more opportunity for me, less chance of being shot  
 too many hunters out looking for any deer  
 never see herds of hunters  
 Lots of out of state hunters.  
 unsure  
 same number of people  
 General area  
 a lot of hunters.  
 no one is hunting, indicates the type of hunt we have. I guess you could say there is no competition, but there aren't any deer either

**Do you think each of the following has had a major impact, a minor impact, or no impact at all on the mule deer population in the Sheep Mountain/Laramie area in the past 5 years?**

Q35. Highway mortality, that is, mule deer deaths resulting from deer-vehicle collisions.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Major impact</b>	15	12
<b>Minor impact</b>	58	46
<b>No impact at all</b>	14	11
<b>Don't know</b>	13	10

Q36. Disease, such as Chronic Wasting Disease.

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Major impact</b>	15	12
<b>Minor impact</b>	51	40
<b>No impact at all</b>	6	5
<b>Don't know</b>	27	21

Q37. Competition for food and habitat from other big game animals, such as elk and white-tailed deer.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Major impact</b>	37	29
<b>Minor impact</b>	46	36
<b>No impact at all</b>	6	5
<b>Don't know</b>	11	9

Q38. Winterkill, that is, mule deer deaths resulting from starvation during the winter months.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Major impact</b>	33	26
<b>Minor impact</b>	44	35
<b>No impact at all</b>	3	2
<b>Don't know</b>	20	16

Q39. Poaching.

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Major impact</b>	15	12
<b>Minor impact</b>	53	41
<b>No impact at all</b>	9	7
<b>Don't know</b>	23	18

Q40. Mountain lions preying on mule deer.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Major impact</b>	43	34
<b>Minor impact</b>	38	30
<b>No impact at all</b>	6	5
<b>Don't know</b>	13	10

Q41. Coyotes preying on mule deer.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Major impact</b>	37	29
<b>Minor impact</b>	43	34
<b>No impact at all</b>	8	6
<b>Don't know</b>	12	10

Q42. In your opinion, what is the single most important factor that should be used to determine how many mule deer should be in the herd in the Sheep Mountain/Laramie area?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Habitat</b>	72	57
<b>The opportunity for hunters to hunt every year regardless of success.</b>	1	1
<b>A high chance of harvest success even if it means limited hunting opportunities</b>	18	14
<b>Other</b>	9	7

Q43. Would you support or oppose managing for trophy bucks in the Sheep Mountain/Laramie area if it meant more restrictions and reduced chances of hunting every year?

<b>Responses 85</b>	<b>%</b>	<b>n</b>
<b>Strongly support</b>	38	32
<b>Moderately support</b>	30	25
<b>Neither support or oppose</b>	7	6
<b>Moderately oppose</b>	9	8
<b>Strongly Oppose</b>	8	7
<b>Don't know</b>	8	7

Q44. Would you support an archery only/choose your weapon "Type 9" season in the Sheep Mountain/Laramie area? This means those holding a "Type 9" license would be limited to the archery season to hunt deer.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Strongly support</b>	28	22
<b>Moderately support</b>	20	16
<b>Neither support or oppose</b>	19	15
<b>Moderately oppose</b>	8	6
<b>Strongly Oppose</b>	24	19
<b>Don't know</b>	1	1

Q45. In the Sheep Mountain/Laramie area, do you prefer general seasons, which mean you could hunt every year, and have the ability to hunt multiple hunt areas, but possibly a reduced chance of harvest, or limited quota seasons? Limited quota seasons mean you might not be able to hunt every year in limited quota areas and may lose the opportunity to hunt multiple areas, but you would probably have a higher chance of harvest when you do hunt. Which do you prefer?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>General seasons</b>	29	23
<b>Limited quota seasons</b>	61	48
<b>No preference/don't know</b>	10	8

**Please tell us how likely you would be to do each of the following if you couldn't hunt mule deer in the Sheep Mountain/Laramie area every year.**

Q46. Hunt mule deer in other general hunt areas outside the Sheep Mountain/Laramie area every year.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very likely</b>	39	31
<b>Somewhat likely</b>	39	31
<b>Not at all likely</b>	18	14
<b>Don't know</b>	4	3

Q47. Hunt mule deer in other general hunt areas that are near the Sheep Mountain/Laramie area.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very likely</b>	39	31
<b>Somewhat likely</b>	39	31
<b>Not at all likely</b>	18	14
<b>Don't know</b>	4	3

Q48. Hunt mule deer in limited quota areas

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very likely</b>	40	32
<b>Somewhat likely</b>	38	30
<b>Not at all likely</b>	18	14
<b>Don't know</b>	4	3

Q49. Stop hunting mule deer until you could hunt in the Sheep Mountain/Laramie area

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very likely</b>	9	7
<b>Somewhat likely</b>	24	19
<b>Not at all likely</b>	63	50
<b>Don't know</b>	4	3

Q50. How acceptable or unacceptable is antlerless deer harvest as a mule deer management tool in the Sheep Mountain/Laramie area?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very Acceptable</b>	41	32
<b>Unsure/Neither</b>	15	12
<b>Unacceptable</b>	15	12
<b>Very Unacceptable</b>	25	20
<b>Don't know</b>	4	3

Q51. Why do you think antlerless harvest is an (acceptable/unacceptable) management tool in the Sheep Mountain/Laramie area?

It is an effective tool for deer management but should not be used very much until the deer herd increases.  
 how does anyone believe harvesting the female will increase the future population of the herd in this area  
 Based on the numbers of deer I currently see, the habitat is not at carrying capacity so there are not enough does to warrant a harvest. If the population was at capacity I would have not problem with harvesting of does. I base 75% of my opinions on sound biological facts and studies by the experts, the G&F.  
 there are no deer!  
 bucks don't grow deer, we need more fawns  
 Currently very low deer numbers so I am currently opposed to antlerless harvest. If or when mule deer numbers increase back to near management objectives then a limited amount of antlerless tags can be an acceptable management tool.  
 Depends on habitat conditions - if we are wintering more than the habitat can support than it is acceptable method if not then it is not acceptable.  
 If habitat and range conditions are not able to support the overall number of deer in the herd, herd reduction is one management option and doe harvest is a primary method of herd reduction. I am a meat hunter and a bow hunter. I own cabin property in Area 76. It would suit me just fine to increase doe harvest, IF scientifically justified, especially if it increased my bow hunting opportunities.  
 You can't build a deer herd by shooting females!  
 we have no fawns. Why take away the one thing that has the potential of creating fawns? I don't think ANYONE (regardless of age) should be shooting does or fawns right now!  
 It is a hard call. It seems like doe population is up a bit from the very bottom, but still not seeing bucks like before. Maybe we could afford to take some more does, but don't want to see us give up the limited gains we have seen overall recently in the herd (I do think it is a little bit better from the lowest levels seen a few years ago).  
 Make the herd fit the habitat, get proper buck/doe ratios.  
 Because I do not think there are enough to start with.  
 For those of us who don't trophy hunt, but instead prefer the meat and the time with family/friends, hunting does is a great option.  
 Are you serious? How can anyone honestly think it's okay to harvest does let alone fawns in a struggling herd?  
 don't know  
 The does are important for herd growth.  
 it should be used with research and data compiled about the deer population only as a management tool to ensure the population remains strong.  
 No.  
 From what I've read, if the doe/buck ratio is too high, the herd overall suffers.  
 if the numbers are up its a good management tool  
 There is not enough deer to justify killing a female.  
 does are the ones that produce fawns  
 Need more deer not less.  
 Doe' s may need to be taken to limit herd to the habitat  
 doesn't affect the population of good bucks much at all

Acceptable, only if carry capacity is known and exceeded.

I have only been hunting in WYO for 3 years, deer hunting only one year. I hear a lot of people talk about how the deer herds are down. from this info i would say its unacceptable to remove more deer by taking does.

unknown

Since years past when antlerless was legal population decreases and hasn't come back

If you have too many does not producing fawns they need to be culled.

It's a good way to manage future generations. I'm OK with it used as a management tool as long as it's not abused.

I do not mind shooting antlerless deer if that is what the WFGD determines is the best practice for the health of the herd.

Herd objectives must be able to have all options available

If you drive down any road in the hunt area, the only animals you will see are does/fawns and they would all get slaughtered. It is a terrible management tool and the deer population will suffer.

Doesn't seem necessary to me, the overall population is already down.

If the populations are at or above the management objective/carrying capacity that is fine, but needs to be managed on a limited quota basis. the only reason to hunt antlerless deer is when they are over populated hopefully it is very clear to those reading this that this is not the case for this mule deer herd

Not enough deer to harvest does

I don't trophy bowhunt -- I take what I can get.

If harvest of antlerless deer would improve the overall health of the herd, then I'd be all for it. Plus, it would provide additional hunting opportunities

If the herd size is limited by the number of available breeding bucks, harvesting antlerless deer is acceptable to reduce pressure on bucks. However, if inadequate forage is a major factor, then harvesting any deer would stretch the forage resources for all deer, but I would prefer a limited quota hunt harvesting bucks only. Whatever it takes to preserve the herd and bring the population to management objectives.

Antlerless harvest is the only way to actively manage mule deer and elk. Harvest of antlered animals takes only excess or surplus animals. If the population exceeds the carrying capacity of the habitat, obviously antlerless harvest should be considered. This is some of the wildlife management 101 the vast majority of the hunting public either don't or won't acknowledge or understand. It needs to remain a tool in the manager's toolbox.

deer buck/doe ratios need to be maintained or managed

Why wouldn't I? Antlerless harvest is the only harvest that can be used as a population management tool.

Some time s needed to control herd size and maintain a proper buck to doe ratio. Expands hunting opportunity particularly for new hunters and meat hunters.

Controls competition for food. I enjoy antlerless hunting.

It is very unacceptable due to low numbers

Maintain animal numbers to that of what the habitat will support

I hunt for meat first.

we dont have enough deer and killing the baby makers makes no sense

If its purpose is to help the population then it should be used.

Hard to sell the we don't have any deer left if you are still allowing doe tags

Need to build population.

Never shoot mule deer does. BAD management. The habitat is there. I only know area 74, but there are FAR FEWER deer than could damage any habitat.

I am unsure because it does not seem like there are many does either

the removal of none productive Does is important to the use of winter feed grounds

no deer now, whats the point?

Typically, the archery permit is either sex and I normally see does and fawns. Because so many deer hunters seem to be after the rack, it could increase deer numbers.

see to many does and very little bucks need harvest more does yes it is

If the deer population is suffering, then I would not allow any antlerless deer harvest because you need fawn recruitment to grow the herd. If you kill does your fawn recruitment will go down.

We've seen more deer every deer but I'm not sure if numbers are good enough to allow doe harvest

Acceptable if the numbers are there and that will increase the overall health of the herd

There aren't many deer in the area and more does mean more fawns.

If the herd will support the taking of antlerless animals then I think it should be used. I would rather see someone take a doe than a small buck. Many hunters will shoot an immature buck over a doe if given the chance.

Q52. Do you think the quality of mule deer habitat in the Sheep Mountain/Laramie area has improved, remained the same, or gotten worse in the past 5 years?

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Improved</b>	15	12
<b>Remained the Same</b>	34	26
<b>Gotten Worse</b>	36	28
<b>Don't know</b>	15	12

Q53. In your opinion, how important is the QUALITY of habitat on SUMMER ranges in determining the survival of mule deer in the Sheep Mountain/Laramie herd.

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Very Important</b>	62	48
<b>Moderately Important</b>	29	23
<b>A little Important</b>	4	3
<b>Not at all Important</b>	0	0
<b>Don't know</b>	5	4

Q54. How important is the AMOUNT of habitat on SUMMER ranges in determining the survival of mule deer in the Sheep Mountain/Laramie herd.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very Important</b>	63	50
<b>Moderately Important</b>	28	22
<b>A little Important</b>	4	3
<b>Not at all Important</b>	0	0
<b>Don't know</b>	5	4

Q55. In your opinion, how important is the QUALITY of habitat on WINTER ranges in determining the survival of mule deer in the Sheep Mountain/Laramie herd.

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very Important</b>	85	67
<b>Moderately Important</b>	10	8
<b>A little Important</b>	1	1
<b>Not at all Important</b>	0	0
<b>Don't know</b>	4	3

Q56. How important is the AMOUNT of habitat on WINTER ranges in determining the survival of mule deer in the Sheep Mountain/Laramie herd?

<b>Responses 77</b>	<b>%</b>	<b>n</b>
<b>Very Important</b>	86	66
<b>Moderately Important</b>	11	9
<b>A little Important</b>	0	0
<b>Not at all Important</b>	0	0
<b>Don't know</b>	3	2

Q57. How would you rate the current Quality of deer habitat in the Sheep Mountain/Laramie area?

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Excellent</b>	15	11
<b>Fair</b>	55	43
<b>Poor</b>	24	19
<b>Don't know</b>	6	5

Q58. How important do you think managing the QUALITY of deer habitat in the Sheep Mountain/Laramie area should be to the Wyoming Game and Fish?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very Important</b>	75	58
<b>Moderately Important</b>	25	20
<b>A little Important</b>	0	0
<b>Not at all Important</b>	0	0
<b>Don't know</b>	1	1

Q59. How important do you think managing the AMOUNT of deer habitat in the Sheep Mountain/Laramie area should be to the Wyoming Game and Fish Department?

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Very Important</b>	68	53
<b>Moderately Important</b>	28	22
<b>A little Important</b>	3	2
<b>Not at all Important</b>	0	0
<b>Don't know</b>	1	1

Q60. In the last 5 years, have habitat conditions influenced the number of mule deer in the Sheep Mountain/Laramie area to increase, remain the same, decrease, or did the habitat conditions not influence the number of mule deer?

<b>Responses 78</b>	<b>%</b>	<b>n</b>
<b>Increase</b>	6	5
<b>Remain the Same</b>	19	15
<b>Decrease</b>	40	31
<b>Habitat conditions did not influence</b>	8	6
<b>Don't Know</b>	27	21

Q61. Do you agree or disagree that there is enough WINTER habitat in the Sheep Mountain/Laramie area to sustain the current size of the mule deer population?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Strongly agree</b>	14	11
<b>Moderately agree</b>	23	18
<b>Neither agree nor disagree</b>	11	9
<b>Moderately disagree</b>	13	10
<b>Strongly disagree</b>	14	11
<b>Don't Know</b>	25	20

Q62. Who do you think has the most influence and control of habitat on deer WINTER ranges for the Sheep Mountain/Laramie herd?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Bureau of Land Management (BLM)</b>	9	7
<b>Private Landowners</b>	44	35
<b>US Forest Service</b>	24	19
<b>Wyoming Game and Fish Dept.</b>	8	6
<b>Wyoming State Land Office</b>	0	0
<b>Don't know</b>	14	11
<b>Other</b>	1	1

## Opinions on Issues Related to Disturbance

Q63. Does collecting shed antlers in the winter from areas where mule deer are concentrated have a major impact, a minor impact, or no impact at all on the deer?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Major impact</b>	43	33
<b>Minor impact</b>	30	24
<b>No impact at all</b>	16	13
<b>Don't know</b>	11	9

Q64. Would you support or oppose efforts by the Wyoming Game and Fish Department to regulate the hunting or collecting of shed antlers during the winter in areas where mule deer are concentrated in the Sheep Mountain/Laramie area?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Strongly support</b>	50	39
<b>Moderately support</b>	29	23
<b>Neither support or oppose</b>	11	9
<b>Moderately oppose</b>	3	2
<b>Strongly oppose</b>	6	5
<b>Don't know</b>	1	1

Q65. How acceptable or unacceptable is the amount of ATV use in the Sheep Mountain/Laramie area where you most often hunted mule deer in the past 5 years?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Very acceptable</b>	10	8
<b>Acceptable</b>	19	15
<b>Unsure/neither</b>	14	11
<b>Unacceptable</b>	32	25
<b>Very unacceptable</b>	25	20

Q66. How acceptable or unacceptable is the amount of ATV use on mule deer winter ranges in the Sheep Mountain/Laramie area?

<b>Responses 68</b>	<b>%</b>	<b>n</b>
<b>Very acceptable</b>	6	4
<b>Acceptable</b>	13	9
<b>Unsure/neither</b>	9	6
<b>Unacceptable</b>	24	16
<b>Very unacceptable</b>	22	15
<b>Don't know</b>	26	18

Q67. Would you support or oppose efforts to regulate the use of ATV's during the WINTER in the Sheep Mountain/Laramie area where mule deer are concentrated?

<b>Responses 79</b>	<b>%</b>	<b>n</b>
<b>Strongly support</b>	62	49
<b>Moderately support</b>	20	16
<b>Neither support or oppose</b>	9	7
<b>Moderately oppose</b>	3	2
<b>Strongly oppose</b>	3	2
<b>Don't know</b>	4	3