2013 - JCR Evaluation Form

| SPECIES: Mule Deer |  | PERIOD: 6/1/2013-5/31/2014 |
| :--- | :--- | :---: |
| HERD: MD207 - PAINTROCK |  |  |
| HUNT AREAS: 41, 46-47 |  | PREPARED BY: |
|  |  |  |
|  |  |  |

## Population Size - Postseason

$\square$ MD207-POPULATION - MD207 - OBJECTIVE



Number of Hunters


Harvest Success
$\square$ MD207 - Hunter Success \% $\quad \begin{aligned} & \text { MD207 - Active License Success } \\ & \%\end{aligned}$


## Active Licenses


$\square$ MD207 - Days


Postseason Animals per 100 Females

for Mule Deer Herd MD207 - PAINTROCK

|  |  | MALES |  |  |  | FEMALES |  | JUVENILES |  | Tot Cls | Cls <br> Obj | Males to 100 Females |  |  |  | Young to |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Post Pop | Ylg | Adult | Total | \% | Total | \% | Total | \% |  |  | Ylng | Adult | Total | $\begin{gathered} \text { Conf } \\ \text { Int } \end{gathered}$ | $\begin{aligned} & 100 \\ & \text { Fem } \end{aligned}$ | Conf Int | $\begin{gathered} 100 \\ \text { Adult } \end{gathered}$ |
| 2008 | 10,800 | 107 | 152 | 259 | 14\% | 993 | 54\% | 604 | 33\% | 1,856 | 1,067 | 11 | 15 | 26 | $\pm 2$ | 61 | $\pm 4$ | 48 |
| 2009 | 10,700 | 91 | 176 | 267 | 13\% | 1,040 | 52\% | 689 | 35\% | 1,996 | 1,210 | 9 | 17 | 26 | $\pm 2$ | 66 | $\pm 4$ | 53 |
| 2010 | 10,100 | 121 | 180 | 301 | 14\% | 1,121 | 53\% | 682 | 32\% | 2,104 | 1,058 | 11 | 16 | 27 | $\pm 2$ | 61 | $\pm 3$ | 48 |
| 2011 | 9,400 | 84 | 193 | 277 | 14\% | 1,078 | 55\% | 612 | 31\% | 1,967 | 1,209 | 8 | 18 | 26 | $\pm 2$ | 57 | $\pm 3$ | 45 |
| 2012 | 9,200 | 87 | 147 | 234 | 14\% | 877 | 53\% | 542 | 33\% | 1,653 | 1,060 | 10 | 17 | 27 | $\pm 2$ | 62 | $\pm 4$ | 49 |
| 2013 | 9,500 | 98 | 141 | 239 | 15\% | 789 | 49\% | 570 | 36\% | 1,598 | 904 | 12 | 18 | 30 | $\pm 3$ | 72 | $\pm 5$ | 55 |


| Hunt <br> Area | Type | Dates of Seasons |  | Quota | Limitations |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Opens | Closes |  |  |
| 41 |  | Oct. 15 | Oct. 24 |  | General license; any deer |
|  | 3 | Nov. 1 | Nov. 30 | 50 | Limited quota; any white-tailed deer |
|  | 6 | Oct. 1 | Oct. 31 | 50 | Limited quota; doe or fawn valid on or within one-half $(1 / 2)$ mile of irrigated land |
| 41, 47 | 8 | Oct. 1 | Nov. 30 | 100 | Limited quota; doe or fawn whitetailed deer |
| 46 |  | Oct. 15 | Oct. 24 |  | General license; antlered deer |
| 47 |  | Oct. 15 | Oct. 24 |  | General licenses; any deer |
| 47, 51 | 3 | Oct. 15 | Nov. 30 | 75 | Limited quota; any white-tailed deer |
| Archery $41,46,47$ |  | Sept. 1 | Sept. 30 |  | Refer to Section 3 of this Chapter |


| Hunt Area | Type | Quota change from 2012 |
| :---: | :---: | :---: |
| 47 | 6 | -50 |
|  |  |  |
|  |  |  |

## Region $\mathbf{R}$ nonresident quota $=\mathbf{7 5 0}$ licenses

## Management Evaluation

Current Management Objective: $\mathbf{1 3 , 0 0 0}$
2012 Postseason Population Estimate: ~9,200
2013 Proposed Postseason Population Estimate: ~8,800

The population objective for the Paintrock mule deer herd was set at 13,000 deer in 1995 when the herd unit (HU) was created from two pre-existing herd units (with addition of Area 41). Since the objective was only a combination of old objectives, no public input was solicited. A POP-II model estimated the herd well below the 13,000 deer level. The objective and management (recreational) were unchanged following reviews in 2002. It was believed the population may increase when drought conditions subsided, but that did not occur. In 2007, an attempt was made to lower the objective, but other priorities precluded further review.

Human activities are rarely severe enough in this HU to affect deer survival and productivity. Bentonite mining and oil/gas development occur on the west side of the herd unit where habitats are not as optimal. Farming has altered riparian habitats on private land and has increased available forage; however, landowner tolerance is low. Antlerless deer hunting seasons are driven by landowner complaints.

Climatic factors affect this deer herd more than human-caused factors. Drought is the most important factor influencing survival and productivity of this deer herd. Drought conditions occurred in 2000-04 and 2012. Affects of drought on upland vegetation resulted in a shift of deer to agricultural fields. Landowners have a low tolerance of deer.

With only two sagebrush browse transect established in this herd unit, data is insufficient to draw any inferences across the entire HU. These transects were established in 2004. One transect in the Brokenback drainage has been of limited utility in gauging browsing levels since production has been limited, even in non-drought years. Utilization of sagebrush along that transect has ranged from $<1 \%$ to $3 \%$ (2005-2011; average=2.18). The other transect (Alkali) is in the northern portion of the HU. That site is only slightly more productive than Brokenback. Utilization averaged $10.9 \%$, well below levels that should affect plant health. Weather (snow) probably determines how many deer concentrate near this site.

Survival and productivity have been affected by drought, as evident in low fawn:doe ratios. During drought of 2000-04, fawn:doe ratios averaged 54:100. In years with "normal" precipitation (2005-12), 61 fawn:100 does have been observed. The 20-year average was 59:100. Unsworth et al. (1999) suggested that a winter fawn:doe ratio above $66: 100$ would result in an increasing population. This population is not as productive as other herds in the Basin or state, even in years with favorable weather.

The total number of deer observed during classification surveys has been declining over the past 20 years. In 1993 and 1994, 3000 and 3500 deer were surveyed, respectively. Numbers dropped to 2500 or below for the remainder of the 1990s. During drought of 2000-04, around 2000 deer were observed. Number of deer classified has rarely been over 2000 deer since then (2005-12) with the exception of 2007 ( 2865 deer surveyed). With low fawn:doe ratios, it was expected this population was decreasing (Unsworth et. al. 1999). Farm land is surveyed from the ground and higher elevation winter ranges have been surveyed using a helicopter. Flight budgets have not kept up with cost, so less time has been allowed to locate deer; therefore, survey effort has decreased.

Maintaining buck:doe ratios between 25-29:100 has also been a goal for management of this HU (recreational management). During the mid to late 1980s, ratios increased from 15:100 to around 30:100 in the early 1990s. A gradual decline in buck:doe ratios occurred through the late 1990s (to 16:100 in 2000), followed by an increase to $30: 100$ in the mid-2000s. Between 2008-12, the buck ratio has been stable at approximately 27:100. Few large bucks ( $>25$ "antler width class) are observed in this population (Fig. 1). Few changes to general license hunting seasons have occurred in response to buck:doe ratios.
Buck harvest can be dependent on hunting season regulations, number of bucks available (population), hunter numbers (especially nonresident), snow depth and weather at higher elevations (migration), and access (to private land and on public land roads [snow depth]). Structure of the hunting seasons in this HU has remained fairly constant over the past 20 years. General licenses have opened Oct. 15 to Nov. 4. In some years, some hunt areas have changed between "any deer" and "antlered deer" depending on trends in previous year's sex and age ratios. When the buck:doe ratio dropped to $16: 100$ in 2001, a 4 -point antler restriction was enacted during the 2002 and 2003 hunting seasons. Buck harvest decreased significantly and hunter effort increased those two years. Nonresident hunters typically take $60 \%$ of all harvested bucks but only make up $40 \%$ of all hunters (Fig. 2). Many nonresidents harvest the first buck they see, thus many small ( $>20$ " antler spread) deer are harvested (Fig. 3). When Region R was
created (1996), the nonresident quota was 1500 hunters. That level was adjusted when buck ratios began to decline, and has been at 1000 since 2004.

Antlerless (doe/fawn) licenses were issued in response to landowner concerns of too many deer in crops and may reflect population level. In the 1980s through early 1990s, 600-1000 doe/fawn licenses were issued (1986-1993 average $=690$; Fig. 4). Between 1995-99, 0-50 doe/fawn licenses were issued. Number of doe/fawn licenses increased to between 350-500 during 19972011, and only 200 were issued last year. For 2013, 100 doe/fawn licenses are proposed. Does taken on general licenses may reflect ease with which hunters can find bucks (Fig. 1).

Spreadsheet models have replaced POP-II for estimating populations of big game species. The model selected for this herd (constant juvenile, constant adult survival) estimated this population was at objective ( 13,000 deer) through the late 1990s. Those estimates were higher than estimates produced by POP-II population models. Beginning with the extended drought in 200004, this population began decreasing. By post-season 2012, the population was estimated at approximately 9000 deer.

Several indices suggest the Paintrock mule deer population has declined since the early 1990s, in agreement with the population model. Total number of deer classified, fawn:doe ratios, buck harvest, doe harvest, and number of doe/fawn licenses needed to address crop depredation have all declined. Buck:doe ratios have recently remained stable, however that may be more of a factor of less does in the population. Numbers of doe/fawn licenses for the 2013 season are proposed to be as low as needed to address crop depredation. Hunt areas without farmland are proposed to change to "antlered deer" on general licenses. Many hunters have urged more conservative buck seasons (4-points or better) to increase buck numbers to previous levels and to increase number of trophy ( $>25$ " antler width) bucks available. Changes to the general license season and/or nonresident quota are usually only proposed if buck:doe ratios indicate drastic declines.

At this time, we are recommending to maintain the nonresident hunter quota for Region R at 1000 hunters. Buck:doe ratios in the Region have been stable for the past five years. Decreasing the quota may increase buck numbers and allow some to grow older (larger).

## Literature Cited

Unsworth, J.W., D.F. Pac, G. C. White, and R.M. Bartman. 1999. Mule deer survival in Colorado, Idaho, and Montana. Journal of Wildlife Management 36:315-326.

Figure 1. Antler width class of bucks classified in the Paintrock mule deer herd, 2007-2012.


Figure 2. Buck harvest by resident and nonresident hunters in the Paintrock mule deer herd unit and the nonresident hunter quota for Region R, 1990-2012.


Figure 3. Antler width class of harvested bucks checked in the field in the Paintrock mule deer herd, 2006-2012.


Figure 4. Number of doe/fawn licenses, total doe harvest, and doe harvest on general licenses for the Paintrock mule deer herd, 1983-2012.

Clear for
CJ,CA Model
SCJ, SCAN
TSJ, CA Model

Population Estimates from Top Model

| CJ,CA | Constant Juvenile \& Adult Survival |
| :--- | :--- |
| SCJ,SCA | Semi-Constant Juvenile \& Semi-Constant Adult Survival |
| TSJ,CA | Time-Specific Juvenile \& Constant Adult Survival |






Comments:


Mule Deer (MD207) - Paintrock
HA 41, 44-47, 49
Revised - $3 / 96$


2013 - JCR Evaluation Form

| SPECIES: Mule Deer |  |  | PERIOD: 6/1/2013-5/31/2014 |
| :---: | :---: | :---: | :---: |
| HERD: MD208-SOUTHWEST BIGHORNS |  |  |  |
| HUNT AREAS: 35-37, 39-40, 164 |  |  | PREPARED BY: BART KROGER |
|  | 2008-2012 Average | $\underline{2013}$ | 2014 Proposed |
| Population: | 14,320 | 12,731 | 11,857 |
| Harvest: | 1,562 | 985 | 955 |
| Hunters: | 2,441 | 1,965 | 1,900 |
| Hunter Success: | 64\% | 50\% | 50\% |
| Active Licenses: | 2,687 | 2,041 | 2,000 |
| Active License Percent: | 58\% | 48\% | 48\% |
| Recreation Days: | 11,121 | 7,990 | 8,000 |
| Days Per Animal: | 7.1 | 8.1 | 8.4 |
| Males per 100 Females | 31 | 27 |  |
| Juveniles per 100 Females | 58 | 54 |  |
| Population Objective: |  |  | 28,000 |
| Management Strategy: |  |  | Recreational |
| Percent population is above (+) or below (-) objective: |  |  | -54.5\% |
| Number of years population has been + or - objective in recent trend: |  |  | 20 |
| Model Date: |  |  | 4/1/2014 |
| Proposed harvest rates (percent of pre-season estimate for each sex/age group): |  |  |  |
|  |  | JCR Year | Proposed |
|  | Females $\geq 1$ year old: | 3.1\% | 3.1\% |
|  | Males $\geq 1$ year old: | 27.3\% | 30.5\% |
|  | Juveniles (< 1 year old): | 0.3\% | 0.4\% |
|  | Total: | 7.0\% | 7.5\% |
| Proposed ch | in post-season population: | -2\% | -2\% |

## Population Size - Postseason

$\square$ MD208-POPULATION - MD208-OBJECTIVE


## Harvest



Number of Hunters


Harvest Success
$\square$ MD208 - Hunter Success \% MD208 - Active License Success


## Active Licenses



Days per Animal Harvested
$\square$ MD208 - Days


Postseason Animals per 100 Females
$\square$ MD208 - Males $\square$ MD208 - Juveniles


2008-2013 Postseason Classification Summary
for Mule Deer Herd MD208 - SOUTHWEST BIGHORNS

|  |  | MALES |  |  |  | FEMALES |  | JUVENILES |  | Tot Cls | Cls <br> Obj | Males to 100 Females |  |  |  | Young to |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Post Pop | Ylg | Adult | Total | \% | Total | \% | Total | \% |  |  | Ylng | Adult | Total | $\begin{gathered} \text { Conf } \\ \text { Int } \end{gathered}$ | $\begin{aligned} & 100 \\ & \text { Fem } \end{aligned}$ | Conf Int | $\begin{gathered} 100 \\ \text { Adult } \end{gathered}$ |
| 2008 | 20,458 | 120 | 215 | 335 | 16\% | 1,101 | 52\% | 686 | 32\% | 2,122 | 1,210 | 11 | 20 | 30 | $\pm 2$ | 62 | $\pm 4$ | 48 |
| 2009 | 19,085 | 142 | 249 | 391 | 16\% | 1,315 | 55\% | 682 | 29\% | 2,388 | 914 | 11 | 19 | 30 | $\pm 2$ | 52 | $\pm 3$ | 40 |
| 2010 | 18,993 | 93 | 185 | 278 | 16\% | 930 | 53\% | 553 | 31\% | 1,761 | 1,111 | 10 | 20 | 30 | $\pm 2$ | 59 | $\pm 4$ | 46 |
| 2011 | 18,670 | 56 | 181 | 237 | 17\% | 721 | 52\% | 419 | 30\% | 1,377 | 1,094 | 8 | 25 | 33 | $\pm 3$ | 58 | $\pm 4$ | 44 |
| 2012 | 18,993 | 56 | 141 | 197 | 16\% | 633 | 52\% | 383 | 32\% | 1,213 | 1,152 | 9 | 22 | 31 | $\pm 3$ | 61 | $\pm 5$ | 46 |
| 2013 | 18,800 | 76 | 153 | 229 | 15\% | 858 | 55\% | 464 | 30\% | 1,551 | 0 | 9 | 18 | 27 | $\pm 2$ | 54 | $\pm 4$ | 43 |

SOUTHWEST BIGHORNS MULE DEER HERD (MD208)

| Hunt <br> Area | Type | Dates of Seasons <br> Opens <br> Closes | Quota | License | Limitations |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 35 |  | Oct. 15 | Oct. 31 |  | General | Any deer $\quad$ (3) points

Region M Nonresident general license quota - 1000 licenses

| Hunt Area | License Type | Quota change from 2013 |
| :---: | :---: | :---: |
| 37 | 6 | -50 |
| 40 | 6 | -50 |
| 164 | 6 | -50 |
| HU Total | $\mathbf{6}$ | $\mathbf{- 1 5 0}$ |

## Management Evaluation

Current Postseason Population Management Objective: 28,000
Management Strategy: Recreational
2013 Postseason Population Estimate: 12,700
2014 Proposed Postseason Population Estimate: 11,900

## Herd Unit Issues

Since 2008, the population model simulates a decline of about $22 \%$ in deer numbers. Currently, perceptions of field personnel as well as most landowners and hunters feel this deer herd has declined as much as $30-50 \%$ in recent years. Because of these deer declines and poor hunting conditions, total hunter numbers have declined by as much as $25 \%$ despite unchanged season structures. The herd unit is about $70 \%$ public land and $30 \%$ private land. Much of the herd unit is supported by vast areas of cheatgrass, due to large wildfires in 1996. Little to no regeneration of sagebrush and native herbaceous species has occurred since those fires. Deer densities are typically higher in the mid to upper elevations, while the lower elevation desert areas support fewer deer. Poor habitat conditions, long-term drought, and crop damage continue to be major management concerns for this herd. The herd objective and management strategy will be evaluated in 2014.

## Weather

The winter of 2010/11 was severe enough to have caused significant mortality in this herd. After this winter event, reduced numbers of deer were apparent throughout the herd unit. Since then, winter conditions has been sporadic, with 2011/12 being mostly mild and 2012/13 and 2013/14 being slightly severe with persistent snow cover throughout the winter. Overall, annual drought conditions continue to persist, with periodic moisture events occurring during the year. Spring and early summer moisture in 2010 and 2011 was above normal, but 2012 and 2013 was below normal during the growing season. These cyclic weather events for the most part appears to be having mostly negative effects on this deer herd since overall numbers continue to decline.

## Habitat

Habitat conditions have declined in this herd unit since the onset of drought in the 1990's. With reduced moisture, spring green-up and annual plant growth has been minimal in most years. Lack of precipitation has also affected available water in many stock reservoirs and perennial streams. Two sagebrush transects were established in this herd unit in September 2004 (Appendix C). Overall, annual production (leader growth) for these transects has average around 1.5 cm . Winter utilization remains low at about $10 \%$ for these transects. Until considerable moisture regimes return, and forage quality improves, herd growth and survival will continue to be adversely affected by reduced habitat conditions caused by these long-term drought conditions and cheatgrass invasion.

## Field Data

Both aerial and ground surveys are used in obtaining post-season classification data for this deer herd. Adequate sample sizes are typically exceeded, mainly because routine classification routes for each hunt area are maintained. The number of deer classified has declined dramatically in recent years. In 2009 , nearly 2,400 deer where classified, while in 2013 only 1,550 were classified; a decline of $35 \%$. Although buck and fawn ratios have remained favorable, the declines in numbers are of significant concern. Post-season fawn and buck ratios have remained fairly consistent since 2008, with an average of 58:100 fawns and 30:100 bucks.

## Harvest Data

Recent harvest statistics further support declining deer numbers in this herd. Since 2008, overall harvest has decreased by $44 \%$, while hunter numbers have declined by $25 \%$. During this same period, harvest success has dropped by $20 \%$, with 2013 being the lowest hunter success ever recorded for this herd unit. Hunter effort has increased by 1.3 days since 2008. These harvest trends, along with population trends are reflective of field personnel perceptions that deer numbers have declined significantly and hunting has gotten much tougher in recent years.

Nearly $80 \%$ of hunter survey comments, relative to deer numbers or hunting in this herd unit the past two years have overwhelmingly supported declining deer numbers or poor hunting. Hunter satisfaction surveys also reveal this herd unit has had declining satisfaction ratings in recent years.

## Population

For the most part, the semi-constant juvenile \& semi-constant adult survival (SCJ, SCA) spreadsheet model best represents field personnel perceptions of long-term population trends for this herd. Although the current spreadsheet model (SCJ, SCA) has the second lowest AICc value (55) and the highest Fit value (55) compared to the other two models, it does support a better representation of recent classification and harvest data, as well as reflecting field personnel perceptions of trends in the population. Based on model estimates, this deer population has declined by $26 \%$ since 2004. Similarly, buck harvest has declined by $29 \%$, and the number of deer classified annually has declined by $35 \%$. These data, along with field personnel perceptions and hunter comments, further support these population declines and trends.

## Management Summary

Hunting seasons for this herd unit mostly consist of general license hunting for about 2 weeks, with an "any" deer limitation in most areas. Hunt area 37 is the only limited quota hunt area in the herd unit. No changes to the general license seasons will be made, along with the quota in area 37. The Region M nonresident quota will remain at 1000. On average, the Region M quota has left over licenses. Some reductions and elimination of Type 6 licenses in areas 37, 40 and 164 will occur. Damage issues in these areas have mostly subsided; therefore less harvest is warranted. The projected 2014 harvest is about 950 deer. It's expected that this deer herd will continue to struggle in growth because of poor habitat conditions and prolonged drought, despite these conservative hunting seasons.






Revised 4/2006

2013 - JCR Evaluation Form

| SPECIES: Mule Deer |  | PERIOD: 6/1/2013-5/31/2014 |
| :---: | :---: | :---: |
| HERD: MD209-BASIN |  |  |
| HUNT AREAS: 125, 127 |  | PREPARED BY: BART KROGER |
| 2008-2012 Average | $\underline{2013}$ | 2014 Proposed |
| Population: 3,040 | 2,665 | 2,542 |
| Harvest: 230 | 184 | 172 |
| Hunters: 387 | 333 | 325 |
| Hunter Success: 59\% | 55\% | 53\% |
| Active Licenses: 415 | 371 | 350 |
| Active License Percent: 55\% | 50\% | 49\% |
| Recreation Days: 1,831 | 1,300 | 1,200 |
| Days Per Animal: 8.0 | 7.1 | 7.0 |
| Males per 100 Females 30 | 37 |  |
| Juveniles per 100 Females 54 | 49 |  |
| Population Objective: |  | 3,600 |
| Management Strategy: |  | Recreational |
| Percent population is above (+) or below (-) objective: |  | -26.0\% |
| Number of years population has been + or - objective in rece | nd: | 7 |
| Model Date: |  | 4/1/2014 |
| Proposed harvest rates (percent of pre-season estimate for each sex/age group): |  |  |
|  | JCR Year | Proposed |
| Females $\geq 1$ year old: | 4.4\% | 3.8\% |
| Males $\geq 1$ year old: | 21.1\% | 21.7\% |
| Juveniles (<1 year old): | 0.2\% | 0.1\% |
| Total: | 6.3\% | 6.3\% |
| Proposed change in post-season population: | -9\% | -5\% |

## Population Size - Postseason

```
\(\square\) MD209 - POPULATION - MD209 - OBJECTIVE
```



## Harvest



Number of Hunters


Harvest Success
$\square$ MD209 - Hunter Success \% MD209 - Active License Success


## Active Licenses



Days per Animal Harvested
$\square$ MD209 - Days


Postseason Animals per 100 Females

for Mule Deer Herd MD209-BASIN

| Year | Post Pop | MALES |  |  |  | FEMALES |  | JUVENILES |  | Tot Cls | $\begin{aligned} & \text { Cls } \\ & \text { Obj } \end{aligned}$ | Males to 100 Females |  |  |  | Young to |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Ylg | Adult | Total | \% | Total | \% | Total | \% |  |  | Ylng | Adult | Total | $\begin{gathered} \text { Conf } \\ \text { Int } \end{gathered}$ | $\begin{aligned} & 100 \\ & \text { Fem } \end{aligned}$ | Conf Int | $\begin{gathered} 100 \\ \text { Adult } \end{gathered}$ |
| 2008 | 3,117 | 36 | 67 | 103 | 14\% | 388 | 54\% | 224 | 31\% | 715 | 808 | 9 | 17 | 27 | $\pm 3$ | 58 | $\pm 5$ | 46 |
| 2009 | 2,858 | 27 | 84 | 111 | 14\% | 470 | 57\% | 239 | 29\% | 820 | 679 | 6 | 18 | 24 | $\pm 3$ | 51 | $\pm 4$ | 41 |
| 2010 | 3,075 | 60 | 96 | 156 | 20\% | 435 | 54\% | 208 | 26\% | 799 | 635 | 14 | 22 | 36 | $\pm 4$ | 48 | $\pm 4$ | 35 |
| 2011 | 3,119 | 25 | 65 | 90 | 17\% | 274 | 53\% | 156 | 30\% | 520 | 811 | 9 | 24 | 33 | $\pm 5$ | 57 | $\pm 7$ | 43 |
| 2012 | 3,015 | 27 | 49 | 76 | 16\% | 236 | 51\% | 150 | 32\% | 462 | 878 | 11 | 21 | 32 | $\pm 5$ | 64 | $\pm 8$ | 48 |
| 2013 | 2,700 | 30 | 58 | 88 | 20\% | 236 | 54\% | 116 | 26\% | 440 | 0 | 13 | 25 | 37 | $\pm 5$ | 49 | $\pm 7$ | 36 |

## 2014 HUNTING SEASONS BASIN MULE DEER HERD (MD209)

| Hunt <br> Area | Type | Dates of Seasons <br> Opens |  | Closes | Quota | License |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| Hunt Area | License Type | Quota change from 2013 |
| :---: | :---: | :---: |
| 125 | 6 | -25 |
| 127 | 6 | -50 |
| HU Total | $\mathbf{6}$ | $\mathbf{- 7 5}$ |

## Management Evaluation

Current Postseason Population Management Objective: 3,600
Management Strategy: Recreational
2013 Postseason Population Estimate: 2,700
2014 Proposed Postseason Population Estimate: 2,500

## Herd Unit Issues

The 2013 post-season population estimate is $25 \%$ below objective. Long-term model trends are somewhat questionable, but since the late 2000 's, the model trend reflects a declining populations which mirrors that of field personnel perceptions. Deer densities in this herd unit are higher on and around private irrigated lands, whereas the dry desert areas support much fewer deer. Poor habitat conditions, long-term drought, and recent EHD outbreaks continue to be major management concerns for this herd. Much of the herd unit is arid desert shrubland, thus limiting the options for vegetation treatment because of the potential for cheatgrass invasion. Since 2006, five guzzlers have been installed to provide additional water sources for deer.

## Weather

The winters of 2011-12 and 2012-13 were mild with low snowpack resulting in mostly good over winter survival. However, the winter of 2010-11 along with the dry spring and summer of 2012 appeared to have been severe enough to cause some die-off and reduced survival. Overall, annual drought conditions continue to persist, with periodic moisture events occurring during the year. Spring and early summer moisture in 2010 and 2011 was above normal, but 2012 and 2013 were below normal. These cyclic weather events for the most part appear to be having mostly negative effects on this deer herd, since overall populations numbers continue to decline.

## Habitat

Most of this herd unit lies within a 5-9" precipitation zone, with limited opportunity to increase forage quality and abundance of native plant communities. Both herbaceous and shrub growth has been minimal the past three years, except in 2011, when spring precipitation was well above normal. Drought conditions have also affected available water in many stock reservoirs and perennial streams. One sagebrush transect (5-Mile Creek) was established in this herd unit in 2004 (Appendix C). Average sagebrush leader growth since 2008 has average $3-4 \mathrm{~cm}$, with utilization levels at about $15 \%$. Overall, habitat conditions in this herd unit are considered poor to fair at best because of past long-term drought. Until normal moisture regimes return, herd growth and survival will be limited by current habitat conditions.

## Field Data

Both aerial and ground classifications surveys are used in obtaining post-season buck and fawn ratio for this deer herd. Routine classification routes for each hunt area have been maintained in order to reflect general trends in deer numbers over time. The number of deer classified has declined dramatically in recent years. In 2009, nearly 820 deer where classified, while in 2013 only 440 were classified; a decline of $46 \%$. For the most part, buck and fawn ratios have remained favorable in recent years, with a 6-year average of 32 bucks and 54 fawns per 100 does.

Spotlight surveys along Gooseberry Creek in area 125 have also been used to monitor relative trends in deer densities along Gooseberry Creek. Based on these surveys, the number of deer counted has declined by about $75 \%$ since the early 1990 's, $50 \%$ since the late 1990 's, and has stayed fairly stable through the 2000 's, with roughly about 100 deer being observed annually in recent years. These declining trends are also reflective of field personnel perceptions. In addition, during pre-season setting meetings in Thermopolis and Worland in 2012, many sportsmen and landowners expressed concerns over significant declines of mule deer in recent years in the southern Bighorn Basin.

## Harvest Data

Recent harvest statistics do support a declining deer population. Since 2009, overall buck harvest during the general season has declined by $42 \%$. However, hunter success and effort as remained mostly stable. Most hunters and landowners continue to report deer numbers are poor and hunting is tough. However, based on the 2013 hunter satisfaction survey, over $70 \%$ of the hunters surveyed in this herd unit indicted they were either satisfied or very satisfied with their overall hunting experience.

## Population

The time-specific juvenile \& constant adult survival (TSJ, CA) spreadsheet model was chosen to represent this herd based on its population trend. This model had the highest AIC value ( $\mathrm{n}=128$ ) of all the models, yet its trends reflect that of field personnel perceptions, along with most hunters and landowners. Declines in classification sample sizes also mirror population trends. The model is considered to be a fair representative of herd trend and population estimate. Because of these declining trends, and that we are below objective by $25 \%$, we will be staying with mostly conservative seasons until deer numbers appear to be increasing.

## Management Summary

Type 6 licenses in area 125 will be eliminated, and in area 127 will be reduced by 50 due to very few deer and no damage issues occurring. Damage issues have subsided in both areas in recent
years, and hunter complaints are heard annually regarding the over-harvest of mule deer in this area. The potential still exists for damage to occur in area 127; therefore some doe/fawn harvest is still warranted. The projected 2014 harvest is roughly 170 deer. Despite conservative hunting seasons, it's predicted this deer herd will continue to struggle because of poor habitat and prolonged drought conditions.







Comments:


2013 - JCR Evaluation Form

| SPECIES: Mule Deer |  |  | PERIOD: 6/1/2013-5/31/2014 |
| :---: | :---: | :---: | :---: |
| HERD: MD210-GREYBULL RIVER |  |  |  |
| HUNT AREAS: 124, 165 |  |  | PREPARED BY: TOM EASTERLY |
|  | 2008-2012 Average | $\underline{2013}$ | 2014 Proposed |
| Population: | 4,900 | 4,300 | 4,200 |
| Harvest: | 832 | 652 | 600 |
| Hunters: | 1,126 | 977 | 950 |
| Hunter Success: | 74\% | 67\% | 63 \% |
| Active Licenses: | 1,326 | 1,168 | 1,100 |
| Active License Percent: | 63\% | 56\% | 55 \% |
| Recreation Days: | 4,901 | 4,137 | 4,000 |
| Days Per Animal: | 5.9 | 6.3 | 6.7 |
| Males per 100 Females | 32 | 34 |  |
| Juveniles per 100 Females | 69 | 72 |  |
| Population Objective: |  |  | 4,000 |
| Management Strategy: |  |  | Recreational |
| Percent population is above (+) or below (-) objective: |  |  | 8\% |
| Number of years population has been + or - objective in recent trend: |  |  | 18 |
| Model Date: |  |  | 3/2/2014 |
| Proposed harvest rates (percent of pre-season estimate for each sex/age group): |  |  |  |
|  |  | JCR Year | Proposed |
|  | Females $\geq 1$ year old: | 13.8\% | 13\% |
|  | Males $\geq 1$ year old: | 33.0\% | 32\% |
|  | Juveniles (<1 year old): | 2.4\% | 2\% |
|  | Total: | 13.0\% | 12\% |
| Proposed cha | in post-season population: | +1.1\% | -1\% |

Population Size - Postseason


## Harvest



Number of Hunters


Harvest Success
$\square$ MD210 - Hunter Success \% MD210 - Active License Success


## Active Licenses



Days per Animal Harvested
$\square$ MD210 - Days


Postseason Animals per 100 Females


2008-2013 Postseason Classification Summary
for Mule Deer Herd MD210 - GREYBULL RIVER

|  |  | MALES |  |  |  | FEMALES |  | JUVENILES |  | Tot Cls | Cls <br> Obj | Males to $\mathbf{1 0 0}$ Females |  |  |  | Young to |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Post Pop | Ylg | Adult | Total | \% | Total | \% | Total | \% |  |  | YIng | Adult | Total | $\begin{gathered} \text { Conf } \\ \text { Int } \end{gathered}$ | $\begin{aligned} & 100 \\ & \text { Fem } \end{aligned}$ | $\begin{aligned} & \text { Conf } \\ & \text { Int } \end{aligned}$ | $\begin{gathered} 100 \\ \text { Adult } \end{gathered}$ |
| 2008 | 5,300 | 52 | 94 | 146 | 14\% | 554 | 52\% | 367 | 34\% | 1,067 | 1,006 | 9 | 17 | 26 | $\pm 3$ | 66 | $\pm 5$ | 52 |
| 2009 | 5,300 | 99 | 181 | 280 | 15\% | 873 | 47\% | 704 | 38\% | 1,857 | 1,080 | 11 | 21 | 32 | $\pm 2$ | 81 | $\pm 4$ | 61 |
| 2010 | 5,200 | 87 | 139 | 226 | 22\% | 465 | 44\% | 357 | 34\% | 1,048 | 985 | 19 | 30 | 49 | $\pm 5$ | 77 | $\pm 6$ | 52 |
| 2011 | 4,500 | 47 | 113 | 160 | 16\% | 530 | 53\% | 315 | 31\% | 1,005 | 1,054 | 9 | 21 | 30 | $\pm 3$ | 59 | $\pm 5$ | 46 |
| 2012 | 4,200 | 65 | 94 | 159 | 15\% | 571 | 54\% | 320 | 30\% | 1,050 | 959 | 11 | 16 | 28 | $\pm 3$ | 56 | $\pm 4$ | 44 |
| 2013 | 4,300 | 47 | 95 | 142 | 17\% | 416 | 48\% | 301 | 35\% | 859 | 915 | 11 | 23 | 34 | $\pm 4$ | 72 | $\pm 6$ | 54 |

## 2014 HUNTING SEASONS

Greybull River Mule Deer Herd Unit (MD210)

| Hunt <br> Area | Type | Dates of Seasons |  | Quota | Limitations |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Opens | Closes |  |  |
| 124 |  | Nov. 1 | Nov. 10 |  | General license; any deer |
|  | 3 | Nov. 1 | Nov. 30 | 50 | Limited quota; any white-tailed deer |
|  | 6 | Oct. 1 | Nov. 30 | 50 | Limited quota; doe or fawn valid on or within one-half ( $1 / 2$ ) mile of irrigated land |
|  | 7 | Oct. 1 | Nov. 30 | 100 | Limited quota; doe or fawn valid west of Wyoming Highway 30 and Big Horn County Road 8 on or within one-half ( $1 / 2$ ) mile of irrigated land |
|  | 8 | Oct. 1 | Nov. 30 | 50 | Limited quota; doe or fawn white-tailed deer |
| 165 | 1 | Oct. 15 | Oct. 31 | 125 | Limited quota; any deer |
|  | 3 | Oct. 15 | Nov. 30 | 50 | Limited quota; any white-tailed deer |
|  | 6 | Oct. 15 | Oct. 31 | 75 | Limited quota; doe or fawn valid on private land |
|  | 8 | Nov. 1 | Nov. 30 | 50 | Limited quota; doe or fawn white-tailed deer |
| Archery: $124,165$ |  | Sept. 1 | Sept. 30 |  | Refer to Section 3 of this Chapter |


| Hunt Area | Type | Changes from 2012 |
| :---: | :---: | :---: |
| 124 | 6 | -200 |
|  | 7 | -250 |
| 165 | 3 | -25 |
|  | 8 | -50 |
| Total |  | -425 |

## Management Evaluation

Current Management Objective: 4,000
2012 Postseason Population Estimate: 4,500

## 2013 Proposed Postseason Population Estimate: 4,500

The population objective for the Greybull River mule deer herd was increased (from 3000) to 4,000 deer in 1994 after revisions to the POP-II model. The population objective remained unchanged following reviews in 2002 and 2007. This herd unit (HU) is managed for recreational hunting.

Anthropomorphic factors are probably having only a slight influence on survival and productivity of this herd. There are several oil/gas wells scattered across the HU but no major fields. Urban expansion has not been a concern in the area. Although agriculture has altered riparian areas, farming has increased the amount of forage for deer. Landowner tolerance of deer in fields is low.

Habitat quality is probably most affected by desert-like conditions ( $<12$ " annual precipitation) and poor soils. Both of those factors have allowed cheatgrass to invade and dominate some sites. Drought conditions occurred in 2000-04 and 2012. Affects of drought on upland vegetation resulted in a shift of deer to agricultural fields. Landowners have a low tolerance of deer. In response, numbers of doe/fawn licenses have been increased throughout the HU.

Classification data has been used to monitor the population. Classification surveys were only conducted from the ground, so there is no measure of effort between years. Hunting seasons lasted the entire month of November and classification surveys occurred in December (late in rut or after). By then, deer along the Greybull River do not come out of heavy cover until a few minutes before dark, so classification surveys can be strung out over the entire month. Chance of missing dominant bucks increases later in December. Little effort has been put forth to survey areas away from crop land.

We assumed number of deer classified can be used as an index to population level. The number of deer classified steadily increased from 1995 ( $\sim 800$ deer) to 2009 (1857 deer), but has since decreased to about 1,000 deer during the 2010-2012 surveys. This herd is highly productive since they rely on irrigated crops and have a dependable water sources (river and irrigation systems). On average (1993-2012), 67 fawns: 100 does were observed. Unsworth et al. (1999) suggested that a winter fawn:doe ratio above 66:100 would result in an increasing population. Even during drought (2000-04), the fawn ratios remained high, dropping below 66:100 in only three years (average $=65: 100$ ). Between 1993 and 2005, buck:doe ratios rarely exceeded 25:100 (range $=18-26$ ). After drought conditions subsided, buck ratios increased and have not dropped below $25: 100$ since. On average, there were 32 bucks: 100 does observed (range=26-49) between 2005-2012.

As the number of complaints from landowners increased, the number of doe/fawn licenses increased. As the number of licenses issued increased, so does harvest of does. Doe/fawn licenses used to decrease the number of deer using crops also had major impacts on the population level since most of the deer are concentrated on private land. Number of doe/fawn licenses issued may also have affected number of deer classified (Fig. 1). Thus, the increase in buck:doe ratios observed after 2005 was probably a reflection of less does in the population rather than an increase in number of bucks.

Buck harvest is influenced more by hunter effort, weather, season dates, harvest of crops (corn), and private land access than a reflection of population level. Harvest in Area 124 (general license) is large enough to mask trends in Area 165 (limited quota). General license seasons (Area 124), valid for bucks, have remained fairly constant over the years, ranging from 7 to 10 days (1990-present), opening Nov. 1. Area 165 has been limited quota hunting since 1987, with 100-150 licenses typically issued. Buck seasons in Area 165 (Type 1) have opened Nov. 1 (1987-89), Oct. 1 (1990-2000), or Oct. 15 (2001-present).

Between 1993 to 1998, buck harvest dramatically declined (from 485 to 214); however, different contractors were used during that time to calculate harvest survey data. Following a large, unexpected increase in 1999, harvest of bucks has been somewhat stable; typically ranging between 300-400 bucks. There was a slight decrease in buck harvest during drought, then a steady increase between 2007 to 2010. Buck harvest has decreased since 2010 (Fig. 2). During 1993-2004, harvest of bucks was greater (1.5x) than number of does harvested. With increased doe/fawn licenses, the number of bucks and does harvested converged and doe harvest surpassed buck harvest in four of the past six years (2007-2012).

High harvest to address crop depredation limits the "trophy" potential of this herd. Most (90$100 \%$ ) of the bucks being harvested are fairly small in antler width (Fig. 3). Likewise, most (60$80 \%$ ) of the bucks classified are also in the smaller size classes (Fig. 4). Antler size class is used as an index to age class.

Spreadsheet models have replaced POP-II for estimating populations of big game species. The models for the Greybull River herd follow population trends that field personnel estimate, however, the extent of the model's estimate is higher than personnel expected. The model (constant juvenile, constant adult survival) used for this HU estimated the population increased from 1995 ( 3600 deer) to 2007 ( 5400 deer), then stabilized at about 5300 deer (2008-10) before declining to 4200 deer post-season 2012. That trend follows the trend in classification totals to some extent. One other model (semi-constant juvenile, semi-constant adult survival [SCJ,SCA]) follows that trend but with higher populations and a decline to 4000 deer (population objective) following the 2010-11 winter. The time-specific juvenile, constant adult survival model (TSJ,CA) provided a lower population estimate (averaging just under 4000 deer), but does not estimate the increasing trend observed in the late 2000s. All models show a decline in the population after 2010 possibly due to high doe harvest. Winter 2010-11 may have also had lower survival due to deep, crusted snow; which are included in the SCJ,SCA and TSJ,CA models.

The season planned for 2013 should stabilize this population near objective (within 10\%). High numbers of doe/fawn licenses will be issued again in 2013 to address landowner concerns. Hunters have commented that fewer deer can be found since the 2010-11 winter. Many of them want fewer does harvested to increase the population. Many hunters also have requested more time to harvest bucks. If buck ratios remain high, some changes may be possible. This HU will be reviewed in 2015 to determine if the population objective is proper and in line with desires of hunters, landowners and others.

## Literature Cited

Unsworth, J.W., D.F. Pac, G. C. White, and R.M. Bartman. 1999. Mule deer survival in Colorado, Idaho, and Montana. Journal of Wildlife Management 36:315-326.

Figure 1. Number of mule deer classified and harvested in the Greybull River herd unit, 1993-2012


Figure 2. Harvest of buck mule deer from the Greybull River herd unit (Areas 124 and 165), 1993-2012.


Figure 3. Size class of harvested bucks checked in the field in the Greybull River herd unit, 2006-2012.


Figure 4. Size class of bucks classified in the Greybull River herd unit, 2007-2012.

$\square$ Clear form
0 CJ,CA Model
SCJ, SCA
TSJ, CA Model
范
Population Estimates from Top Model




| CJ,CA | Constant Juvenile \& Adult Survival |
| :--- | :--- |
| SCJ,SCA | Semi-Constant Juvenile \& Semi-Constant Adult Survival |
| TSJ,CA | Time-Specific Juvenile \& Constant Adult Survival |

[^0]




2013 - JCR Evaluation Form

| SPECIES: Mule Deer |  | PERIOD: 6/1/2013-5/31/2014 |
| :--- | :---: | :---: |
| HERD: MD211 - SHOSHONE RIVER |  |  |
| HUNT AREAS: 122-123 |  | PREPARED BY: |
|  |  |  |

## Population Size - Postseason



Harvest


Number of Hunters


Harvest Success
$\square$ MD211 - Hunter Success \%



## Active Licenses

$\square$ MD211 - Active Licenses

$\square$ MD211 - Days


Postseason Animals per 100 Females
$\square$ MD211-Males $\square$ MD211 - Juveniles


2008-2013 Postseason Classification Summary
for Mule Deer Herd MD211-SHOSHONE RIVER

|  |  | MALES |  |  |  | FEMALES |  | JUVENILES |  | Tot Cls | Cls <br> Obj | Males to 100 Females |  |  |  | Young to |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Post Pop | Ylg | Adult | Total | \% | Total | \% | Total | \% |  |  | YIng | Adult | Total | Conf Int | $\begin{aligned} & 100 \\ & \text { Fem } \end{aligned}$ | Conf Int | $\begin{gathered} 100 \\ \text { Adult } \end{gathered}$ |
| 2008 | 0 | 34 | 21 | 55 | 11\% | 267 | 54\% | 175 | 35\% | 497 | 0 | 13 | 8 | 21 | $\pm 0$ | 66 | $\pm 0$ | 54 |
| 2009 | 0 | 38 | 33 | 71 | 15\% | 231 | 50\% | 163 | 35\% | 465 | 0 | 16 | 14 | 31 | $\pm 0$ | 71 | $\pm 0$ | 54 |
| 2010 | 0 | 30 | 33 | 63 | 15\% | 224 | 52\% | 147 | 34\% | 434 | 0 | 13 | 15 | 28 | $\pm 0$ | 66 | $\pm 0$ | 51 |
| 2011 | 0 | 37 | 31 | 68 | 18\% | 172 | 44\% | 148 | 38\% | 388 | 0 | 22 | 18 | 40 | $\pm 0$ | 86 | $\pm 0$ | 62 |
| 2012 | 0 | 34 | 37 | 71 | 12\% | 293 | 48\% | 251 | 41\% | 615 | 825 | 12 | 13 | 24 | $\pm 0$ | 86 | $\pm 0$ | 69 |
| 2013 | 0 | 18 | 14 | 32 | 12\% | 131 | 47\% | 113 | 41\% | 276 | 810 | 14 | 11 | 24 | $\pm 0$ | 86 | $\pm 0$ | 69 |


| $\begin{aligned} & \text { Hunt } \\ & \text { Area } \end{aligned}$ | Type | Dates of Seasons |  | Quota | Limitations |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Opens | Closes |  |  |
| 122 |  | Nov. 1 | Nov. 10 |  | General license; any deer |
|  |  | Nov. 11 | Nov. 30 |  | General license; antlerless deer |
|  | 3 | Nov. 1 | Nov. 30 | 50 | Limited quota; any white-tailed deer |
|  | 6 | Oct 15 | Dec. 31 | 400 | Limited quota; doe or fawn valid on or within one-half ( $1 / 2$ ) mile of irrigated land within the Shoshone River drainage |
| 123 | 8 | Oct 15 | Dec. 31 | 50 | Limited quota; doe or fawn whitetailed deer |
|  |  | Oct. 15 | Oct. 31 |  | General license; any deer |
|  | 6 | Oct. 15 | Dec. 31 | 50 | Limited quota; doe or fawn valid on private land south of the Shoshone River |
| Archery |  |  |  |  |  |
|  |  | Sept. 1 | Sept. 30 |  | Refer to Section 3 of this Chapter |


| Hunt Area | Type | Quota change from 2012 |
| :---: | :---: | :---: |
| 122 | 6 | -50 |
|  | 8 | -150 |
| Total |  | -200 |

## Management Evaluation

Current Management Objective: none
2012 Postseason Population Estimate: none
2013 Proposed Postseason Population Estimate: none

Herd Unit Issues. Management of this herd unit (HU) using a population objective was eliminated in 2001 due to insufficient classification sample sizes, thus making population modeling difficult to implausible using POP-II software. No management goals (e.g., count objectives, buck ratios) were established for this herd due to lack of data, and management emphasis is to reduce crop depredation to a minimum, and provide some recreational hunting. We will develop an alternative objective during herd unit reviews in the next few years that will probably be a combination of landowner tolerance and harvest success.

Anthropomorphic factors that may affect this deer population include: housing development, agriculture, oil/gas development, and mining. There are few scattered oil/gas wells throughout
the HU which probably have minimal impacts to deer or the habitat. Mining for bentonite has typically been in poor quality habitat with few/no deer. Farming has altered riparian areas on private land and actually increases amount of available forage; however, landowner tolerance is low. We have needed to manage these deer to decrease crop depredation.

Weather. Climate, specifically drought, has affected upland vegetation and water availability on public lands. Thus, deer have moved to agricultural areas in search of better forage. Drought during 2000-04 resulted in mortality of some sagebrush and probably affected herbaceous vegetation.

Habitat. Cheatgrass has been able to become established and dominate some upland sites, but even before recent droughts, habitat quality in most nonagricultural portions of the HU is marginal due to low precipitation and poor soil conditions. There are no transects established within the HU to measure production and utilization of sagebrush.

Classification. Classification surveys have not resulted in adequate number of deer observed to result in reliable data. Past attempts to survey the HU with a helicopter did not result in improved classification data, so that technique was not continued. Since few deer have been observed, this HU has become a low priority among big game herds in the district. Hunting seasons for deer and pheasant have extended into late November and December, thus deer remain nocturnal during the regular post-season survey period resulting in low sample sizes. In 12 the past 20 years, less than 350 deer were classified. Since 2007, more ( $>400$ ) have been surveyed, including over 600 in 2012; suggesting an increasing. Over the past five years ( $\sim 400$ deer surveyed), fawn:doe ratios have ranged between 66-86:100 (average=75). Unsworth et al. (1999) suggested that a winter fawn:doe ratio above $66: 100$ would result in an increasing population.

Harvest. Harvest statistics are probably the best data we have for this HU; however, no clear trends can be discerned to suggest trends in the population. In 2013, hunters harvested more deer $(\mathrm{n}=893)$ compared to 2012 ( $\mathrm{n}=785$ ), consistent with license numbers. Harvest success ranged from a low of $49 \%$ in 2009 to $62 \%$ in 2011, and mirrors license numbers over the last 6 years. Harvest success and days/deer in 2013 slightly increased, probably due to the reduction of deer on agriculture lands. Hunter numbers have matched the increase in doe/fawn licenses and ranged from about 1110 in 2008 to a high of 1548 this past season. Days per animal harvested increased in 2013 to 8.1 days/deer compared to 6.8 days/deer in 2012. We will continue to use harvest to address deer on agricultural.

Population. No POP-II model has been used for the Shoshone deer herd since 2001. Attempts to estimate this population with spreadsheet models may incur similar pitfalls as POP-II models (i.e., poor data in, poor results out). The constant juvenile, constant adult (CJ,CA) survival and semi-constant juvenile, semi-constant adult (SCJ,SCA) survival models both suggest the population has been increasing since 1995 to a population of over 8,000 deer in 2012. Both have AIC values below 100. Those population estimates, however, are unrealistic. The time-specific juvenile, constant adult (TSJ,CA) survival model estimate the population was fairly stable until 2005 (end of drought), increased to about 5,000 deer in 2009, then declined to just below 4,000 deer by post-season 2012. Estimated and observed buck:doe ratios lined up accurately. Those trends are believable, but AIC value for the model was 969 .

Management Summary. Regardless of the population level, we will continue to address deer depredation on agricultural crops. The hunting seasons proposed for 2014 will have fewer doe/fawn licenses due to the lower number of deer on private lands. Levels of crop depredation have been unacceptable to landowners and the level of reimbursement for that damage has been higher than in previous years. Some hunters continue ask for more conservative hunting seasons (e.g., fewer doe/fawn licenses) to increase the population and quality and quantity of bucks. Despite some complaints, hunter satisfaction has been about $66 \%$ despite the low overall numbers of deer. If/when upland habitat recovers from drought and deer no longer use cropland, we may be able to increase the population.

## Literature Cited

Unsworth, J.W., D.F. Pac, G. C. White, and R.M. Bartman. 1999. Mule deer survival in Colorado, Idaho, and Montana. Journal of Wildlife Management 36:315-326.


2013 - JCR Evaluation Form

| SPECIES: Mule Deer |  |  | PERIOD: 6/1/2013-5/31/2014 |
| :---: | :---: | :---: | :---: |
| HERD: MD212-OWL CREEK/MEETEETSE |  |  |  |
| HUNT AREAS: 116-120 |  |  | PREPARED BY: BART KROGER |
|  | 2008-2012 Average | $\underline{2013}$ | 2014 Proposed |
| Population: | 3,640 | 3,615 | 3,384 |
| Harvest: | 345 | 257 | 245 |
| Hunters: | 436 | 328 | 300 |
| Hunter Success: | 79\% | 78\% | 82\% |
| Active Licenses: | 504 | 343 | 320 |
| Active License Percent: | 68\% | 75\% | 77\% |
| Recreation Days: | 1,913 | 1,296 | 1,300 |
| Days Per Animal: | 5.5 | 5.0 | 5.3 |
| Males per 100 Females | 37 | 36 |  |
| Juveniles per 100 Females | 62 | 61 |  |
| Population Objective: |  |  | 8,000 |
| Management Strategy: |  |  | Special |
| Percent population is above (+) or below (-) objective: |  |  | -54.8\% |
| Number of years population has been + or - objective in recent trend: |  |  | 18 |
| Model Date: |  |  | 4/1/2014 |
| Proposed harvest rates (percent of pre-season estimate for each sex/age group): |  |  |  |
|  |  | JCR Year | Proposed |
|  | Females $\geq 1$ year old: | 2.7\% | 2.5\% |
|  | Males $\geq 1$ year old: | 24.3\% | 24.6\% |
|  | Juveniles (<1 year old): | 0.2\% | 0.1\% |
|  | Total: | 6.1\% | 7.0\% |
| Proposed cha | in post-season population: | 0\% | -6\% |

## Population Size - Postseason

$\square$ MD212-POPULATION - MD212-OBJECTIVE


## Harvest



Number of Hunters


Harvest Success
MD212 - Hunter Success \% MD212 - Active License Success


## Active Licenses



Days per Animal Harvested
$\square$ MD212 - Days


Postseason Animals per 100 Females


## 2008-2013 Postseason Classification Summary

for Mule Deer Herd MD212 - OWL CREEK/MEETEETSE

|  |  | MALES |  |  |  | FEMALES |  | JUVENILES |  | $\begin{aligned} & \text { Tot } \\ & \text { Cls } \end{aligned}$ | $\begin{aligned} & \text { Cls } \\ & \text { Obj } \end{aligned}$ | Males to 100 Females |  |  |  | Young to |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Post Pop | Ylg | Adult | Total | \% | Total | \% | Total | \% |  |  | Ylng | Adult | Total | Conf Int | $\begin{gathered} 100 \\ \text { Fem } \end{gathered}$ | Conf Int | $\begin{gathered} 100 \\ \text { Adult } \end{gathered}$ |
| 2008 | 3,856 | 69 | 151 | 220 | 16\% | 704 | 51\% | 470 | 34\% | 1,394 | 1,077 | 10 | 21 | 31 | $\pm 2$ | 67 | $\pm 4$ | 51 |
| 2009 | 3,777 | 80 | 157 | 237 | 18\% | 681 | 51\% | 417 | 31\% | 1,335 | 957 | 12 | 23 | 35 | $\pm 3$ | 61 | $\pm 4$ | 45 |
| 2010 | 3,859 | 78 | 134 | 212 | 19\% | 532 | 49\% | 352 | 32\% | 1,096 | 1,080 | 15 | 25 | 40 | $\pm 4$ | 66 | $\pm 5$ | 47 |
| 2011 | 3,741 | 56 | 175 | 231 | 22\% | 541 | 50\% | 300 | 28\% | 1,072 | 901 | 10 | 32 | 43 | $\pm 4$ | 55 | $\pm 4$ | 39 |
| 2012 | 3,859 | 34 | 130 | 164 | 20\% | 406 | 50\% | 241 | 30\% | 811 | 910 | 8 | 32 | 40 | $\pm 4$ | 59 | $\pm 5$ | 42 |
| 2013 | 4,000 | 37 | 113 | 150 | 18\% | 413 | 51\% | 250 | 31\% | 813 | 0 | 9 | 27 | 36 | $\pm 4$ | 61 | $\pm 6$ | 44 |

OWL CREEK/MEETEETSE MULE DEER HERD (MD212)

| Hunt <br> Area | Type | Dates of Seasons |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Opens | Closes | Quota | License | Limitations |  |  |
| 116 | 1 | Oct. 15 | Oct. 31 | 75 | Limited quota | Any deer |
| 116, | 3 | Nov. 1 | Nov. 30 | 75 | Limited quota | Any white-tailed deer |
| 117, |  |  |  |  |  | Limited quota | | Doe or fawn white-tailed |
| :--- |
| deer valid on private land in |
| 118 |

Archery:

| $116,117,118,119$ | Sep. 1 | Sep. 30 | Refer to Section 3 |
| :--- | ---: | ---: | :--- |
| 120 | Aug. 15 | Sep. 30 | Refer to Section 3 |


| Hunt Area | License Type | Quota change from 2013 |
| :---: | :---: | :---: |
| 120 | 1 | -25 |
|  | 6 | -25 |
| HU Total | $\mathbf{1}$ | $\mathbf{- 2 5}$ |
|  | $\mathbf{6}$ | $\mathbf{- 2 5}$ |

## Management Evaluation

Current Postseason Population Management Objective: 8,000
Management Strategy: Special
2013 Postseason Population Estimate: 3,600
2014 Proposed Postseason Population Estimate: 3,500

## Herd Unit Issues

Currently, the over-riding management goals of this deer herd is to provide quality buck hunting, allow mule deer populations to increase on public lands, and to address potential damage issues on private lands. The 2013 post-season population estimate is $55 \%$ below objective. Field personnel, landowners and most hunters agree this herd is below desired numbers, but most also agree a population objective of 8,000 deer is too high. A herd objection of around 5,000 deer would likely be desirable for most hunters. This herd objective will be review in 2014. Model trends currently indicated a mostly stable population for the past 20 years. However, field personnel and most landowners and hunters, along with classification sample sizes and harvest statistics indicate a decline in the population in recent years. Poor habitat conditions, long-term drought, and increased harvest of deer on private lands due to potential damage have kept this population from increasing toward objective. All hunt areas (116-120) in the herd unit support limited quota hunting seasons. Type 1 license quotas are typically kept low to allow for higher buck ratios and quality. Overwhelming public support for this type of management is heard annually at public season meetings, and the reason this deer herd went to special management in 2007. Doe/fawn licenses have and will continue to be used for damage issues. Season structures have been designed, and will likely continue to be designed to help increase this deer population, particularly those deer utilizing native ranges.

## Weather

The winters of 2011-12 and 2012-13 were mild with low snowpack resulting in mostly good over winter survival. However, the winter of 2010-11 along with the dry spring and summer of 2012 and 2013 appeared to have been severe enough to cause some die-off and reduced survival. Both herbaceous and shrub growth has been minimal the past three years, except in 2011, when spring precipitation was well above normal. Drought conditions have also affected available water in many stock reservoirs and perennial streams.

## Habitat

Numerous prescribed and wild fires have burned through this herd unit, particularly on winter ranges in areas 118 and 119. Locally for this herd unit, long-term drought conditions have contributed to fewer deer occurring on native range, and have forced more deer onto private irrigated crop fields. Two sagebrush transects were established in this herd unit in 2004 (Appendix C). Transect locations include Grass Creek and Wagonhound Bench. Sagebrush leader growth in 2013 for both the Grass Creek and Wagonhound transects was 2.0 cm . This growth is down slightly compared to the long-term average. Winter utilization is usually around $15 \%$, but is shared with wintering pronghorn and some elk.

## Field Data

Both aerial and ground classifications surveys are used in obtaining post-season buck and fawn ratio for this deer herd. Routine classification routes for each hunt area have been maintained in
order to reflect general trends in deer numbers over time. The number of deer classified has declined dramatically in recent years. In 2008, 1,400 deer where classified, while in 2012 and 2013 a little over 800 were classified; a decline of $42 \%$. For the most part, buck and fawn ratios have remained favorable in recent years, with a 6-year average of 37 bucks and 58 fawns per 100 does. Due to very few field checked deer from this herd, no reliable trends or inferences can be determined. Overall, hunter satisfaction levels show $76 \%$ are either satisfied or very satisfied.

## Harvest Data

Recent harvest statistics indicate hunting has gotten a little more difficult in this herd unit. Hunter numbers and harvest have declined the past six years by about $40-45 \%$, while harvest success has dropped by $25 \%$. The drop in hunter numbers and harvest is mostly due to Type 6 and 7 licenses quotas being reduced because of declining deer numbers and reduced damage issues. Type 1 hunter success continues to remain favorable at around $50-75 \%$.

## Population

The semi-constant juvenile \& semi-constant adult survival (SCJ, SCA) spreadsheet model was chosen to represent this herd. This model supported the second lowest AIC value (38), along with a very good fit (18) of the model vs. field male ratios. Although the population estimate seems reasonable, field personnel, harvest data and classification sample sizes suggest deer numbers have declined much more than model predictions since about 2007. Because of this, the model is only a fair representation of the herd. Concerns over the declines in deer numbers are annually heard from hunters and landowners. In fact, the Pitchfork Ranch (HMA) has shut down mule deer hunting the past 5 years in hunt area 116 because of very low mule deer numbers. Whereas, the LU Ranch (Absaroka Front HMA) annually express concerns over declining deer numbers in hunt area 118. In area 120 in 2013, the total number of deer classified was only 98 deer, whereas in 2008 it was 302 deer, a decline of $66 \%$.

## Management Summary

The Type 1 and 6 quotas in hunt area 120 will be reduced by 25 licenses each. Current harvest statistics and buck ratios do not support this reduction in licenses, but a drop in the overall number of deer in area 120 warrants it. The number of deer classified in this area has dropped by $66 \%$ over the past 6 years. License quotas in areas $116,117,118$ and 119 appear adequate, with most of these areas having license quota reductions in recent years. The projected 2014 harvest is roughly 245 deer, similar to 2013. Hopefully this deer herd will start to show improving trends, but it's likely to continue declining because of poor habitat and drought conditions.
$\square$ Clear fom
CJ, CA Model
SCJ, SCA
TSJ, CA Model

Population Estimates from Top Model


\section*{| Species: | Mule Deer |
| :--- | :--- |
| Biologist: | Bart Kroger |
| Herd Unit \& No.: | Owl Cr/Mee |
| Mor |  |}


|  | MODELS SUMMARY |
| :--- | :--- |
| CJ,CA | Constant Juvenile \& Adult Survival |
| SCJ,SCA | Semi-Constant Juvenile \& Semi-Constant A |
| TSJ,CA | Time-Specific Juvenile \& Constant Adult Su |






2013 - JCR Evaluation Form

| SPECIES: Mule Deer |  | PERIOD: 6/1/2013-5/31/2014 |
| :--- | :--- | :---: |
| HERD: MD215 - UPPER SHOSHONE |  |  |
| HUNT AREAS: 110-115 |  | PREPARED BY: DOUG |
|  |  |  |

## Population Size - Postseason

```
\(\square\) MD215-POPULATION - MD215-OBJECTIVE
```



## Harvest



Number of Hunters


Harvest Success
$\square$ MD215 - Hunter Success \% $\square \begin{aligned} & \text { MD215 - Active License Success } \\ & \%\end{aligned}$


## Active Licenses


$\square$ MD215 - Days


Postseason Animals per 100 Females


2008-2013 Postseason Classification Summary
for Mule Deer Herd MD215 - UPPER SHOSHONE

|  |  | MALES |  |  |  | FEMALES |  | JUVENILES |  | Tot Cls | Cls <br> Obj | Males to 100 Females |  |  |  | Young to |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Post Pop | Ylg | Adult | Total | \% | Total | \% | Total | \% |  |  | YIng | Adult | Total | Conf Int | $\begin{aligned} & 100 \\ & \text { Fem } \end{aligned}$ | $\begin{aligned} & \text { Conf } \\ & \text { Int } \end{aligned}$ | $\begin{gathered} 100 \\ \text { Adult } \end{gathered}$ |
| 2008 | 8,997 | 183 | 205 | 388 | 17\% | 1,314 | 58\% | 551 | 24\% | 2,253 | 1,096 | 14 | 16 | 30 | $\pm 2$ | 42 | $\pm 2$ | 32 |
| 2009 | 9,191 | 128 | 169 | 297 | 15\% | 1,048 | 53\% | 647 | 32\% | 1,992 | 1,140 | 12 | 16 | 28 | $\pm 2$ | 62 | $\pm 4$ | 48 |
| 2010 | 9,589 | 176 | 188 | 364 | 16\% | 1,145 | 52\% | 707 | 32\% | 2,216 | 1,090 | 15 | 16 | 32 | $\pm 2$ | 62 | $\pm 3$ | 47 |
| 2011 | 8,368 | 118 | 205 | 323 | 16\% | 1,071 | 53\% | 613 | 31\% | 2,007 | 1,071 | 11 | 19 | 30 | $\pm 2$ | 57 | $\pm 3$ | 44 |
| 2012 | 7,756 | 79 | 139 | 218 | 10\% | 1,165 | 52\% | 863 | 38\% | 2,246 | 1,148 | 7 | 12 | 19 | $\pm 1$ | 74 | $\pm 4$ | 62 |
| 2013 | 8,400 | 127 | 117 | 244 | 14\% | 946 | 53\% | 607 | 34\% | 1,797 | 1,148 | 13 | 12 | 26 | $\pm 2$ | 64 | $\pm 4$ | 51 |

## 2014 HUNTING SEASONS

UPPER SHOSHONE MULE DEER HERD (MD215)

| Hunt <br> Area | Dates of Seasons |  |  |  | Limitations |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Type | Opens | Closes | Quota |  |
| 110 |  | Oct. 15 | Nov. 10 |  | General license; antlered deer |
| 110, 111 | 8 | Oct. 15 | Dec. 31 | 100 | Limited quota; doe or fawn whitetailed deer |
| 111 |  | Oct. 15 | Nov. 10 |  | General license; antlered deer |
|  | 6 | Oct. 15 | Nov. 10 | 25 | Limited quota; doe or fawn valid off national forest |
|  | 7 | Oct. 1 | Nov. 20 | 25 | Limited quota; doe or fawn |
| 112 |  | Oct. 15 | Nov. 10 |  | General license; antlered deer valid on national forest |
|  |  | Nov. 1 | Nov. 10 |  | General license; any deer valid off national forest |
| 112, 113 | 3 | Nov. 1 | Nov. 30 | 25 | Limited quota; any white-tailed deer |
|  | 6 | Oct. 15 | Nov. 10 | 25 | Limited quota; doe or fawn valid off national forest |
|  | 8 | Oct. 15 | Dec. 31 | 100 | Limited quota; doe or fawn whitetailed deer |
| 113 |  | Oct. 15 | Nov. 10 |  | General license; antlered deer valid on national forest |
|  |  | Nov. 1 | Nov. 10 |  | General license; any deer valid off national forest |
| 114 |  | Oct. 15 | Nov. 10 |  | General license; antlered deer |
| 115 |  | Sept. 10 | Oct. 22 |  | General license; antlered deer |
| Archery |  |  |  |  |  |
| $110-114$ |  | Sept. 1 | Sept. 30 |  | Refer to Section 4 of this Chapter |
| 115 |  | Sept. 1 | Sept. 9 |  | Refer to Section 4 of this Chapter |


| Hunt Area | Type | Quota change from 2013 |
| :---: | :---: | :---: |
| 112,113 | 3 | +25 |
| Total | $\mathbf{3}$ | $\mathbf{+ 2 5}$ |
| NR Quota | $\mathbf{1 , 2 5 0}$ | $\mathbf{- 2 0 0}$ |

## Management Evaluation

Current Postseason Population Management Objective: 12,000
Management Strategy: Recreational
2013 Postseason Population Estimate: ~8,400
2014 Proposed Postseason Population Estimate: ~7,500

## Herd Unit Issues

The Upper Shoshone Herd Unit is dominated by migratory deer, although some non-migratory deer do exist in the North and South Fork Shoshone River valleys. These deer exhibit mediocre productivity, as evidenced by the 20-year (1993-2012) average fawn:doe ratio of 61.8 fawns:100 does (range 42:100-74:100). Buck harvest is dictated by the influence of weather upon the timing of fall migrations and whether or not they arrive on low elevation winter ranges prior to the standard closing date of November 10. This has created a situation where buck harvest and consequently buck:doe ratios vary widely. In response to this variation, periodic 4-point regulations are implemented for 2 years to protect primarily yearling bucks and assist in recovery of buck:doe ratios. This fluctuation is represented in postseason buck:doe ratios, which have averaged 26.3 bucks:100 does over the past 20 years (1993-2012), but have ranged from 14:100 to $35: 100$.

The migratory nature of this deer herd creates difficulties in managing for stable buck:doe ratios. Low densities of deer on the vast summer ranges of the Absaroka Mountains are reflected in the relatively low harvest of deer early in the season. For example, over the last 25 years buck harvest in Area 115 (which has a September 10 opening date) has averaged 31 bucks/year. This is also reflected in check station records, which show that $75 \%$ of deer harvested each year are taken during the November portion of the season. Intense hunting pressure along restricted migration corridors during this time, particularly on the North Fork of the Shoshone River, has become an increasingly difficult situation to manage.

## Weather

Weather conditions during the 2013 biological year were characterized by near normal springsummer moisture, and quite severe winter conditions, with heavy snowfall and extended periods of extremely cold temperatures. As a result, fawn survival may be quite low, and fawn production in 2014 may also be compromised.

## Habitat

Two sagebrush transects are monitored in this herd unit; one in the North Fork of the Shoshone River and one in the South Fork of the Shoshone River, but no data for the 2013 biological year is available.

## Field Data

Buck:doe ratios collected in 2013 were 26:100, largely a result of the very large fawn crop (74 fawns:100 does, the highest recorded in 30 years) of 2012, which was well represented as yearling bucks in 2013. As the population will now be allowed to grow by another 35\%, the sheer abundance of bucks will increase substantially as well. Fawn ratios in 2013 were essentially average for this herd unit, at 64 fawns:100 does.

## Harvest Data

A total of 913 bucks were harvested in 2013, which represents a substantial increase over that seen in 2011 (632 bucks) and 2012 ( 732 bucks), but remains within the range of buck harvest seen in this herd unit, as it varies from 300-400 bucks during years of 4-point regulations to $1,000-1,300$ bucks following removal of the 4 -point regulation or in years of high population sizes. Antlerless deer harvest was reduced in 2012 and 2013, and represents the fewest antlerless deer harvested since 2001.

There were 1,727 hunters in the Upper Shoshone herd unit in 2013 and hunter numbers have remained relatively consistent over the last 10 years (2004-2012 avg. 1,901 hunters), and have traditionally harbored a large proportion of non-resident hunters, averaging 43.6\% over the 20042012 period (range $38.9 \%-49.9 \%$ ). In 2013, the percentage of non-resident hunters was $42.7 \%$.

Due to their higher success rate (non-resident hunters averaged 53.0\% success from 2004-2013 while residents only averaged $36.3 \%$ ), non-residents usually harvest more bucks than residents. Over the same 2004-2013 period, non-resident harvest averaged 434.5 bucks/year, while residents only averaged 386.7 bucks/year.

## Population

The "Time Specific Juvenile - Constant Adult Mortality Rate" (TSJCA) spreadsheet model was chosen to use for the post season population estimate of this herd, as the population trend appears to be relatively accurate. The postseason population estimate for 2013 is 8,400 deer, or $30 \%$ below the population objective, which is much lower than previous estimates. Under previous estimates, more conservative antlerless seasons were implemented in 2012 so the new lower estimate only means the deer herd will be allowed to grow further than previously planned.

Even with an approximately 10-15\% reduction in the anticipated harvest of buck deer, predicted buck ratios drop below 20:100 postseason 2014, and slip further in 2015 even though modest buck harvests and average fawn recruitment figures are used. This is reflected in the harvest rate
of adult males, which averaged 37.3\% from 2002-2011, but increased to 51.7\% in 2012 and $51.4 \%$ in 2013. Projected harvest rate of bucks in 2014 is over $60 \%$.

Since 2002, all adult bucks observed during postseason classification surveys are broken into antler width classes. Antler width classifications support the high harvest rate of bucks in 2012 and 2013 as the representation of Class III bucks (those >25 inches) fell to its’ lowest point following the 2012 and 2013 seasons (2\%). In 2013, the representation of Class II bucks (those between 20-25 inches) also dropped similarly (to $14 \%$, when it usually ranges between $25 \%$ $30 \%$ ). Conversely, at $84 \%$ the representation of Class I bucks (those $<20$ inches) has never been higher. If yearlings are included in these figures $92 \%$ of all bucks on the winter range in 2013 had antler widths less than 20 inches.
Because the population is $30 \%$ below objective, and to prevent buck ratios from falling further, the Region F non-resident quota will be reduced by 200 (to 1,250 ). Due to their high success rates this reduction will have an immediate and direct effect on buck harvest. However, such a reduction may not prevent a deterioration of buck ratios and further measures may be necessary, especially if there is desire to provide for older age class buck deer in this herd unit.

With the intent of letting the population grow as fast as possible, doe/fawn harvest will be restricted as much as possible in 2014, and will likely be for the foreseeable future. However, we will allow additional opportunities to harvest antlerless white-tailed deer in Areas 111, 112, and 113, adding a Type 3 "any white-tailed deer" license in Area 112 and 113. The 2014 seasons and the impacts of the 2013-2014 winter could result in post-season 2014 population dropping to approximately 7,500 , essentially setting back the approach to the objective of 12,000.



2013 - JCR Evaluation Form

| SPECIES: Mule Deer |  | PERIOD: 6/1/2013-5/31/2014 |
| :--- | :--- | :---: |
| HERD: MD216 - CLARKS FORK |  |  |
| HUNT AREAS: 105-106, 109, 121 |  | PREPARED BY: DOUG |
|  |  |  |
|  |  |  |

## Population Size - Postseason



## Harvest



Number of Hunters


Harvest Success
$\square$ MD216 - Hunter Success \% MD216 - Active License Success


## Active Licenses

$\square$ MD216 - Active Licenses


Days per Animal Harvested
$\square$ MD216 - Days


Postseason Animals per 100 Females
MD216 - Males $\square$ MD216 - Juveniles


2008-2013 Postseason Classification Summary
for Mule Deer Herd MD216-CLARKS FORK

|  |  | MALES |  |  |  | FEMALES |  | JUVENILES |  | Tot Cls | Cls <br> Obj | Males to 100 Females |  |  |  | Young to |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Post Pop | Ylg | Adult | Total | \% | Total | \% | Total | \% |  |  | Ylng | Adult | Total | Conf Int | $\begin{aligned} & 100 \\ & \text { Fem } \end{aligned}$ | Conf Int | $\begin{gathered} 100 \\ \text { Adult } \end{gathered}$ |
| 2008 | 7,742 | 74 | 117 | 191 | 17\% | 628 | 55\% | 314 | 28\% | 1,133 | 1,021 | 12 | 19 | 30 | $\pm 3$ | 50 | $\pm 4$ | 38 |
| 2009 | 8,251 | 76 | 146 | 222 | 14\% | 789 | 51\% | 527 | 34\% | 1,538 | 1,219 | 10 | 19 | 28 | $\pm 2$ | 67 | $\pm 4$ | 52 |
| 2010 | 7,472 | 89 | 135 | 224 | 16\% | 788 | 55\% | 431 | 30\% | 1,443 | 1,043 | 11 | 17 | 28 | $\pm 2$ | 55 | $\pm 4$ | 43 |
| 2011 | 6,396 | 52 | 133 | 185 | 16\% | 656 | 57\% | 315 | 27\% | 1,156 | 1,051 | 8 | 20 | 28 | $\pm 3$ | 48 | $\pm 4$ | 37 |
| 2012 | 5,395 | 23 | 62 | 85 | 11\% | 386 | 52\% | 270 | 36\% | 741 | 947 | 6 | 16 | 22 | $\pm 3$ | 70 | $\pm 7$ | 57 |
| 2013 | 5,300 | 71 | 95 | 166 | 15\% | 576 | 51\% | 390 | 34\% | 1,132 | 1,083 | 12 | 16 | 29 | $\pm 3$ | 68 | $\pm 5$ | 53 |

## 2014 HUNTING SEASONS

CLARKS FORK MULE DEER HERD (MD216)
\(\left.\left.$$
\begin{array}{ccllll}\begin{array}{c}\text { Hunt } \\
\text { Area }\end{array} & \text { Type } & \begin{array}{l}\text { Dates of Seasons } \\
\text { Opens }\end{array} & \text { Closes } & \text { Quota } & \text { Limitations } \\
\hline 105 & & \text { Oct. 1 } & \text { Oct. 31 } & & \begin{array}{l}\text { General license; antlered deer } \\
\text { valid on national forest }\end{array} \\
\text { General license; any deer valid off } \\
\text { national forest } \\
\text { General license; antlerless deer } \\
\text { valid off national forest }\end{array}
$$\right] \begin{array}{l}Limited quota; doe or fawn valid <br>

off national forest\end{array}\right]\)| Nov. 1 |
| :--- |
|  |


| Hunt Area | Type | Quota change from 2013 |
| :---: | :---: | :---: |
| 105 | 6 | -100 |
| 109 | 8 | -25 |
| 121 | 3 | -50 |
| 121 | 6 | -100 |
| Total |  | $\mathbf{- 2 7 5}$ |
| NR Quota | $\mathbf{1 , 2 5 0}$ | $\mathbf{- 2 0 0}$ |

## Management Evaluation

Current Postseason Population Management Objective: 9,000
Management Strategy: Recreational
2013 Postseason Population Estimate: ~5,300
2014 Proposed Postseason Population Estimate: ~4,600

## Herd Unit Issues

Much of the Clarks Fork Herd Unit is characterized by migratory deer (Hunt Areas 105, 106, 109), but substantial numbers of non-migratory deer associated with agricultural areas are found in Area 105 and 121. Migratory deer exhibit relatively poor productivity, while deer associated with agricultural fields have much higher productivity. Consequently, damage situations arise with non-migratory deer in Area 105 and 121, while poor productivity requires conservative management of migratory deer. This situation is further complicated by the skewed classification effort directed at migratory deer and the lack of classification data from Area 121. Deer management in Area 121 is driven almost exclusively by landowner tolerance, and therefore little effort is placed on gathering population data from this segment of the Clarks Fork Herd Unit.

## Weather

Weather conditions during the 2013 biological year were characterized by near normal springsummer moisture, and quite severe winter conditions, with heavy snowfall and extended periods of extremely cold temperatures.

## Habitat

No habitat monitoring data is collected in this herd unit.

## Field Data

Fawn recruitment in 2013 was quite good, at 68 fawns: 100 does. This compares to the most recent 10-year (1993-2012) average fawn:doe ratio of 58.5 fawns:100 does (range 48:100 70:100). Buck ratios were 29:100 in 2013. Buck ratios averaged 24.1 bucks:100 does over the 1993-2012 period (range 19:100 - 30:100), but recently have trended higher (27.4 bucks:100 does) since removing the General License season in November in Area 106 and portions of Area 105.

## Harvest Data

Since removing the General License season in November in Area 106 and portions of Area 105, buck harvest has declined as intended, resulting in higher postseason buck:doe ratios and more older age class bucks in the population. This was accomplished primarily by reducing hunter numbers, especially when bucks are most vulnerable in November. For example, in Area 106, 2008-2013 hunter numbers declined from the previous 5-year (2003-2007) average of 587 hunters/year to 483 hunters/year, while hunter success remained similar (approximately 37\%)
over both periods. Current management in Hunt Areas 105, 106, and 109 is preserving buck:doe ratios at acceptable levels.

The 2013 hunting season in agricultural areas of Areas 105 and 121 resulted in some of the highest doe/fawn harvest on record for either hunt area. Although permit levels will be reduced, these efforts will continue in order to address damage concerns on private lands.

## Population

The "Time Specific Juvenile - Constant Adult Mortality Rate" (TSJCA) spreadsheet model was chosen to use for the post season population estimate of this herd, as the population trend appears to be reasonable. The postseason population estimate for 2013 is 5,300 deer, or $41 \%$ below the population objective. Problems with this model include the exclusive use of migratory deer classification data to model a herd that incorporates non-migratory deer harvest (the deer harvest provided by non-migratory deer cannot be supported by the productivity levels of migratory deer). This situation is to be remedied when this and the Shoshone River Deer Herd Units undergo Herd Unit Review in the near future.

We will continue with the current management structure for migratory deer (which consists of conservative buck seasons, with no antlerless harvest), while continuing to target non-migratory deer in agricultural areas with lengthy general antlerless seasons and abundant doe/fawn permits (as was initiated in 2012). Additional opportunities to harvest white-tailed deer will be provided in Area 106. The 2014 seasons should result in post-season 2014 population near 4,600 deer, while maintaining improved buck ratios in Hunt Areas 105, 106, and 109, and addressing damage situations in Area 105 and 121.




[^0]:    | $\begin{array}{c}\text { Posthunt Population Est. } \\ \text { Field Est } \\ \text { Field SE }\end{array}$ |  | Trend Count |
    | :---: | :--- | :--- |

