# 2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD207 - PAINTROCK

HUNT AREAS: 41, 46-47

PREPARED BY: LESLIE SCHREIBER

| | 2009 - 2013 Average | 2014 | 2015 Proposed |
|---|---|---|---|
| Population: | 9,780 | 8,950 | 9,367 |
| Harvest: | 967 | 674 | 710 |
| Hunters: | 1,691 | 1,370 | 1,400 |
| Hunter Success: | 57% | 49% | 51 % |
| Active Licenses: | 1,815 | 1,378 | 1,450 |
| Active License Success: | 53% | 49% | 49 % |
| Recreation Days: | 7,530 | 5,922 | 6,100 |
| Days Per Animal: | 7.8 | 8.8 | 8.6 |
| Males per 100 Females | 27 | 25 | |
| Juveniles per 100 Females | 63 | 71 | |

Population Objective (± 20%) : 11000 (8800 - 13200)

Management Strategy: Recreational

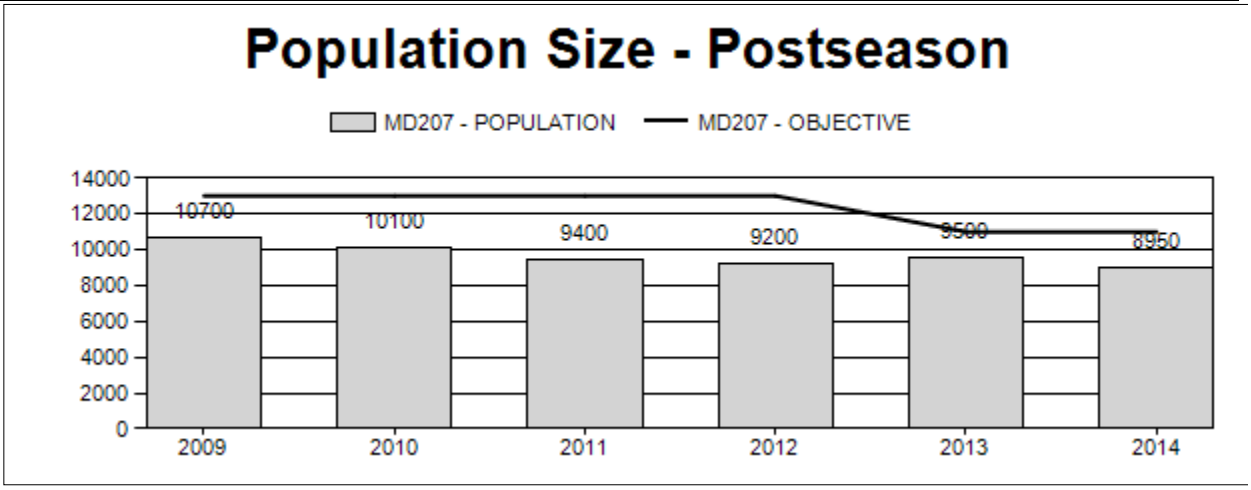
Percent population is above (+) or below (-) objective: -18.6%

Number of years population has been + or - objective in recent trend: 9

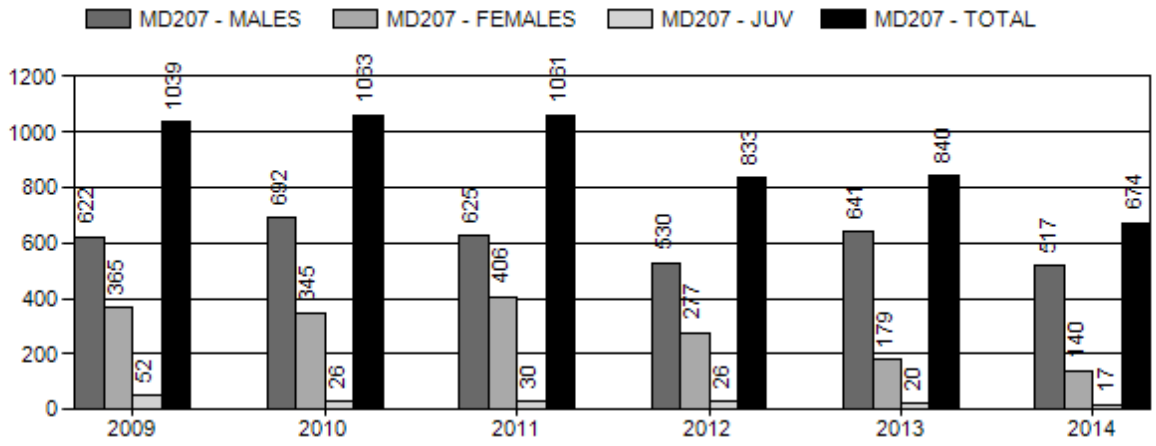
Model Date: 02/27/2015

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

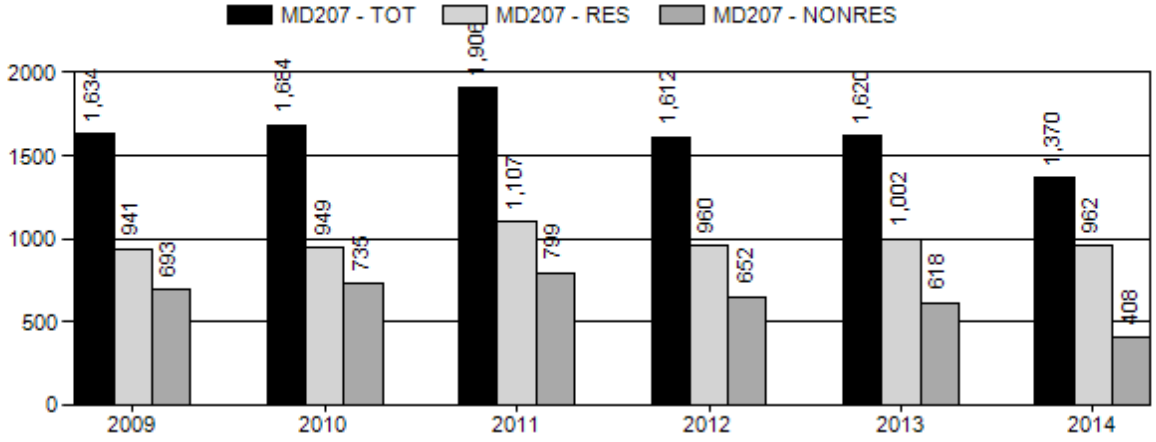
| | JCR Year | Proposed |
|---|---|---|
| Females ≥ 1 year old: | 4% | 3% |
| Males ≥ 1 year old: | 27% | 29% |
| Juveniles (< 1 year old): | .5% | .5% |
| Total: | 7% | 7% |
| Proposed change in post-season population: | -2% | +4% |



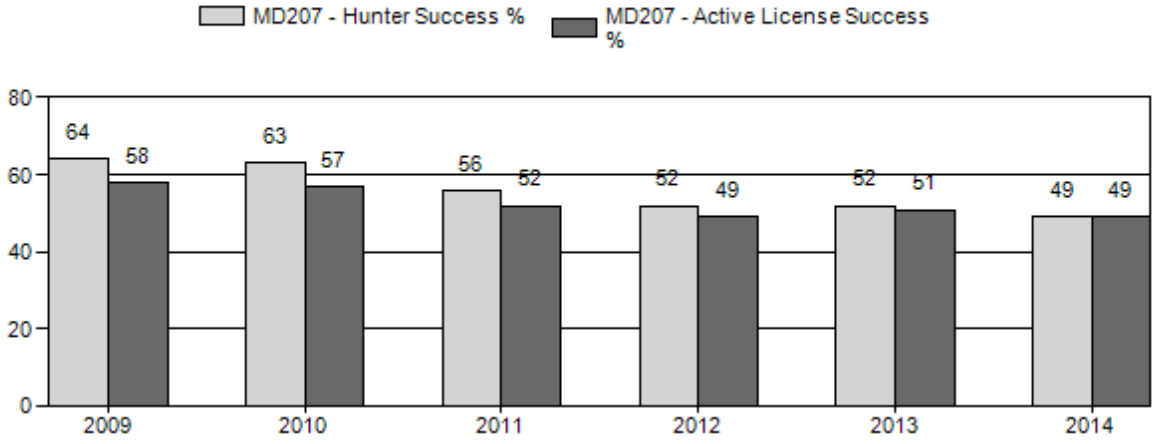
# Harvest



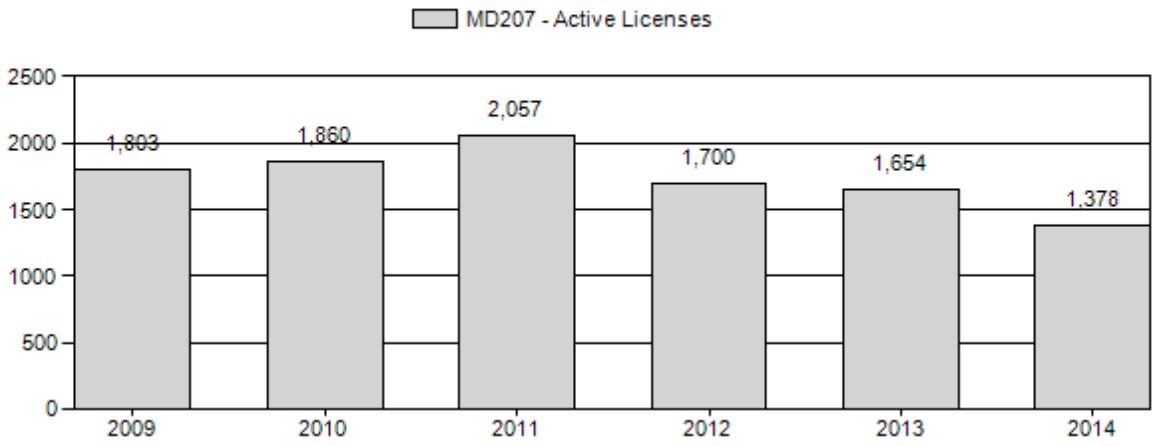

# Number of Hunters



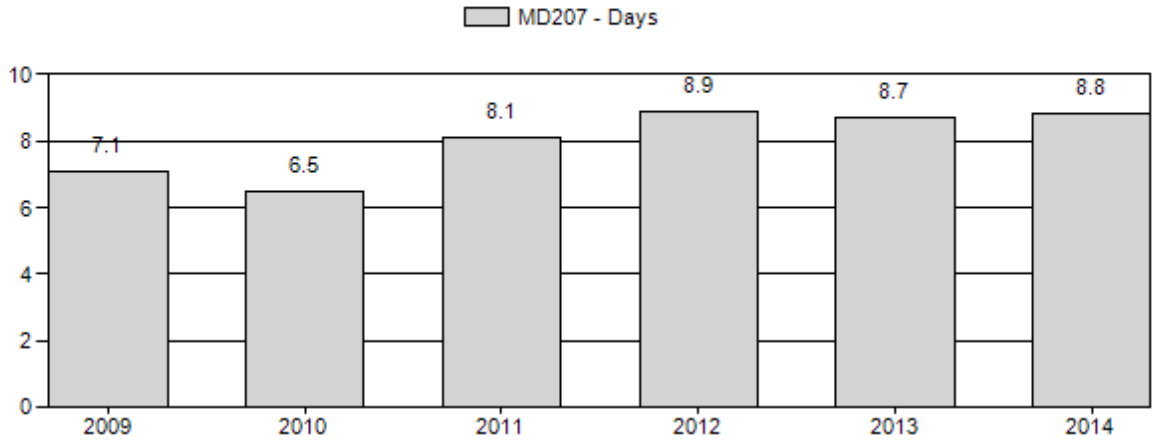

# Harvest Success



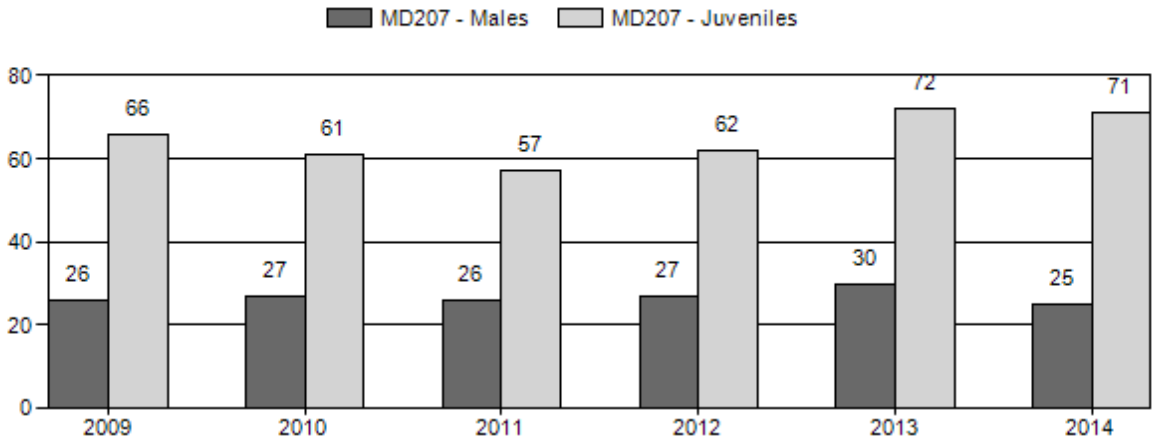
# Active Licenses




# Days per Animal Harvested




# Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD207 - PAINTROCK

| | | MALES | | | | | | | FEMALES | | JUVENILES | | | | Males to 100 Females | | | | Young to | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Post Pop | Ylg | 2+ Cls 1 | 2+ Cls 2 | 2+ Cls 3 | 2+ UnCls | Total | % | Total | % | Total | % | Tot Cls | Cls Obj | Ylng | Adult | Total | Conf Int | 100 Fem | Conf Int | 100 Adult |
| 2009 | 10,700 | 91 | 0 | 0 | 0 | 176 | 267 | 13% | 1,040 | 52% | 689 | 35% | 1,996 | 1,210 | 9 | 17 | 26 | ± 2 | 66 | ± 4 | 53 |
| 2010 | 10,100 | 121 | 0 | 0 | 0 | 180 | 301 | 14% | 1,121 | 53% | 682 | 32% | 2,104 | 1,058 | 11 | 16 | 27 | ± 2 | 61 | ± 3 | 48 |
| 2011 | 9,400 | 84 | 0 | 0 | 0 | 193 | 277 | 14% | 1,078 | 55% | 612 | 31% | 1,967 | 1,209 | 8 | 18 | 26 | ± 2 | 57 | ± 3 | 45 |
| 2012 | 9,200 | 87 | 0 | 0 | 0 | 147 | 234 | 14% | 877 | 53% | 542 | 33% | 1,653 | 1,060 | 10 | 17 | 27 | ± 2 | 62 | ± 4 | 49 |
| 2013 | 9,500 | 98 | 0 | 0 | 0 | 141 | 239 | 15% | 789 | 49% | 570 | 36% | 1,598 | 904 | 12 | 18 | 30 | ± 3 | 72 | ± 5 | 55 |
| 2014 | 8,950 | 94 | 0 | 0 | 0 | 85 | 179 | 13% | 704 | 51% | 499 | 36% | 1,382 | 1,167 | 13 | 12 | 25 | ± 3 | 71 | ± 5 | 57 |

## 2015 HUNTING SEASONS
## Paintrock Mule Deer Herd Unit (MD207)

| Hunt Area | Type | Dates of Seasons Opens | Closes | Quota | Limitations |
|---|---|---|---|---|---|
| 41 | | Oct. 15 | Oct. 24 | | General license; antlered deer |
| | 3 | Nov. 1 | Nov. 30 | 50 | Limited quota; any white-tailed deer |
| | 6 | Oct. 15 | Oct. 31 | 75 | Limited quota; doe or fawn valid on or within one-half (½) mile of irrigated land |
| 41 | 8 | Nov. 1 | Nov. 30 | 50 | Limited quota; doe or fawn white-tailed deer |
| 46 | | Oct. 15 | Oct. 24 | | General license; antlered deer |
| 47 | | Oct. 15 | Oct. 24 | | General licenses; antlered deer |
| | 6 | Oct. 15 | Oct. 31 | 50 | Limited quota; Doe or fawn valid within one-half (1/2) mile of irrigated land |
| | 8 | Oct. 15 | Nov. 30 | 50 | Limited quota; Doe or fawn white-tailed deer |
| 47, 51 Archery | 3 | Oct. 15 | Nov. 30 | 50 | Limited quota; any white-tailed deer |
| 41, 46, 47 | | Sept. 1 | Sept. 30 | | Refer to Section 2 of this Chapter |

**Region R nonresident quota = 750**

| Hunt Area | Type | Quota change from 2014 |
|---|---|---|
| 41 | 6 | +25 |
| 41,47 | 8 | -100 |
| 41 | 8 | +50 |
| 47 | 6 | +50 |
| 47 | 8 | +50 |
| HU Total | | +75 |

**Management Evaluation**
**Current Management Objective: 11,000**
**2014 Postseason Population Estimate: 9,000**
**2015 Proposed Postseason Population Estimate: 9,400**

**Herd Unit Issues.** The population objective for the Paintrock mule deer herd was originally set at 13,000 deer in 1995 when the herd unit was created from two pre-existing herd units. After a public review process, the population objective was lowered to 11,000 deer in 2013, because an objective of 13,000 deer was unrealistic due to poor habitat conditions (drought) and low landowner tolerance of deer in crops. Spreadsheet models estimate the herd around 9,000 deer and the management goal for this herd unit is recreational. Bentonite mining and oil/gas development occur on the west side of the herd unit where habitat is marginal and is not a big

factor at this time. Farming has altered riparian habitat on private land and increased available forage, but landowner tolerance of deer on cropland is low so antlerless deer harvest is driven by landowner damage complaints.

**Weather.** Drought is probably the most important factor influencing survival and productivity of this deer herd with drought occurring in 2000-04 and 2012. Growing season precipitation in 2014 was slightly below average, but excellent vegetation growth was observed overall in the Bighorn Basin.

**Habitat.** There are 2 sagebrush browse transects in this herd unit and data is insufficient to draw inferences across the entire herd unit. 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%. The second transect, Alkali Creek drainage is in the northern portion of the herd unit and is slightly more productive than Brokenback. Utilization averaged 10.9%, well below levels that should affect plant health. Winter severity and snow depth probably determines how many deer concentrate near this site.

**Field Data.** This population has had low fawn:doe ratios during the drought of 2000-04 averaging 54 fawns:100 does, slowing population growth. In years with normal precipitation (2005-14), the average fawn ratio was 63 fawns:100 does, a level that will barely maintain the population. Currently we have observed fawn ratios (2013-14) >70:100, which may suggest an increasing population (Unsworth et al. 1999). The total number of deer observed during classification surveys declined over the past 20 years. In 1993 and 1994, 3,000 and 3,500 deer were surveyed, respectively. Numbers dropped to 2,500 or below for the remainder of the 1990s and then during the drought of 2000-04, only about 2,000 deer were observed. Number of deer classified has rarely been over 2,000 deer since 2005 with the exception of 2007 (n=2,865). We survey farmland from the ground and use helicopter aerial surveys for higher elevation winter ranges.

Maintaining buck:doe ratios between 25-29:100 (recreational management) is the goal for of this herd unit. During the mid 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 2009-2014, the buck ratio remained stable at about 27:100. For the 2015 hunting season, we changed from “any deer” to “antlered deer” in an effort to further reduce doe/fawn harvest.

**Harvest Data.** Harvest decreased since 2009 as a response to fewer licenses offered, a lower nonresident quota, and a decreasing deer population. Total harvest decreased, from about 1000 deer in 2009 to 675 in 2014 and hunter success was also lower in 2014 at 49% compared to 64% in 2009, and the 5-year-average of 51%. Days per animal harvested increased from about 7 days in 2009 to nearly 9 days in 2014, also indicating deer were more difficult to find in 2014. Despite fewer deer in 2014 compared to 2009, hunter satisfaction remains high with about 71% satisfied versus 14% unsatisfied.

**Population.** The time-specific juvenile constant adult survival (TSJ,CA), model estimates this population at objective (13,000 deer) through the late 1990s. Beginning with the extended drought in 2000-04, the model indicated a population decrease, except for a spike in 2007. By 2012, the population estimate dropped to a low of 8,380 deer, but rebounded to 8,950 by post-

season 2014 due to good fawn production. The TSJ,CA model performs fair and the results are biologically defensible, but the model could benefit from a sample-based population estimate with standard errors.

**Management Summary.** Several indices suggest the Paintrock mule deer population has declined since the early 1990s, and is 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 and numbers of doe/fawn licenses for the 2015 season are as low as needed to address crop depredation. 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. Placing a point restriction on the general license season and/or reducing the nonresident quota are usually only proposed if buck:doe ratios indicate drastic declines. In this case, buck:doe ratios have been stable for the past five years. In a minor effort to halt the declining number of deer in this herd, we are changing the general license hunting seasons from "any deer" to "antlered deer" and restricting doe/fawn licenses to areas with crop damage.

**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.

| INPUT | |
|---|---|
| **Species:** | Deer |
| **Biologist:** | Leslie Schreiber |
| **Herd Unit & No.:** | Paintrock-MD207 |
| **Model date:** | 02/17/15 |

☑ Clear form

| MODELS SUMMARY | | Fit | Relative AICc | Check best model to create report | Notes |
|---|---|---|---|---|---|
| **CJ,CA** | **Constant Juvenile & Adult Survival** | 95 | 104 | ☐ CJ,CA Model | |
| **SCJ,SCA** | **Semi-Constant Juvenile & Semi-Constant Adult Survival** | 130 | 156 | ☐ SCJ,SCA Mod | |
| **TSJ,CA** | **Time-Specific Juvenile & Constant Adult Survival** | 12 | 146 | ☑ TSJ,CA Model | |

**Population Estimates from Top Model**

| Year | Posthunt Population Est. | | Trend Count | Predicted Prehunt Population | | | Total | Predicted Posthunt Population | | | Total | Objective |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Field Est | Field SE | | Juveniles | Total Males | Females | | Juveniles | Total Males | Females | | |
| **1993** | | | | 4362 | 3489 | 8907 | 16758 | 4265 | 2052 | 7798 | 14115 | 13000 |
| **1994** | | | | 4194 | 3003 | 7969 | 15166 | 4150 | 1826 | 7407 | 13383 | 13000 |
| **1995** | | | | 3587 | 2408 | 7231 | 13226 | 3567 | 1560 | 6867 | 11993 | 13000 |
| **1996** | | | | 4401 | 2466 | 7052 | 13919 | 4401 | 1748 | 6855 | 13004 | 13000 |
| **1997** | | | | 4736 | 2405 | 6819 | 13960 | 4698 | 1741 | 6664 | 13103 | 13000 |
| **1998** | | | | 4011 | 2444 | 6699 | 13154 | 3995 | 1478 | 6479 | 11953 | 13000 |
| **1999** | | | | 4665 | 3076 | 7397 | 15138 | 4648 | 1710 | 7279 | 13638 | 13000 |
| **2000** | | | | 3440 | 2486 | 7299 | 13225 | 3408 | 1407 | 7092 | 11907 | 13000 |
| **2001** | | | | 3011 | 1898 | 6811 | 11719 | 2995 | 1062 | 6562 | 10619 | 13000 |
| **2002** | | | | 3210 | 1711 | 6465 | 11385 | 3203 | 1238 | 6313 | 10754 | 13000 |
| **2003** | | | | 4397 | 1711 | 6096 | 12204 | 4362 | 1385 | 5943 | 11690 | 13000 |
| **2004** | | | | 3113 | 2069 | 6009 | 11191 | 3088 | 1206 | 5888 | 10181 | 13000 |
| **2005** | | | | 3971 | 2432 | 6478 | 12881 | 3942 | 1554 | 6201 | 11696 | 13000 |
| **2006** | | | | 4420 | 2783 | 6799 | 14001 | 4398 | 1916 | 6455 | 12769 | 13000 |
| **2007** | | | | 3166 | 2535 | 6458 | 12160 | 3130 | 1892 | 6096 | 11118 | 13000 |
| **2008** | | | | 3449 | 2277 | 5911 | 11636 | 3401 | 1459 | 5592 | 10452 | 13000 |
| **2009** | | | | 3493 | 2015 | 5587 | 11095 | 3436 | 1331 | 5186 | 9952 | 13000 |
| **2010** | | | | 3117 | 2124 | 5455 | 10696 | 3088 | 1363 | 5076 | 9526 | 13000 |
| **2011** | | | | 2669 | 1880 | 5089 | 9638 | 2636 | 1193 | 4642 | 8471 | 13000 |
| **2012** | | | | 2776 | 1770 | 4751 | 9297 | 2748 | 1187 | 4446 | 8380 | 13000 |
| **2013** | | | | 3368 | 2012 | 4829 | 10208 | 3346 | 1307 | 4632 | 9284 | 11000 |
| **2014** | | | | 3221 | 1798 | 4672 | 9691 | 3202 | 1230 | 4518 | 8950 | 11000 |
| **2015** | | | | 3076 | 2115 | 4957 | 10148 | 3054 | 1510 | 4803 | 9367 | 11000 |
| **2016** | | | | | | | | | | | | 11000 |
| **2017** | | | | | | | | | | | | 11000 |
| **2018** | | | | | | | | | | | | 11000 |
| **2019** | | | | | | | | | | | | 11000 |
| **2020** | | | | | | | | | | | | 11000 |
| **2021** | | | | | | | | | | | | 11000 |
| **2022** | | | | | | | | | | | | 11000 |
| **2023** | | | | | | | | | | | | |
| **2024** | | | | | | | | | | | | |
| **2025** | | | | | | | | | | | | |

## Survival and Initial Population Estimates

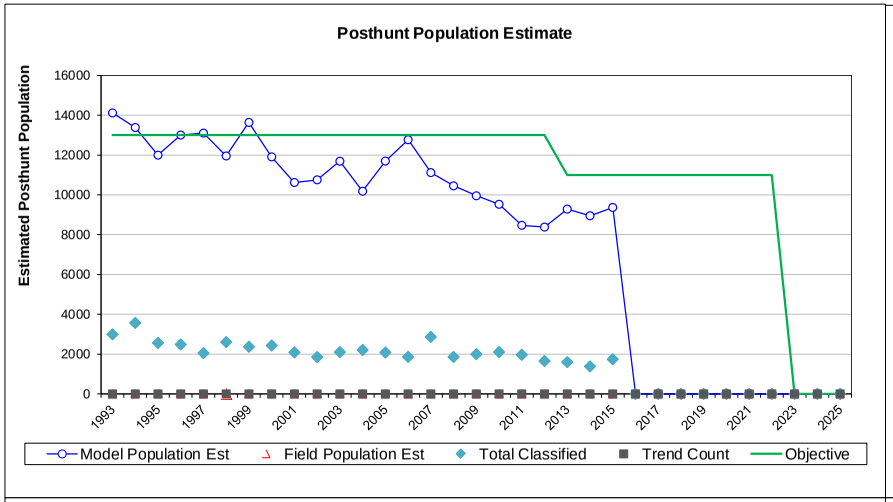
| Year | Annual Juvenile Survival Rates | | | Annual Adult Survival Rates | | |
|---|---|---|---|---|---|---|
| | Model Est | Field Est | SE | Model Est | Field Est | SE |
| 1993 | 0.58 | | | 0.86 | | |
| 1994 | 0.40 | | | 0.86 | | |
| 1995 | 0.63 | | | 0.86 | | |
| 1996 | 0.41 | | | 0.86 | | |
| 1997 | 0.40 | | | 0.86 | | |
| 1998 | 0.90 | | | 0.86 | | |
| 1999 | 0.43 | | | 0.86 | | |
| 2000 | 0.40 | | | 0.86 | | |
| 2001 | 0.53 | | | 0.86 | | |
| 2002 | 0.40 | | | 0.86 | | |
| 2003 | 0.40 | | | 0.86 | | |
| 2004 | 0.90 | | | 0.86 | | |
| 2005 | 0.73 | | | 0.86 | | |
| 2006 | 0.40 | | | 0.86 | | |
| 2007 | 0.41 | | | 0.86 | | |
| 2008 | 0.44 | | | 0.86 | | |
| 2009 | 0.57 | | | 0.86 | | |
| 2010 | 0.46 | | | 0.86 | | |
| 2011 | 0.56 | | | 0.86 | | |
| 2012 | 0.72 | | | 0.86 | | |
| 2013 | 0.40 | | | 0.86 | | |
| 2014 | 0.66 | | | 0.86 | | |
| 2015 | 0.81 | | | 0.86 | | |
| 2016 | | | | | | |
| 2017 | | | | | | |
| 2018 | | | | | | |
| 2019 | | | | | | |
| 2020 | | | | | | |
| 2021 | | | | | | |
| 2022 | | | | | | |
| 2023 | | | | | | |
| 2024 | | | | | | |
| 2025 | | | | | | |

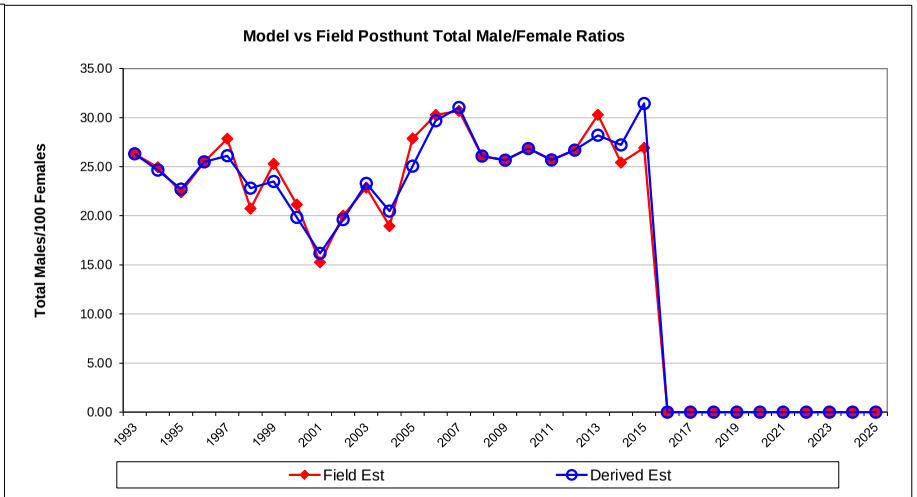
| Parameters: | Optim cells |
|---|---|
| | |
| Adult Survival = | 0.864 |
| Initial Total Male Pop/10,000 = | 0.205 |
| Initial Female Pop/10,000 = | 0.780 |

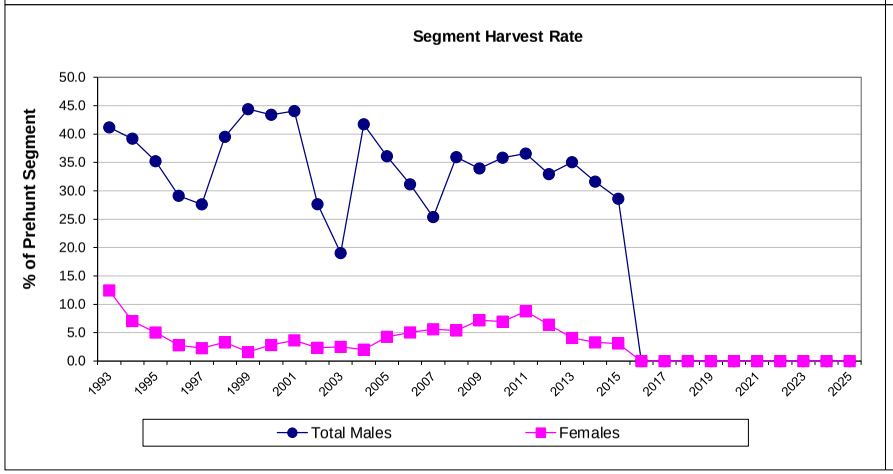
| MODEL ASSUMPTIONS | |
|---|---|
| Sex Ratio (% Males) = | 50% |
| Wounding Loss (total males) = | 10% |
| Wounding Loss (females) = | 10% |
| Wounding Loss (juveniles) = | 10% |

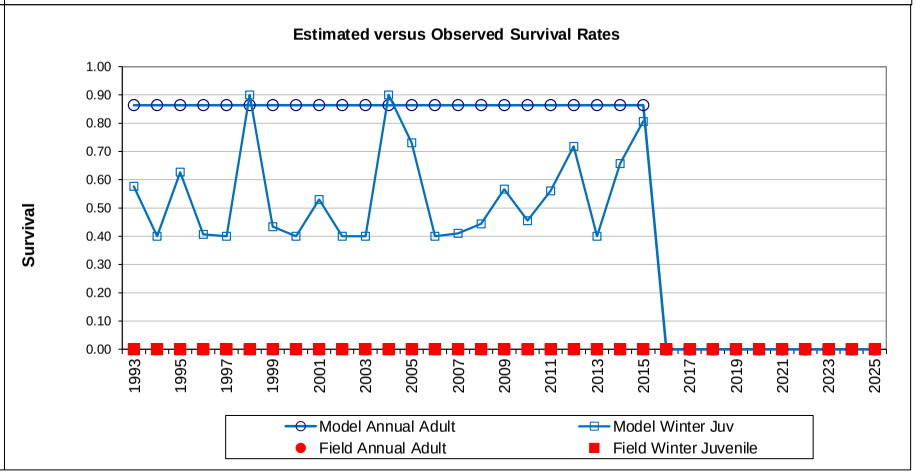
| Classification Counts | | | | | | | | | | | Harvest | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Juvenile/Female Ratio | | | Total Male/Female Ratio | | | | | | | Segment Harvest Rate (% of | |
| | Derived Est | Field Est | Field SE | Derived Est | Field Est w/o bull adj | Field SE | Juv | Males | Females | Total Harvest | Total Males | Females |
| 1993 | | 54.69 | 2.26 | 26.32 | 26.32 | 1.42 | 89 | 1306 | 1008 | 2403 | 41.2 | 12.4 |
| 1994 | | 56.03 | 2.11 | 24.65 | 24.95 | 1.26 | 40 | 1070 | 511 | 1621 | 39.2 | 7.1 |
| 1995 | | 51.94 | 2.32 | 22.72 | 22.40 | 1.37 | 19 | 771 | 331 | 1121 | 35.2 | 5.0 |
| 1996 | | 64.20 | 2.84 | 25.50 | 25.50 | 1.56 | 0 | 653 | 179 | 832 | 29.1 | 2.8 |
| 1997 | | 70.50 | 3.41 | 26.12 | 27.85 | 1.86 | 34 | 604 | 141 | 779 | 27.6 | 2.3 |
| 1998 | | 61.67 | 2.64 | 22.82 | 20.74 | 1.32 | 14 | 878 | 200 | 1092 | 39.5 | 3.3 |
| 1999 | | 63.85 | 2.89 | 23.50 | 25.30 | 1.59 | 16 | 1241 | 107 | 1364 | 44.4 | 1.6 |
| 2000 | | 48.05 | 2.22 | 19.84 | 21.14 | 1.33 | 29 | 981 | 188 | 1198 | 43.4 | 2.8 |
| 2001 | | 45.64 | 2.26 | 16.18 | 15.27 | 1.16 | 14 | 760 | 226 | 1000 | 44.1 | 3.7 |
| 2002 | | 50.74 | 2.66 | 19.61 | 20.02 | 1.49 | 6 | 430 | 138 | 574 | 27.6 | 2.3 |
| 2003 | | 73.39 | 3.45 | 23.30 | 22.88 | 1.62 | 32 | 296 | 139 | 467 | 19.0 | 2.5 |
| 2004 | | 52.45 | 2.49 | 20.48 | 18.96 | 1.32 | 23 | 785 | 110 | 918 | 41.7 | 2.0 |
| 2005 | | 63.57 | 3.09 | 25.06 | 27.87 | 1.81 | 27 | 798 | 252 | 1077 | 36.1 | 4.3 |
| 2006 | | 68.12 | 3.49 | 29.68 | 30.28 | 2.05 | 20 | 788 | 312 | 1120 | 31.1 | 5.0 |
| 2007 | | 51.33 | 2.22 | 31.03 | 30.69 | 1.60 | 33 | 585 | 329 | 947 | 25.4 | 5.6 |
| 2008 | | 60.83 | 3.14 | 26.09 | 26.08 | 1.82 | 43 | 744 | 290 | 1077 | 35.9 | 5.4 |
| 2009 | | 66.25 | 3.25 | 25.67 | 25.67 | 1.76 | 52 | 622 | 365 | 1039 | 33.9 | 7.2 |
| 2010 | | 60.84 | 2.95 | 26.85 | 26.85 | 1.74 | 26 | 692 | 345 | 1063 | 35.8 | 7.0 |
| 2011 | | 56.77 | 2.87 | 25.69 | 25.70 | 1.73 | 30 | 625 | 406 | 1061 | 36.6 | 8.8 |
| 2012 | | 61.80 | 3.38 | 26.69 | 26.68 | 1.96 | 26 | 530 | 277 | 833 | 32.9 | 6.4 |
| 2013 | | 72.24 | 3.97 | 28.21 | 30.29 | 2.24 | 20 | 641 | 179 | 840 | 35.0 | 4.1 |
| 2014 | | 70.88 | 4.15 | 27.22 | 25.43 | 2.13 | 17 | 517 | 140 | 674 | 31.6 | 3.3 |
| 2015 | | 63.58 | 3.37 | 31.44 | 26.92 | 1.93 | 20 | 550 | 140 | 710 | 28.6 | 3.1 |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | |
| 2022 | | | | | | | | | | | | |
| 2023 | | | | | | | | | | | | |
| 2024 | | | | | | | | | | | | |
| 2025 | | | | | | | | | | | | |

## FIGURES




**Comments:**

## END

Date: November 30, 2014
Observer: Schreiber, Lentsch
Species: Mule Deer
Survey Type: Classification
Air Service: SKY Aviation
Conditions: very cold, high 15°F, small patches fog, mostly calm winds
Flight Duration: 3 hours

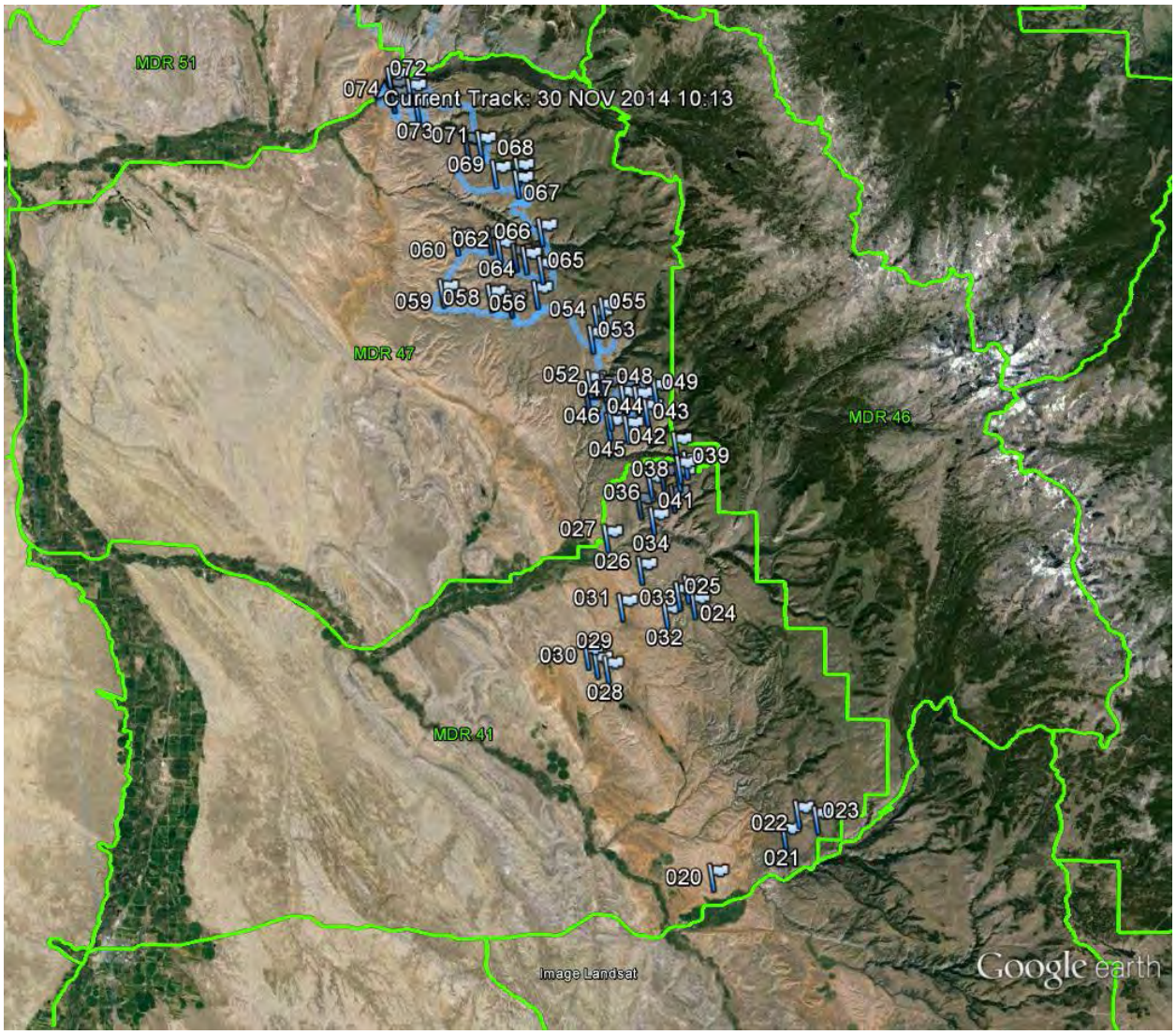
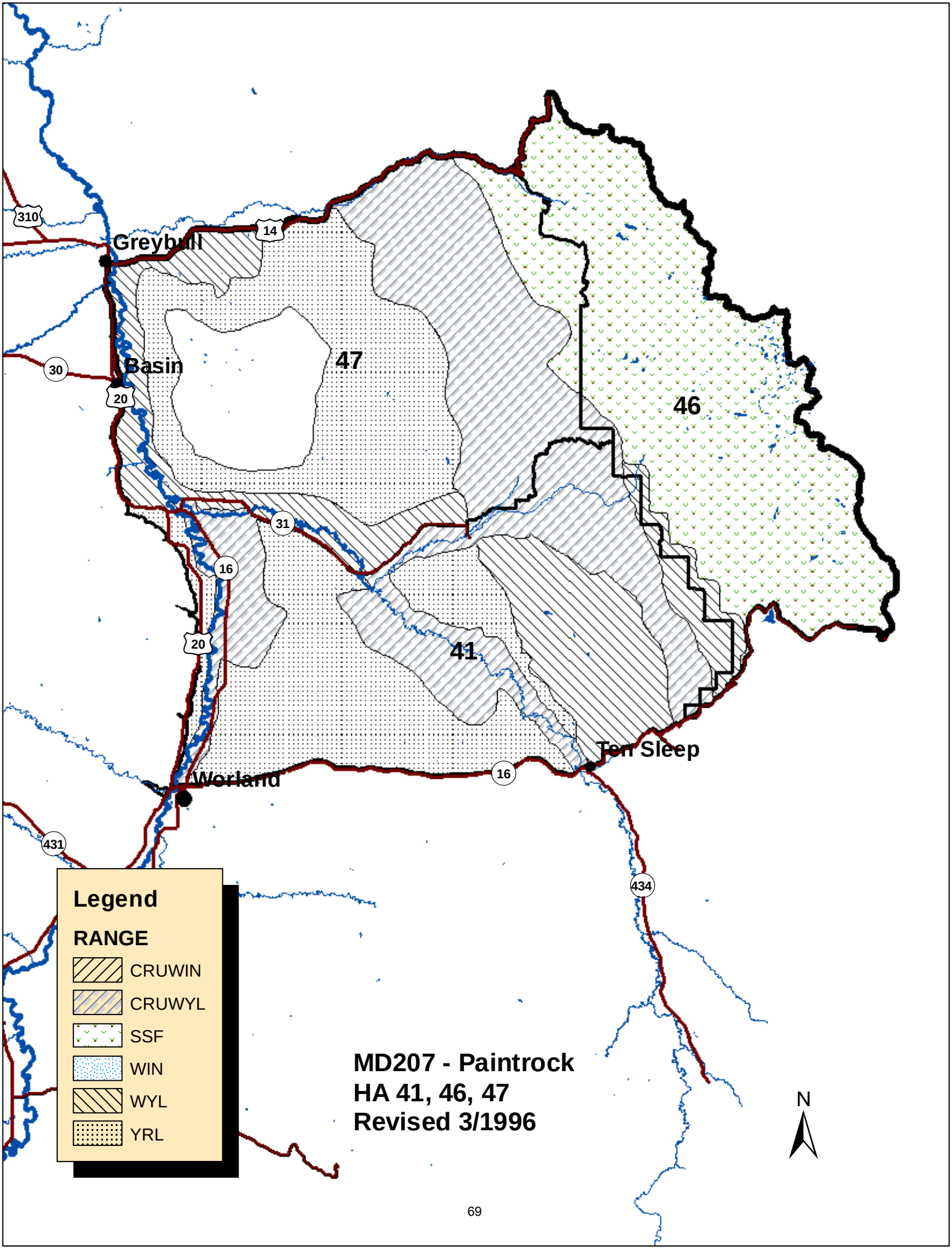



Figure 1. Deer classification flight track showing waypoint number.


310
Greybull
14
30
Basin
20
47
46
31
16
20
41
Ten Sleep
16
Worland
431
434
Legend
RANGE
CRUWIN
CRUWYL
SSF
WIN
WYL
YRL
MD207 - Paintrock
HA 41, 46, 47
Revised 3/1996
N

# 2014 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2014 - 5/31/2015

HERD: MD208 - SOUTHWEST BIGHORNS

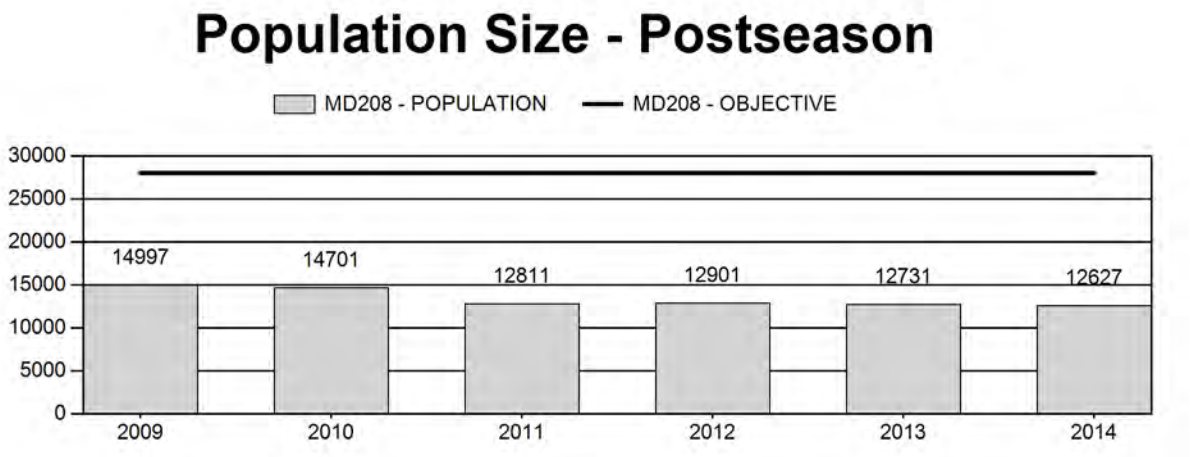
HUNT AREAS: 35-37, 39-40, 164
PREPARED BY: BART KROGER

| | 2009 - 2013 Average | 2014 | 2015 Proposed |
|---|---|---|---|
| Population: | 13,628 | 12,627 | 12,657 |
| Harvest: | 1,409 | 1,096 | 1,100 |
| Hunters: | 2,310 | 2,012 | 2,000 |
| Hunter Success: | 61% | 54% | 55 % |
| Active Licenses: | 2,524 | 2,027 | 2,020 |
| Active License Success: | 56% | 54% | 54 % |
| Recreation Days: | 10,341 | 9,867 | 10,000 |
| Days Per Animal: | 7.3 | 9.0 | 9.1 |
| Males per 100 Females | 30 | 30 | |
| Juveniles per 100 Females | 56 | 76 | |

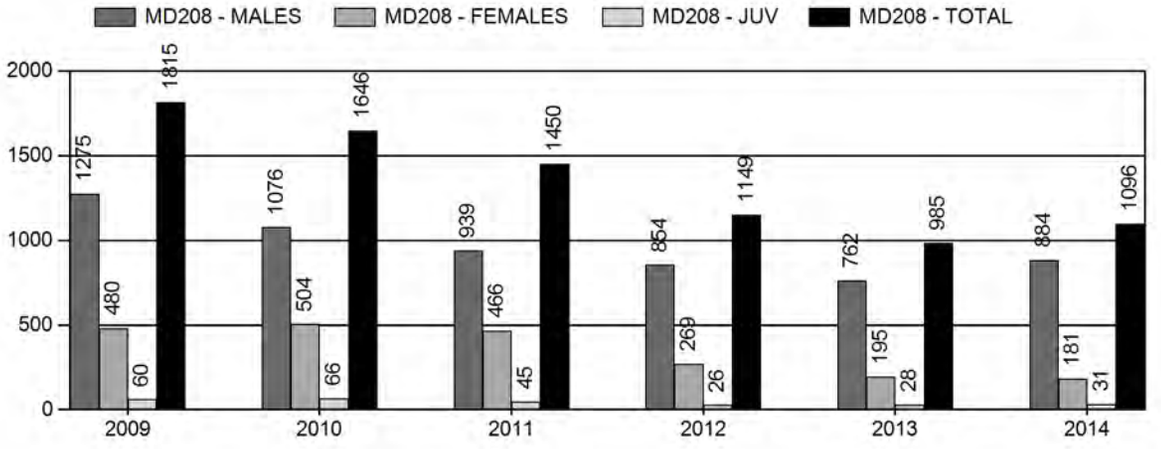
| | |
|---|---|
| Population Objective (± 20%) : | 28000 (22400 - 33600) |
| Management Strategy: | Recreational |
| Percent population is above (+) or below (-) objective: | -54.9% |
| Number of years population has been + or - objective in recent trend: | 20 |
| Model Date: | 2/24/2015 |

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

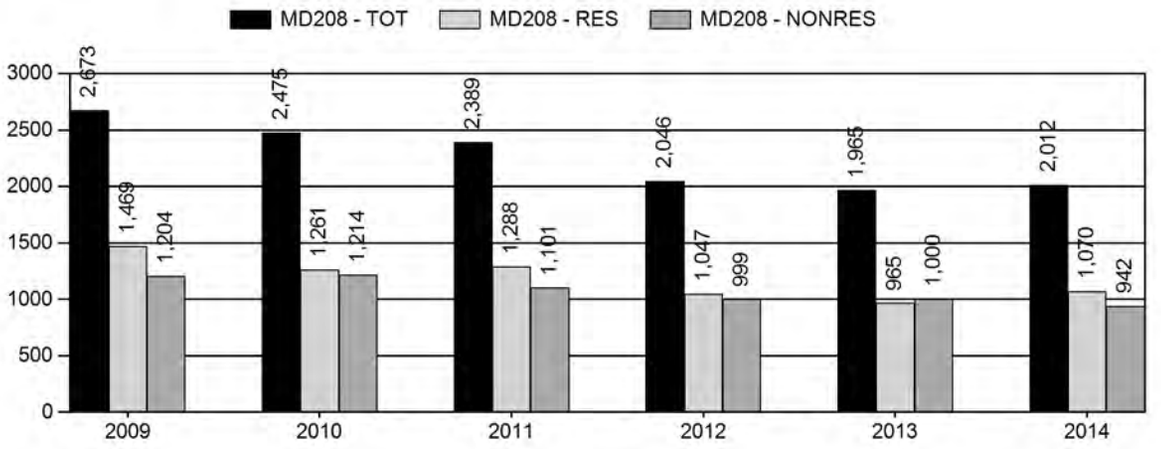
| | JCR Year | Proposed |
|---|---|---|
| Females ≥ 1 year old: | 3% | 3% |
| Males ≥ 1 year old: | 33% | 29% |
| Juveniles (< 1 year old): | .5% | .5% |
| Total: | 8% | 8% |
| Proposed change in post-season population: | 0% | 0% |



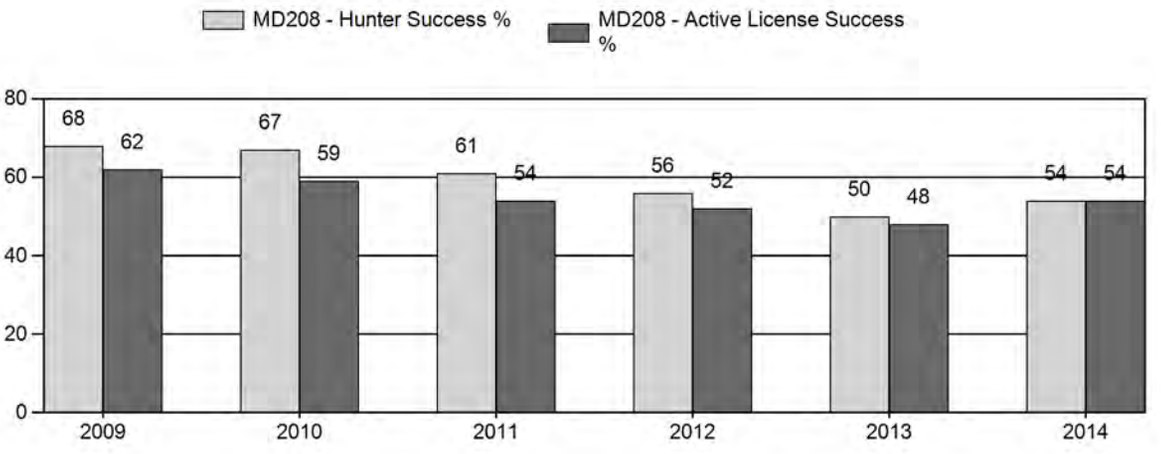
# Harvest



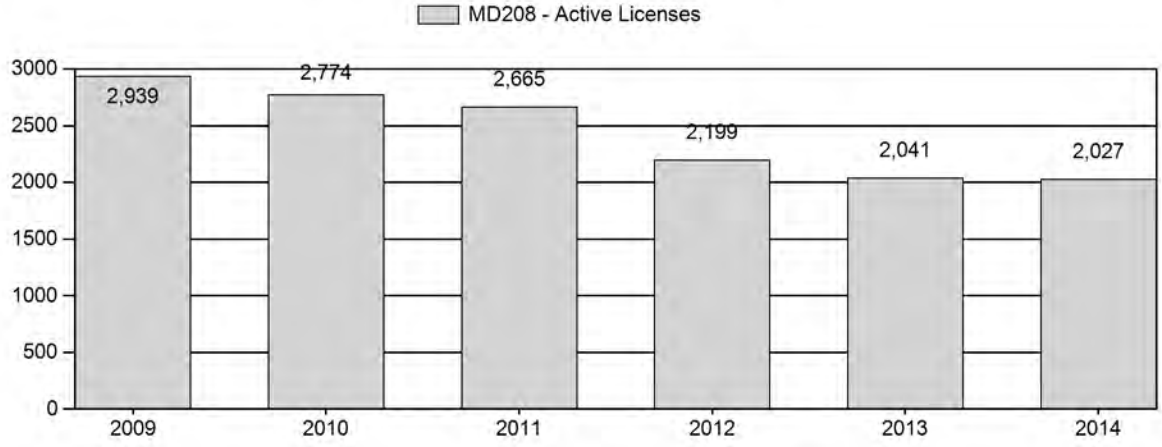

# Number of Hunters



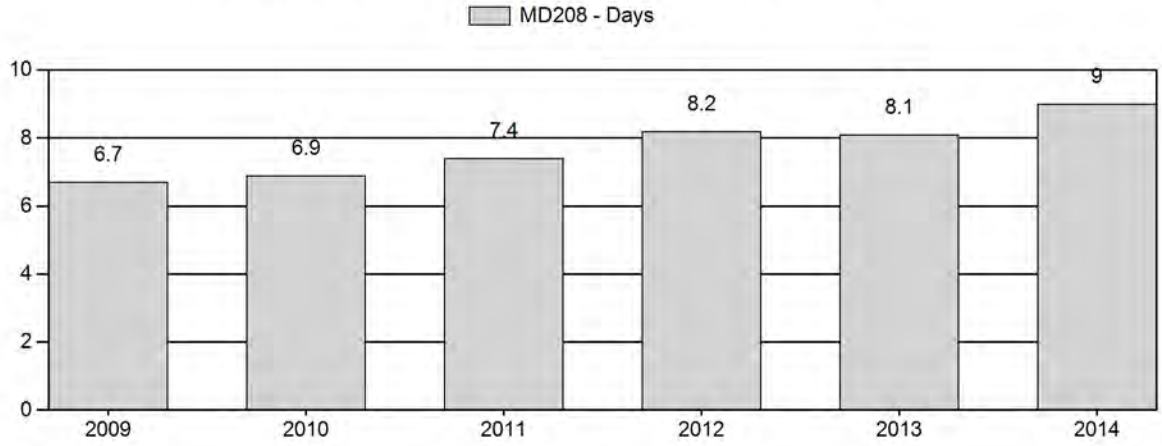

# Harvest Success



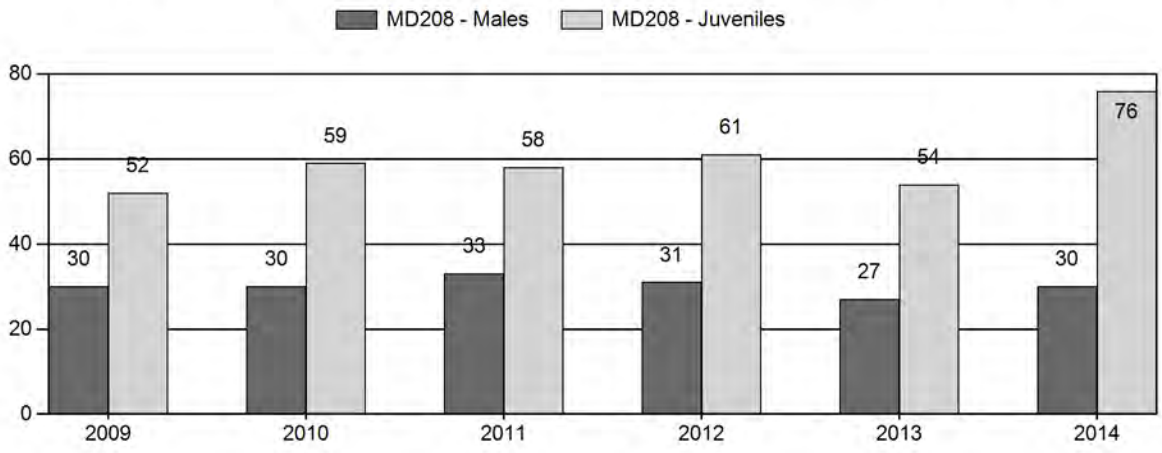
# Active Licenses




# Days per Animal Harvested




# Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD208 - SOUTHWEST BIGHORNS

| | | MALES | | | | | | | FEMALES | | JUVENILES | | | | Males to 100 Females | | | | Young to | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Post Pop | Ylg | 2+ Cls 1 | 2+ Cls 2 | 2+ Cls 3 | 2+ UnCls | Total | % | Total | % | Total | % | Tot Cls | Cls Obj | Ylng | Adult | Total | Conf Int | 100 Fem | Conf Int | 100 Adult |
| 2009 | 14,997 | 142 | 0 | 0 | 0 | 249 | 391 | 16% | 1,315 | 55% | 682 | 29% | 2,388 | 914 | 11 | 19 | 30 | ± 2 | 52 | ± 3 | 40 |
| 2010 | 14,701 | 93 | 0 | 0 | 0 | 185 | 278 | 16% | 930 | 53% | 553 | 31% | 1,761 | 1,111 | 10 | 20 | 30 | ± 2 | 59 | ± 4 | 46 |
| 2011 | 12,811 | 56 | 0 | 0 | 0 | 181 | 237 | 17% | 721 | 52% | 419 | 30% | 1,377 | 1,094 | 8 | 25 | 33 | ± 3 | 58 | ± 4 | 44 |
| 2012 | 12,901 | 56 | 0 | 0 | 0 | 141 | 197 | 16% | 633 | 52% | 383 | 32% | 1,213 | 1,152 | 9 | 22 | 31 | ± 3 | 61 | ± 5 | 46 |
| 2013 | 12,731 | 76 | 0 | 0 | 0 | 153 | 229 | 15% | 858 | 55% | 464 | 30% | 1,551 | 918 | 9 | 18 | 27 | ± 2 | 54 | ± 4 | 43 |
| 2014 | 12,627 | 93 | 40 | 40 | 6 | 83 | 262 | 14% | 882 | 49% | 674 | 37% | 1,818 | 1,584 | 11 | 19 | 30 | ± 2 | 76 | ± 5 | 59 |

## 2015 HUNTING SEASONS
## SOUTHWEST BIGHORNS MULE DEER HERD (MD208)

| Hunt Area | Type | Dates of Seasons Opens | Closes | Quota | Limitations |
|---|---|---|---|---|---|
| 35 | | Oct. 15 | Oct. 31 | | General license; any deer |
| 36 | | Oct. 15 | Oct. 22 | | General license; antlered mule deer three (3) points or more on either antler or any white-tailed deer |
| | 8 | Oct. 15 | Oct. 22 | 25 | Limited quota; doe or fawn white-tailed deer |
| 37 | 1 | Oct. 15 | Oct. 25 | 150 | Limited quota; Antlered deer |
| | 3 | Nov. 1 | Nov. 30 | 15 | Limited quota; any white-tailed deer |
| | 6 | Sep. 15 | Nov.15 | 25 | Limited quota; doe or fawn valid on or within one-half (1/2) mile of Buffalo Creek |
| 39 | | Oct. 15 | Oct. 25 | | General license; antlered deer |
| 40 | | Oct. 15 | Oct. 31 | | General license; antlered deer valid on national forest; any deer off national forest |
| | 6 | Oct. 15 | Oct. 31 | 50 | Limited quota; doe or fawn valid on private land |
| | 8 | Oct. 15 | Nov. 30 | 50 | Limited quota; doe or fawn white-tailed deer |
| 164 | | Oct. 1 | Oct. 10 | | General license; any deer |
| | 3 | Nov. 1 | Nov. 30 | 25 | Limited quota; any white-tailed deer |
| Archery 35, 36, 37, 39, 40, 164 | | Sep. 1 | Sept. 30 | | Refer to Section 2 of this chapter |

Region M Nonresident general license quota – 1000 licenses

| Hunt Area | Type | Quota change from 2014 |
|---|---|---|
| | | |
| **HU Total** | | |

**Management Evaluation**
**Current Postseason Population Management Objective:** 28,000
**Management Strategy:** Recreational
**2014 Postseason Population Estimate: 12,600**
**2015 Proposed Postseason Population Estimate: 12,700**

**Herd Unit Issues -** Since 2009, the population model only simulates a decline of about 16% in deer numbers. 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. Total harvest has declined by 45% since 2009. 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 was evaluated and approved 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 have continued to be above normal, with persistent snow and cold temperatures. Overall, annual drought conditions have improved, with periodic moisture events occurring during the year. Spring and summer moisture in 2010, 2011 and 2014 was above normal, but 2012 and 2013 were below normal during the growing season. These cyclic weather events for the most part appear to be having mostly negative effects on this deer herd since overall numbers continue to decline or are at very low densities.

**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 A). Overall, annual production (leader growth) for these transects has average around 1.5cm. 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 2014, 1,800 were classified; a decline of 25%. 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 2009, with an average of 60 fawns:100 does and 30 bucks:100 does. The fawn ratio in 2014 was 76:100, the highest in the past 20 years.

**Harvest Data -** Recent harvest statistics further support declining deer numbers in this herd. Since 2009, overall harvest has decreased by 45%, while hunter numbers have declined by 25%. During this same period, harvest success has dropped by 20%. Hunter effort has increased by 2.3 days since 2009. 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. Hunter satisfaction surveys also reveal this herd unit has had declining satisfaction ratings in recent years.

**Population -** The semi-constant juvenile & semi-constant adult survival (SCJ, SCA) spreadsheet model best represents the long-term population trend for this herd. The model had the second lowest AIC value (n=75). Although the models supports a downward trend in deer numbers, field personnel, along with declines in classification sample sizes, and worsening harvest statistics indicate this population has declined more dramatically in recent years compared to model trends. Therefore, the model is only considered a fair representation of the herd. Because

of these declining trends, and that we are below objective by 55%, we will be staying with mostly conservative seasons.

**Management Summary -** No changes to the general license seasons will be made, along with the license quota in area 37. Hunt Area 37 will have a 6 day shorter season, to coincide with Hunt Area 39. The Region M nonresident quota will remain at 1000 licenses. Damage issues in these areas have mostly subsided; therefore less harvest is warranted. The projected 2015 harvest is about 1100 deer. It's expected this deer may start showing some signs of recovery due to improved fawn ratios. However, the long-term effects of poor habitat conditions, prolonged drought, and several above normal winters will likely off-set any significant herd growth.

| INPUT | |
|---|---|
| Species: | Mule Deer |
| Biologist: | Bart Kroger |
| Herd Unit & No.: | SW Bighorn, MD208 |
| Model date: | 02/24/15 |

☑ Clear form

| MODELS SUMMARY | | Fit | Relative AICc | Check best model to create report | Notes |
|---|---|---|---|---|---|
| CJ,CA | Constant Juvenile & Adult Survival | 43 | 52 | ☐ CJ,CA Model | |
| SCJ,SCA | Semi-Constant Juvenile & Semi-Constant Adult Survival | 55 | 75 | ☑ SCJ,SCA M | |
| TSJ,CA | Time-Specific Juvenile & Constant Adult Survival | 3 | 129 | ☐ TSJ,CA Model | |

**Population Estimates from Top Model**

| Year | Posthunt Population Est. | | Trend Count | Predicted Prehunt Population | | | | Predicted Posthunt Population | | | | Objective |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Field Est | Field SE | | Juveniles | Total Males | Females | Total | Juveniles | Total Males | Females | Total | |
| 1993 | | | | 5523 | 6274 | 14825 | 26623 | 5376 | 3973 | 12758 | 22107 | 28000 |
| 1994 | | | | 4572 | 5112 | 12480 | 22164 | 4526 | 3345 | 11265 | 19136 | 28000 |
| 1995 | | | | 5313 | 4304 | 10946 | 20564 | 5246 | 2937 | 10335 | 18518 | 28000 |
| 1996 | | | | 5788 | 4201 | 10404 | 20393 | 5692 | 3106 | 9883 | 18682 | 28000 |
| 1997 | | | | 5345 | 4491 | 10174 | 20009 | 5297 | 3149 | 9864 | 18309 | 28000 |
| 1998 | | | | 6501 | 4395 | 10027 | 20922 | 6482 | 2766 | 9770 | 19018 | 28000 |
| 1999 | | | | 5688 | 4467 | 10341 | 20495 | 5644 | 2777 | 9920 | 18341 | 28000 |
| 2000 | | | | 4278 | 4198 | 10189 | 18665 | 4233 | 2633 | 9772 | 16637 | 28000 |
| 2001 | | | | 3767 | 3610 | 9597 | 16973 | 3750 | 2312 | 9152 | 15214 | 28000 |
| 2002 | | | | 4396 | 3181 | 8917 | 16495 | 4369 | 1984 | 8596 | 14949 | 28000 |
| 2003 | | | | 4671 | 3111 | 8656 | 16438 | 4646 | 2022 | 8347 | 15015 | 28000 |
| 2004 | | | | 5749 | 3235 | 8538 | 17523 | 5716 | 2059 | 8252 | 16028 | 28000 |
| 2005 | | | | 5589 | 3620 | 8814 | 18023 | 5561 | 2508 | 8437 | 16506 | 28000 |
| 2006 | | | | 5345 | 3945 | 8917 | 18208 | 5288 | 2712 | 8631 | 16631 | 28000 |
| 2007 | | | | 5360 | 4026 | 8990 | 18376 | 5328 | 2592 | 8517 | 16437 | 28000 |
| 2008 | | | | 5273 | 3938 | 8907 | 18118 | 5221 | 2591 | 8380 | 16192 | 28000 |
| 2009 | | | | 4334 | 3902 | 8757 | 16993 | 4268 | 2500 | 8229 | 14997 | 28000 |
| 2010 | | | | 4687 | 3510 | 8315 | 16512 | 4614 | 2327 | 7760 | 14701 | 28000 |
| 2011 | | | | 4030 | 3015 | 7362 | 14406 | 3980 | 1982 | 6849 | 12811 | 28000 |
| 2012 | | | | 4123 | 2981 | 7062 | 14165 | 4094 | 2041 | 6766 | 12901 | 28000 |
| 2013 | | | | 3717 | 3068 | 7030 | 13815 | 3686 | 2230 | 6816 | 12731 | 28000 |
| 2014 | | | | 4753 | 2705 | 6374 | 13832 | 4719 | 1733 | 6175 | 12627 | 28000 |
| 2015 | | | | 4109 | 3016 | 6741 | 13867 | 4076 | 2059 | 6521 | 12657 | 28000 |
| 2016 | | | | | | | | | | | | 28000 |
| 2017 | | | | | | | | | | | | 28000 |
| 2018 | | | | | | | | | | | | 28000 |
| 2019 | | | | | | | | | | | | 28000 |
| 2020 | | | | | | | | | | | | 28000 |
| 2021 | | | | | | | | | | | | 28000 |
| 2022 | | | | | | | | | | | | 28000 |
| 2023 | | | | | | | | | | | | 28000 |
| 2024 | | | | | | | | | | | | 28000 |
| 2025 | | | | | | | | | | | | 28000 |

## Survival and Initial Population Estimates

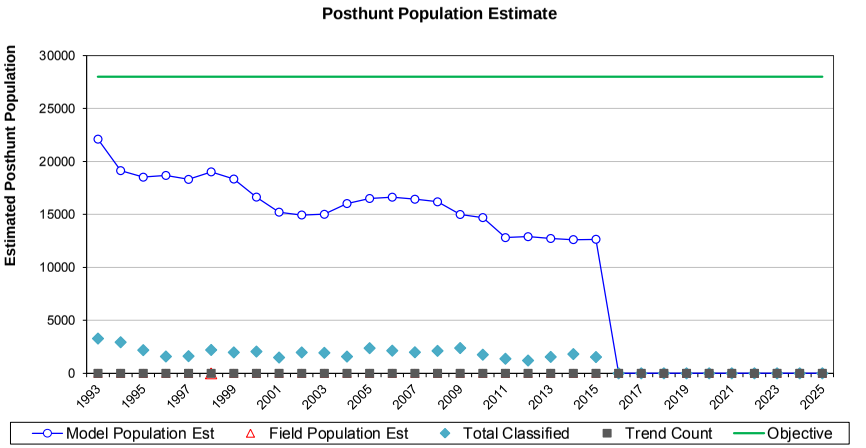
| Year | Annual Juvenile Survival Rates | | | Annual Adult Survival Rates | | |
|---|---|---|---|---|---|---|
| | Model Est | Field Est | SE | Model Est | Field Est | SE |
| 1993 | 0.66 | | | 0.84 | | |
| 1994 | 0.66 | | | 0.84 | | |
| 1995 | 0.66 | | | 0.84 | | |
| 1996 | 0.66 | | | 0.84 | | |
| 1997 | 0.66 | | | 0.84 | | |
| 1998 | 0.66 | | | 0.84 | | |
| 1999 | 0.66 | | | 0.84 | | |
| 2000 | 0.66 | | | 0.84 | | |
| 2001 | 0.66 | | | 0.84 | | |
| 2002 | 0.66 | | | 0.84 | | |
| 2003 | 0.66 | | | 0.84 | | |
| 2004 | 0.66 | | | 0.84 | | |
| 2005 | 0.66 | | | 0.84 | | |
| 2006 | 0.66 | | | 0.84 | | |
| 2007 | 0.66 | | | 0.84 | | |
| 2008 | 0.66 | | | 0.84 | | |
| 2009 | 0.66 | | | 0.84 | | |
| 2010 | 0.50 | | | 0.80 | | |
| 2011 | 0.66 | | | 0.84 | | |
| 2012 | 0.66 | | | 0.84 | | |
| 2013 | 0.50 | | | 0.80 | | |
| 2014 | 0.66 | | | 0.84 | | |
| 2015 | 0.66 | | | 0.84 | | |
| 2016 | | | | | | |
| 2017 | | | | | | |
| 2018 | | | | | | |
| 2019 | | | | | | |
| 2020 | | | | | | |
| 2021 | | | | | | |
| 2022 | | | | | | |
| 2023 | | | | | | |
| 2024 | | | | | | |
| 2025 | | | | | | |

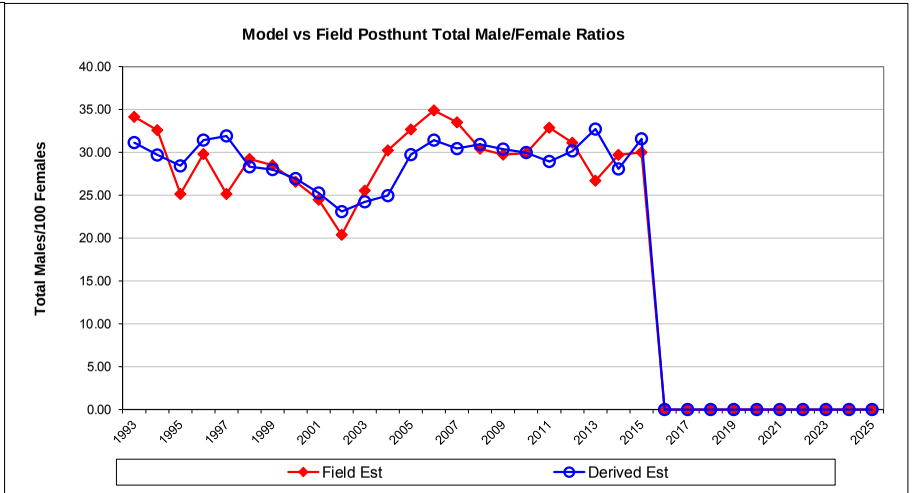
| Parameters: | Optim cells |
|---|---|
| Juvenile Survival = | 0.663 |
| Adult Survival = | 0.839 |
| Initial Total Male Pop/10,000 = | 0.397 |
| Initial Female Pop/10,000 = | 1.276 |

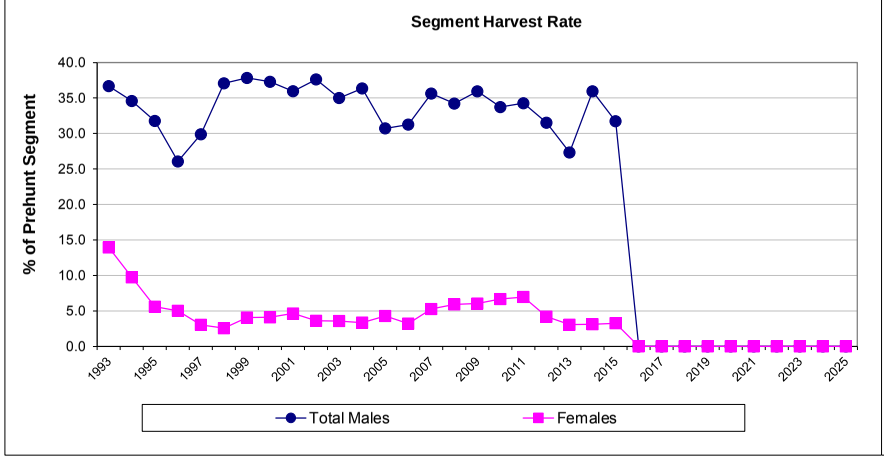
| MODEL ASSUMPTIONS | |
|---|---|
| Sex Ratio (% Males) = | 50% |
| Wounding Loss (total males) = | 10% |
| Wounding Loss (females) = | 10% |
| Wounding Loss (juveniles) = | 10% |

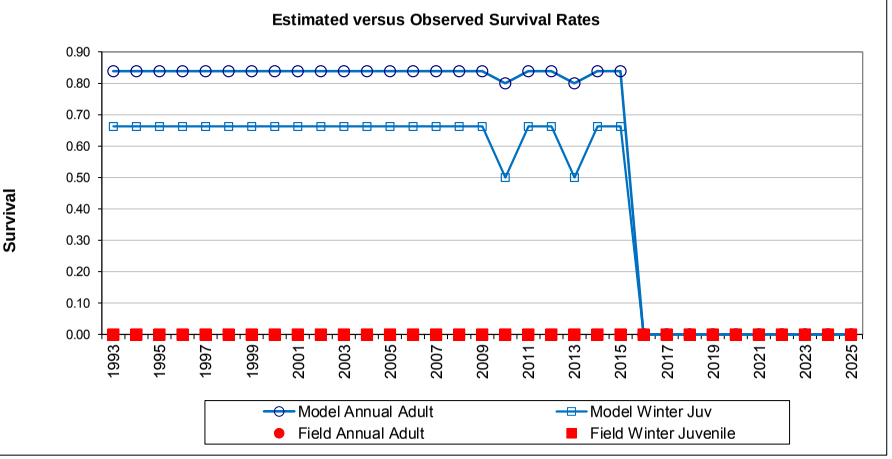
| Year | Classification Counts: Juvenile/Female Ratio | | | Classification Counts: Total Male/Female Ratio | | | Classification Counts | | | | Harvest: Segment Harvest Rate (% of | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Derived Est | Field Est | Field SE | Derived Est | Field Est w/o bull adj | Field SE | Juv | Males | Females | Total Harvest | Total Males | Females |
| 1993 | | 42.14 | 1.79 | 31.14 | 34.14 | 1.57 | 134 | 2092 | 1879 | 4105 | 36.7 | 13.9 |
| 1994 | | 40.18 | 1.82 | 29.69 | 32.59 | 1.59 | 42 | 1607 | 1104 | 2753 | 34.6 | 9.7 |
| 1995 | | 50.76 | 2.48 | 28.42 | 25.14 | 1.59 | 61 | 1243 | 556 | 1860 | 31.8 | 5.6 |
| 1996 | | 57.60 | 3.27 | 31.43 | 29.80 | 2.13 | 87 | 995 | 474 | 1556 | 26.1 | 5.0 |
| 1997 | | 53.69 | 3.02 | 31.92 | 25.14 | 1.86 | 44 | 1220 | 281 | 1545 | 29.9 | 3.0 |
| 1998 | | 66.34 | 3.13 | 28.31 | 29.23 | 1.83 | 17 | 1481 | 233 | 1731 | 37.1 | 2.6 |
| 1999 | | 56.89 | 2.89 | 27.99 | 28.49 | 1.85 | 40 | 1536 | 382 | 1958 | 37.8 | 4.1 |
| 2000 | | 43.32 | 2.26 | 26.94 | 26.57 | 1.67 | 41 | 1423 | 379 | 1843 | 37.3 | 4.1 |
| 2001 | | 40.97 | 2.53 | 25.26 | 24.47 | 1.84 | 15 | 1180 | 404 | 1599 | 36.0 | 4.6 |
| 2002 | | 50.82 | 2.58 | 23.08 | 20.38 | 1.46 | 25 | 1088 | 292 | 1405 | 37.6 | 3.6 |
| 2003 | | 55.66 | 2.85 | 24.23 | 25.54 | 1.73 | 23 | 990 | 281 | 1294 | 35.0 | 3.6 |
| 2004 | | 69.27 | 3.84 | 24.95 | 30.23 | 2.23 | 30 | 1069 | 260 | 1359 | 36.4 | 3.3 |
| 2005 | | 65.91 | 3.02 | 29.73 | 32.66 | 1.90 | 25 | 1011 | 343 | 1379 | 30.7 | 4.3 |
| 2006 | | 61.26 | 3.01 | 31.43 | 34.89 | 2.08 | 52 | 1121 | 260 | 1433 | 31.3 | 3.2 |
| 2007 | | 62.56 | 3.17 | 30.43 | 33.50 | 2.10 | 29 | 1304 | 430 | 1763 | 35.6 | 5.3 |
| 2008 | | 62.31 | 3.03 | 30.92 | 30.43 | 1.90 | 47 | 1225 | 479 | 1751 | 34.2 | 5.9 |
| 2009 | | 51.86 | 2.45 | 30.38 | 29.73 | 1.71 | 60 | 1275 | 480 | 1815 | 35.9 | 6.0 |
| 2010 | | 59.46 | 3.19 | 29.98 | 29.89 | 2.04 | 66 | 1076 | 504 | 1646 | 33.7 | 6.7 |
| 2011 | | 58.11 | 3.57 | 28.94 | 32.87 | 2.46 | 45 | 939 | 466 | 1450 | 34.3 | 7.0 |
| 2012 | | 60.51 | 3.92 | 30.17 | 31.12 | 2.54 | 26 | 854 | 269 | 1149 | 31.5 | 4.2 |
| 2013 | | 54.08 | 3.12 | 32.71 | 26.69 | 1.99 | 28 | 762 | 195 | 985 | 27.3 | 3.1 |
| 2014 | | 76.42 | 3.91 | 28.06 | 29.71 | 2.09 | 31 | 884 | 181 | 1096 | 35.9 | 3.1 |
| 2015 | | 62.50 | 3.56 | 31.58 | 30.00 | 2.21 | 30 | 870 | 200 | 1100 | 31.7 | 3.3 |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | |
| 2022 | | | | | | | | | | | | |
| 2023 | | | | | | | | | | | | |
| 2024 | | | | | | | | | | | | |
| 2025 | | | | | | | | | | | | |

## FIGURES



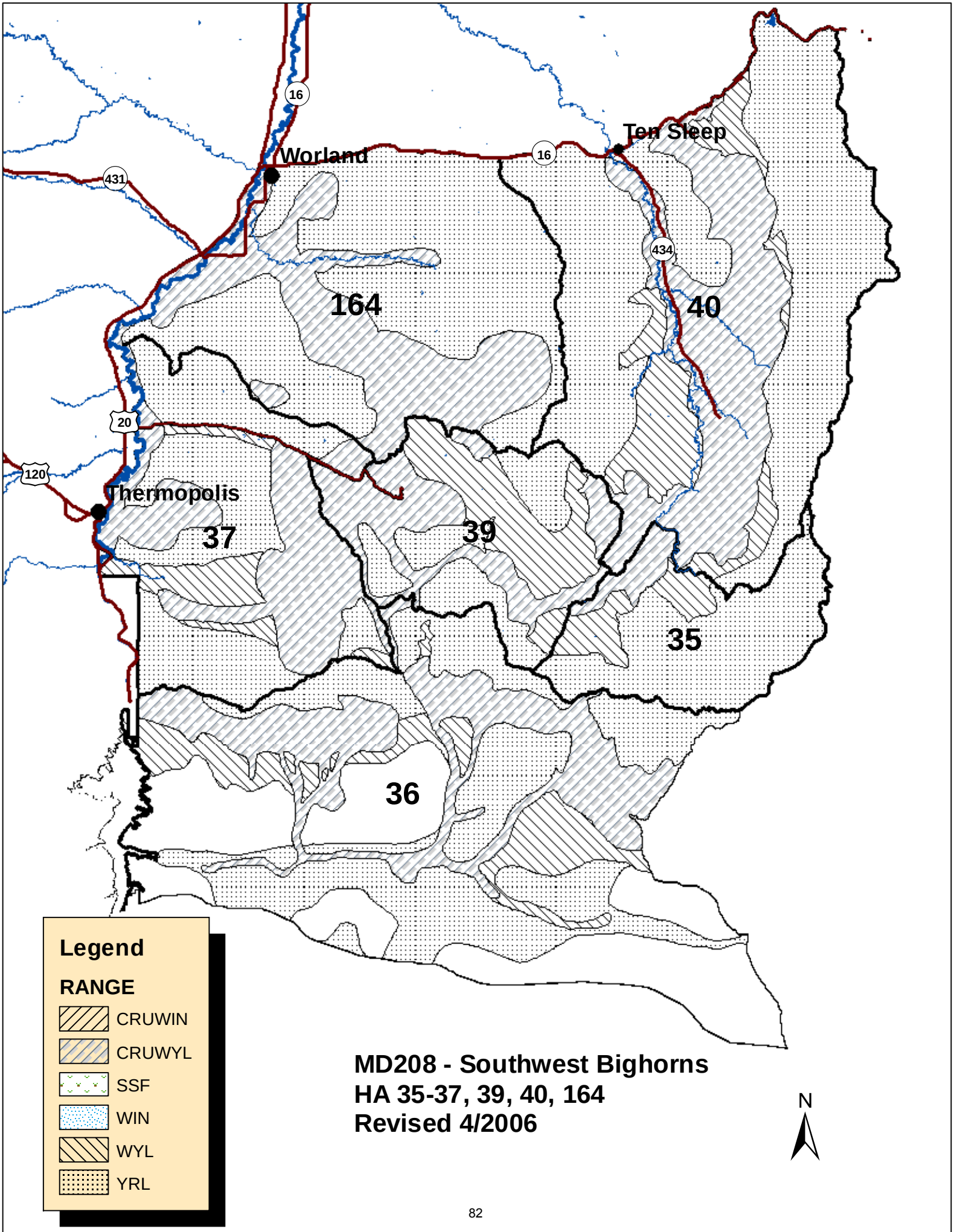




**Comments:**

## END


16
Worland
16
Ten Sleep
431
434
164
40
20
120
Thermopolis
37
39
35
36
Legend
RANGE
CRUWIN
CRUWYL
SSF
WIN
WYL
YRL
MD208 - Southwest Bighorns
HA 35-37, 39, 40, 164
Revised 4/2006
N

# 2014 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2014 - 5/31/2015

HERD: MD209 - BASIN

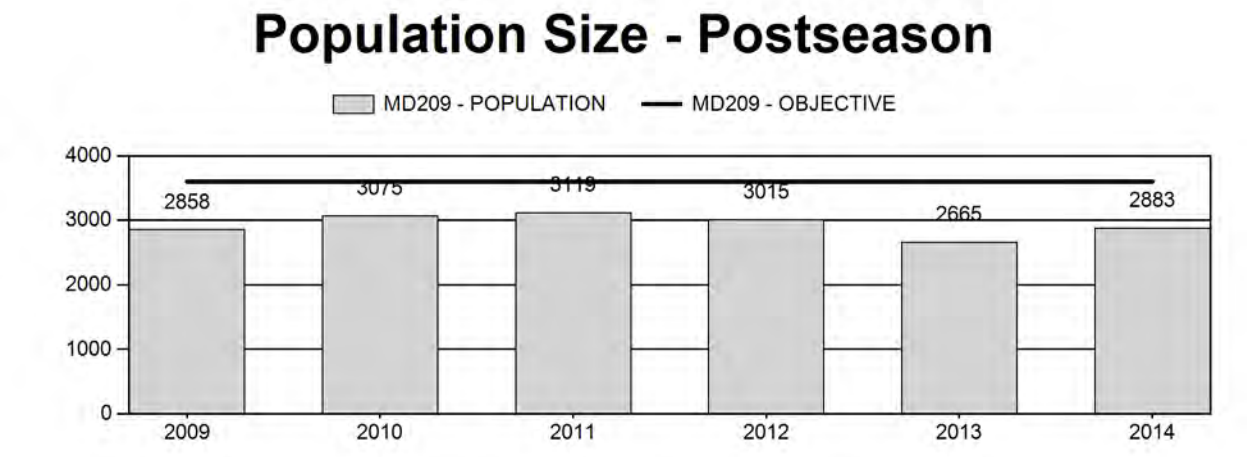
HUNT AREAS: 125, 127
PREPARED BY: BART KROGER

| | 2009 - 2013 Average | 2014 | 2015 Proposed |
|---|---|---|---|
| Population: | 2,946 | 2,883 | 2,801 |
| Harvest: | 222 | 129 | 125 |
| Hunters: | 373 | 283 | 250 |
| Hunter Success: | 60% | 46% | 50 % |
| Active Licenses: | 406 | 293 | 250 |
| Active License Success: | 55% | 44% | 50 % |
| Recreation Days: | 1,735 | 1,141 | 1,100 |
| Days Per Animal: | 7.8 | 8.8 | 8.8 |
| Males per 100 Females | 32 | 25 | |
| Juveniles per 100 Females | 53 | 70 | |

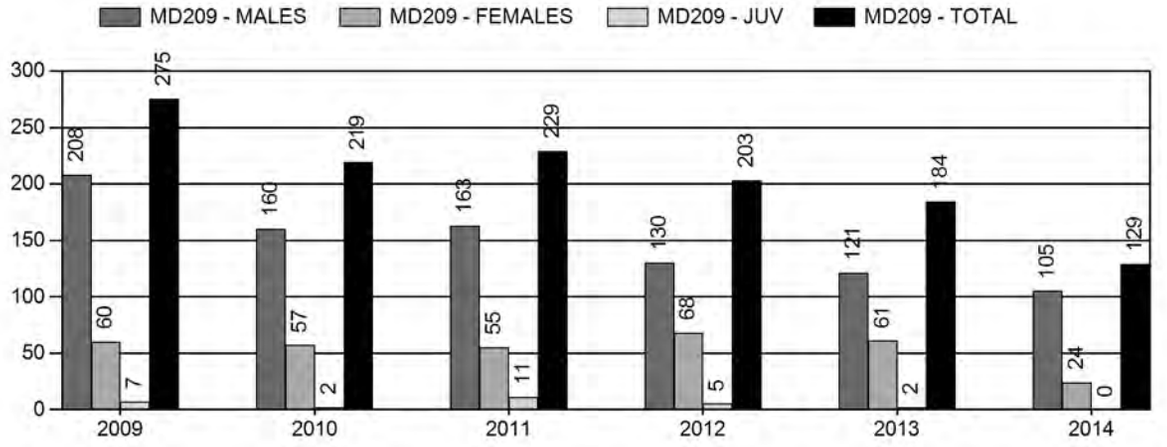
| | |
|---|---|
| Population Objective (± 20%) : | 3600 (2880 - 4320) |
| Management Strategy: | Recreational |
| Percent population is above (+) or below (-) objective: | -19.9% |
| Number of years population has been + or - objective in recent trend: | 8 |
| Model Date: | 2/24/2015 |

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

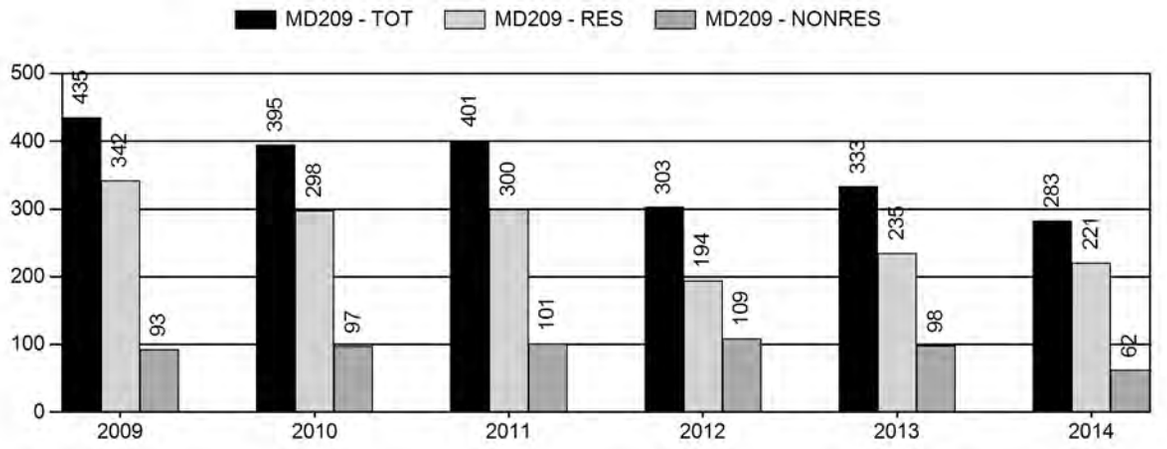
| | JCR Year | Proposed |
|---|---|---|
| Females ≥ 1 year old: | 2% | 0% |
| Males ≥ 1 year old: | 17% | 19% |
| Juveniles (< 1 year old): | 0% | 0% |
| Total: | 4% | 4% |
| Proposed change in post-season population: | +4% | -2% |



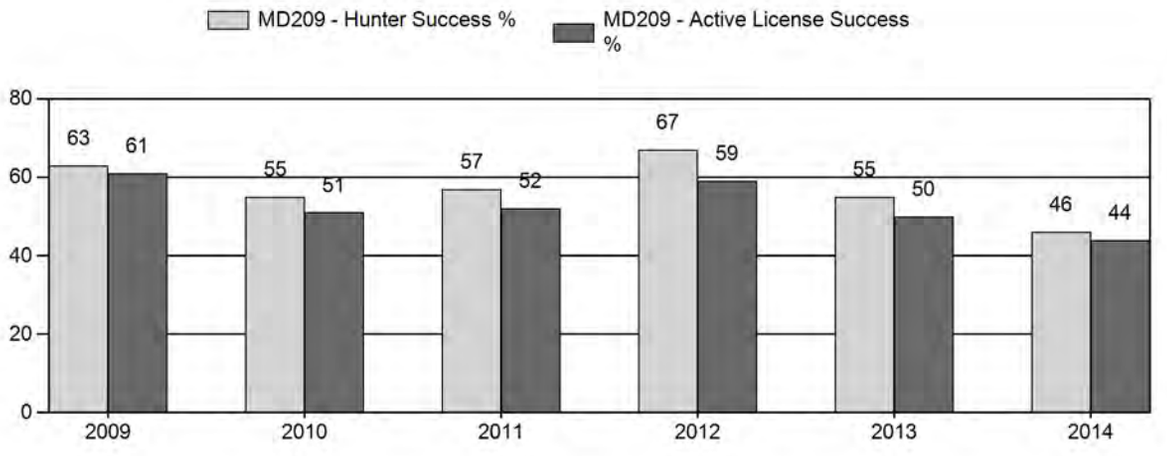
# Harvest



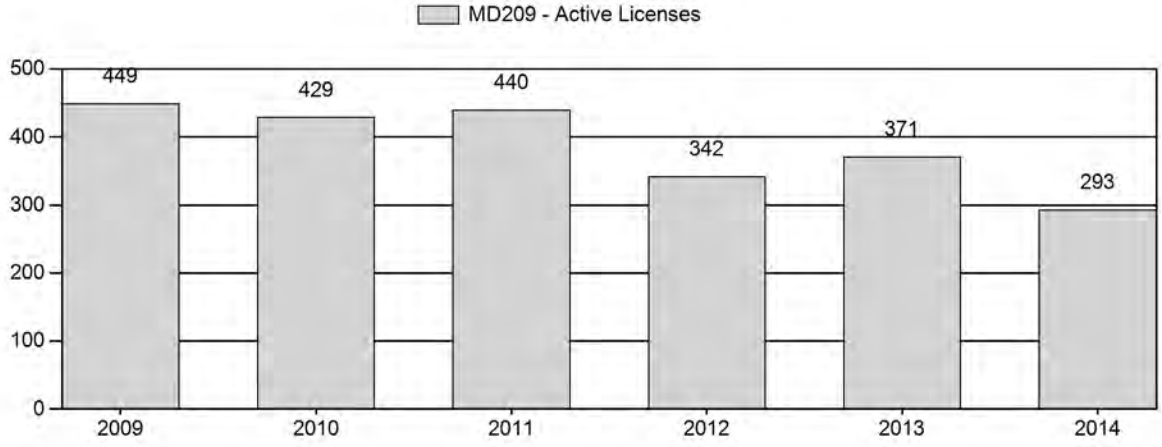

# Number of Hunters



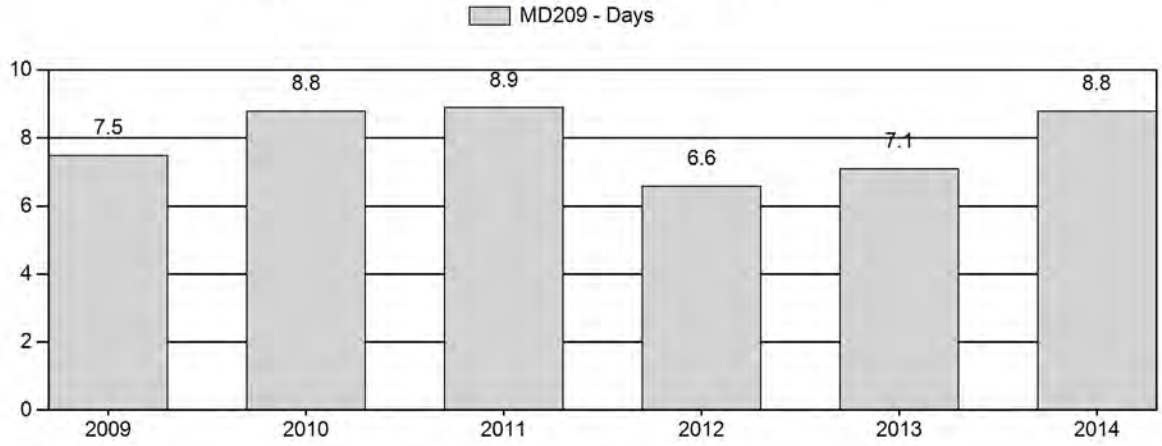

# Harvest Success



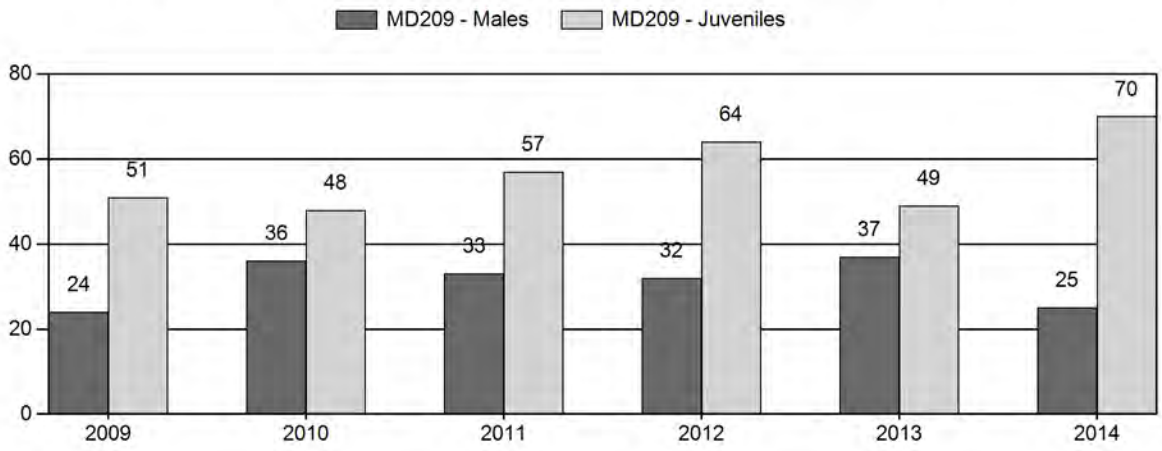
# Active Licenses




# Days per Animal Harvested




# Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD209 - BASIN

| | | MALES | | | | | | | FEMALES | | JUVENILES | | | | Males to 100 Females | | | | Young to | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Post Pop | Ylg | 2+ Cls 1 | 2+ Cls 2 | 2+ Cls 3 | 2+ UnCls | Total | % | Total | % | Total | % | Tot Cls | Cls Obj | Ylng | Adult | Total | Conf Int | 100 Fem | Conf Int | 100 Adult |
| 2009 | 2,858 | 27 | 0 | 0 | 0 | 84 | 111 | 14% | 470 | 57% | 239 | 29% | 820 | 679 | 6 | 18 | 24 | ± 3 | 51 | ± 4 | 41 |
| 2010 | 3,075 | 60 | 0 | 0 | 0 | 96 | 156 | 20% | 435 | 54% | 208 | 26% | 799 | 635 | 14 | 22 | 36 | ± 4 | 48 | ± 4 | 35 |
| 2011 | 3,119 | 25 | 0 | 0 | 0 | 65 | 90 | 17% | 274 | 53% | 156 | 30% | 520 | 811 | 9 | 24 | 33 | ± 5 | 57 | ± 7 | 43 |
| 2012 | 3,015 | 27 | 0 | 0 | 0 | 49 | 76 | 16% | 236 | 51% | 150 | 32% | 462 | 878 | 11 | 21 | 32 | ± 5 | 64 | ± 8 | 48 |
| 2013 | 2,665 | 30 | 0 | 0 | 0 | 58 | 88 | 20% | 236 | 54% | 116 | 26% | 440 | 669 | 13 | 25 | 37 | ± 5 | 49 | ± 7 | 36 |
| 2014 | 2,883 | 17 | 0 | 0 | 0 | 35 | 52 | 13% | 210 | 51% | 147 | 36% | 409 | 998 | 8 | 17 | 25 | ± 5 | 70 | ± 9 | 56 |

## 2015 HUNTING SEASONS
## BASIN MULE DEER HERD (MD209)

| Hunt Area | Type | Season Dates Opens | Closes | Quota | Limitations |
|---|---|---|---|---|---|
| 125 | 1 | Nov. 1 | Nov. 15 | 100 | Limited quota; antlered deer |
| 127 | | Oct. 15 | Oct. 24 | | General license; antlered deer |
| | 3 | Nov. 1 | Nov. 30 | 15 | Limited quota; any white-tailed deer |
| Archery 125, 127 | | Sep. 1 | Sep.30 | | Refer to Section 2 of this chapter |

| Hunt Area | Type | Quota change from 2014 |
|---|---|---|
| 127 | 6 | -25 |
| **HU Total** | **6** | **-25** |

**Management Evaluation**

**Current Postseason Population Management Objective:** 3,600
**Management Strategy:** Recreational
**2014 Postseason Population Estimate: 2900**
**2015 Proposed Postseason Population Estimate: 2800**

**Herd Unit Issues -** The 2014 post-season population estimate is 20% 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 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 winters of 2010/11 and 2013/14 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, 2011 and 2014 was above normal, but 2012 and 2013 was 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 and 2013, 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 A). Average sagebrush leader growth since 2008 has average 3cm, with utilization levels at about 17%. 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 2014 only 409 were classified; a decline of 50%. Buck and fawn ratios have remained favorable in recent years, with a 6-year average of 30 bucks and 58 fawns per 100 does. The 2014 fawn ratio of 70:100 is the highest on record.

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.

**Harvest Data -** Recent harvest statistics do support a declining deer population. Since 2009, overall buck harvest during the general season has declined by 50%, whereas hunter numbers have only dropped by 25%. Most hunters and landowners continue to report deer numbers are down and hunting is poor to fair. Based on the 2014 hunter satisfaction survey, 50% of the hunters surveyed in this herd unit indicted they were either satisfied or very satisfied with their overall hunting experience, whereas in 2013, 70% were either satisfied or very satisfied.

**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 (n=132) of all the models, yet its trends reflect that of field personnel perceptions, along with most hunters and landowners, as well as declining classification sample sizes and harvest statistics. 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 20%, we will be staying with mostly conservative seasons until deer numbers appear to be increasing.

**Management Summary -** Type 6 licenses in area 127 will be eliminated due to very few deer and no damage issues occurring. Damage issues have subsided in this area in recent years, and hunter complaints are heard annually regarding the over-harvest of doe mule deer. Both areas 125 and 127 will change to antlered deer to eliminate any harvest of doe deer. The projected 2015 harvest is roughly 125 buck deer. Despite conservative hunting seasons, it's predicted this deer herd will continue to struggle because of poor habitat and prolonged drought conditions.

| INPUT | |
|---|---|
| Species: | Mule Deer |
| Biologist: | Bart Kroger |
| Herd Unit & No.: | Basin, MD209 |
| Model date: | 02/24/15 |

☑ Clear form

| MODELS SUMMARY | | Fit | Relative AICc | Check best model to create report | Notes |
|---|---|---|---|---|---|
| CJ,CA | Constant Juvenile & Adult Survival | 54 | 63 | ☐ CJ,CA Model | |
| SCJ,SCA | Semi-Constant Juvenile & Semi-Constant Adult Survival | 50 | 67 | ☐ SCJ,SCA M | |
| TSJ,CA | Time-Specific Juvenile & Constant Adult Survival | 6 | 132 | ☑ TSJ,CA Model | |

**Population Estimates from Top Model**

| Year | Posthunt Population Est. | | Trend Count | Predicted Prehunt Population | | | | Predicted Posthunt Population | | | | Objective |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Field Est | Field SE | | Juveniles | Total Males | Females | Total | Juveniles | Total Males | Females | Total | |
| 1993 | | | | 635 | 709 | 1838 | 3181 | 620 | 397 | 1666 | 2683 | 3600 |
| 1994 | | | | 781 | 580 | 1675 | 3035 | 775 | 355 | 1618 | 2748 | 3600 |
| 1995 | | | | 634 | 480 | 1570 | 2685 | 631 | 293 | 1519 | 2443 | 3600 |
| 1996 | | | | 954 | 536 | 1594 | 3084 | 954 | 288 | 1572 | 2814 | 3600 |
| 1997 | | | | 892 | 439 | 1547 | 2879 | 892 | 305 | 1503 | 2701 | 3600 |
| 1998 | | | | 1156 | 665 | 1699 | 3519 | 1156 | 450 | 1699 | 3305 | 3600 |
| 1999 | | | | 961 | 707 | 1784 | 3452 | 961 | 452 | 1753 | 3165 | 3600 |
| 2000 | | | | 649 | 791 | 1914 | 3354 | 649 | 497 | 1855 | 3002 | 3600 |
| 2001 | | | | 661 | 631 | 1803 | 3094 | 661 | 423 | 1803 | 2886 | 3600 |
| 2002 | | | | 775 | 662 | 1853 | 3290 | 775 | 463 | 1851 | 3089 | 3600 |
| 2003 | | | | 829 | 730 | 1928 | 3486 | 829 | 552 | 1921 | 3301 | 3600 |
| 2004 | | | | 889 | 642 | 1824 | 3354 | 889 | 442 | 1791 | 3121 | 3600 |
| 2005 | | | | 1028 | 746 | 1910 | 3684 | 1013 | 582 | 1874 | 3468 | 3600 |
| 2006 | | | | 1214 | 804 | 1918 | 3936 | 1214 | 589 | 1899 | 3702 | 3600 |
| 2007 | | | | 795 | 751 | 1881 | 3428 | 793 | 581 | 1821 | 3194 | 3600 |
| 2008 | | | | 973 | 660 | 1730 | 3363 | 970 | 468 | 1679 | 3117 | 3600 |
| 2009 | | | | 832 | 642 | 1687 | 3161 | 824 | 413 | 1621 | 2858 | 3600 |
| 2010 | | | | 818 | 727 | 1770 | 3316 | 816 | 551 | 1707 | 3075 | 3600 |
| 2011 | | | | 951 | 711 | 1709 | 3371 | 939 | 532 | 1648 | 3119 | 3600 |
| 2012 | | | | 981 | 647 | 1610 | 3239 | 976 | 504 | 1536 | 3015 | 3600 |
| 2013 | | | | 717 | 630 | 1520 | 2867 | 714 | 497 | 1453 | 2665 | 3600 |
| 2014 | | | | 984 | 608 | 1433 | 3025 | 984 | 492 | 1406 | 2883 | 3600 |
| 2015 | | | | 808 | 671 | 1460 | 2939 | 808 | 533 | 1460 | 2801 | 3600 |
| 2016 | | | | | | | | | | | | 3600 |
| 2017 | | | | | | | | | | | | 3600 |
| 2018 | | | | | | | | | | | | 3600 |
| 2019 | | | | | | | | | | | | 3600 |
| 2020 | | | | | | | | | | | | 3600 |
| 2021 | | | | | | | | | | | | 3600 |
| 2022 | | | | | | | | | | | | 3600 |
| 2023 | | | | | | | | | | | | 3600 |
| 2024 | | | | | | | | | | | | 3600 |
| 2025 | | | | | | | | | | | | 3600 |

## Survival and Initial Population Estimates

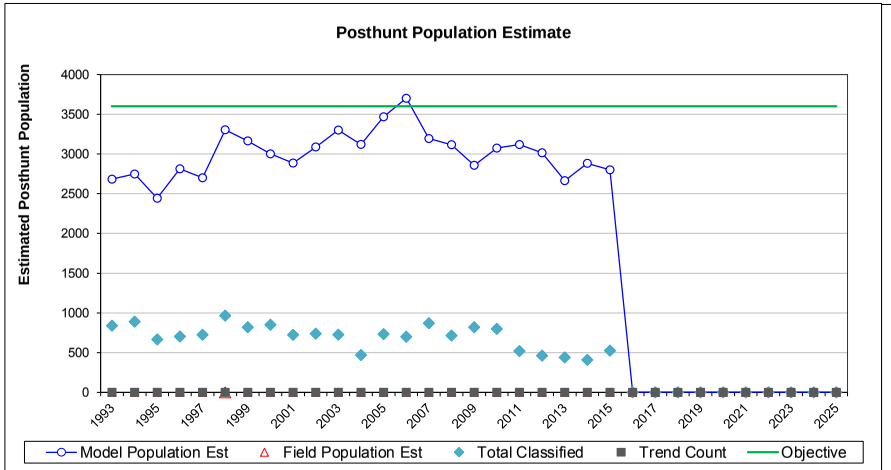
| Year | Annual Juvenile Survival Rates | | | Annual Adult Survival Rates | | |
|---|---|---|---|---|---|---|
| | Model Est | Field Est | SE | Model Est | Field Est | SE |
| 1993 | 0.76 | | | 0.86 | | |
| 1994 | 0.45 | | | 0.86 | | |
| 1995 | 0.90 | | | 0.86 | | |
| 1996 | 0.40 | | | 0.86 | | |
| 1997 | 0.90 | | | 0.86 | | |
| 1998 | 0.55 | | | 0.86 | | |
| 1999 | 0.84 | | | 0.86 | | |
| 2000 | 0.62 | | | 0.86 | | |
| 2001 | 0.90 | | | 0.86 | | |
| 2002 | 0.85 | | | 0.86 | | |
| 2003 | 0.40 | | | 0.86 | | |
| 2004 | 0.82 | | | 0.86 | | |
| 2005 | 0.60 | | | 0.86 | | |
| 2006 | 0.40 | | | 0.86 | | |
| 2007 | 0.40 | | | 0.86 | | |
| 2008 | 0.49 | | | 0.86 | | |
| 2009 | 0.90 | | | 0.86 | | |
| 2010 | 0.58 | | | 0.86 | | |
| 2011 | 0.40 | | | 0.86 | | |
| 2012 | 0.40 | | | 0.86 | | |
| 2013 | 0.50 | | | 0.86 | | |
| 2014 | 0.50 | | | 0.86 | | |
| 2015 | 0.40 | | | 0.86 | | |
| 2016 | | | | | | |
| 2017 | | | | | | |
| 2018 | | | | | | |
| 2019 | | | | | | |
| 2020 | | | | | | |
| 2021 | | | | | | |
| 2022 | | | | | | |
| 2023 | | | | | | |
| 2024 | | | | | | |
| 2025 | | | | | | |

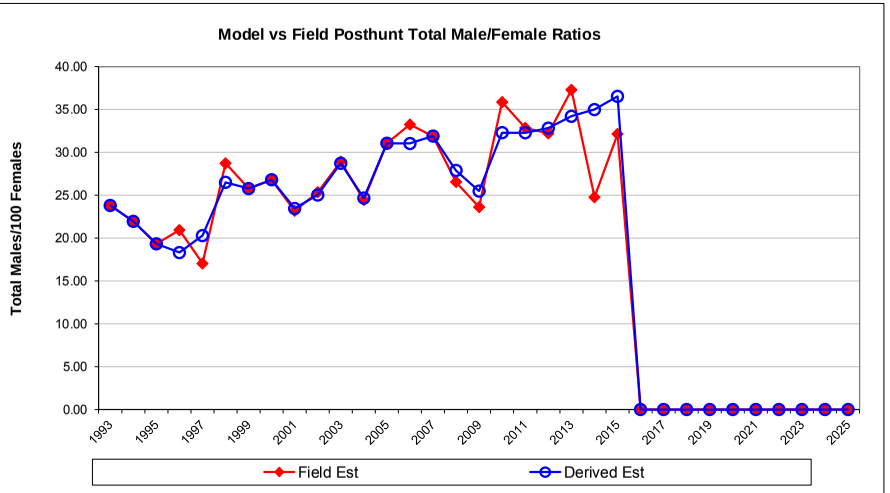
| Parameters: | Optim cells |
|---|---|
| | |
| Adult Survival = | 0.863 |
| Initial Total Male Pop/10,000 = | 0.040 |
| Initial Female Pop/10,000 = | 0.167 |

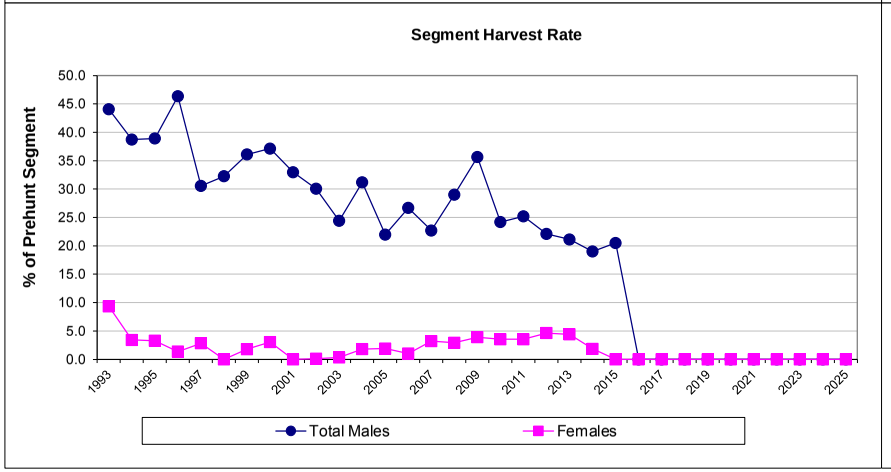
| MODEL ASSUMPTIONS | |
|---|---|
| Sex Ratio (% Males) = | 50% |
| Wounding Loss (total males) = | 10% |
| Wounding Loss (females) = | 10% |
| Wounding Loss (juveniles) = | 10% |

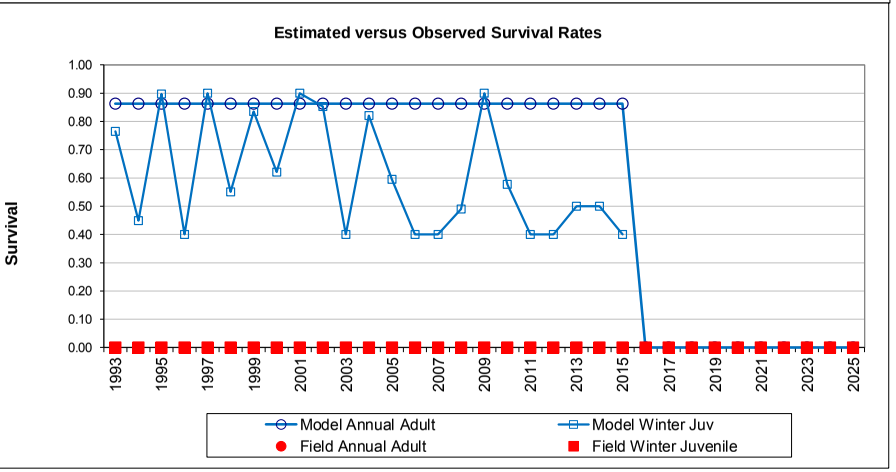
| Classification Counts | | | | | | | | | | | Harvest | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Juvenile/Female Ratio | | | Total Male/Female Ratio | | | | | | | Segment Harvest Rate (% of | |
| | Derived Est | Field Est | Field SE | Derived Est | Field Est w/o bull adj | Field SE | Juv | Males | Females | Total Harvest | Total Males | Females |
| 1993 | | 37.24 | 3.13 | 23.80 | 23.80 | 2.38 | 13 | 284 | 156 | 453 | 44.1 | 9.3 |
| 1994 | | 47.90 | 3.68 | 21.95 | 21.95 | 2.26 | 5 | 204 | 52 | 261 | 38.7 | 3.4 |
| 1995 | | 41.55 | 3.77 | 19.32 | 19.32 | 2.36 | 3 | 170 | 47 | 220 | 38.9 | 3.3 |
| 1996 | | 60.72 | 5.02 | 18.30 | 20.93 | 2.56 | 0 | 226 | 20 | 246 | 46.4 | 1.4 |
| 1997 | | 59.37 | 4.80 | 20.29 | 17.03 | 2.20 | 0 | 122 | 40 | 162 | 30.6 | 2.8 |
| 1998 | | 68.02 | 4.82 | 26.50 | 28.72 | 2.74 | 0 | 195 | 0 | 195 | 32.3 | 0.0 |
| 1999 | | 54.85 | 4.33 | 25.77 | 25.77 | 2.67 | 0 | 232 | 29 | 261 | 36.1 | 1.8 |
| 2000 | | 34.98 | 3.00 | 26.81 | 26.81 | 2.54 | 0 | 267 | 53 | 320 | 37.1 | 3.0 |
| 2001 | | 36.64 | 3.32 | 23.45 | 23.18 | 2.51 | 0 | 189 | 0 | 189 | 33.0 | 0.0 |
| 2002 | | 41.86 | 3.67 | 25.02 | 25.34 | 2.68 | 0 | 181 | 2 | 183 | 30.1 | 0.1 |
| 2003 | | 43.13 | 3.82 | 28.72 | 28.91 | 2.97 | 0 | 162 | 6 | 168 | 24.4 | 0.3 |
| 2004 | | 49.63 | 5.24 | 24.67 | 24.44 | 3.36 | 0 | 182 | 30 | 212 | 31.2 | 1.8 |
| 2005 | | 54.04 | 4.58 | 31.06 | 31.06 | 3.21 | 14 | 149 | 33 | 196 | 22.0 | 1.9 |
| 2006 | | 63.94 | 5.43 | 31.03 | 33.24 | 3.53 | 0 | 195 | 18 | 213 | 26.7 | 1.0 |
| 2007 | | 43.55 | 3.55 | 31.89 | 31.85 | 2.91 | 2 | 155 | 55 | 212 | 22.7 | 3.2 |
| 2008 | | 57.73 | 4.84 | 27.89 | 26.55 | 2.94 | 3 | 174 | 46 | 223 | 29.0 | 2.9 |
| 2009 | | 50.85 | 4.04 | 25.48 | 23.62 | 2.49 | 7 | 208 | 60 | 275 | 35.7 | 3.9 |
| 2010 | | 47.82 | 4.03 | 32.30 | 35.86 | 3.35 | 2 | 160 | 57 | 219 | 24.2 | 3.5 |
| 2011 | | 56.93 | 5.71 | 32.28 | 32.85 | 3.99 | 11 | 163 | 55 | 229 | 25.2 | 3.5 |
| 2012 | | 63.56 | 6.64 | 32.82 | 32.20 | 4.25 | 5 | 130 | 68 | 203 | 22.1 | 4.6 |
| 2013 | | 49.15 | 5.57 | 34.20 | 37.29 | 4.66 | 2 | 121 | 61 | 184 | 21.1 | 4.4 |
| 2014 | | 70.00 | 7.53 | 34.99 | 24.76 | 3.84 | 0 | 105 | 24 | 129 | 19.0 | 1.8 |
| 2015 | | 55.36 | 5.54 | 36.53 | 32.14 | 3.89 | 0 | 125 | 0 | 125 | 20.5 | 0.0 |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | |
| 2022 | | | | | | | | | | | | |
| 2023 | | | | | | | | | | | | |
| 2024 | | | | | | | | | | | | |
| 2025 | | | | | | | | | | | | |

## FIGURES



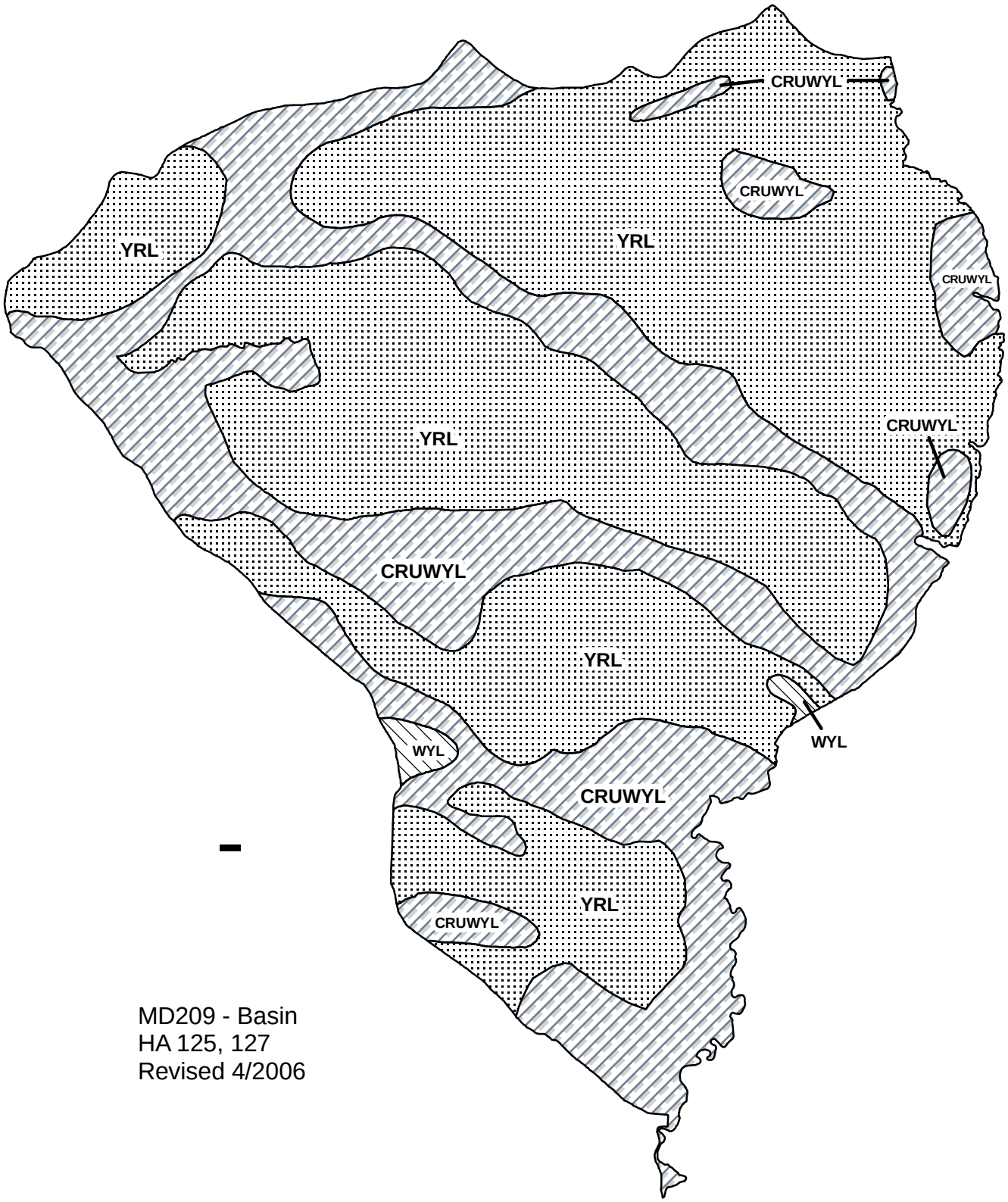




**Comments:**

## END




MD209 - Basin
HA 125, 127
Revised 4/2006

# 2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD210 - GREYBULL RIVER

HUNT AREAS: 124, 165

PREPARED BY: LESLIE SCHREIBER

| | 2009 - 2013 Average | 2014 | 2015 Proposed |
|---|---|---|---|
| Population: | 4,700 | 4,023 | 3,632 |
| Harvest: | 809 | 512 | 530 |
| Hunters: | 1,130 | 841 | 860 |
| Hunter Success: | 72% | 61% | 62 % |
| Active Licenses: | 1,332 | 935 | 940 |
| Active License Success: | 61% | 55% | 56 % |
| Recreation Days: | 4,882 | 3,053 | 3,200 |
| Days Per Animal: | 6.0 | 6.0 | 6.0 |
| Males per 100 Females | 34 | 35 | |
| Juveniles per 100 Females | 70 | 112 | |

Population Objective (± 20%) : 4000 (3200 - 4800)

Management Strategy: Recreational

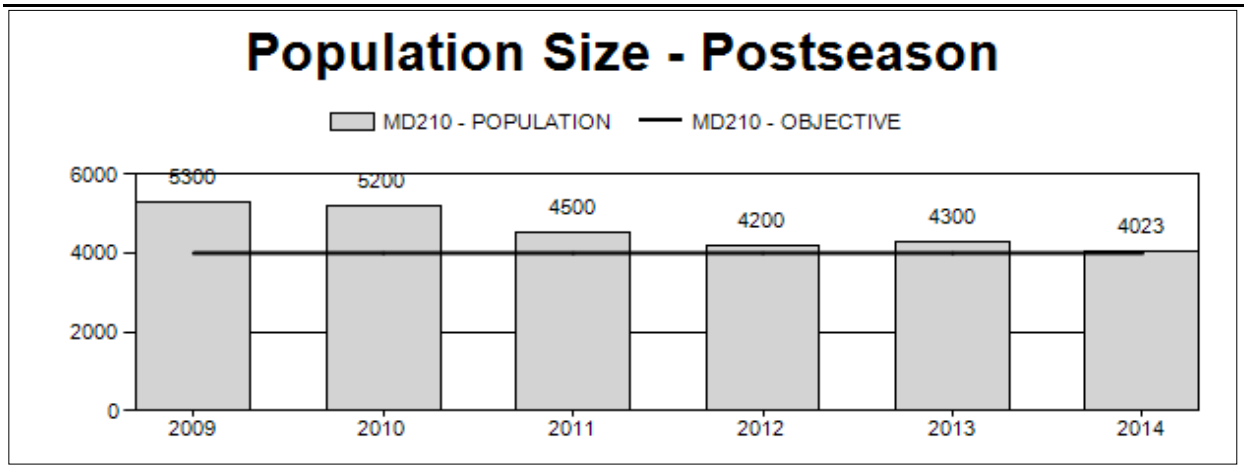
Percent population is above (+) or below (-) objective: 1%

Number of years population has been + or - objective in recent trend: 3

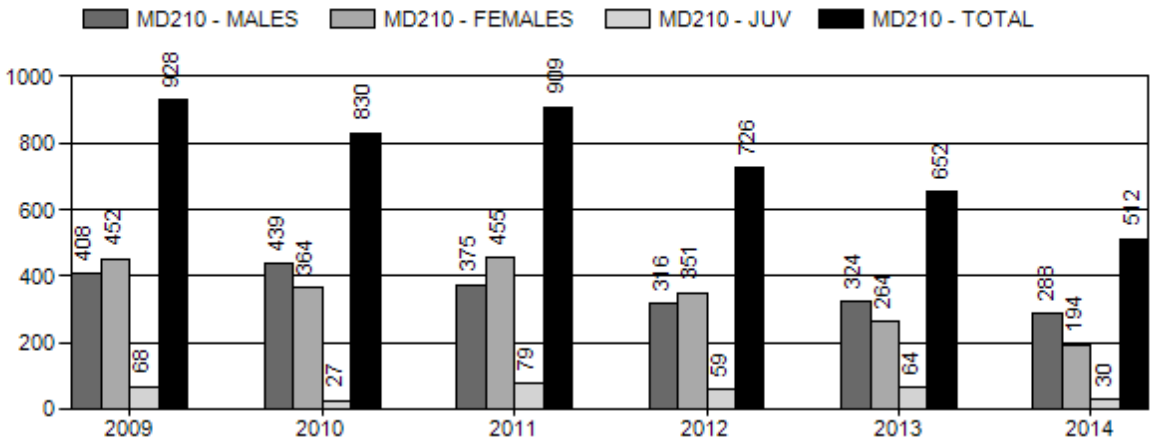
Model Date: 02/26/2015

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

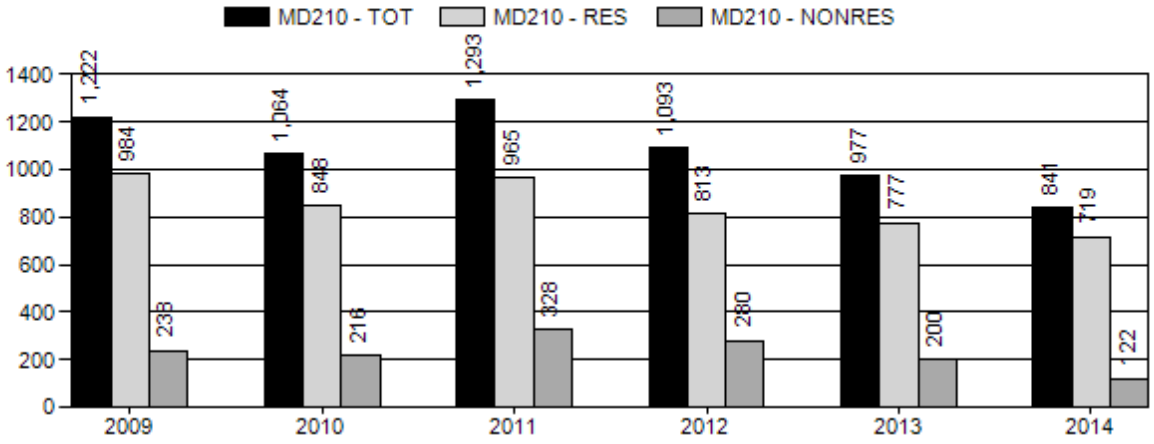
| | JCR Year | Proposed |
|---|---|---|
| Females ≥ 1 year old: | 13% | 11% |
| Males ≥ 1 year old: | 32% | 35% |
| Juveniles (< 1 year old): | 2% | 2% |
| Total: | 12% | 13% |
| Proposed change in post-season population: | -1% | -10% |



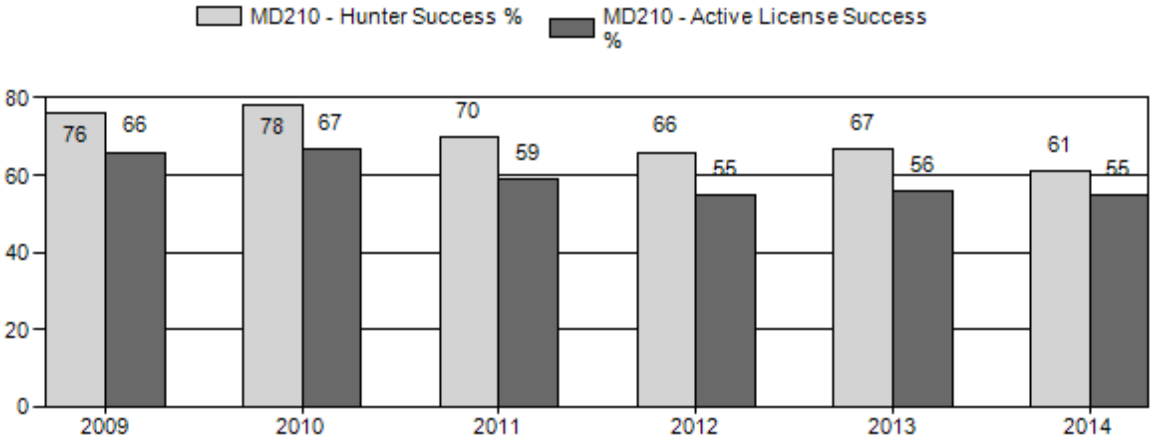
# Harvest



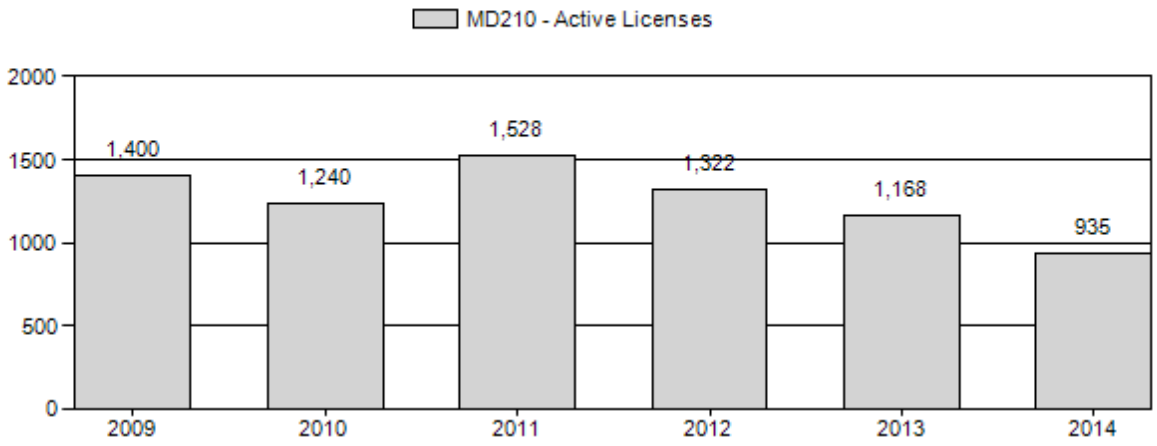

# Number of Hunters



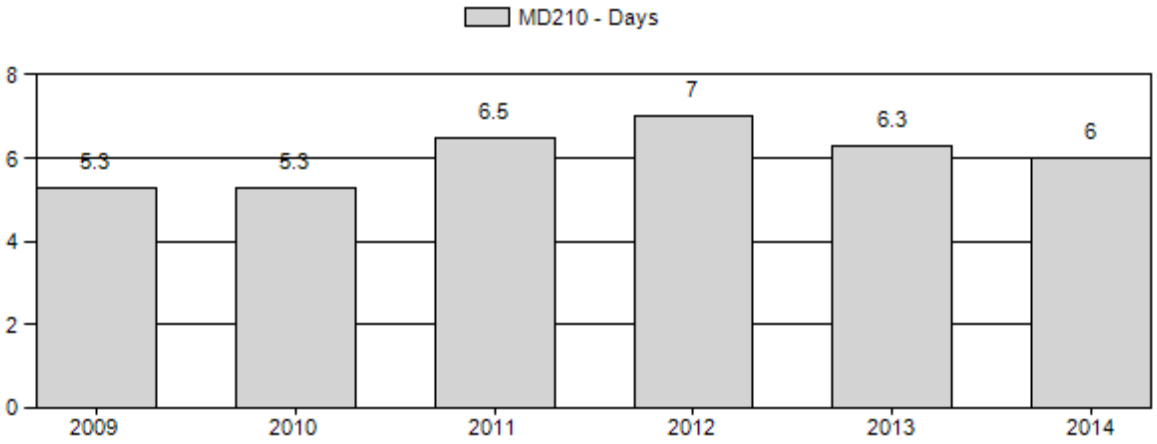

# Harvest Success



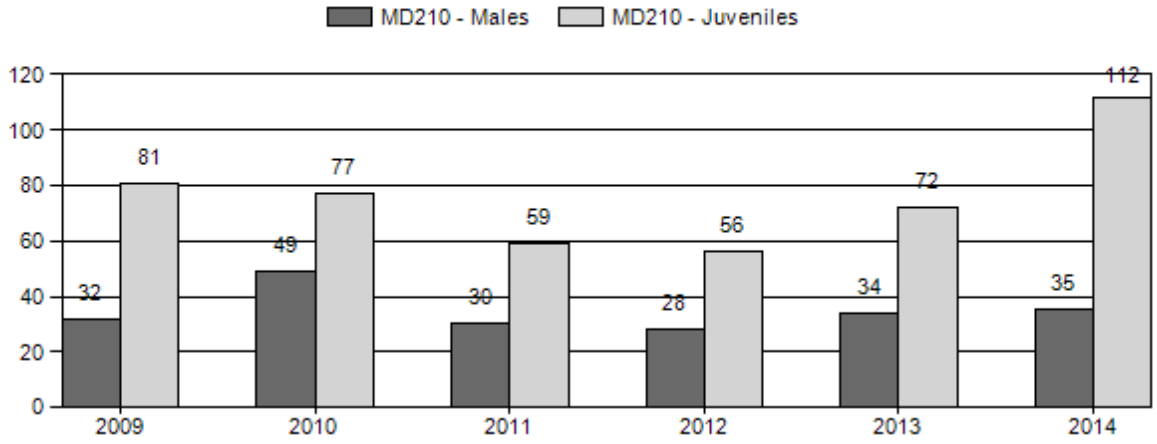
# Active Licenses




# Days per Animal Harvested




# Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD210 - GREYBULL RIVER

| | | MALES | | | | | | | FEMALES | | JUVENILES | | | | Males to 100 Females | | | | Young to | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Post Pop | Ylg | 2+ Cls 1 | 2+ Cls 2 | 2+ Cls 3 | 2+ UnCls | Total | % | Total | % | Total | % | Tot Cls | Cls Obj | Ylng | Adult | Total | Conf Int | 100 Fem | Conf Int | 100 Adult |
| 2009 | 5,300 | 99 | 0 | 0 | 0 | 181 | 280 | 15% | 873 | 47% | 704 | 38% | 1,857 | 1,080 | 11 | 21 | 32 | ± 2 | 81 | ± 4 | 61 |
| 2010 | 5,200 | 87 | 0 | 0 | 0 | 139 | 226 | 22% | 465 | 44% | 357 | 34% | 1,048 | 985 | 19 | 30 | 49 | ± 5 | 77 | ± 6 | 52 |
| 2011 | 4,500 | 47 | 0 | 0 | 0 | 113 | 160 | 16% | 530 | 53% | 315 | 31% | 1,005 | 1,054 | 9 | 21 | 30 | ± 3 | 59 | ± 5 | 46 |
| 2012 | 4,200 | 65 | 0 | 0 | 0 | 94 | 159 | 15% | 571 | 54% | 320 | 30% | 1,050 | 959 | 11 | 16 | 28 | ± 3 | 56 | ± 4 | 44 |
| 2013 | 4,300 | 47 | 0 | 0 | 0 | 95 | 142 | 17% | 416 | 48% | 301 | 35% | 859 | 915 | 11 | 23 | 34 | ± 4 | 72 | ± 6 | 54 |
| 2014 | 4,023 | 69 | 0 | 0 | 0 | 114 | 183 | 14% | 525 | 40% | 590 | 45% | 1,298 | 1,331 | 13 | 22 | 35 | ± 3 | 112 | ± 7 | 83 |

## 2015 HUNTING SEASONS
## Greybull River Mule Deer Herd Unit (MD210)

| Hunt Area | Type | Dates of Seasons Opens | Closes | Quota | Limitations |
|---|---|---|---|---|---|
| 124 | | Nov. 1 | Nov. 10 | | General license; any deer |
| | 3 | Nov. 1 | Nov. 30 | 50 | Limited quota; any white-tailed deer |
| | 6 | Nov. 1 | Nov. 30 | 50 | Limited quota; doe or fawn valid on or within one-half (½) mile of irrigated land |
| | 7 | Nov. 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 (½) mile of irrigated land |
| | 8 | Nov. 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. 1 | Oct. 31 | 100 | Limited quota; doe or fawn valid on private land |
| | 8 | Nov. 1 | Nov. 30 | 100 | Limited quota; doe or fawn white-tailed deer |
| **Archery:** | | | | | |
| 124, 165 | | Sept. 1 | Sept. 30 | | Refer to Section 2 of this Chapter |

**Region X Non-resident deer quota: 300**

| Hunt Area | Type | Quota Change from 2014 |
|---|---|---|
| 165 | 6 | +25 |
| 165 | 8 | +50 |
| Total | | +75 |

**Management Evaluation**

**Current Management Objective: 4,000**
**2014 Postseason Population Estimate: 4,000**
**2015 Proposed Postseason Population Estimate: 3,600**

**Herd Unit Issues.** The population objective for the Greybull River mule deer herd was increased from 3,000 to 4,000 deer in 1994 after revisions to the POP-II model. The population objective remained unchanged following reviews in 2002 and 2007, and is currently under review in 2015 with a proposal for no change. The Greybull River deer herd is managed for recreational hunting. This herd has been highly productive and occupies mostly riparian and agricultural lands, and damage to crops drives management. Urban expansion has not been a major concern in the area. Although agriculture has altered riparian areas and farming has increased the amount of forage for deer. Landowner tolerance of deer on cropland is low. Even when the population is below objective, we still offer doe/fawn licenses in areas with crop

damage by deer. This herd unit is now in nonresident region X after being separated from nonresident region F. This change was primarily done to separate management of deer in the lower agricultural lands from deer in public forested lands west of Cody.

**Weather.** Habitat quality is probably most affected by desert-like conditions (< 12" annual precipitation) and poor soils. Both 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. Growing season precipitation in 2014 was slightly below average, but excellent vegetation growth was observed overall in the Bighorn Basin.

**Habitat.** There is 1 sagebrush browse transect in this herd unit in Oregon Basin, but it was established in an area of low deer density to evaluate pronghorn antelope winter range, and is insufficient to draw inferences across the entire herd unit. Mortality of individual sagebrush plants and increased precipitation in 2005, 2007, 2009-11, and 2014 allowed for increased growth of herbaceous vegetation and new growth of sagebrush and other shrub species. The resulting decrease in density of older sagebrush and increase in overall plant diversity may have long-term benefits for deer habitat.

**Field Data.** We use number of deer classified as a general index to population level. The number of deer classified steadily increased from 800 deer in 1995 to 1,850 deer in 2009, but has since decreased to about 1,000 deer during the last few years. In 2014, we classified 1,300 deer, but caution is warranted in interpreting this metric due to the presence of 2 new observers. On the other hand, the high sample size could be accurate, because this herd is typically highly productive (Greybull River irrigated farm ground and riparian habitat). In 2014, this herd unit had the highest fawn ratio in 30 years with 112 fawns:100 does. The increase in productivity was likely due to increased spring moisture and vegetation growth. Neighboring mule deer herds also experienced record fawn ratios. Buck numbers appear to have increased in this herd over the past 20 years most likely due to the large amount of private land with limited access (provides security for bucks). Private lands and limited quota seasons in Area 165 also protect a lot of bucks (<100 bucks are harvested in Area 165), and have helped maintain high buck ratios. Between 1993 and 2005, buck:doe ratios rarely exceeded 25:100 (range=18-26). After drought conditions subsided, buck ratios increased and rarely drop below 25 bucks:100 does since 2005. On average, there were 32 bucks:100 does observed (range=26-49) between 2005-2014.

**Harvest Data.** As we reduced the population towards objective, number of active licenses (general and doe/fawn limited quota) decreased from a high of about 1500 in 2011, to 935 in 2014. Hunter numbers matched this trend with about 1293 hunters in 2011 and only 841 in 2014. Harvest decreased as well, from a high of 928 in 2009 to 512 in 2014, all the result of decreased licenses (less crop damage), fewer hunters, and fewer deer. Although fewer deer were harvested in 2014, hunter success remained acceptable at 61% down from a high of 78% in 2010. Days per harvested deer has not changed drastically among years with 5.3 days in 2009, to 7 days in 2011 and then 6 days in 2014. Hunter satisfaction remains high for this herd with about 78% satisfied, and only 6% unsatisfied with the current quality of their hunt.

**Population.** The time-specific juvenile, constant adult survival model (TSJ,CA) is the most applicable for modeling deer populations, and seems to work well for the Greybull herd. This model shows a decline in the population after 2010 possibly due to high doe harvest, or a harsh 2010-11 winter with deep, crusted snow. The population estimate bottoms out at 2,800 deer in

2012. In 2013 the model estimates a slight increase to 3,000 then jumps to 4,000 deer in 2014. The drastic increase estimated in 2014 is a result of the record fawn ratios observed. The model ranks fair as it is informed by >20 years of data and follows the trend highly likely by field personnel, but it would benefit from a sample-based population estimate with standard errors.

**Management Summary.** The season planned for 2015 should relieve some hunting pressure on bucks and simplify the regulations by standardizing the opening day. The model predicts that the 2015 post-season population estimate will be within 10% of the objective, but we will still have doe/fawn licenses again in 2015 to address landowner concerns. Hunters commented that fewer deer can be found since the 2010-11 winter and want fewer does harvested to increase the population. Many hunters also have requested more time to harvest bucks, and if buck ratios remain high, some changes may be possible. This herd unit objective is currently under review and we propose to keep the current objective of 4000 deer post season since it is a good compromise between damage concerns and hunter opportunity.

| INPUT | |
|---|---|
| **Species:** | Deer |
| **Biologist:** | Leslie Schreiber |
| **Herd Unit & No.:** | Greybull R.-MD210 |
| **Model date:** | 02/17/15 |

☐ Clear form

| MODELS SUMMARY | | Fit | Relative AICc | Check best model to create report | Notes |
|---|---|---|---|---|---|
| **CJ,CA** | **Constant Juvenile & Adult Survival** | 74 | 83 | ☐ CJ,CA Model | |
| **SCJ,SCA** | **Semi-Constant Juvenile & Semi-Constant Adult Survival** | 143 | 155 | ☐ SCJ,SCA Mod | |
| **TSJ,CA** | **Time-Specific Juvenile & Constant Adult Survival** | 28 | 163 | ☑ TSJ,CA Model | |

**Population Estimates from Top Model**

| Year | Posthunt Population Est. | | Trend Count | Predicted Prehunt Population | | | Total | Predicted Posthunt Population | | | Total | Objective |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Field Est | Field SE | | Juveniles | Total Males | Females | | Juveniles | Total Males | Females | | |
| **1993** | | | | 1295 | 973 | 2136 | 4405 | 1231 | 440 | 1753 | 3423 | 4000 |
| **1994** | | | | 1218 | 962 | 2178 | 4358 | 1200 | 428 | 1949 | 3577 | 4000 |
| **1995** | | | | 1263 | 937 | 2347 | 4546 | 1235 | 480 | 2125 | 3841 | 4000 |
| **1996** | | | | 1607 | 777 | 2302 | 4686 | 1600 | 421 | 2095 | 4115 | 4000 |
| **1997** | | | | 1533 | 710 | 2262 | 4504 | 1520 | 445 | 2144 | 4108 | 4000 |
| **1998** | | | | 1627 | 716 | 2291 | 4634 | 1618 | 481 | 2152 | 4251 | 4000 |
| **1999** | | | | 1521 | 769 | 2318 | 4608 | 1469 | 534 | 2118 | 4121 | 4000 |
| **2000** | | | | 1496 | 954 | 2422 | 4873 | 1451 | 600 | 2227 | 4278 | 4000 |
| **2001** | | | | 1549 | 891 | 2399 | 4840 | 1494 | 506 | 2196 | 4196 | 4000 |
| **2002** | | | | 1290 | 768 | 2334 | 4392 | 1254 | 381 | 2040 | 3675 | 4000 |
| **2003** | | | | 1366 | 724 | 2262 | 4352 | 1324 | 357 | 2019 | 3700 | 4000 |
| **2004** | | | | 1449 | 877 | 2417 | 4743 | 1421 | 520 | 2227 | 4169 | 4000 |
| **2005** | | | | 1593 | 811 | 2393 | 4797 | 1529 | 465 | 2169 | 4162 | 4000 |
| **2006** | | | | 1540 | 1119 | 2698 | 5357 | 1498 | 682 | 2464 | 4643 | 4000 |
| **2007** | | | | 1657 | 1035 | 2686 | 5379 | 1620 | 683 | 2322 | 4625 | 4000 |
| **2008** | | | | 1451 | 957 | 2476 | 4885 | 1384 | 566 | 2089 | 4039 | 4000 |
| **2009** | | | | 1694 | 1093 | 2505 | 5291 | 1619 | 644 | 2007 | 4270 | 4000 |
| **2010** | | | | 1648 | 1245 | 2508 | 5401 | 1618 | 762 | 2108 | 4488 | 4000 |
| **2011** | | | | 1143 | 1030 | 2277 | 4450 | 1056 | 617 | 1777 | 3450 | 4000 |
| **2012** | | | | 903 | 801 | 1876 | 3580 | 836 | 454 | 1492 | 2782 | 4000 |
| **2013** | | | | 1133 | 797 | 1759 | 3689 | 1063 | 441 | 1468 | 2972 | 4000 |
| **2014** | | | | 1860 | 887 | 1839 | 4586 | 1827 | 570 | 1626 | 4023 | 4000 |
| **2015** | | | | 1322 | 957 | 1936 | 4215 | 1289 | 627 | 1716 | 3632 | 4000 |
| **2016** | | | | | | | | | | | | 4000 |
| **2017** | | | | | | | | | | | | 4000 |
| **2018** | | | | | | | | | | | | 4000 |
| **2019** | | | | | | | | | | | | 4000 |
| **2020** | | | | | | | | | | | | 4000 |
| **2021** | | | | | | | | | | | | 4000 |
| **2022** | | | | | | | | | | | | 4000 |
| **2023** | | | | | | | | | | | | 4000 |
| **2024** | | | | | | | | | | | | 4000 |
| **2025** | | | | | | | | | | | | 4000 |

## Survival and Initial Population Estimates

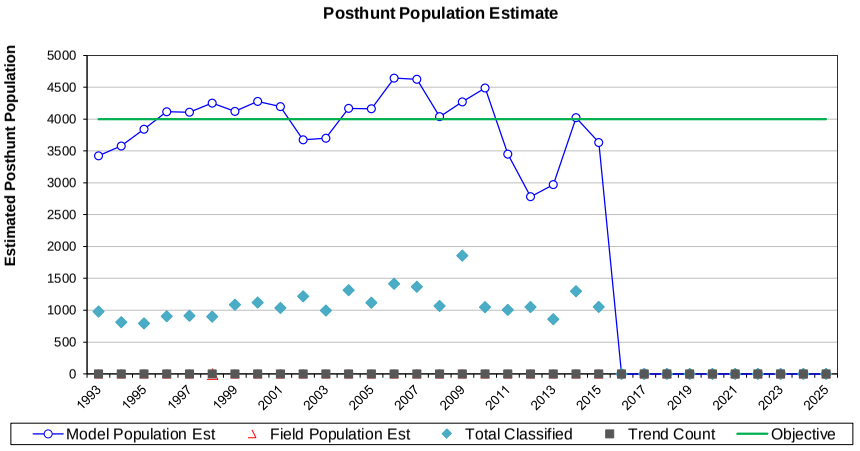
| Year | Annual Juvenile Survival Rates | | | Annual Adult Survival Rates | | |
|---|---|---|---|---|---|---|
| | Model Est | Field Est | SE | Model Est | Field Est | SE |
| 1993 | 0.90 | | | 0.93 | | |
| 1994 | 0.90 | | | 0.93 | | |
| 1995 | 0.54 | | | 0.93 | | |
| 1996 | 0.40 | | | 0.93 | | |
| 1997 | 0.40 | | | 0.93 | | |
| 1998 | 0.40 | | | 0.93 | | |
| 1999 | 0.63 | | | 0.93 | | |
| 2000 | 0.46 | | | 0.93 | | |
| 2001 | 0.40 | | | 0.93 | | |
| 2002 | 0.59 | | | 0.93 | | |
| 2003 | 0.82 | | | 0.93 | | |
| 2004 | 0.46 | | | 0.93 | | |
| 2005 | 0.90 | | | 0.93 | | |
| 2006 | 0.54 | | | 0.93 | | |
| 2007 | 0.40 | | | 0.93 | | |
| 2008 | 0.82 | | | 0.93 | | |
| 2009 | 0.80 | | | 0.93 | | |
| 2010 | 0.40 | | | 0.93 | | |
| 2011 | 0.43 | | | 0.93 | | |
| 2012 | 0.90 | | | 0.93 | | |
| 2013 | 0.90 | | | 0.93 | | |
| 2014 | 0.47 | | | 0.93 | | |
| 2015 | 0.59 | | | 0.93 | | |
| 2016 | | | | | | |
| 2017 | | | | | | |
| 2018 | | | | | | |
| 2019 | | | | | | |
| 2020 | | | | | | |
| 2021 | | | | | | |
| 2022 | | | | | | |
| 2023 | | | | | | |
| 2024 | | | | | | |
| 2025 | | | | | | |

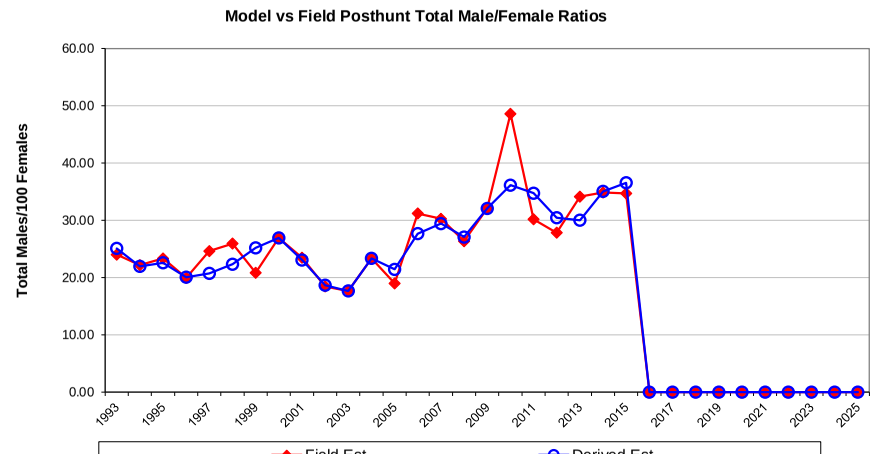
| Parameters: | Optim cells |
|---|---|
| | |
| Adult Survival = | 0.927 |
| Initial Total Male Pop/10,000 = | 0.044 |
| Initial Female Pop/10,000 = | 0.175 |

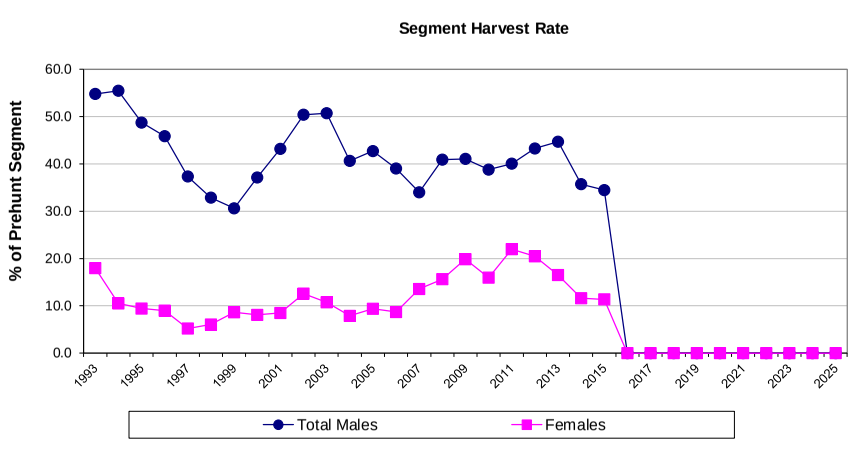
| MODEL ASSUMPTIONS | |
|---|---|
| Sex Ratio (% Males) = | 50% |
| Wounding Loss (total males) = | 10% |
| Wounding Loss (females) = | 10% |
| Wounding Loss (juveniles) = | 10% |

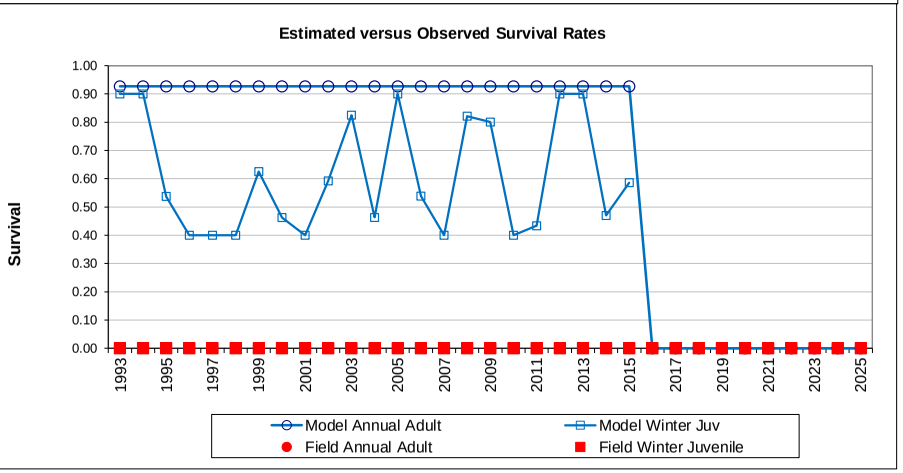
| Year | Classification Counts: Juvenile/Female Ratio | | | Classification Counts: Total Male/Female Ratio | | | Harvest | | | | Harvest: Segment Harvest Rate (% of | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Derived Est | Field Est | Field SE | Derived Est | Field Est w/o bull adj | Field SE | Juv | Males | Females | Total Harvest | Total Males | Females |
| 1993 | | 70.24 | 4.87 | 25.11 | 24.01 | 2.43 | 58 | | 349 | 892 | 54.8 | 18.0 |
| 1994 | | 61.54 | 4.74 | 21.97 | 22.17 | 2.48 | 17 | 485 | 208 | 640 | 55.5 | 10.5 |
| 1995 | | 58.12 | 4.59 | 22.59 | 23.34 | 2.57 | 25 | 415 | 201 | 550 | 48.7 | 9.4 |
| 1996 | | 76.36 | 5.40 | 20.08 | 19.96 | 2.28 | 7 | 324 | 188 | 436 | 45.9 | 9.0 |
| 1997 | | 70.88 | 5.09 | 20.74 | 24.63 | 2.56 | 12 | 241 | 107 | 333 | 37.3 | 5.2 |
| 1998 | | 75.17 | 5.43 | 22.33 | 25.95 | 2.70 | 8 | 214 | 126 | 348 | 32.9 | 6.0 |
| 1999 | | 69.35 | 4.54 | 25.19 | 20.84 | 2.10 | 47 | 214 | 182 | 681 | 30.6 | 8.6 |
| 2000 | | 65.18 | 4.30 | 26.93 | 26.93 | 2.42 | 41 | 322 | 178 | 541 | 37.1 | 8.1 |
| 2001 | | 68.02 | 4.60 | 23.06 | 23.48 | 2.31 | 50 | 350 | 185 | 585 | 43.2 | 8.5 |
| 2002 | | 61.45 | 3.83 | 18.67 | 18.46 | 1.80 | 33 | 352 | 267 | 652 | 50.4 | 12.6 |
| 2003 | | 65.56 | 4.47 | 17.68 | 17.68 | 1.96 | 38 | 334 | 221 | 593 | 50.7 | 10.7 |
| 2004 | | 63.82 | 3.86 | 23.37 | 23.36 | 2.03 | 25 | 324 | 173 | 522 | 40.6 | 7.9 |
| 2005 | | 70.51 | 4.51 | 21.43 | 18.98 | 1.96 | 58 | 315 | 204 | 577 | 42.7 | 9.4 |
| 2006 | | 60.79 | 3.64 | 27.69 | 31.21 | 2.36 | 39 | 397 | 213 | 649 | 39.0 | 8.7 |
| 2007 | | 69.74 | 4.16 | 29.43 | 30.26 | 2.40 | 34 | 320 | 331 | 685 | 34.0 | 13.6 |
| 2008 | | 66.25 | 4.46 | 27.08 | 26.35 | 2.45 | 61 | 356 | 352 | 769 | 40.9 | 15.6 |
| 2009 | | 80.64 | 4.08 | 32.08 | 32.07 | 2.20 | 68 | 408 | 452 | 928 | 41.1 | 19.9 |
| 2010 | | 76.77 | 5.40 | 36.14 | 48.60 | 3.94 | 27 | 439 | 364 | 830 | 38.8 | 16.0 |
| 2011 | | 59.43 | 4.23 | 34.73 | 30.19 | 2.72 | 79 | 375 | 455 | 909 | 40.1 | 22.0 |
| 2012 | | 56.04 | 3.91 | 30.46 | 27.85 | 2.50 | 61 | 315 | 349 | 725 | 43.3 | 20.5 |
| 2013 | | 72.36 | 5.48 | 30.03 | 34.13 | 3.32 | 64 | 324 | 264 | 652 | 44.7 | 16.5 |
| 2014 | | 112.38 | 6.74 | 35.06 | 34.86 | 2.99 | 30 | 288 | 194 | 512 | 35.7 | 11.6 |
| 2015 | | 75.11 | 5.12 | 36.57 | 34.70 | 3.05 | 30 | 300 | 200 | 530 | 34.5 | 11.4 |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | |
| 2022 | | | | | | | | | | | | |
| 2023 | | | | | | | | | | | | |
| 2024 | | | | | | | | | | | | |
| 2025 | | | | | | | | | | | | |

## FIGURES



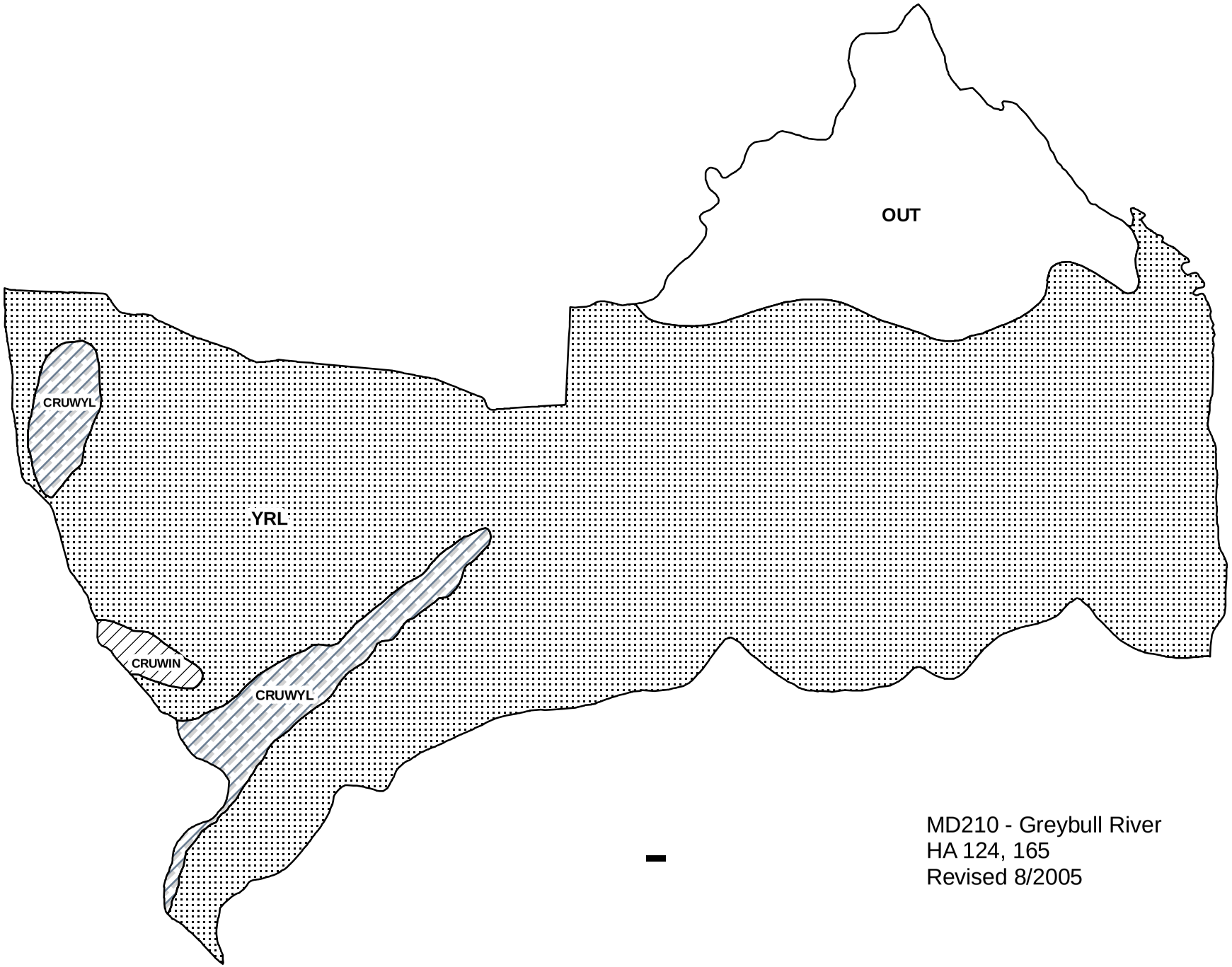




**Comments:**

## END




MD210 - Greybull River
HA 124, 165
Revised 8/2005

# 2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD211 - SHOSHONE RIVER

HUNT AREAS: 122-123

PREPARED BY: LESLIE SCHREIBER

| | 2009 - 2013 Average | 2014 | 2015 Proposed |
|---|---|---|---|
| Population: | 0 | N/A | N/A |
| Harvest: | 802 | 813 | 560 |
| Hunters: | 1,430 | 1,369 | 1,170 |
| Hunter Success: | 56% | 59% | 48 % |
| Active Licenses: | 1,538 | 1,533 | 1,280 |
| Active License Success: | 52% | 53% | 44 % |
| Recreation Days: | 5,862 | 6,219 | 6,000 |
| Days Per Animal: | 7.3 | 7.6 | 10.7 |
| Males per 100 Females | 29 | 33 | |
| Juveniles per 100 Females | 78 | 96 | |

Population Objective (± 20%) : 0 (0 - 0)

Management Strategy: Recreational

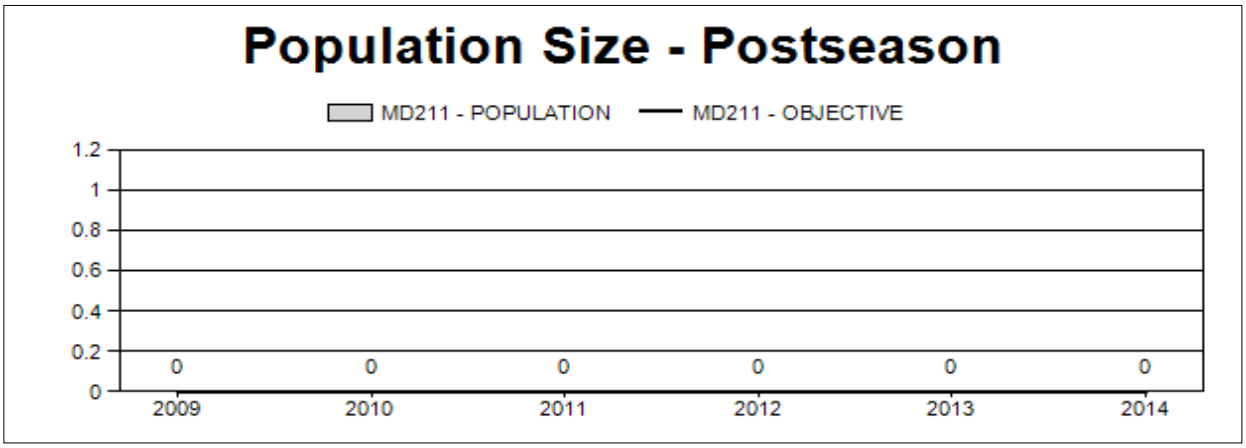
Percent population is above (+) or below (-) objective: N/A%

Number of years population has been + or - objective in recent trend: 0

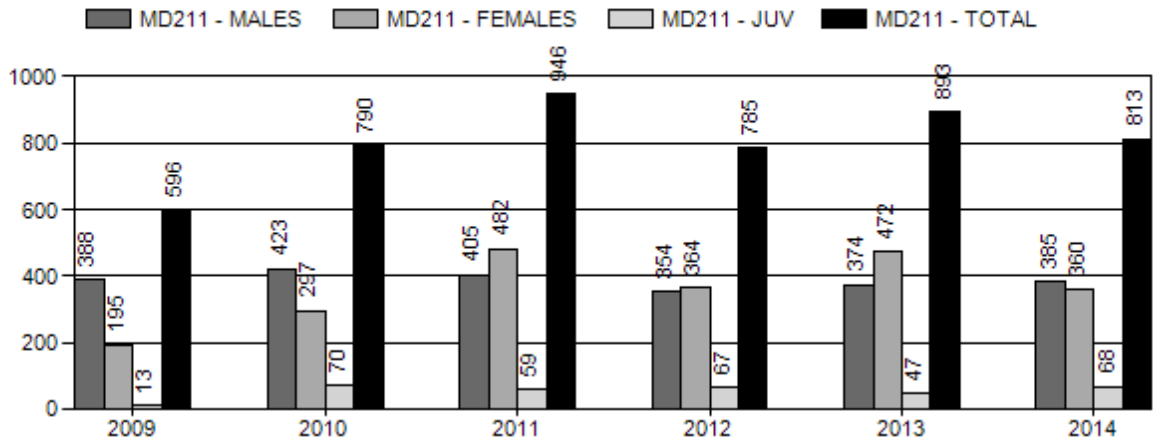
Model Date: None

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

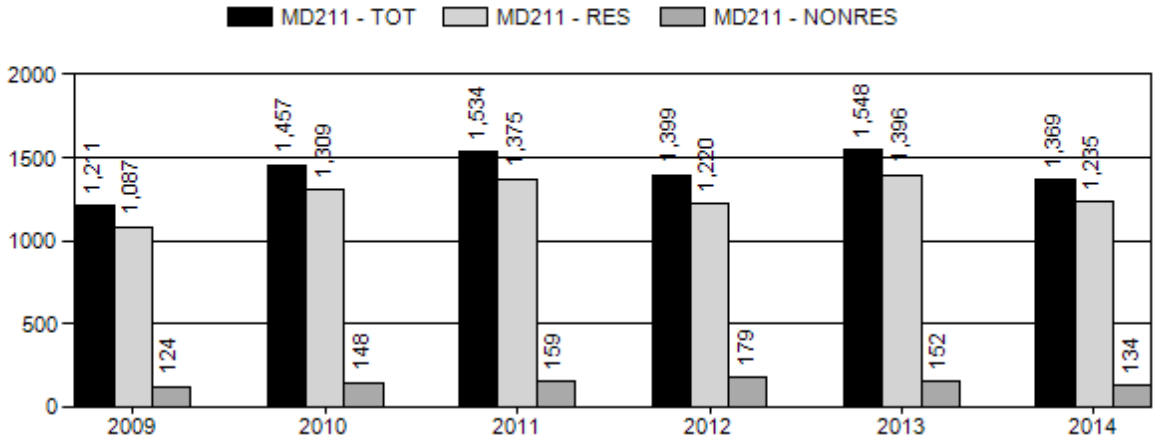
| | JCR Year | Proposed |
|---|---|---|
| Females ≥ 1 year old: | 0% | 0% |
| Males ≥ 1 year old: | 0% | 0% |
| Juveniles (< 1 year old): | 0% | 0% |
| Total: | 0% | 0% |
| Proposed change in post-season population: | 0% | 0% |



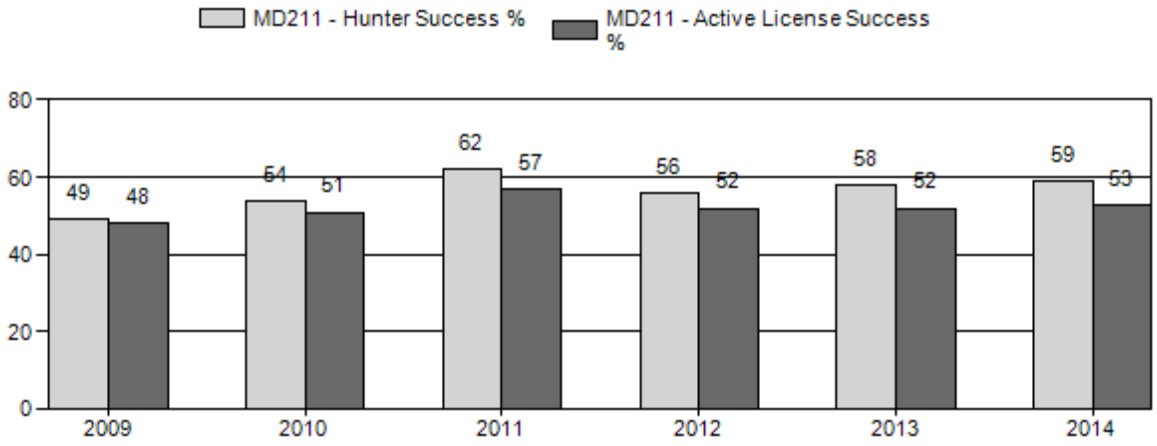
# Harvest



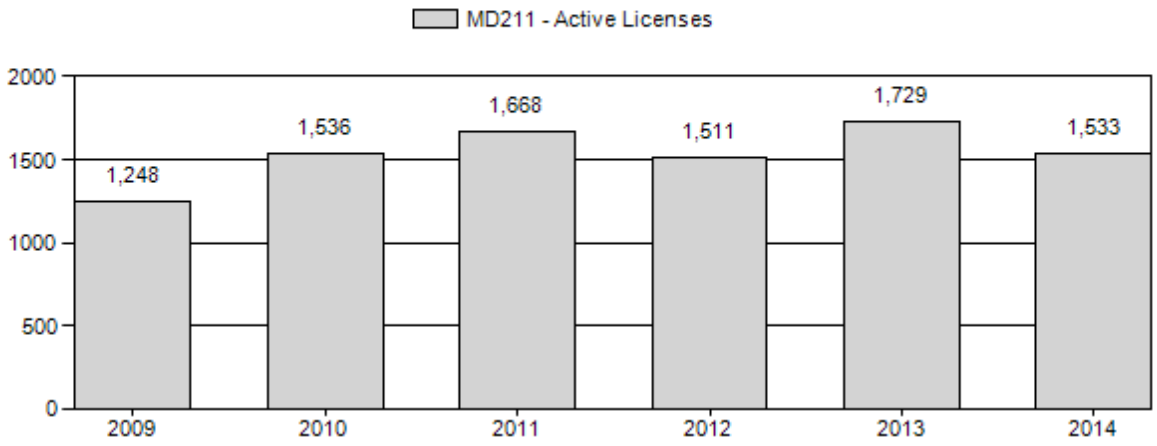

# Number of Hunters



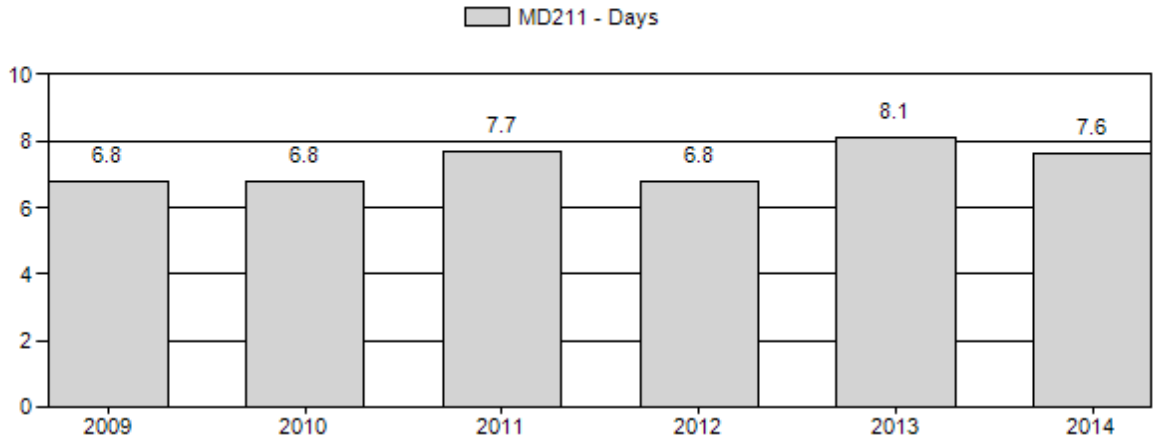

# Harvest Success



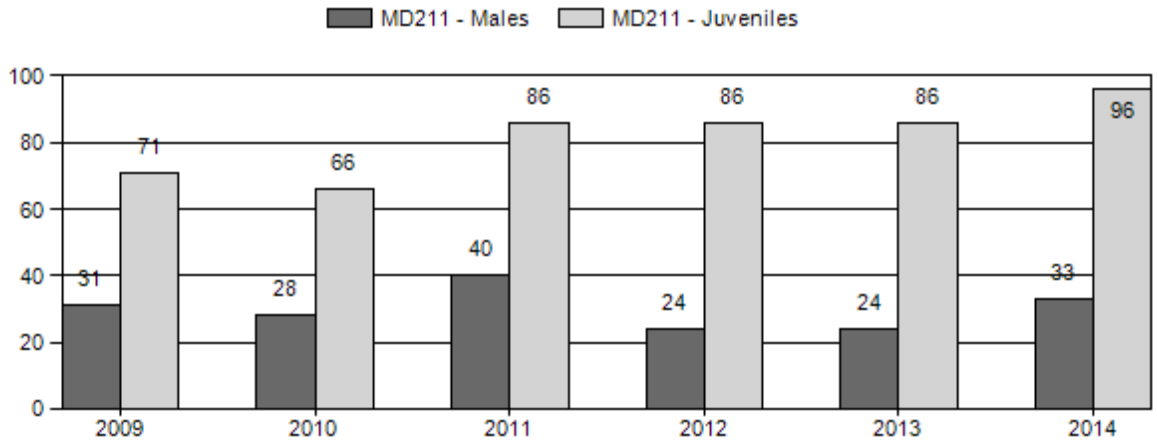
# Active Licenses




# Days per Animal Harvested




# Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD211 - SHOSHONE RIVER

| | | MALES | | | | | | | FEMALES | | JUVENILES | | | | Males to 100 Females | | | | Young to | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Post Pop | Ylg | 2+ Cls 1 | 2+ Cls 2 | 2+ Cls 3 | 2+ UnCls | Total | % | Total | % | Total | % | Tot Cls | Cls Obj | Ylng | Adult | Total | Conf Int | 100 Fem | Conf Int | 100 Adult |
| 2009 | 0 | 38 | 0 | 0 | 0 | 33 | 71 | 15% | 231 | 50% | 163 | 35% | 465 | 0 | 16 | 14 | 31 | ± 0 | 71 | ± 0 | 54 |
| 2010 | 0 | 30 | 0 | 0 | 0 | 33 | 63 | 15% | 224 | 52% | 147 | 34% | 434 | 0 | 13 | 15 | 28 | ± 0 | 66 | ± 0 | 51 |
| 2011 | 0 | 37 | 0 | 0 | 0 | 31 | 68 | 18% | 172 | 44% | 148 | 38% | 388 | 0 | 22 | 18 | 40 | ± 0 | 86 | ± 0 | 62 |
| 2012 | 0 | 34 | 0 | 0 | 0 | 37 | 71 | 12% | 293 | 48% | 251 | 41% | 615 | 825 | 12 | 13 | 24 | ± 0 | 86 | ± 0 | 69 |
| 2013 | 0 | 18 | 0 | 0 | 0 | 14 | 32 | 12% | 131 | 47% | 113 | 41% | 276 | 810 | 14 | 11 | 24 | ± 0 | 86 | ± 0 | 69 |
| 2014 | 0 | 46 | 0 | 0 | 0 | 42 | 88 | 14% | 266 | 44% | 255 | 42% | 609 | 0 | 17 | 16 | 33 | ± 0 | 96 | ± 0 | 72 |

## 2015 HUNTING SEASONS
## Shoshone River Mule Deer Herd Unit (MD211)

| Hunt Area | Type | Dates of Seasons Opens | Closes | Quota | Limitations |
|---|---|---|---|---|---|
| 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 | Nov. 30 | 150 | Limited quota; doe or fawn valid on or within one-half (½) mile of irrigated land within the Shoshone River drainage |
| 123 | | 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** | | | | | |
| 122, 123 | | Sept. 1 | Sept. 30 | | Refer to Section 3 of this Chapter |

**Region X Non-resident deer quota: 300**

| Hunt Area | Type | Quota change from 2014 |
|---|---|---|
| 122 | 6 | -250 |
| 122 | 8 | -50 |
| HU Total | | -300 |

**Management Evaluation**

**Current Management Objective:** none
**2014 Postseason Population Estimate:** none
**2015 Proposed Postseason Population Estimate:** none

**Herd Unit Issues.** Management of the Shoshone River mule deer herd unit using a population objective was eliminated in 2001 due to insufficient classification sample sizes since adequate sample size is a key assumption to all population models. No management goals (e.g., count objectives, buck ratios) were established for this herd due to lack of data; however, our management emphasis is to reduce crop depredation to a minimum yet provide some recreational hunting. We will review this objective in spring of 2016. Farming is the primary land use along and adjacent to riparian areas on private land and provides quality forage compared to the surrounding desert habitat; however, landowner tolerance is low. Thus, managing deer to decrease crop depredation is a focus.

**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. Growing season precipitation in 2014 was slightly below average, but excellent vegetation growth was observed overall in the Bighorn Basin.

**Habitat.** Cheatgrass has established itself on some upland sites, but even before recent droughts, habitat quality is low due to low precipitation and poor soils in most non-agricultural portions of the herd unit. Riparian and agricultural lands make up nearly all of the occupied deer habitat. There are no transects established within the herd unit to measure production and utilization of sagebrush.

**Classification.** Classification surveys have insufficient sample sizes, which result in highly variable ratio estimates. Since few deer are observed, classification surveys in this herd unit is a lower priority among big game herds in the district. In the late 1990s we classified less than 350 deer most years, but since 2007, more than 400 have been surveyed. Recently, sample sizes have totaled over 600 in 2012 and 2014,provided better ratio data and perhaps suggesting an increasing population trend. Over the past 5 years, fawn:doe ratios have ranged between 66-96 fawns:100 does (average=84:100), which indicates this is a highly productive herd.

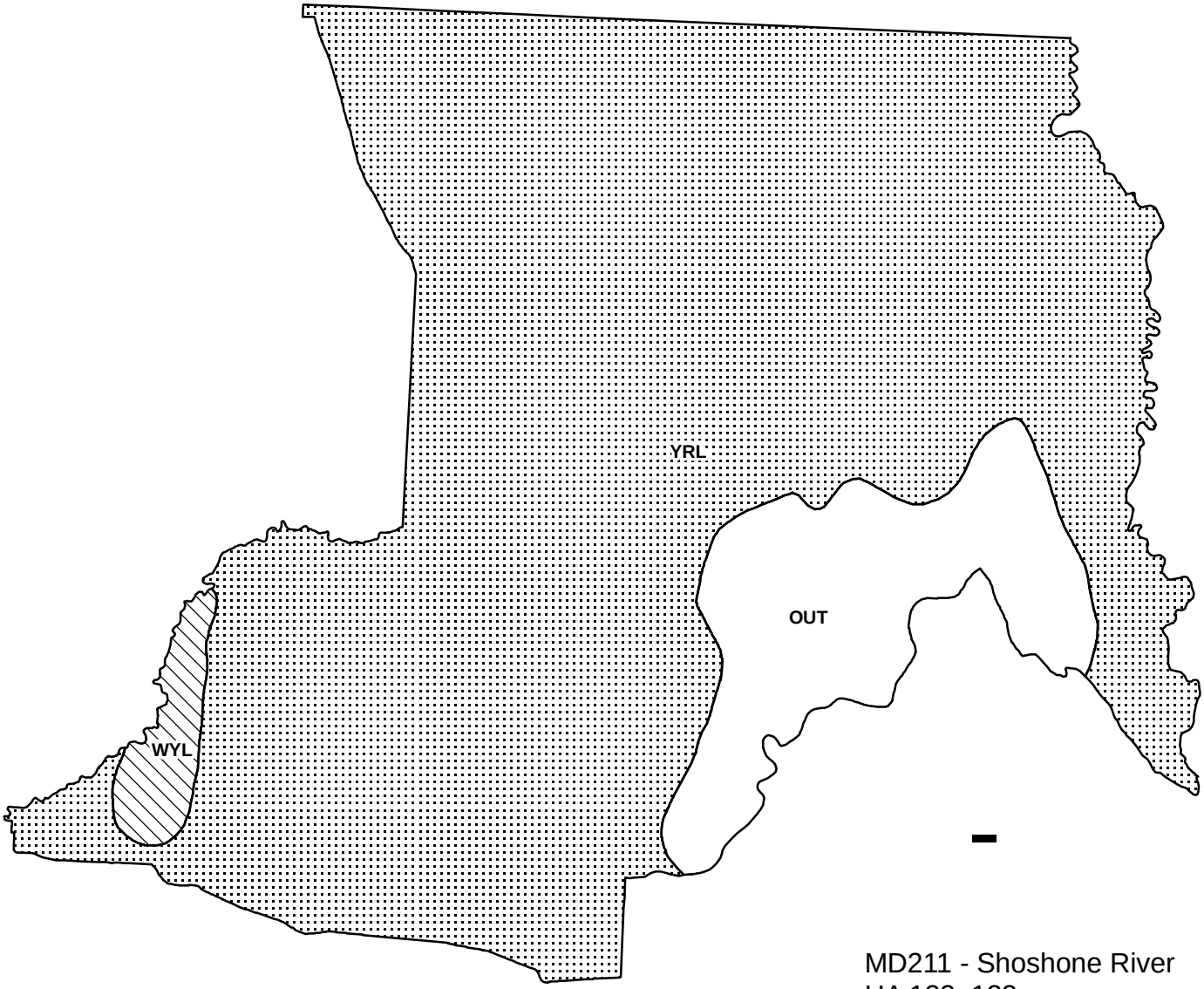
**Harvest.** Harvest statistics are probably the best data we have for this herd unit; however, no clear trends can be discerned to suggest population trends. In 2014, hunters harvested less deer (n=813) compared to 2012 (n=893), and is consistent with active license numbers. Harvest success ranged from a low of 49% in 2009 to 62% in 2011, and mirrors license numbers over the last 6 years. Hunter numbers match the fluctuation in number of doe/fawn licenses issued with 2014 hunter numbers closely matching 2012. Days per animal harvested decreased in 2014 to 7.6 days/deer compared to 8.1 days/deer in 2013, which may not be significant.

**Population.** No population model has been used for the Shoshone deer herd since 2001. However, with more deer classified and hunted in this herd unit than in the past, the time-specific juvenile, constant adult (TSJ,CA) survival model shows promise. But, with decreasing doe/fawn licenses in 2015, we may lose a large portion of our harvest data that drives the model.

**Management Summary.** Regardless of the population level, we will continue to address deer depredation on agricultural crops since private land has most of the deer and deer habitat. The 2015 hunting seasons will have fewer doe/fawn licenses, because crop damage in 2013-14 has subsided; thus, we are returning to maintenance mode. Some hunters continue to ask for more conservative hunting seasons to increase the population and quality and quantity of bucks. It seems that upland habitat has recovered from drought and deer are dispersing further from cropland; therefore, 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.




MD211 - Shoshone River
HA 122, 123
Revised 8/2005

# 2014 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2014 - 5/31/2015

HERD: MD212 - OWL CREEK/MEETEETSE

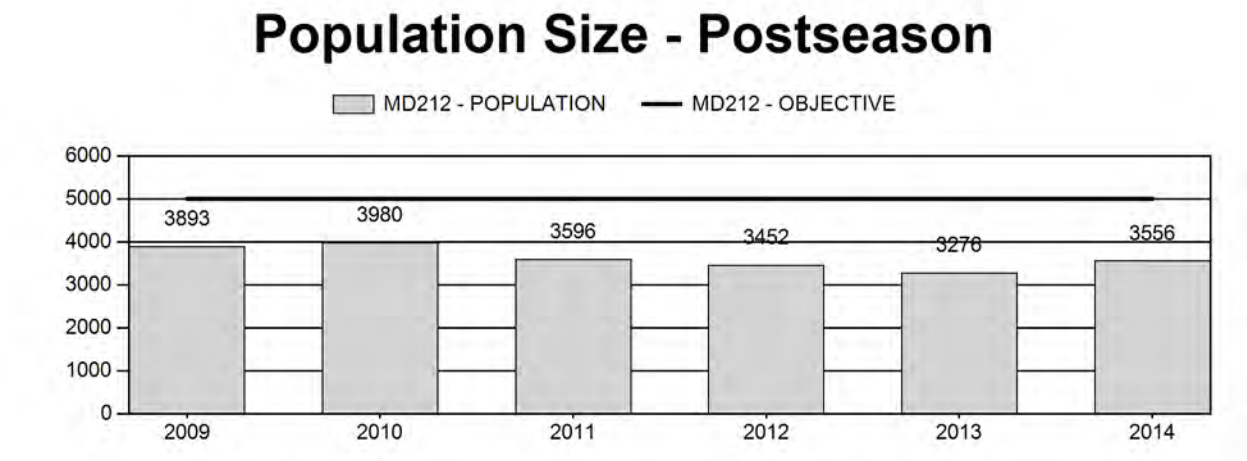
HUNT AREAS: 116-120
PREPARED BY: BART KROGER

| | 2009 - 2013 Average | 2014 | 2015 Proposed |
|---|---|---|---|
| Population: | 3,639 | 3,556 | 3,274 |
| Harvest: | 311 | 212 | 210 |
| Hunters: | 398 | 302 | 280 |
| Hunter Success: | 78% | 70% | 75% |
| Active Licenses: | 453 | 312 | 290 |
| Active License Success: | 69% | 68% | 72% |
| Recreation Days: | 1,740 | 1,376 | 1,300 |
| Days Per Animal: | 5.6 | 6.5 | 6.2 |
| Males per 100 Females | 39 | 41 | |
| Juveniles per 100 Females | 61 | 86 | |

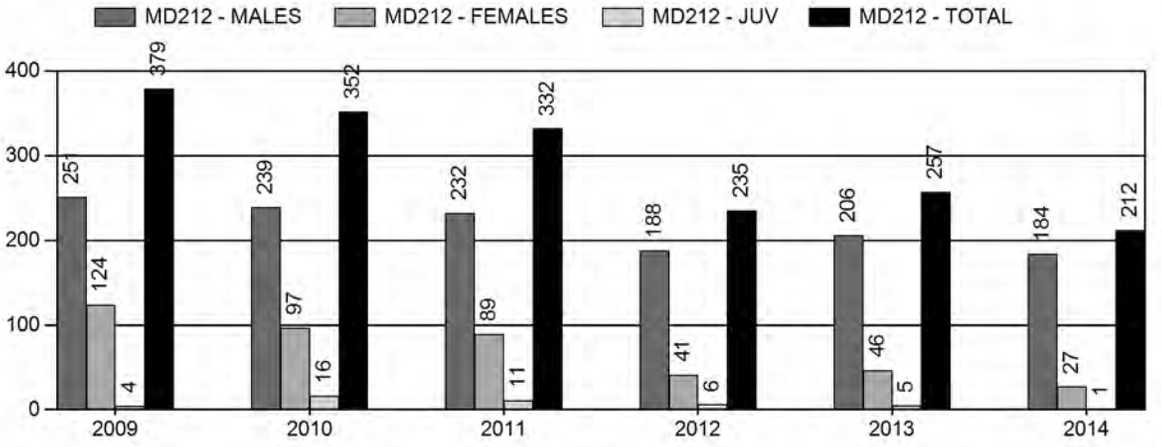
| | |
|---|---|
| Population Objective (± 20%) : | 5000 (4000 - 6000) |
| Management Strategy: | Special |
| Percent population is above (+) or below (-) objective: | -28.9% |
| Number of years population has been + or - objective in recent trend: | 20 |
| Model Date: | 2/24/2015 |

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

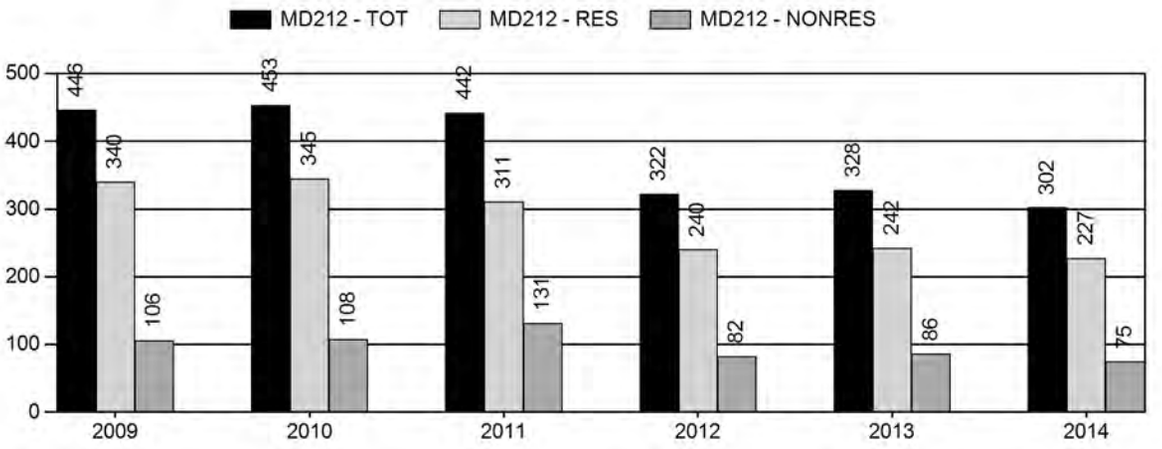
| | JCR Year | Proposed |
|---|---|---|
| Females ≥ 1 year old: | 2% | 1% |
| Males ≥ 1 year old: | 23% | 21% |
| Juveniles (< 1 year old): | 0% | 0% |
| Total: | 6% | 6% |
| Proposed change in post-season population: | +8% | -8% |



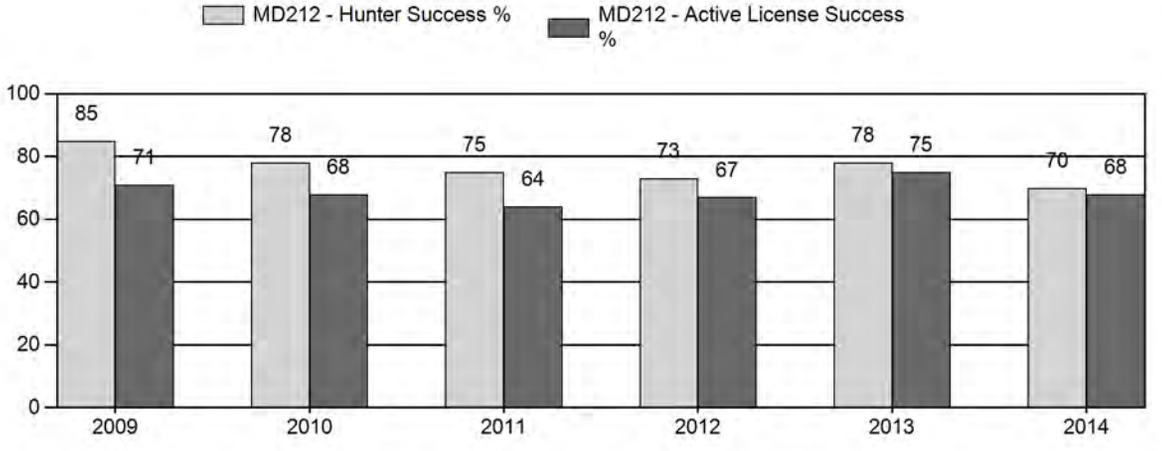
# Harvest



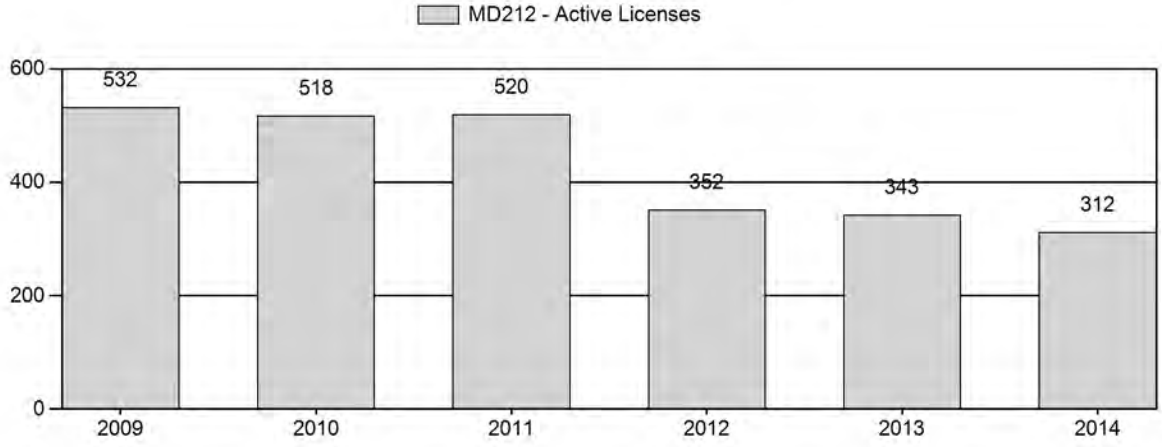

# Number of Hunters



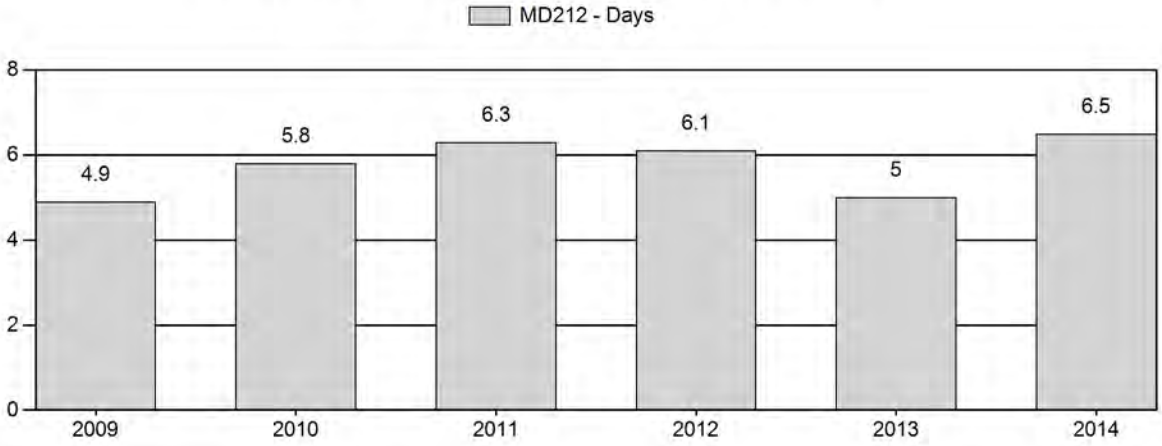

# Harvest Success



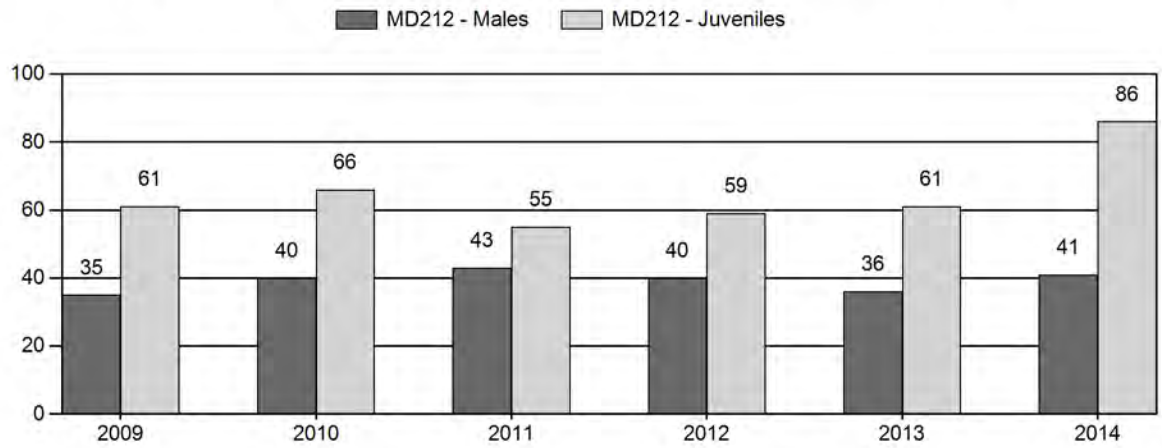
# Active Licenses




# Days per Animal Harvested




# Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD212 - OWL CREEK/MEETEETSE

| | | MALES | | | | | | | FEMALES | | JUVENILES | | | | Males to 100 Females | | | | Young to | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Post Pop | Ylg | 2+ Cls 1 | 2+ Cls 2 | 2+ Cls 3 | 2+ UnCls | Total | % | Total | % | Total | % | Tot Cls | Cls Obj | Ylng | Adult | Total | Conf Int | 100 Fem | Conf Int | 100 Adult |
| 2009 | 3,893 | 80 | 0 | 0 | 0 | 157 | 237 | 18% | 681 | 51% | 417 | 31% | 1,335 | 957 | 12 | 23 | 35 | ± 3 | 61 | ± 4 | 45 |
| 2010 | 3,980 | 78 | 0 | 0 | 0 | 134 | 212 | 19% | 532 | 49% | 352 | 32% | 1,096 | 1,080 | 15 | 25 | 40 | ± 4 | 66 | ± 5 | 47 |
| 2011 | 3,596 | 56 | 0 | 0 | 0 | 175 | 231 | 22% | 541 | 50% | 300 | 28% | 1,072 | 901 | 10 | 32 | 43 | ± 4 | 55 | ± 4 | 39 |
| 2012 | 3,452 | 34 | 0 | 0 | 0 | 130 | 164 | 20% | 406 | 50% | 241 | 30% | 811 | 910 | 8 | 32 | 40 | ± 4 | 59 | ± 5 | 42 |
| 2013 | 3,276 | 37 | 0 | 0 | 0 | 113 | 150 | 18% | 413 | 51% | 250 | 31% | 813 | 916 | 9 | 27 | 36 | ± 4 | 61 | ± 5 | 44 |
| 2014 | 3,556 | 27 | 0 | 0 | 0 | 81 | 108 | 18% | 265 | 44% | 228 | 38% | 601 | 1,428 | 10 | 31 | 41 | ± 5 | 86 | ± 9 | 61 |

## 2015 HUNTING SEASONS
## OWL CREEK/MEETEETSE MULE DEER HERD (MD212)

| Hunt Area | Type | Season Dates Opens | Closes | Quota | Limitations |
|---|---|---|---|---|---|
| 116 | 1 | Oct. 15 | Oct. 31 | 75 | Limited quota; Antlered deer |
| 116, 117, 118 | 3 | Nov. 1 | Nov. 30 | 100 | Limited quota; any white-tailed deer |
| | 7 | Sep. 1 | Oct. 14 | 100 | Limited quota; doe or fawn white-tailed deer valid on private land in the Wood River drainage |
| | 8 | Oct. 15 | Nov. 30 | 75 | Limited quota; doe or fawn white-tailed deer<br>Hunt Area Hunt Area |
| 117 | 1 | Sep. 15 | Oct. 15 | 50 | Limited quota; antlered mule deer or any white-tailed deer |
| 118 | 1 | Oct. 15<br>Nov. 1 | Oct. 31<br>Nov. 30 | 25 | Limited quota; Antlered deer<br>Unused Hunt Area 118 Type 1 licenses valid for any white-tailed deer |
| 119 | 1 | Nov. 1 | Nov. 15 | 100 | Limited quota; Antlered deer |
| 119, 120 | 3 | Oct. 1 | Nov. 30 | 50 | Limited quota; any white-tailed deer |
| 119 | 6 | Sep. 15 | Nov. 15 | 25 | Limited quota; doe or fawn valid on irrigated land |
| 120 | 1 | Nov. 1 | Nov. 15 | 50 | Limited quota; Antlered deer |
| 120 | 8 | Sep. 15 | Dec. 15 | 100 | Limited quota; doe or fawn white-tailed deer |
| Archery: 116, 117, 118, 119, 120 | | Sep. 1 | Sep. 30 | | Refer to Section 2 of this chapter |

| Hunt Area | Type | Quota change from 2014 |
|---|---|---|
| 118 | 1 | -15 |
| 120 | 6 | -25 |
| **HU Total** | **1** | **-15** |
| | **6** | **-25** |

**Management Evaluation**

**Current Postseason Population Management Objective:** 5,000
**Management Strategy:** Special
**2014 Postseason Population Estimate: 3600**
**2015 Proposed Postseason Population Estimate: 3300**

**Herd Unit Issues -** Currently, the 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 post-season population objective was changed in 2014 from 8,000 to 5,000. The 2014 post-season population estimate is 29% below objective. This herd unit went through the Mule Deer Initiative public process in early 2014. Field personnel, landowners and most hunters agree this herd is below desired numbers. Model trends currently indicate a slow decline in the population for the past 15 years, which mirrors that of field personnel and most landowners and hunters, along with classification sample sizes and harvest statistics. Poor habitat conditions, long-term drought, and increased harvest of deer on private lands due to potential damage have kept this population below objective.

**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 and 2013-14 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 and 2014, 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 Hunt 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 A). Transect locations include Grass Creek and Wagonhound Bench. Sagebrush leader growth in 2014 for both the Grass Creek and Wagonhound transects was 2.5cm. 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 2009, 1,335 deer where classified, while in 2014 only 601 were classified; a decline of 55%. Buck and fawn ratios have remained favorable in recent years, with a 6-year average of 38 bucks and 65 fawns per 100 does. The 2014 fawn ratio was 86:100, the highest on record.

**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 an AIC value of 51, along with a very good fit (17) of the model vs. field male ratios. Population estimate seems reasonable, and reflect field personnel perceptions, harvest and classification sample sizes, which indicate a declining population since about 2007. Because of this, the model is considered a good

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 6 years in Hunt Area 116 because of very low mule deer numbers, and the LU Ranch (Absaroka Front HMA) annually expresses concerns over declining deer numbers in Hunt Area 118. In Hunt Area 120 in 2014, a total of 71 deer were classified, compared to 340 classified in 2009.

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 during the recent Mule Deer Initiative public meeting. Doe/fawn licenses have and will continue to be used for damage issues when warranted. Season structures have been designed, and will likely continue to be designed to help increase this deer population, particularly those deer utilizing native ranges.

**Management Summary -** The only changes for 2015 are to reduce the Type 1 quota in Hunt Area 118 and to eliminate the Type 6 season in Hunt Area 120. Overwhelming public support, during the Mule Deer Initiative public meetings, were to reduce doe/fawn harvest and provide better quality buck hunts. The number of deer classified in Hunt Area 118 has declined by over 90%. The LU Ranch would like to see the season closed in Hunt Area 118. Type 1 license quotas in Hunt Area s 116, 117, 119 and 120 appear adequate, with most of these Hunt Areas having license reductions in recent years. The projected 2014 harvest is roughly 210 deer, similar to 2014. Hopefully this deer herd will start to show improving trends, but it's likely to continue declining into the future because of poor habitat and drought conditions.

| INPUT | |
|---|---|
| **Species:** | Mule Deer |
| **Biologist:** | Bart Kroger |
| **Herd Unit & No.:** | Owl Cr/Meeteetse, MD212 |
| **Model date:** | 02/24/15 |

☐ Clear form

| MODELS SUMMARY | | Fit | Relative AICc | Check best model to create report | Notes |
|---|---|---|---|---|---|
| **CJ,CA** | **Constant Juvenile & Adult Survival** | 17 | 26 | ☐ CJ,CA Model | |
| **SCJ,SCA** | **Semi-Constant Juvenile & Semi-Constant Adult Survival** | 17 | 51 | ☑ SCJ,SCA M | |
| **TSJ,CA** | **Time-Specific Juvenile & Constant Adult Survival** | 0 | 126 | ☐ TSJ,CA Model | |

**Population Estimates from Top Model**

| Year | Posthunt Population Est. | | Trend Count | Predicted Prehunt Population | | | | Predicted Posthunt Population | | | | Objective |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Field Est | Field SE | | Juveniles | Total Males | Females | Total | Juveniles | Total Males | Females | Total | |
| **1993** | | | | 1178 | 1431 | 2963 | 5572 | 1156 | 901 | 2615 | 4672 | 8000 |
| **1994** | | | | 1282 | 1137 | 2597 | 5017 | 1264 | 693 | 2476 | 4433 | 8000 |
| **1995** | | | | 1016 | 995 | 2513 | 4524 | 1001 | 615 | 2382 | 3999 | 8000 |
| **1996** | | | | 1492 | 845 | 2349 | 4686 | 1485 | 585 | 2273 | 4343 | 8000 |
| **1997** | | | | 1287 | 974 | 2411 | 4672 | 1287 | 639 | 2323 | 4250 | 8000 |
| **1998** | | | | 1602 | 957 | 2391 | 4950 | 1596 | 665 | 2302 | 4562 | 8000 |
| **1999** | | | | 1647 | 1077 | 2471 | 5196 | 1639 | 695 | 2366 | 4701 | 8000 |
| **2000** | | | | 1418 | 1117 | 2540 | 5075 | 1409 | 785 | 2453 | 4648 | 8000 |
| **2001** | | | | 1192 | 1120 | 2540 | 4852 | 1182 | 798 | 2420 | 4400 | 8000 |
| **2002** | | | | 1391 | 1058 | 2440 | 4888 | 1381 | 678 | 2258 | 4318 | 8000 |
| **2003** | | | | 1454 | 1020 | 2365 | 4839 | 1437 | 663 | 2197 | 4297 | 8000 |
| **2004** | | | | 1411 | 1024 | 2331 | 4766 | 1403 | 679 | 2177 | 4259 | 8000 |
| **2005** | | | | 1356 | 1028 | 2303 | 4687 | 1346 | 701 | 2142 | 4189 | 8000 |
| **2006** | | | | 1309 | 1028 | 2255 | 4591 | 1302 | 678 | 2071 | 4051 | 8000 |
| **2007** | | | | 1260 | 995 | 2181 | 4435 | 1246 | 695 | 2023 | 3965 | 8000 |
| **2008** | | | | 1331 | 991 | 2122 | 4444 | 1313 | 693 | 1967 | 3973 | 8000 |
| **2009** | | | | 1204 | 1011 | 2095 | 4310 | 1200 | 735 | 1959 | 3893 | 8000 |
| **2010** | | | | 1305 | 1010 | 2052 | 4367 | 1287 | 747 | 1946 | 3980 | 8000 |
| **2011** | | | | 1035 | 984 | 1943 | 3961 | 1023 | 728 | 1845 | 3596 | 8000 |
| **2012** | | | | 1038 | 890 | 1783 | 3710 | 1031 | 683 | 1738 | 3452 | 8000 |
| **2013** | | | | 1004 | 856 | 1700 | 3559 | 998 | 629 | 1649 | 3276 | 8000 |
| **2014** | | | | 1368 | 803 | 1619 | 3790 | 1367 | 600 | 1589 | 3556 | 5000 |
| **2015** | | | | 933 | 890 | 1681 | 3505 | 933 | 681 | 1659 | 3274 | 5000 |
| **2016** | | | | | | | | | | | | 5000 |
| **2017** | | | | | | | | | | | | 5000 |
| **2018** | | | | | | | | | | | | 5000 |
| **2019** | | | | | | | | | | | | 5000 |
| **2020** | | | | | | | | | | | | 5000 |
| **2021** | | | | | | | | | | | | 5000 |
| **2022** | | | | | | | | | | | | 5000 |
| **2023** | | | | | | | | | | | | 5000 |
| **2024** | | | | | | | | | | | | 5000 |
| **2025** | | | | | | | | | | | | 5000 |

## Survival and Initial Population Estimates

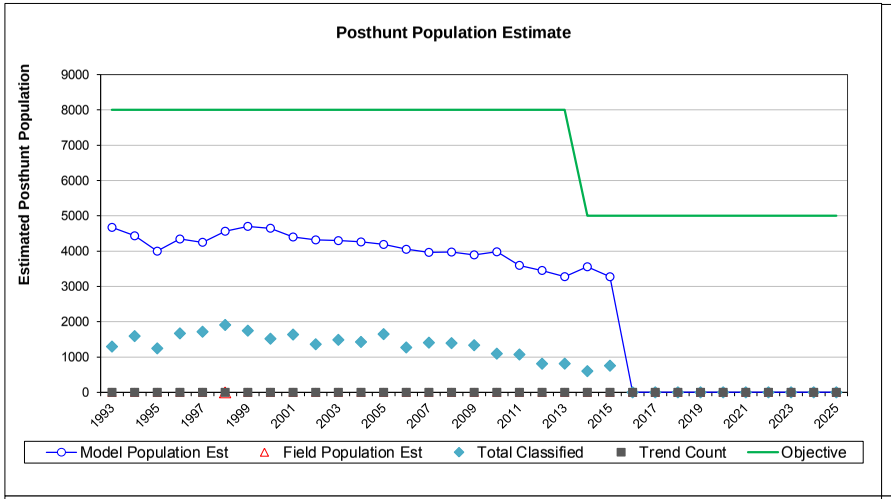
| Year | Annual Juvenile Survival Rates | | | Annual Adult Survival Rates | | |
|---|---|---|---|---|---|---|
| | Model Est | Field Est | SE | Model Est | Field Est | SE |
| 1993 | 0.64 | | | 0.85 | | |
| 1994 | 0.64 | | | 0.85 | | |
| 1995 | 0.64 | | | 0.85 | | |
| 1996 | 0.64 | | | 0.85 | | |
| 1997 | 0.64 | | | 0.85 | | |
| 1998 | 0.64 | | | 0.85 | | |
| 1999 | 0.64 | | | 0.85 | | |
| 2000 | 0.64 | | | 0.85 | | |
| 2001 | 0.64 | | | 0.85 | | |
| 2002 | 0.64 | | | 0.85 | | |
| 2003 | 0.64 | | | 0.85 | | |
| 2004 | 0.64 | | | 0.85 | | |
| 2005 | 0.64 | | | 0.85 | | |
| 2006 | 0.64 | | | 0.85 | | |
| 2007 | 0.64 | | | 0.85 | | |
| 2008 | 0.64 | | | 0.85 | | |
| 2009 | 0.64 | | | 0.85 | | |
| 2010 | 0.60 | | | 0.80 | | |
| 2011 | 0.60 | | | 0.80 | | |
| 2012 | 0.60 | | | 0.80 | | |
| 2013 | 0.60 | | | 0.80 | | |
| 2014 | 0.60 | | | 0.80 | | |
| 2015 | 0.64 | | | 0.85 | | |
| 2016 | | | | | | |
| 2017 | | | | | | |
| 2018 | | | | | | |
| 2019 | | | | | | |
| 2020 | | | | | | |
| 2021 | | | | | | |
| 2022 | | | | | | |
| 2023 | | | | | | |
| 2024 | | | | | | |
| 2025 | | | | | | |

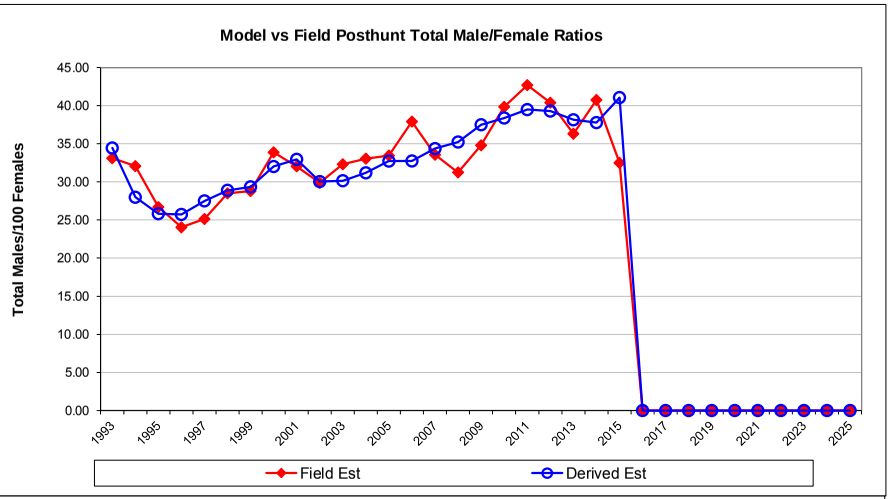
| Parameters: | Optim cells |
|---|---|
| Juvenile Survival = | 0.641 |
| Adult Survival = | 0.852 |
| Initial Total Male Pop/10,000 = | 0.090 |
| Initial Female Pop/10,000 = | 0.262 |

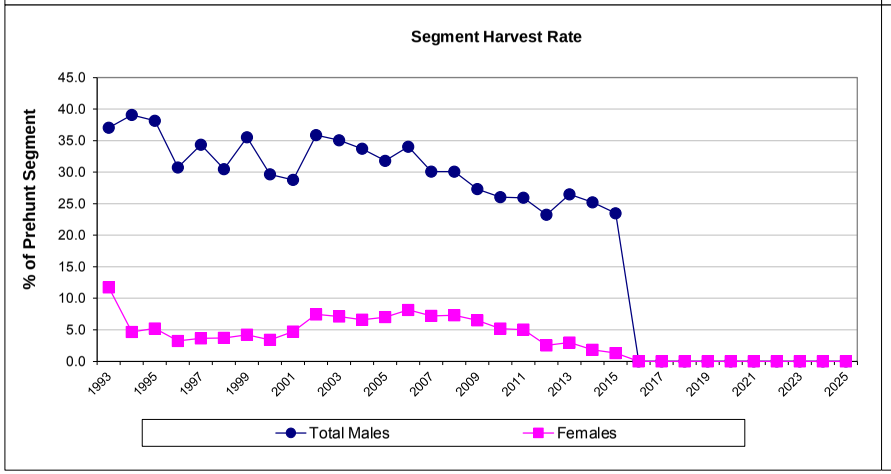
| MODEL ASSUMPTIONS | |
|---|---|
| Sex Ratio (% Males) = | 50% |
| Wounding Loss (total males) = | 10% |
| Wounding Loss (females) = | 10% |
| Wounding Loss (juveniles) = | 10% |

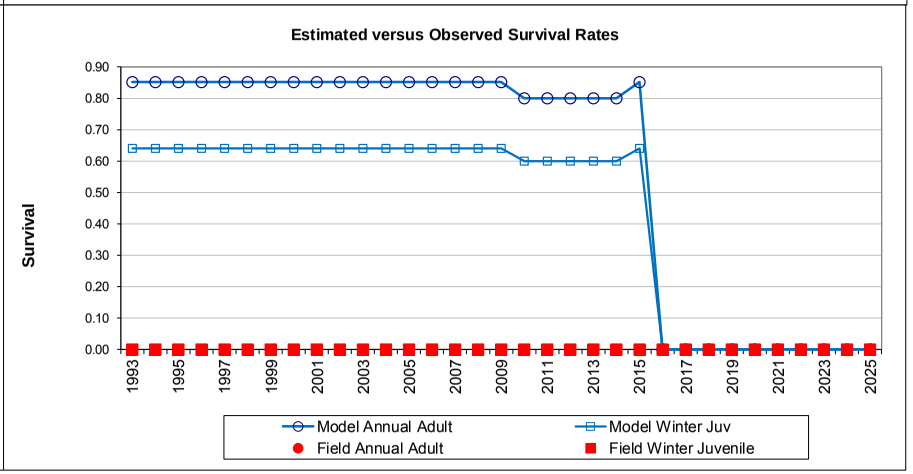
| Year | Classification Counts: Juvenile/Female Ratio | | | Classification Counts: Total Male/Female Ratio | | | Classification Counts | | | | Harvest: Segment Harvest Rate (% of | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Derived Est | Field Est | Field SE | Derived Est | Field Est w/o bull adj | Field SE | Juv | Males | Females | Total Harvest | Total Males | Females |
| 1993 | | 44.19 | 2.95 | 34.45 | 33.11 | 2.46 | 20 | 482 | 316 | 818 | 37.0 | 11.7 |
| 1994 | | 51.03 | 2.98 | 27.99 | 32.07 | 2.21 | 17 | 404 | 110 | 531 | 39.1 | 4.7 |
| 1995 | | 42.01 | 2.84 | 25.83 | 26.69 | 2.14 | 14 | 345 | 119 | 478 | 38.1 | 5.2 |
| 1996 | | 65.31 | 3.50 | 25.73 | 24.04 | 1.84 | 7 | 236 | 69 | 312 | 30.7 | 3.2 |
| 1997 | | 55.42 | 3.01 | 27.51 | 25.13 | 1.82 | 0 | 304 | 80 | 384 | 34.3 | 3.6 |
| 1998 | | 69.33 | 3.49 | 28.90 | 28.50 | 1.95 | 6 | 265 | 81 | 352 | 30.5 | 3.7 |
| 1999 | | 69.27 | 3.65 | 29.35 | 28.80 | 2.05 | 7 | 348 | 95 | 450 | 35.5 | 4.2 |
| 2000 | | 57.43 | 3.37 | 32.02 | 33.88 | 2.39 | 8 | 301 | 79 | 388 | 29.7 | 3.4 |
| 2001 | | 48.84 | 2.83 | 32.96 | 32.04 | 2.16 | 9 | 293 | 109 | 411 | 28.8 | 4.7 |
| 2002 | | 61.15 | 3.72 | 30.05 | 29.87 | 2.33 | 9 | 345 | 165 | 519 | 35.9 | 7.4 |
| 2003 | | 65.43 | 3.79 | 30.16 | 32.31 | 2.38 | 15 | 325 | 153 | 493 | 35.0 | 7.1 |
| 2004 | | 64.45 | 3.83 | 31.19 | 33.06 | 2.47 | 7 | 314 | 140 | 461 | 33.7 | 6.6 |
| 2005 | | 62.86 | 3.49 | 32.73 | 33.45 | 2.31 | 9 | 297 | 147 | 453 | 31.8 | 7.0 |
| 2006 | | 62.88 | 4.02 | 32.75 | 37.91 | 2.87 | 6 | 318 | 167 | 491 | 34.0 | 8.1 |
| 2007 | | 61.58 | 3.71 | 34.37 | 33.56 | 2.49 | 13 | 272 | 143 | 428 | 30.1 | 7.2 |
| 2008 | | 66.76 | 3.98 | 35.24 | 31.25 | 2.41 | 16 | 271 | 141 | 428 | 30.1 | 7.3 |
| 2009 | | 61.23 | 3.81 | 37.50 | 34.80 | 2.62 | 4 | 251 | 124 | 379 | 27.3 | 6.5 |
| 2010 | | 66.17 | 4.55 | 38.39 | 39.85 | 3.24 | 16 | 239 | 97 | 352 | 26.0 | 5.2 |
| 2011 | | 55.45 | 3.99 | 39.49 | 42.70 | 3.36 | 11 | 232 | 89 | 332 | 25.9 | 5.0 |
| 2012 | | 59.36 | 4.83 | 39.30 | 40.39 | 3.74 | 6 | 188 | 41 | 235 | 23.2 | 2.5 |
| 2013 | | 60.53 | 4.85 | 38.15 | 36.32 | 3.46 | 5 | 206 | 46 | 257 | 26.5 | 3.0 |
| 2014 | | 86.04 | 7.77 | 37.78 | 40.75 | 4.65 | 1 | 184 | 27 | 212 | 25.2 | 1.8 |
| 2015 | | 56.25 | 4.69 | 41.07 | 32.50 | 3.28 | 0 | 190 | 20 | 210 | 23.5 | 1.3 |
| 2016 | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | |
| 2022 | | | | | | | | | | | | |
| 2023 | | | | | | | | | | | | |
| 2024 | | | | | | | | | | | | |
| 2025 | | | | | | | | | | | | |

## FIGURES




**Comments:**

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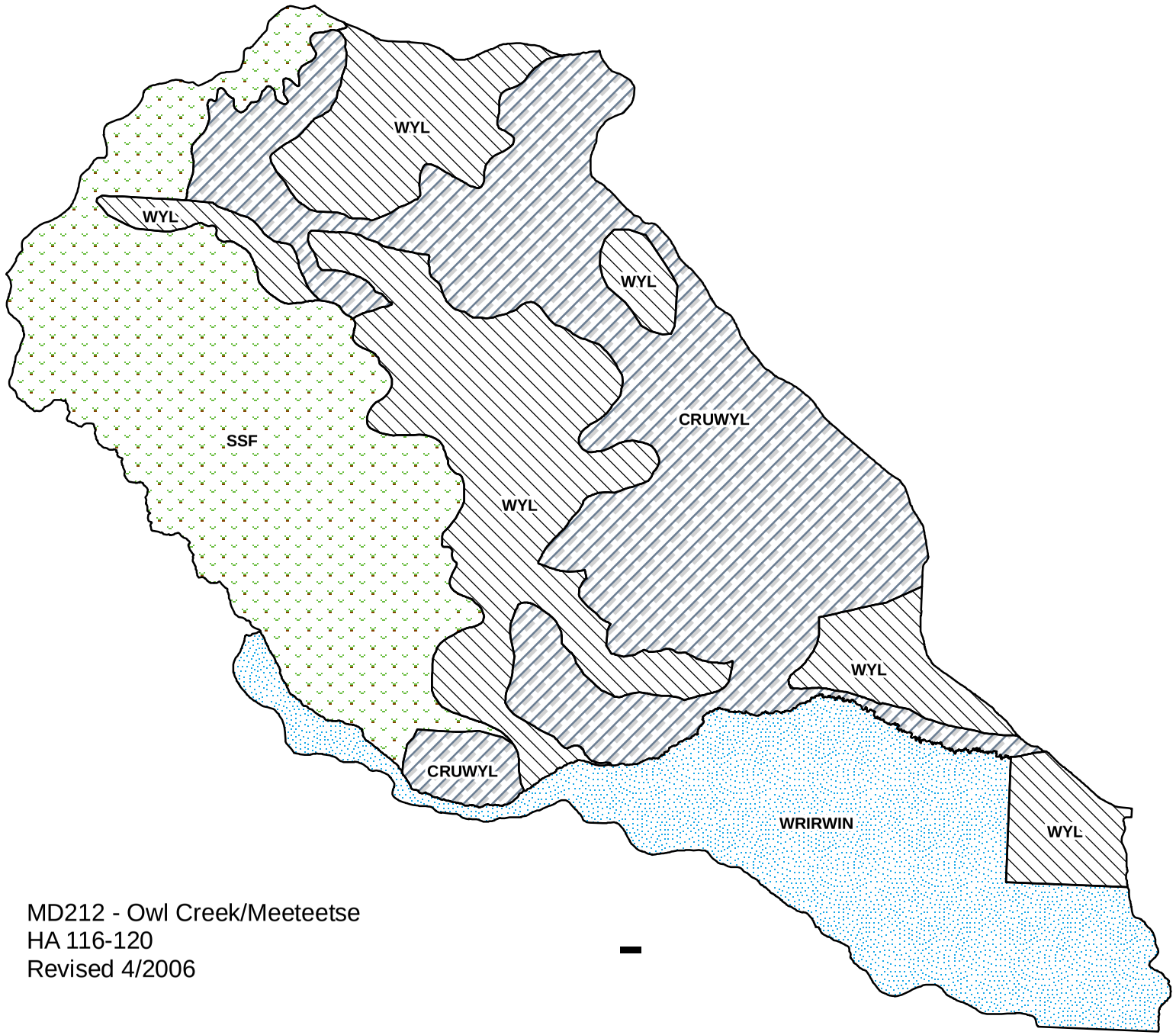



MD212 - Owl Creek/Meeteetse
HA 116-120
Revised 4/2006

# 2014 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2014 - 5/31/2015

HERD: MD215 - UPPER SHOSHONE

HUNT AREAS: 110-115

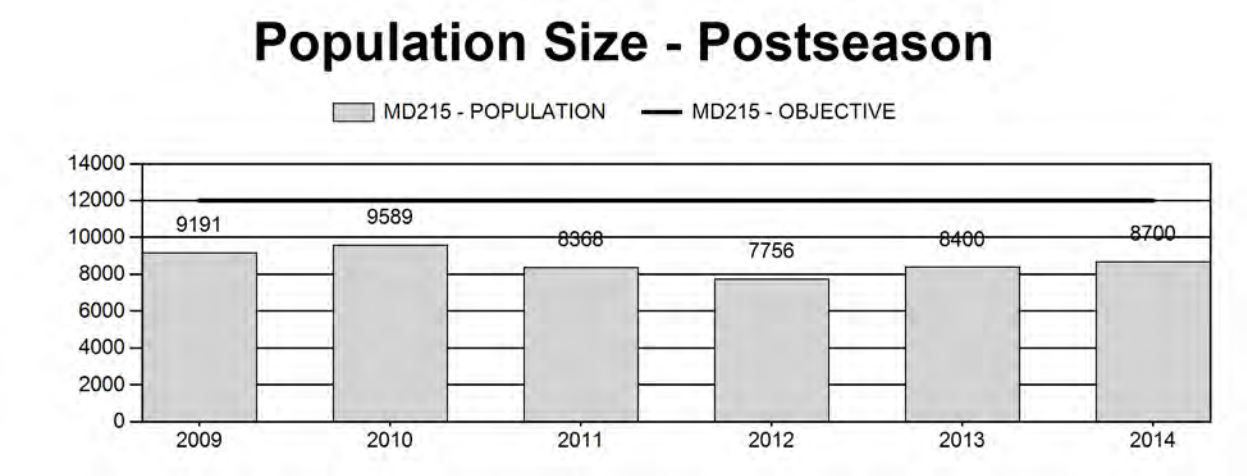
PREPARED BY: DOUG MCWHIRTER

| | 2009 - 2013 Average | 2014 | 2015 Proposed |
|---|---|---|---|
| Population: | 8,661 | 8,700 | 8,900 |
| Harvest: | 1,017 | 823 | 800 |
| Hunters: | 1,781 | 1,731 | 1,500 |
| Hunter Success: | 57% | 48% | 53 % |
| Active Licenses: | 1,927 | 1,770 | 1,550 |
| Active License Success: | 53% | 46% | 52 % |
| Recreation Days: | 9,288 | 8,469 | 8,000 |
| Days Per Animal: | 9.1 | 10.3 | 10 |
| Males per 100 Females | 27 | 24 | |
| Juveniles per 100 Females | 64 | 54 | |

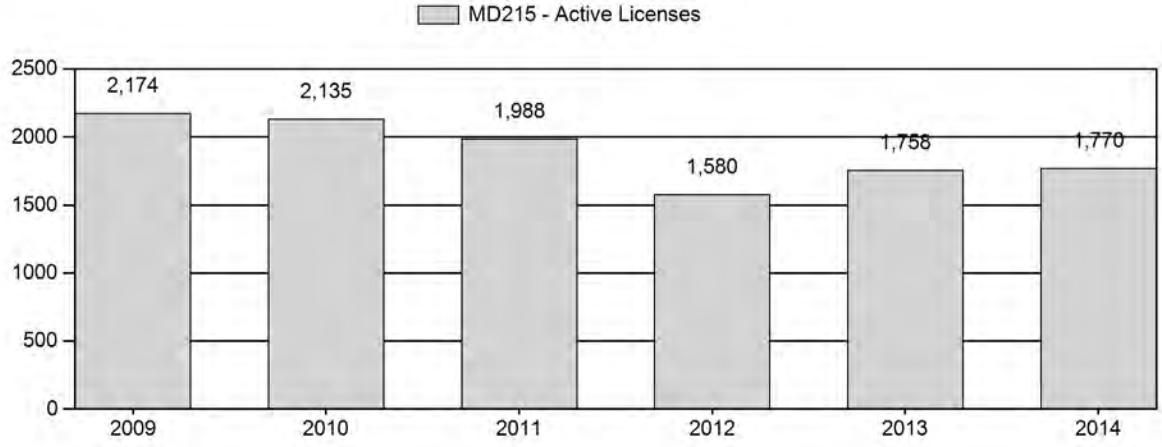
| | |
|---|---|
| Population Objective (± 20%) : | 12000 (9600 - 14400) |
| Management Strategy: | Recreational |
| Percent population is above (+) or below (-) objective: | -27.5% |
| Number of years population has been + or - objective in recent trend: | 4 |
| Model Date: | 2/26/2015 |

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

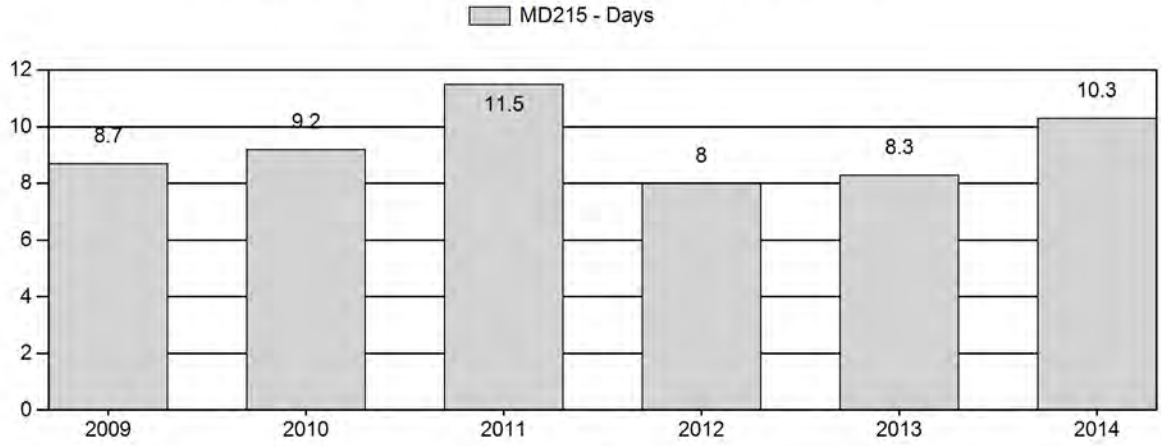
| | JCR Year | Proposed |
|---|---|---|
| Females ≥ 1 year old: | 2.4% | 1.7% |
| Males ≥ 1 year old: | 37.6% | 42.3% |
| Juveniles (< 1 year old): | .16% | .26% |
| Total: | 10.6% | 8.2% |
| Proposed change in post-season population: | -10.7% | +2.3% |



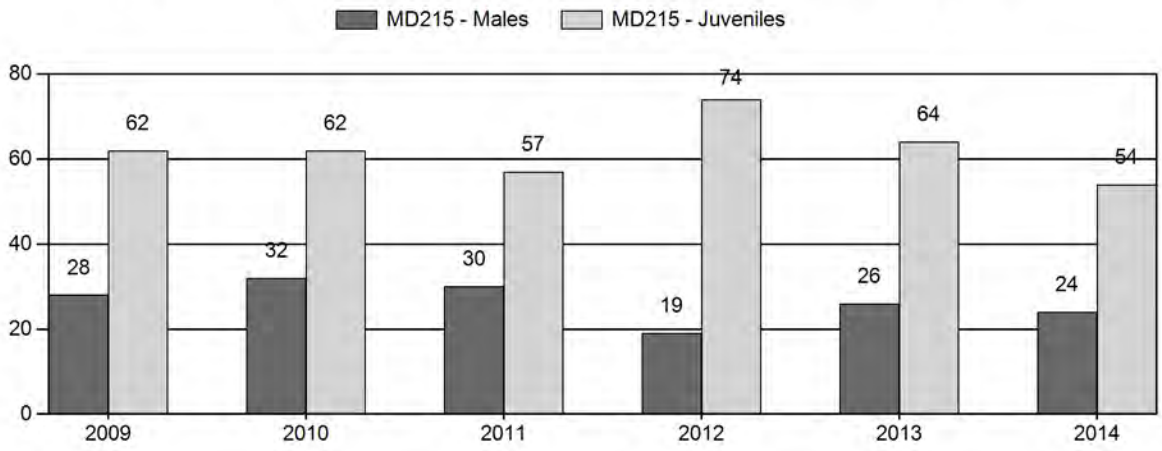
# Active Licenses



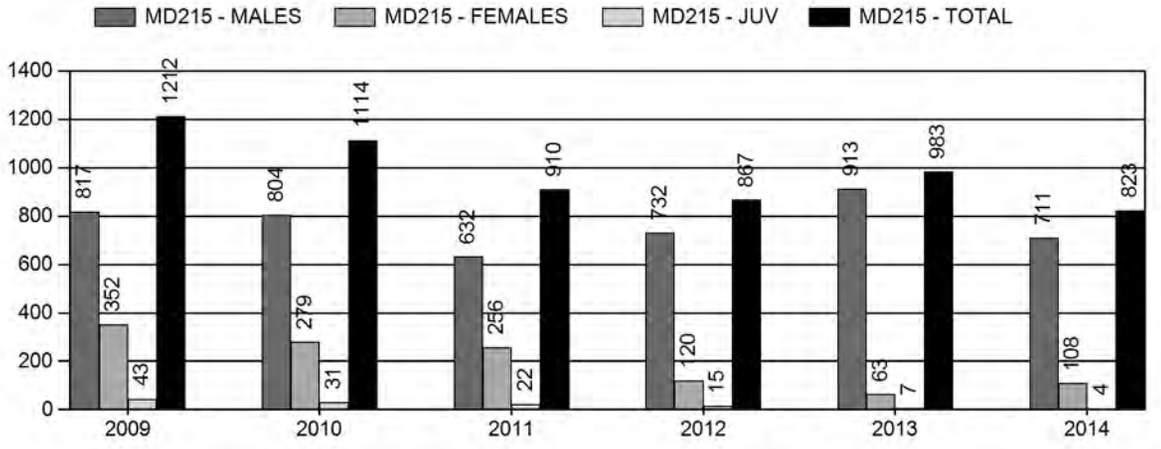

# Days per Animal Harvested



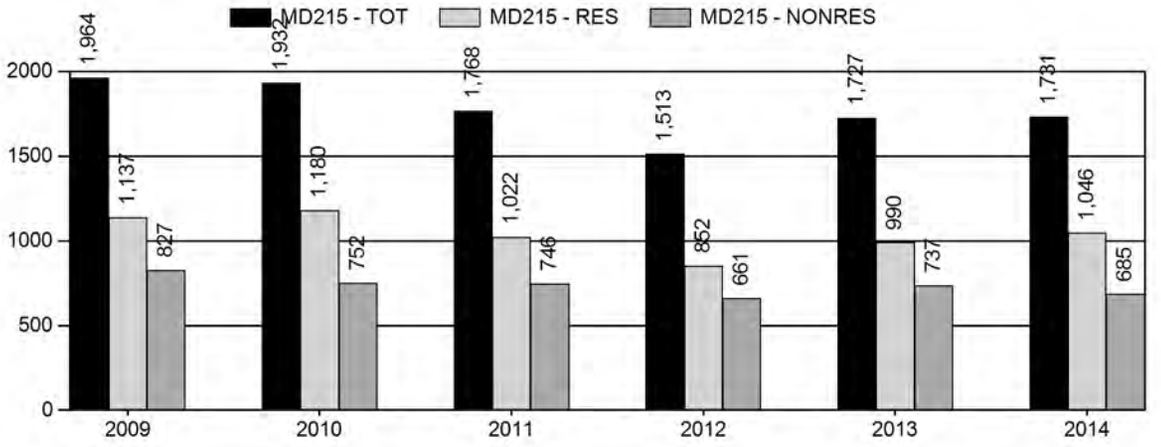

# Postseason Animals per 100 Females



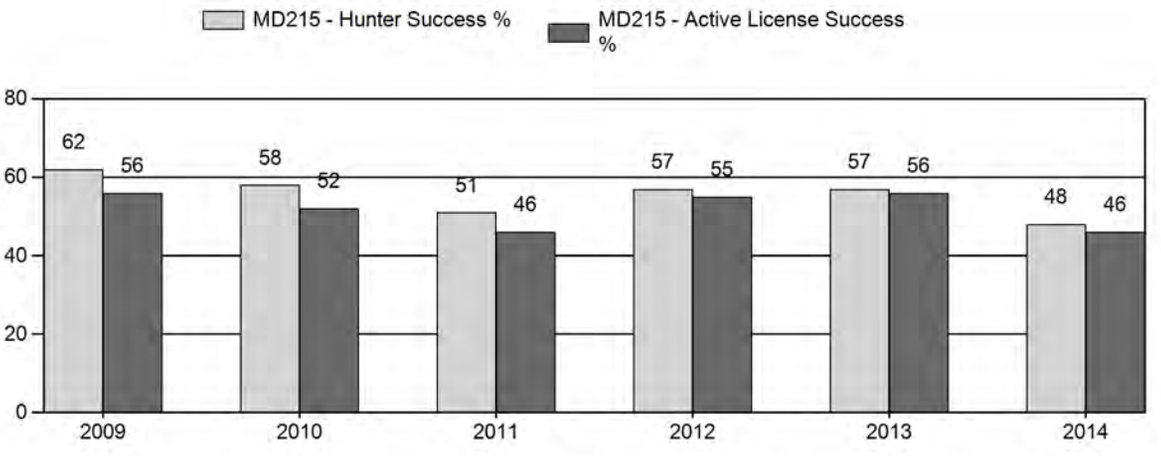
# Harvest




# Number of Hunters




# Harvest Success



## 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD215 - UPPER SHOSHONE

| | | MALES | | | | | | | FEMALES | | JUVENILES | | | | Males to 100 Females | | | | Young to | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Post Pop | Ylg | 2+ Cls 1 | 2+ Cls 2 | 2+ Cls 3 | 2+ UnCls | Total | % | Total | % | Total | % | Tot Cls | Cls Obj | Yling | Adult | Total | Conf Int | 100 Fem | Conf Int | 100 Adult |
| 2009 | 9,191 | 128 | 0 | 0 | 0 | 169 | 297 | 15% | 1,048 | 53% | 647 | 32% | 1,992 | 1,140 | 12 | 16 | 28 | ± 2 | 62 | ± 4 | 48 |
| 2010 | 9,589 | 176 | 0 | 0 | 0 | 188 | 364 | 16% | 1,145 | 52% | 707 | 32% | 2,216 | 1,090 | 15 | 16 | 32 | ± 2 | 62 | ± 3 | 47 |
| 2011 | 8,368 | 118 | 0 | 0 | 0 | 205 | 323 | 16% | 1,071 | 53% | 613 | 31% | 2,007 | 1,071 | 11 | 19 | 30 | ± 2 | 57 | ± 3 | 44 |
| 2012 | 7,756 | 79 | 0 | 0 | 0 | 139 | 218 | 10% | 1,165 | 52% | 863 | 38% | 2,246 | 1,148 | 7 | 12 | 19 | ± 1 | 74 | ± 4 | 62 |
| 2013 | 8,400 | 127 | 0 | 0 | 0 | 117 | 244 | 14% | 946 | 53% | 607 | 34% | 1,797 | 1,148 | 13 | 12 | 26 | ± 2 | 64 | ± 4 | 51 |
| 2014 | 8,700 | 98 | 101 | 20 | 4 | 0 | 223 | 13% | 945 | 56% | 512 | 30% | 1,680 | 1,010 | 10 | 13 | 24 | ± 2 | 54 | ± 3 | 44 |

## 2015 HUNTING SEASONS
## UPPER SHOSHONE MULE DEER HERD (MD215)

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

| Hunt Area | Type | Quota change from 2014 |
|---|---|---|
| 111 | 7 | -25 |
| **Total** | **7** | **-25** |
| **Reg F NR Quota** | **950** | **-300** |

**Management Evaluation**

**Current Postseason Population Management Objective: 12,000**
**Management Strategy: Recreational**
**2014 Postseason Population Estimate: ~8,700**
**2015 Proposed Postseason Population Estimate: ~8,900**

**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 (1994-2013) average fawn:doe ratio of 61.1 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 (1994-2013), 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 2014 biological year were characterized by near normal spring-summer moisture, and severe early winter conditions that moderated dramatically after the first of the year. It is unknown what the overall impact of such a winter will be until spring classifications are conducted in April.

**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 2014 biological year is available.

**Field Data.** Buck:doe ratios collected in 2014 were 24:100, which is slightly below the long-term average for this herd, but definitely within the range observed over the last 20 years (1994-2013). 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 2014 were well below average for this herd unit, at only 53 fawns:100 does.

**Harvest Data.** A total of 711 bucks were harvested in 2014, which represents a drop from that seen in 2013 (913), but more closely resembles harvest achieved in 2008-2012 (632-818). Antlerless deer harvest was reduced in 2012-2014, and represents the fewest antlerless deer harvested since 1999-2001.

There were 1,731 hunters in the Upper Shoshone herd unit in 2014 and hunter numbers have remained relatively consistent over the last 10 years (2004-2013 avg. 1,887 hunters), and have traditionally harbored a large proportion of non-resident hunters, averaging 43.6% over the 2004-2013 period (range 38.9% - 49.9%). In 2014, the percentage of non-resident hunters was 39.6%.

**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 2014 is 8,700 deer, or 28% 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.

With the intent of letting the population grow as fast as possible, doe/fawn harvest was restricted as much as possible starting in 2014, and will continue for the foreseeable future. The 2015 seasons and the impacts of the 2014-2015 winter could result in a post-season 2015 population of 8,900 deer, slowly growing toward the objective of 12,000. 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 300 (to 950). This will be offset by the creation of Region X, with a nonresident quota of 300.

| INPUT | |
|---|---|
| **Species:** | Mule Deer |
| **Biologist:** | Doug McWhirter |
| **Herd Unit & No.:** | Upper Shoshone |
| **Model date:** | 02/19/15 |

☑ Clear form

| MODELS SUMMARY | | Fit | Relative AICc | Check best model to create report | Notes |
|---|---|---|---|---|---|
| **CJ,CA** | **Constant Juvenile & Adult Survival** | 142 | 152 | ☐ CJ,CA Model | |
| **SCJ,SCA** | **Semi-Constant Juvenile & Semi-Constant Adult Survival** | 186110 | 186119 | ☐ SCJ,SCA Mod | |
| **TSJ,CA** | **Time-Specific Juvenile & Constant Adult Survival** | 6 | 186 | ☑ TSJ,CA Model | |

## Population Estimates from Top Model

| Year | Posthunt Population Est. | | Trend Count | Predicted Prehunt Population | | | Total | Predicted Posthunt Population | | | Total | Objective |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Field Est | Field SE | | Juveniles | Total Males | Females | | Juveniles | Total Males | Females | | |
| **1993** | | | | 3904 | 2775 | 7349 | 14028 | 3836 | 1810 | 6663 | 12309 | 12000 |
| **1994** | | | | 4988 | 3193 | 7127 | 15308 | 4951 | 1720 | 6775 | 13446 | 12000 |
| **1995** | | | | 3822 | 2684 | 6782 | 13288 | 3775 | 1569 | 6190 | 11533 | 12000 |
| **1996** | | | | 2617 | 2027 | 5772 | 10415 | 2586 | 782 | 5093 | 8461 | 12000 |
| **1997** | | | | 2579 | 1542 | 5037 | 9157 | 2524 | 1153 | 4701 | 8378 | 12000 |
| **1998** | | | | 3045 | 1685 | 4561 | 9291 | 3023 | 1280 | 4394 | 8697 | 12000 |
| **1999** | | | | 2765 | 1927 | 4450 | 9142 | 2761 | 1267 | 4359 | 8386 | 12000 |
| **2000** | | | | 3760 | 2269 | 4776 | 10805 | 3753 | 1000 | 4691 | 9443 | 12000 |
| **2001** | | | | 3598 | 2486 | 5477 | 11561 | 3588 | 1212 | 5389 | 10189 | 12000 |
| **2002** | | | | 3016 | 2261 | 5648 | 10925 | 3011 | 1306 | 5459 | 9776 | 12000 |
| **2003** | | | | 3139 | 1763 | 5130 | 10032 | 3133 | 1171 | 4950 | 9255 | 12000 |
| **2004** | | | | 2967 | 2360 | 5423 | 10749 | 2964 | 1559 | 5233 | 9756 | 12000 |
| **2005** | | | | 3400 | 2577 | 5556 | 11533 | 3388 | 1882 | 5382 | 10652 | 12000 |
| **2006** | | | | 3578 | 2664 | 5501 | 11743 | 3555 | 1422 | 5337 | 10314 | 12000 |
| **2007** | | | | 3737 | 2704 | 5878 | 12319 | 3707 | 1503 | 5582 | 10792 | 12000 |
| **2008** | | | | 2218 | 2376 | 5682 | 10277 | 2195 | 1570 | 5235 | 9001 | 12000 |
| **2009** | | | | 3038 | 2260 | 5232 | 10530 | 2991 | 1362 | 4844 | 9197 | 12000 |
| **2010** | | | | 3100 | 2450 | 5273 | 10822 | 3066 | 1565 | 4966 | 9597 | 12000 |
| **2011** | | | | 2592 | 2012 | 4769 | 9374 | 2568 | 1317 | 4487 | 8373 | 12000 |
| **2012** | | | | 2995 | 1581 | 4151 | 8727 | 2977 | 766 | 4019 | 7762 | 12000 |
| **2013** | | | | 2913 | 1961 | 4597 | 9471 | 2905 | 956 | 4528 | 8390 | 12000 |
| **2014** | | | | 2568 | 2083 | 4977 | 9628 | 2563 | 1301 | 4859 | 8722 | 12000 |
| **2015** | | | | 3005 | 1951 | 4835 | 9792 | 2994 | 1126 | 4753 | 8873 | 12000 |
| **2016** | | | | 3046 | 1961 | 4901 | 9908 | 3035 | 1136 | 4818 | 8989 | 12000 |
| **2017** | | | | | | | | | | | | 12000 |
| **2018** | | | | | | | | | | | | 12000 |
| **2019** | | | | | | | | | | | | 12000 |
| **2020** | | | | | | | | | | | | 12000 |
| **2021** | | | | | | | | | | | | 12000 |
| **2022** | | | | | | | | | | | | 12000 |
| **2023** | | | | | | | | | | | | 12000 |
| **2024** | | | | | | | | | | | | 12000 |
| **2025** | | | | | | | | | | | | 12000 |

## Survival and Initial Population Estimates

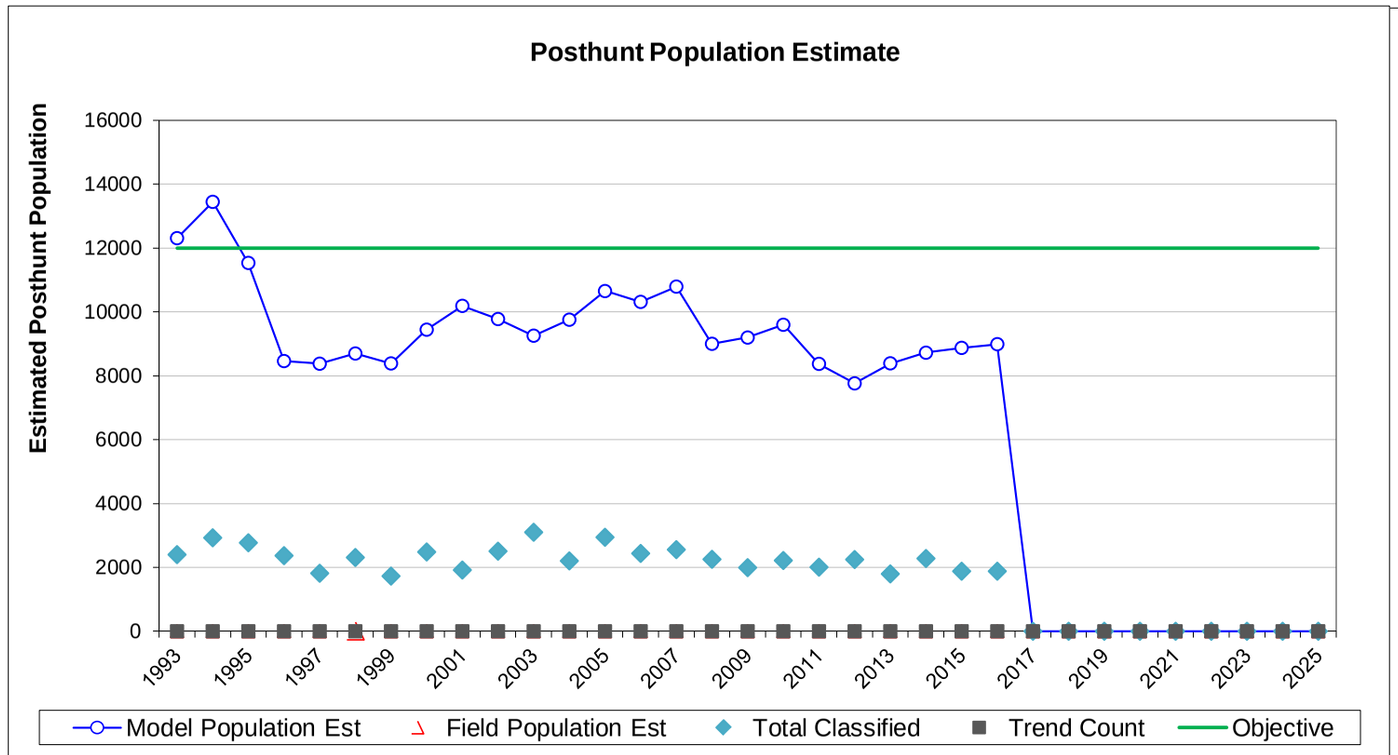
| Year | Annual Juvenile Survival Rates | | | Annual Adult Survival Rates | | |
|---|---|---|---|---|---|---|
| | Model Est | Field Est | SE | Model Est | Field Est | SE |
| **1993** | 0.90 | | | 0.81 | | |
| **1994** | 0.52 | | | 0.81 | | |
| **1995** | 0.40 | | | 0.81 | | |
| **1996** | 0.70 | | | 0.81 | | |
| **1997** | 0.59 | | | 0.81 | | |
| **1998** | 0.59 | | | 0.81 | | |
| **1999** | 0.90 | | | 0.81 | | |
| **2000** | 0.89 | | | 0.81 | | |
| **2001** | 0.71 | | | 0.81 | | |
| **2002** | 0.47 | | | 0.81 | | |
| **2003** | 0.90 | | | 0.81 | | |
| **2004** | 0.89 | | | 0.81 | | |
| **2005** | 0.67 | | | 0.81 | | |
| **2006** | 0.87 | | | 0.81 | | |
| **2007** | 0.62 | | | 0.81 | | |
| **2008** | 0.90 | | | 0.81 | | |
| **2009** | 0.90 | | | 0.81 | | |
| **2010** | 0.49 | | | 0.81 | | |
| **2011** | 0.40 | | | 0.81 | | |
| **2012** | 0.90 | | | 0.81 | | |
| **2013** | 0.90 | | | 0.81 | | |
| **2014** | 0.70 | | | 0.81 | | |
| **2015** | 0.70 | | | 0.81 | | |
| **2016** | 0.70 | | | 0.81 | | |
| **2017** | | | | | | |
| **2018** | | | | | | |
| **2019** | | | | | | |
| **2020** | | | | | | |
| **2021** | | | | | | |
| **2022** | | | | | | |
| **2023** | | | | | | |
| **2024** | | | | | | |
| **2025** | | | | | | |

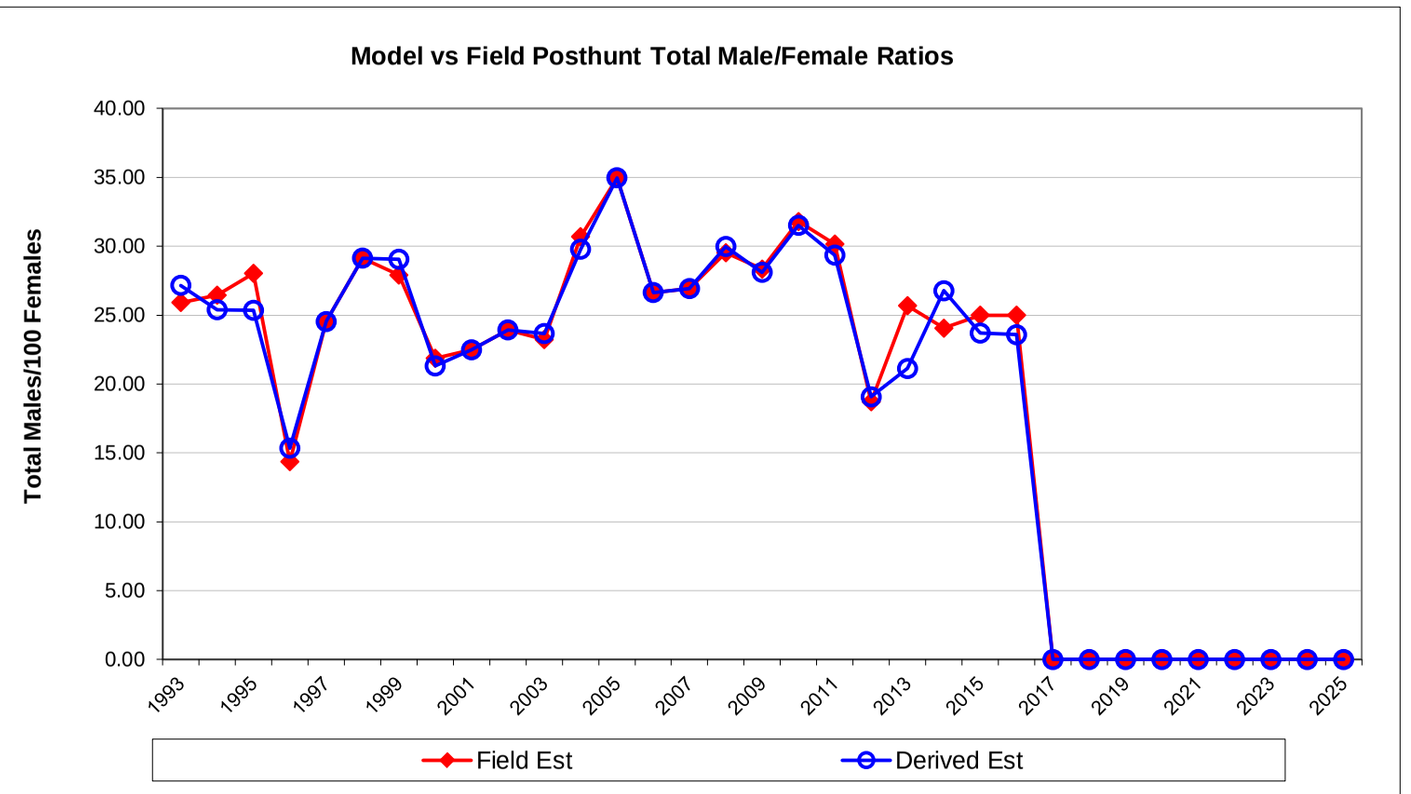
| Parameters: | Optim cells |
|---|---|
| | |
| Adult Survival = | 0.811 |
| Initial Total Male Pop/10,000 = | 0.181 |
| Initial Female Pop/10,000 = | 0.666 |

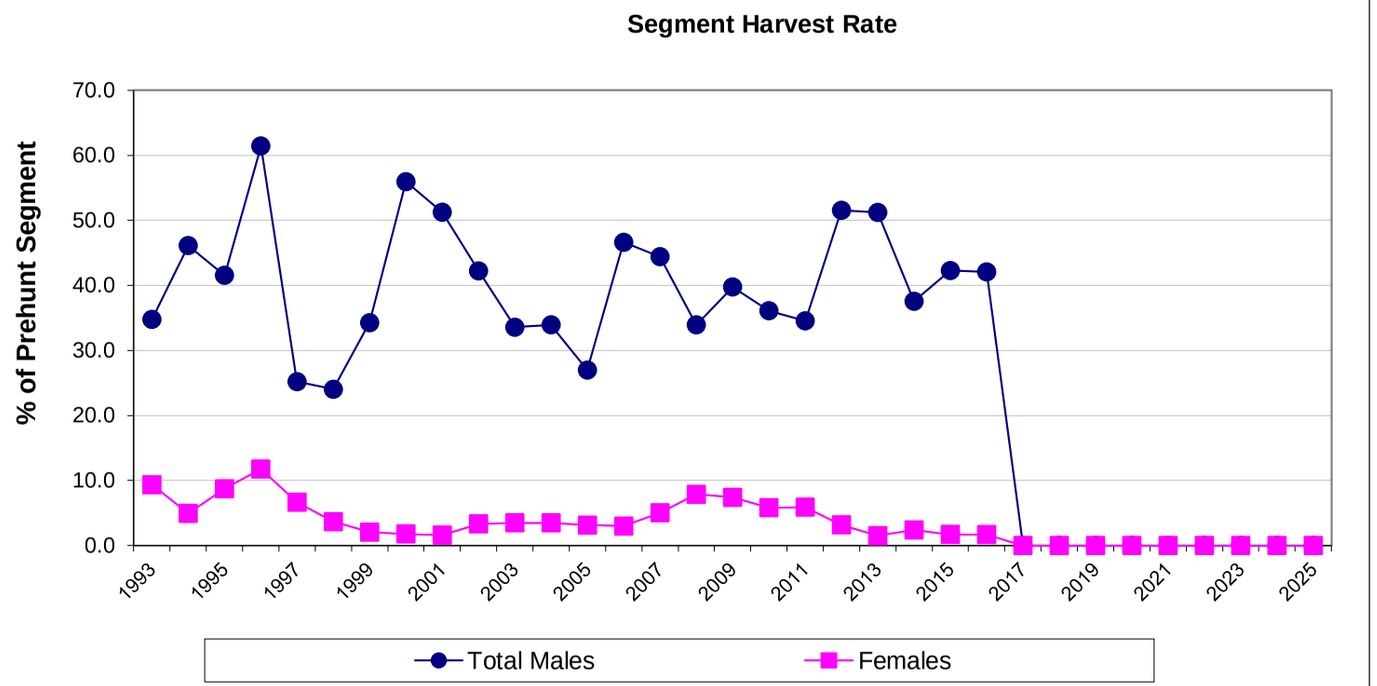
| MODEL ASSUMPTIONS | |
|---|---|
| Sex Ratio (% Males) = | 50% |
| Wounding Loss (total males) = | 10% |
| Wounding Loss (females) = | 10% |
| Wounding Loss (juveniles) = | 10% |

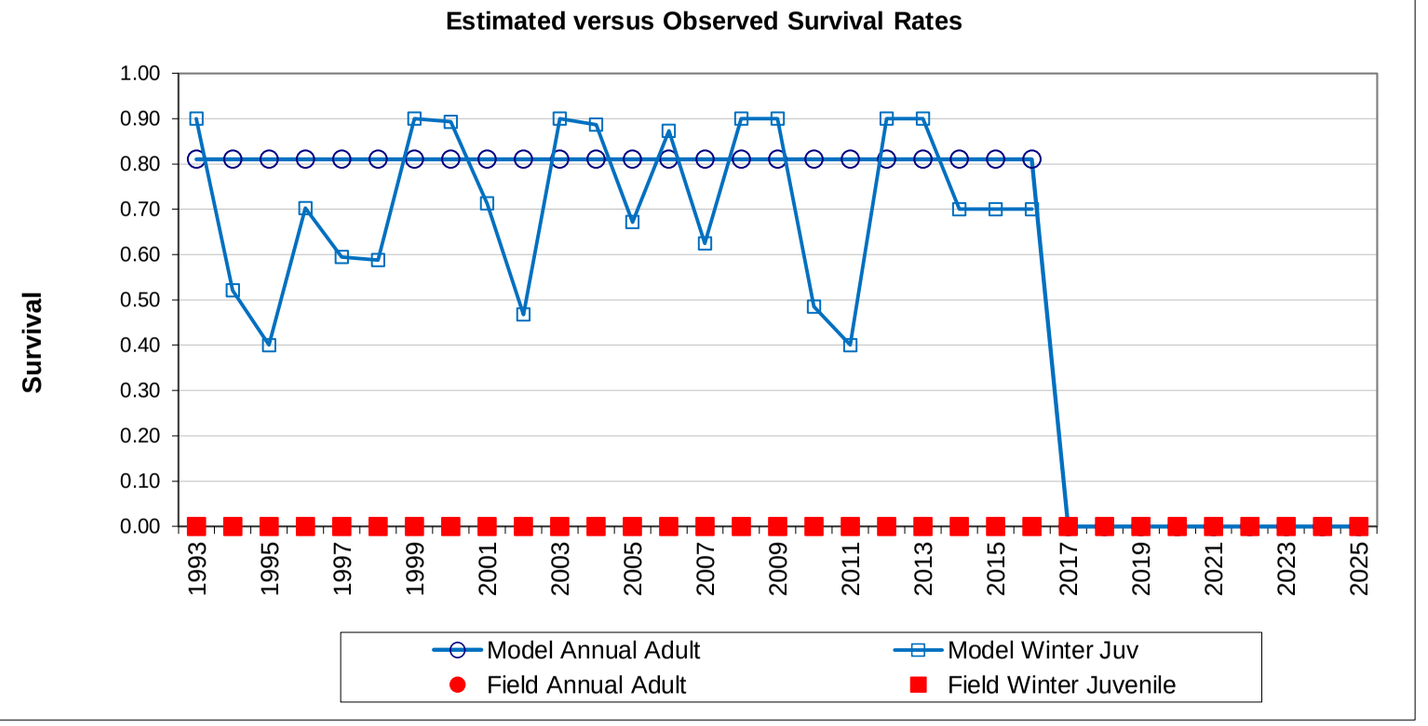
| Year | Classification Counts | | | | | | Harvest | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Juvenile/Female Ratio | | | Total Male/Female Ratio | | | | | | | Segment Harvest Rate (% of | |
| | Derived Est | Field Est | Field SE | Derived Est | Field Est w/o bull adj | Field SE | Juv | Males | Females | Total Harvest | Total Males | Females |
| **1993** | | 57.57 | 2.63 | 27.16 | 25.92 | 1.58 | 62 | 877 | 624 | 1563 | 34.8 | 9.3 |
| **1994** | | 73.07 | 2.94 | 25.39 | 26.45 | 1.51 | 34 | 1339 | 320 | 1693 | 46.1 | 4.9 |
| **1995** | | 60.98 | 2.59 | 25.35 | 28.04 | 1.56 | 43 | 1014 | 538 | 1595 | 41.6 | 8.7 |
| **1996** | | 50.77 | 2.31 | 15.34 | 14.37 | 1.07 | 28 | 1132 | 617 | 1777 | 61.4 | 11.8 |
| **1997** | | 53.68 | 2.85 | 24.53 | 24.53 | 1.73 | 50 | 353 | 305 | 708 | 25.2 | 6.7 |
| **1998** | | 68.81 | 3.15 | 29.14 | 29.13 | 1.80 | 20 | 368 | 152 | 540 | 24.0 | 3.7 |
| **1999** | | 63.34 | 3.39 | 29.06 | 27.91 | 1.99 | 4 | 600 | 83 | 687 | 34.3 | 2.1 |
| **2000** | | 80.00 | 3.42 | 21.31 | 21.87 | 1.47 | 7 | 1154 | 77 | 1238 | 55.9 | 1.8 |
| **2001** | | 66.57 | 3.31 | 22.48 | 22.49 | 1.65 | 9 | 1158 | 80 | 1247 | 51.2 | 1.6 |
| **2002** | | 55.14 | 2.47 | 23.93 | 23.93 | 1.46 | 5 | 868 | 171 | 1044 | 42.2 | 3.3 |
| **2003** | | 63.30 | 2.49 | 23.66 | 23.23 | 1.31 | 5 | 538 | 163 | 706 | 33.6 | 3.5 |
| **2004** | | 56.63 | 2.75 | 29.78 | 30.70 | 1.85 | 3 | 728 | 172 | 903 | 33.9 | 3.5 |
| **2005** | | 62.95 | 2.63 | 34.97 | 34.97 | 1.78 | 11 | 632 | 158 | 801 | 27.0 | 3.1 |
| **2006** | | 66.61 | 2.97 | 26.64 | 26.65 | 1.64 | 21 | 1129 | 149 | 1299 | 46.6 | 3.0 |
| **2007** | | 66.41 | 2.89 | 26.93 | 26.93 | 1.61 | 27 | 1092 | 269 | 1388 | 44.4 | 5.0 |
| **2008** | | 41.93 | 2.13 | 29.98 | 29.53 | 1.71 | 21 | 733 | 406 | 1160 | 33.9 | 7.9 |
| **2009** | | 61.74 | 3.09 | 28.11 | 28.34 | 1.86 | 43 | 817 | 352 | 1212 | 39.8 | 7.4 |
| **2010** | | 61.75 | 2.95 | 31.52 | 31.79 | 1.91 | 31 | 804 | 279 | 1114 | 36.1 | 5.8 |
| **2011** | | 57.24 | 2.90 | 29.35 | 30.16 | 1.91 | 22 | 632 | 256 | 910 | 34.5 | 5.9 |
| **2012** | | 74.08 | 3.33 | 19.07 | 18.71 | 1.38 | 16 | 741 | 120 | 877 | 51.5 | 3.2 |
| **2013** | | 64.16 | 3.34 | 21.12 | 25.69 | 1.85 | 7 | 913 | 63 | 983 | 51.2 | 1.5 |
| **2014** | | 52.75 | 2.50 | 26.77 | 24.05 | 1.52 | 4 | 711 | 108 | 823 | 37.6 | 2.4 |
| **2015** | | 63.00 | 3.20 | 23.70 | 25.00 | 1.77 | 10 | 750 | 75 | 835 | 42.3 | 1.7 |
| **2016** | | 63.00 | 3.20 | 23.58 | 25.00 | 1.77 | 10 | 750 | 75 | 835 | 42.1 | 1.7 |
| **2017** | | | | | | | | | | | | |
| **2018** | | | | | | | | | | | | |
| **2019** | | | | | | | | | | | | |
| **2020** | | | | | | | | | | | | |
| **2021** | | | | | | | | | | | | |
| **2022** | | | | | | | | | | | | |
| **2023** | | | | | | | | | | | | |
| **2024** | | | | | | | | | | | | |
| **2025** | | | | | | | | | | | | |

## FIGURES

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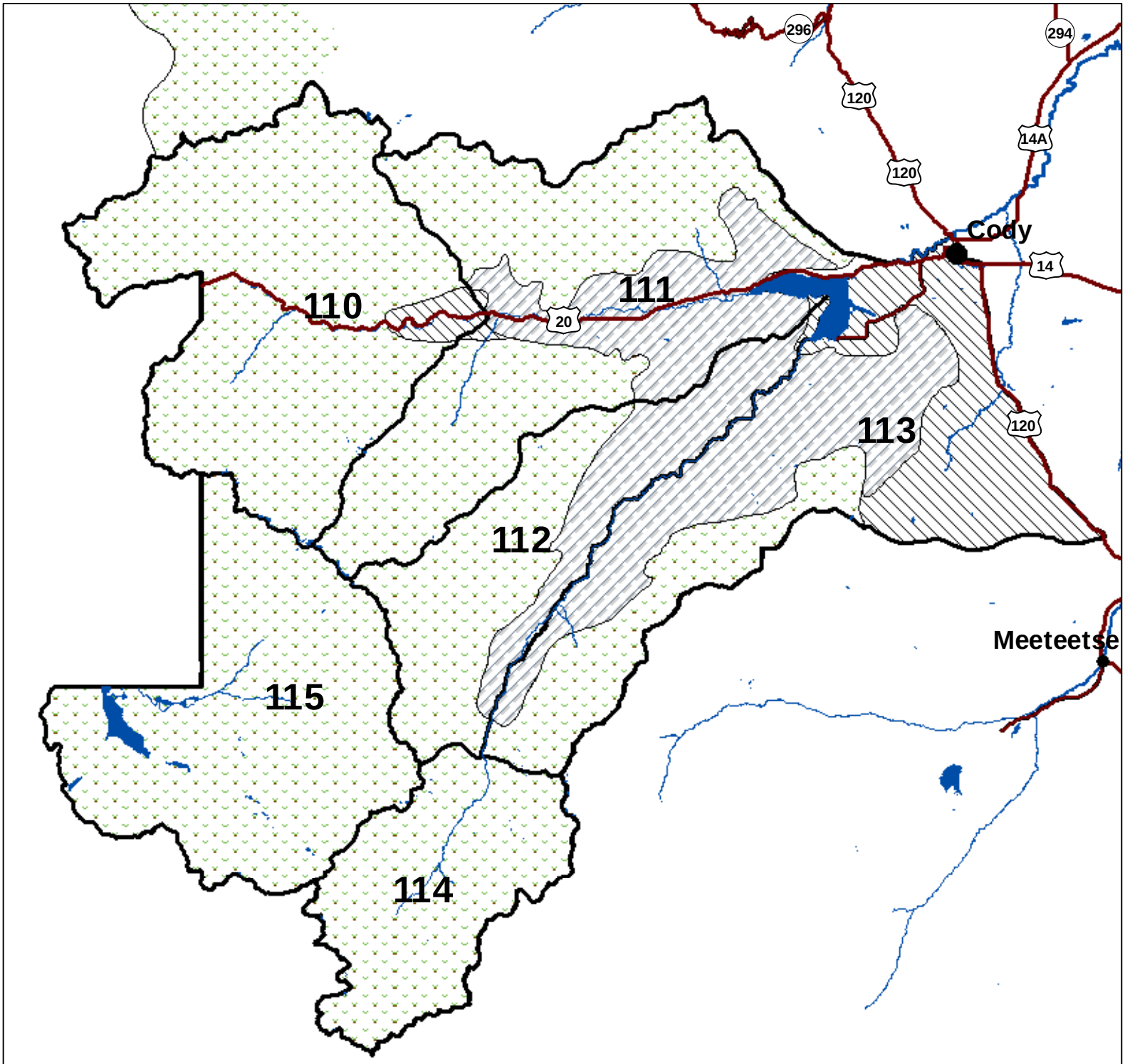
296
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CRUWIN
CRUWYL
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YRL
SSF
MD215 - Upper Shoshone
HA 110-115
Revised 4/2006
N

# 2014 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2014 - 5/31/2015

HERD: MD216 - CLARKS FORK

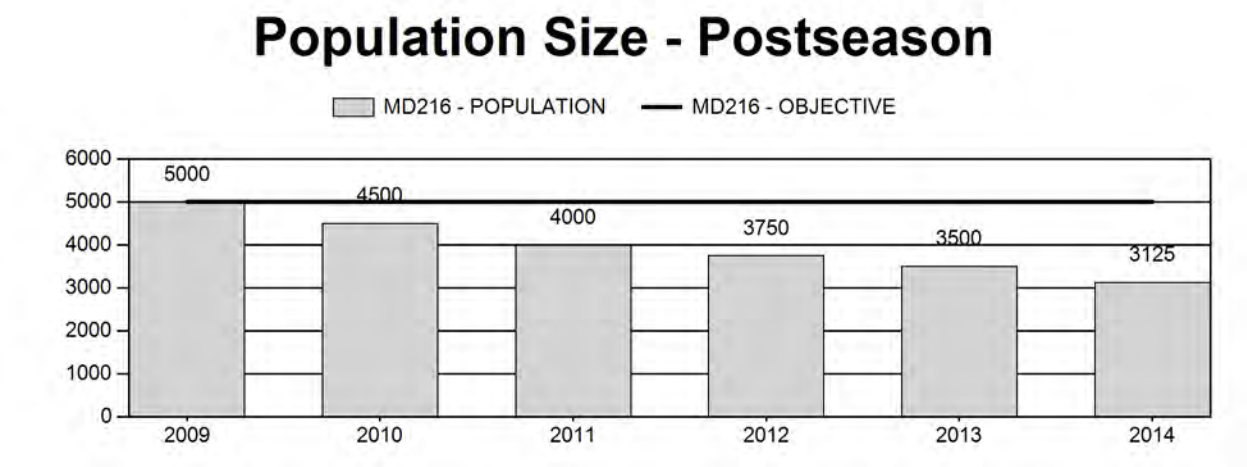
HUNT AREAS: 105-106, 109, 121
PREPARED BY: DOUG MCWHIRTER

| | 2009 - 2013 Average | 2014 | 2015 Proposed |
|---|---|---|---|
| Population: | 4,150 | 3,125 | 2,750 |
| Harvest: | 896 | 707 | 310 |
| Hunters: | 1,680 | 1,533 | 900 |
| Hunter Success: | 53% | 46% | 34% |
| Active Licenses: | 1,785 | 1,631 | 950 |
| Active License Success: | 50% | 43% | 33% |
| Recreation Days: | 8,012 | 8,139 | 4,500 |
| Days Per Animal: | 8.9 | 11.5 | 14.5 |
| Males per 100 Females | 28 | 29 | |
| Juveniles per 100 Females | 61 | 52 | |

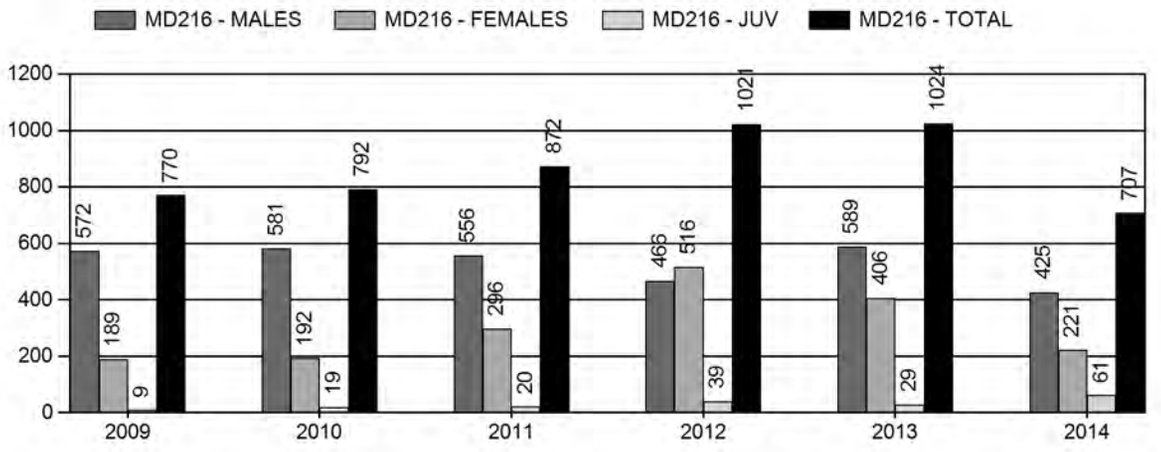
| | |
|---|---|
| Population Objective (± 20%) : | 5000 (4000 - 6000) |
| Management Strategy: | Recreational |
| Percent population is above (+) or below (-) objective: | -37.5% |
| Number of years population has been + or - objective in recent trend: | 3 |
| Model Date: | 2/19/2015 |

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

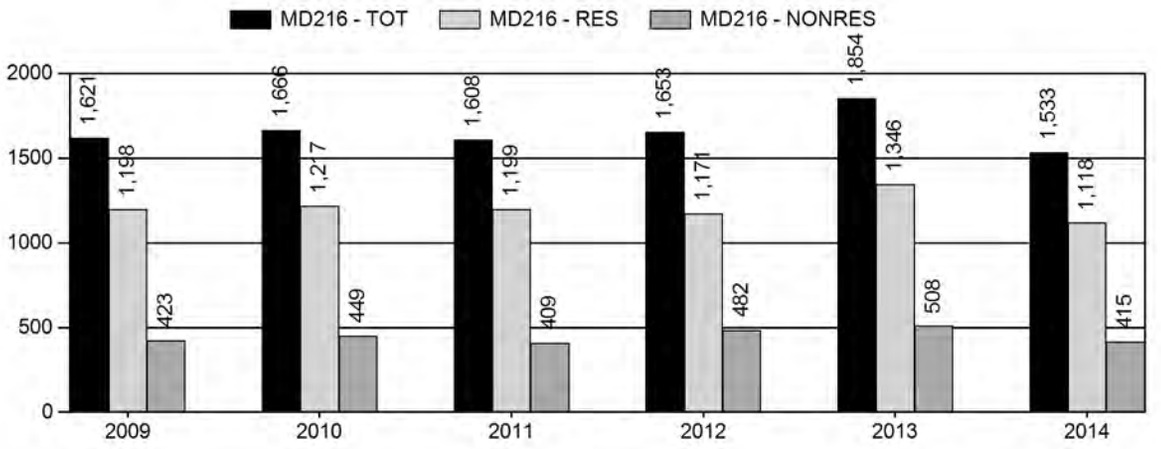
| | JCR Year | Proposed |
|---|---|---|
| Females ≥ 1 year old: | 11.7% | 3.4% |
| Males ≥ 1 year old: | 44.9% | 47.3% |
| Juveniles (< 1 year old): | 1.0% | .3% |
| Total: | 14.9% | 9.9% |
| Proposed change in post-season population: | -13.2% | -12.1% |



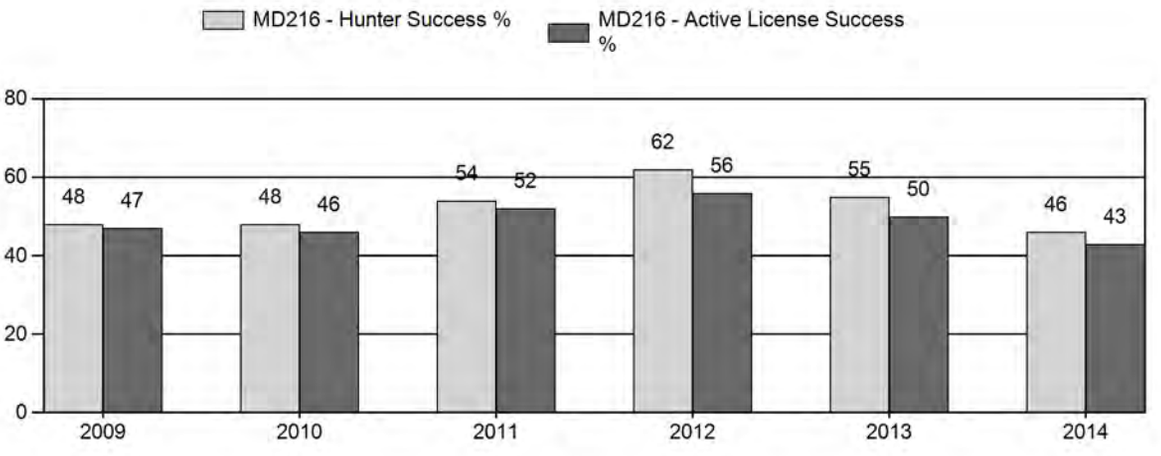
# Harvest



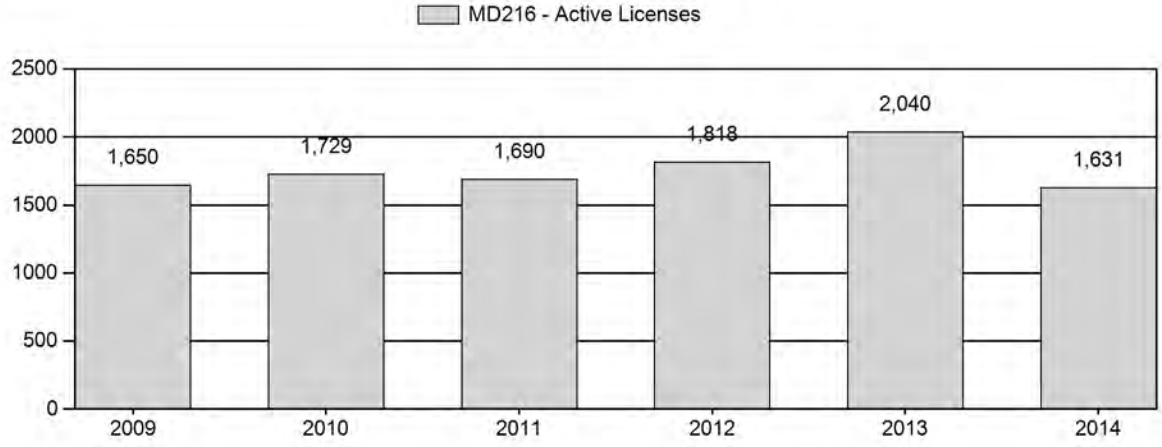

# Number of Hunters



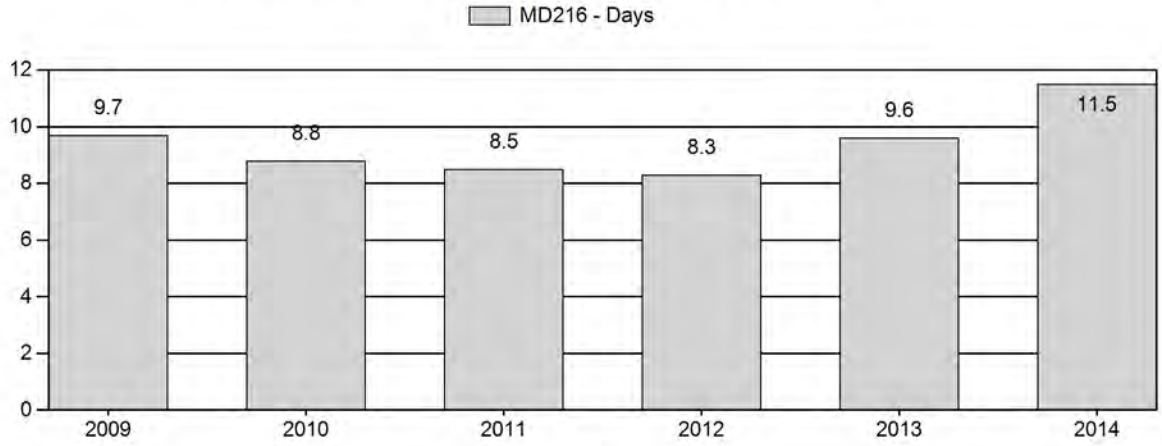

# Harvest Success



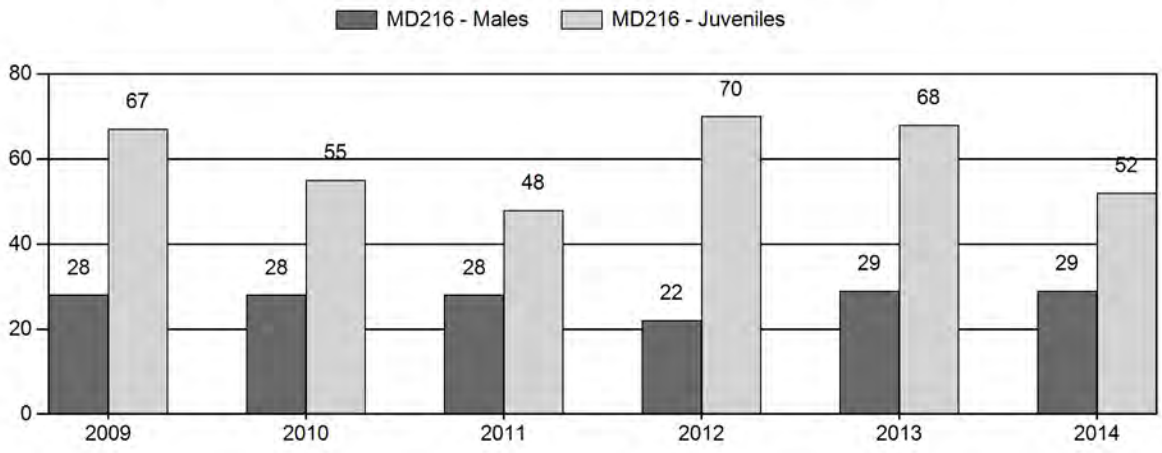
# Active Licenses




# Days per Animal Harvested




# Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for Mule Deer Herd MD216 - CLARKS FORK

| | | MALES | | | | | | | FEMALES | | JUVENILES | | | | Males to 100 Females | | | | Young to | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Post Pop | Ylg | 2+ Cls 1 | 2+ Cls 2 | 2+ Cls 3 | 2+ UnCls | Total | % | Total | % | Total | % | Tot Cls | Cls Obj | Yling | Adult | Total | Conf Int | 100 Fem | Conf Int | 100 Adult |
| 2009 | 5,000 | 76 | 0 | 0 | 0 | 146 | 222 | 14% | 789 | 51% | 527 | 34% | 1,538 | 1,219 | 10 | 19 | 28 | ± 2 | 67 | ± 4 | 52 |
| 2010 | 4,500 | 89 | 0 | 0 | 0 | 135 | 224 | 16% | 788 | 55% | 431 | 30% | 1,443 | 1,043 | 11 | 17 | 28 | ± 2 | 55 | ± 3 | 43 |
| 2011 | 4,000 | 52 | 0 | 0 | 0 | 133 | 185 | 16% | 656 | 57% | 315 | 27% | 1,156 | 1,051 | 8 | 20 | 28 | ± 3 | 48 | ± 4 | 37 |
| 2012 | 3,750 | 23 | 0 | 0 | 0 | 62 | 85 | 11% | 386 | 52% | 270 | 36% | 741 | 947 | 6 | 16 | 22 | ± 3 | 70 | ± 6 | 57 |
| 2013 | 3,500 | 71 | 0 | 0 | 0 | 95 | 166 | 15% | 576 | 51% | 390 | 34% | 1,132 | 1,083 | 12 | 16 | 29 | ± 3 | 68 | ± 5 | 53 |
| 2014 | 3,125 | 48 | 63 | 39 | 11 | 0 | 161 | 16% | 550 | 55% | 288 | 29% | 999 | 893 | 9 | 21 | 29 | ± 3 | 52 | ± 4 | 41 |

## 2015 HUNTING SEASONS
## CLARKS FORK MULE DEER HERD (MD216)

| Hunt Area | Type | Dates of Seasons Opens | Closes | Quota | Limitations |
|---|---|---|---|---|---|
| 105 | | Oct. 1 | Oct. 31 | | General license; antlered mule deer or any white-tailed deer valid on national forest |
| | | Nov. 1 | Nov. 5 | | General license; any deer valid off national forest |
| | | Nov. 6 | Nov. 30 | | General license; antlerless deer valid off national forest |
| | 6 | Nov. 1 | Nov. 30 | 25 | Limited quota; doe or fawn valid off national forest |
| 105, 106, 109 | 1 | Nov. 1 | Nov. 15 | 50 | Limited quota; any deer |
| 106 | | Oct. 1 | Oct. 31 | | General license; antlered mule deer or any white-tailed deer |
| 121 | | 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 | Nov. 30 | 150 | Limited quota; doe or fawn |
| Archery 105, 106, 109, 121 | | Sep. 1 | Sep. 30 | | Refer to Section 3 of this Chapter |

| Hunt Area | Type | Quota change from 2014 |
|---|---|---|
| 105 | 6 | -75 |
| 121 | 6 | -250 |
| **Total** | | **-325** |
| **Reg F NR Quota** | **950** | **-300** |

**Management Evaluation**

**Current Postseason Population Management Objective: 5,000**
**Management Strategy: Special (HA106, 109) Recreational (HA105, 121)**
**2014 Postseason Population Estimate: ~3,100**
**2015 Proposed Postseason Population Estimate: ~2,750**

**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 portions of 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. This situation was remedied during the Herd Unit Review of the Clarks Fork Herd Unit in 2014 when Hunt Area 121 was removed and placed in the Shoshone River Herd Unit with Hunt Areas 122 and 123. The herd unit objective for the "new" Clarks Fork Herd Unit (Hunt Areas 105, 106, 109) was changed to 5,000 deer.

**Weather.** Weather conditions during the 2014 biological year were characterized by near normal spring-summer moisture, and quite severe early winter conditions that moderated dramatically after the new year.

**Habitat.** No habitat monitoring data is collected in this herd unit.

**Field Data.** Fawn recruitment in 2014 was poor, with only 52 fawns:100 does. This compares to the most recent 10-year (1994-2013) average fawn:doe ratio of 59.9 fawns:100 does (range 48:100 – 70:100). Buck ratios were 29:100 in 2014. Buck ratios averaged 25.0 bucks:100 does over the 1994-2013 period (range 19:100 – 30:100), but recently have trended higher (27.7 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, while encouraging the population of migratory deer to grow. Antlerless deer harvest has not occurred in Hunt Area 109 for over 15 years and for over 30 years in Hunt Area 106.

The 2011-2013 hunting seasons in damage-prone agricultural areas of Areas 105 and 121 resulted in some of the highest doe/fawn harvest on record for either hunt area. Deer numbers

and damage claims have been reduced in these areas and so will antlerless harvest efforts in 2015.

**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 2014 is 3,125 deer, or 38% below the population objective of 5,000 deer.

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 2015 seasons should result in post-season 2015 population near 2,750 deer, while maintaining improved buck ratios in Hunt Areas 105, 106, and 109.

| INPUT | |
|---|---|
| **Species:** | Deer |
| **Biologist:** | Doug McWhirter |
| **Herd Unit & No.:** | Clarks Fork (No HA121 |
| **Model date:** | 02/19/15 |

☑ Clear form

| MODELS SUMMARY | | Fit | Relative AICc | Check best model to create report | Notes |
|---|---|---|---|---|---|
| **CJ,CA** | **Constant Juvenile & Adult Survival** | 119 | 128 | ☑ CJ,CA Model | |
| **SCJ,SCA** | **Semi-Constant Juvenile & Semi-Constant Adult Survival** | 206920448 | 206920457 | ☐ SCJ,SCA Mod | |
| **TSJ,CA** | **Time-Specific Juvenile & Constant Adult Survival** | 3 | 183 | ☐ TSJ,CA Model | |

**Population Estimates from Top Model**

| Year | Posthunt Population Est. | | Trend Count | Predicted Prehunt Population | | | Total | Predicted Posthunt Population | | | Total | Objective |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Field Est | Field SE | | Juveniles | Total Males | Females | | Juveniles | Total Males | Females | | |
| **1993** | | | | 2279 | 1612 | 4642 | 8532 | 2263 | 1157 | 4355 | 7774 | 5000 |
| **1994** | | | | 2987 | 1937 | 4477 | 9401 | 2962 | 1221 | 4268 | 8450 | 5000 |
| **1995** | | | | 2950 | 1752 | 4171 | 8873 | 2948 | 1139 | 4055 | 8141 | 5000 |
| **1996** | | | | 2430 | 1494 | 3810 | 7733 | 2430 | 942 | 3751 | 7123 | 5000 |
| **1997** | | | | 2255 | 1234 | 3465 | 6954 | 2255 | 897 | 3386 | 6538 | 5000 |
| **1998** | | | | 1717 | 1164 | 3140 | 6020 | 1714 | 856 | 3083 | 5653 | 5000 |
| **1999** | | | | 1867 | 1102 | 2871 | 5840 | 1867 | 578 | 2871 | 5315 | 5000 |
| **2000** | | | | 1957 | 1199 | 3020 | 6177 | 1957 | 645 | 2981 | 5583 | 5000 |
| **2001** | | | | 1933 | 1171 | 3026 | 6129 | 1920 | 685 | 2981 | 5586 | 5000 |
| **2002** | | | | 1544 | 1249 | 3072 | 5864 | 1536 | 725 | 2997 | 5258 | 5000 |
| **2003** | | | | 1432 | 883 | 2688 | 5003 | 1429 | 539 | 2642 | 4610 | 5000 |
| **2004** | | | | 1361 | 744 | 2415 | 4519 | 1361 | 498 | 2386 | 4244 | 5000 |
| **2005** | | | | 1391 | 760 | 2259 | 4410 | 1391 | 502 | 2211 | 4104 | 5000 |
| **2006** | | | | 1525 | 1025 | 2382 | 4932 | 1521 | 518 | 2350 | 4388 | 5000 |
| **2007** | | | | 1592 | 1072 | 2527 | 5191 | 1592 | 510 | 2485 | 4587 | 5000 |
| **2008** | | | | 1321 | 1121 | 2690 | 5133 | 1318 | 734 | 2636 | 4689 | 5000 |
| **2009** | | | | 1709 | 1089 | 2600 | 5398 | 1706 | 718 | 2553 | 4977 | 5000 |
| **2010** | | | | 1376 | 1085 | 2542 | 5003 | 1372 | 713 | 2509 | 4595 | 5000 |
| **2011** | | | | 1109 | 912 | 2338 | 4360 | 1109 | 642 | 2310 | 4061 | 5000 |
| **2012** | | | | 1349 | 731 | 2056 | 4137 | 1331 | 428 | 1902 | 3661 | 5000 |
| **2013** | | | | 1244 | 785 | 1956 | 3985 | 1229 | 387 | 1815 | 3432 | 5000 |
| **2014** | | | | 935 | 707 | 1841 | 3483 | 925 | 434 | 1766 | 3126 | 5000 |
| **2015** | | | | 932 | 576 | 1634 | 3142 | 921 | 246 | 1579 | 2746 | 5000 |
| **2016** | | | | 898 | 518 | 1576 | 2993 | 887 | 188 | 1521 | 2597 | 5000 |
| **2017** | | | | | | | | | | | | 5000 |
| **2018** | | | | | | | | | | | | 5000 |
| **2019** | | | | | | | | | | | | 5000 |
| **2020** | | | | | | | | | | | | 5000 |
| **2021** | | | | | | | | | | | | 5000 |
| **2022** | | | | | | | | | | | | 5000 |
| **2023** | | | | | | | | | | | | 5000 |
| **2024** | | | | | | | | | | | | 5000 |
| **2025** | | | | | | | | | | | | 5000 |

## Survival and Initial Population Estimates

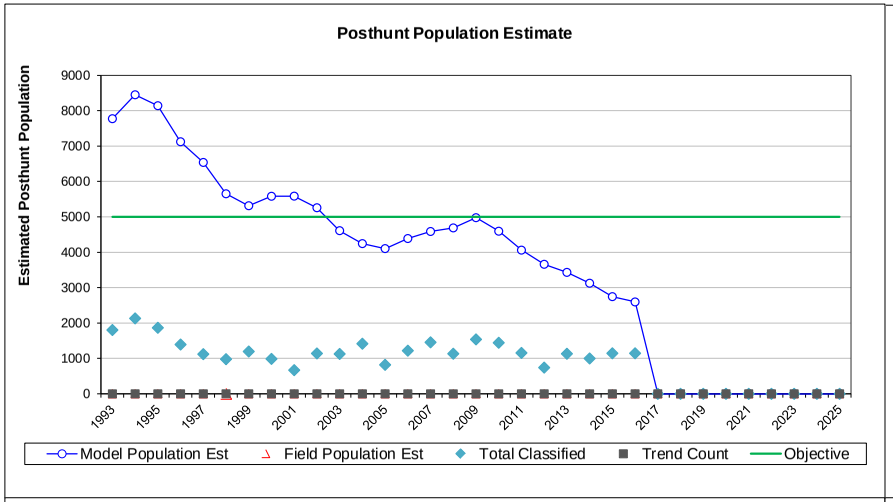
| Year | Annual Juvenile Survival Rates | | | Annual Adult Survival Rates | | |
|---|---|---|---|---|---|---|
| | Model Est | Field Est | SE | Model Est | Field Est | SE |
| 1993 | 0.90 | | | 0.79 | | |
| 1994 | 0.53 | | | 0.79 | | |
| 1995 | 0.40 | | | 0.79 | | |
| 1996 | 0.40 | | | 0.79 | | |
| 1997 | 0.40 | | | 0.79 | | |
| 1998 | 0.49 | | | 0.79 | | |
| 1999 | 0.79 | | | 0.79 | | |
| 2000 | 0.67 | | | 0.79 | | |
| 2001 | 0.73 | | | 0.79 | | |
| 2002 | 0.40 | | | 0.79 | | |
| 2003 | 0.44 | | | 0.79 | | |
| 2004 | 0.54 | | | 0.79 | | |
| 2005 | 0.90 | | | 0.79 | | |
| 2006 | 0.87 | | | 0.79 | | |
| 2007 | 0.90 | | | 0.79 | | |
| 2008 | 0.77 | | | 0.79 | | |
| 2009 | 0.60 | | | 0.79 | | |
| 2010 | 0.50 | | | 0.79 | | |
| 2011 | 0.40 | | | 0.79 | | |
| 2012 | 0.67 | | | 0.79 | | |
| 2013 | 0.65 | | | 0.79 | | |
| 2014 | 0.50 | | | 0.79 | | |
| 2015 | 0.70 | | | 0.79 | | |
| 2016 | 0.70 | | | 0.79 | | |
| 2017 | | | | | | |
| 2018 | | | | | | |
| 2019 | | | | | | |
| 2020 | | | | | | |
| 2021 | | | | | | |
| 2022 | | | | | | |
| 2023 | | | | | | |
| 2024 | | | | | | |
| 2025 | | | | | | |

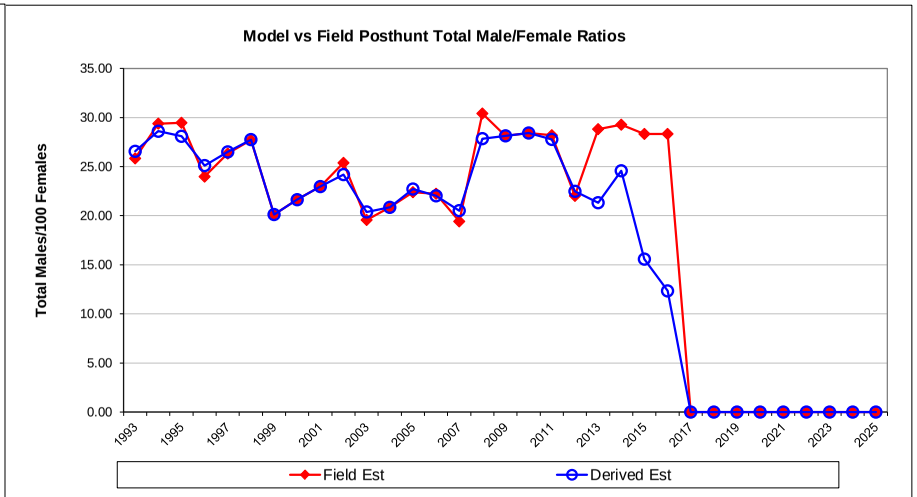
| Parameters: | Optim cells |
|---|---|
| | |
| Adult Survival = | 0.794 |
| Initial Total Male Pop/10,000 = | 0.116 |
| Initial Female Pop/10,000 = | 0.435 |

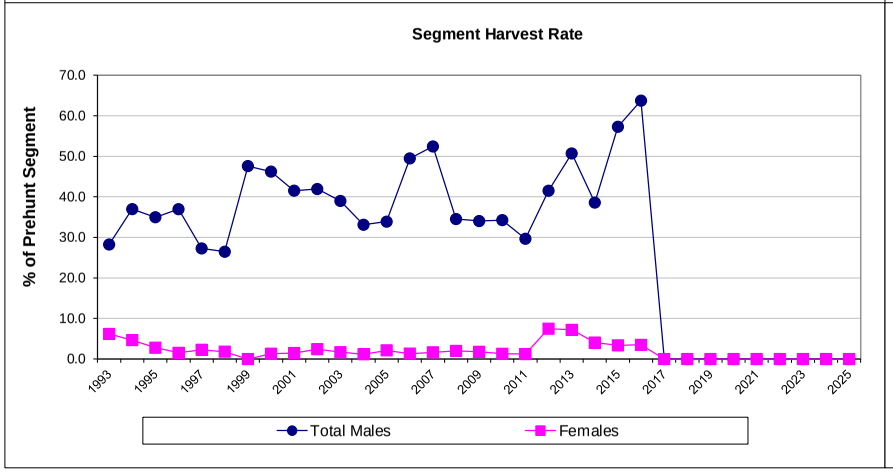
| MODEL ASSUMPTIONS | |
|---|---|
| Sex Ratio (% Males) = | 50% |
| Wounding Loss (total males) = | 10% |
| Wounding Loss (females) = | 10% |
| Wounding Loss (juveniles) = | 10% |

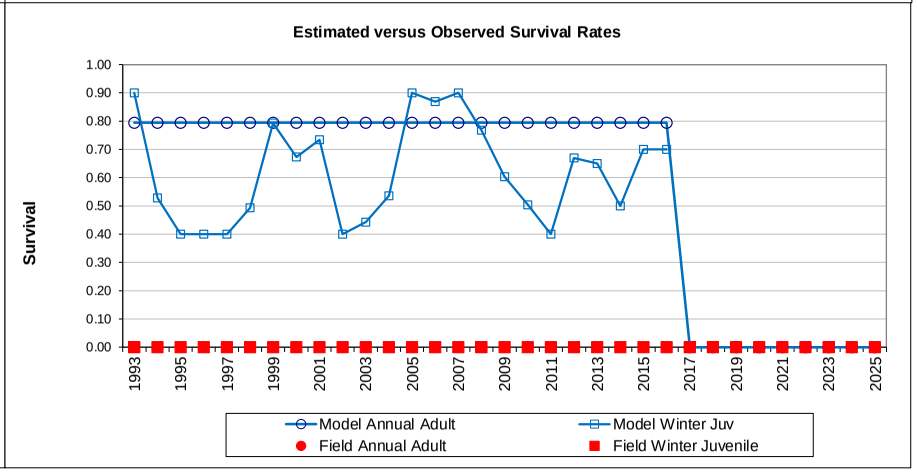
| Year | Classification Counts: Juvenile/Female Ratio | | | Classification Counts: Total Male/Female Ratio | | | Harvest | | | | Harvest: Segment Harvest Rate (% of | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Derived Est | Field Est | Field SE | Derived Est | Field Est w/o bull adj | Field SE | Juv | Males | Females | Total Harvest | Total Males | Females |
| 1993 | | 51.97 | 2.79 | 26.56 | 25.84 | 1.79 | 14 | 414 | 261 | 689 | 28.3 | 6.2 |
| 1994 | | 69.40 | 3.31 | 28.61 | 29.38 | 1.88 | 23 | 651 | 190 | 864 | 37.0 | 4.7 |
| 1995 | | 72.70 | 3.69 | 28.09 | 29.47 | 2.03 | 2 | 557 | 106 | 665 | 35.0 | 2.8 |
| 1996 | | 64.77 | 3.80 | 25.11 | 23.98 | 2.01 | 0 | 502 | 53 | 555 | 37.0 | 1.5 |
| 1997 | | 66.61 | 4.37 | 26.50 | 26.33 | 2.39 | 0 | 306 | 72 | 378 | 27.3 | 2.3 |
| 1998 | | 55.62 | 4.03 | 27.76 | 27.72 | 2.57 | 2 | 280 | 52 | 334 | 26.5 | 1.8 |
| 1999 | | 65.02 | 4.08 | 20.12 | 20.12 | 1.93 | 0 | 477 | 0 | 477 | 47.6 | 0.0 |
| 2000 | | 65.65 | 4.54 | 21.63 | 21.63 | 2.23 | 0 | 504 | 36 | 540 | 46.2 | 1.3 |
| 2001 | | 64.43 | 5.45 | 22.97 | 22.97 | 2.81 | 11 | 442 | 41 | 494 | 41.5 | 1.5 |
| 2002 | | 51.24 | 3.46 | 24.19 | 25.39 | 2.22 | 7 | 476 | 68 | 551 | 41.9 | 2.4 |
| 2003 | | 54.08 | 3.58 | 20.39 | 19.57 | 1.90 | 3 | 313 | 41 | 357 | 39.0 | 1.7 |
| 2004 | | 57.04 | 3.35 | 20.85 | 20.85 | 1.78 | 0 | 224 | 26 | 250 | 33.1 | 1.2 |
| 2005 | | 62.90 | 4.81 | 22.72 | 22.40 | 2.49 | 0 | 234 | 44 | 278 | 33.9 | 2.1 |
| 2006 | | 64.72 | 4.04 | 22.03 | 22.24 | 2.04 | 4 | 461 | 29 | 494 | 49.5 | 1.3 |
| 2007 | | 64.06 | 3.64 | 20.52 | 19.42 | 1.71 | 0 | 511 | 38 | 549 | 52.4 | 1.7 |
| 2008 | | 50.00 | 3.46 | 27.85 | 30.41 | 2.51 | 3 | 352 | 49 | 404 | 34.5 | 2.0 |
| 2009 | | 66.79 | 3.76 | 28.14 | 28.14 | 2.14 | 3 | 337 | 42 | 382 | 34.0 | 1.8 |
| 2010 | | 54.70 | 3.28 | 28.43 | 28.43 | 2.15 | 3 | 338 | 30 | 371 | 34.3 | 1.3 |
| 2011 | | 48.02 | 3.29 | 27.78 | 28.20 | 2.35 | 0 | 246 | 26 | 272 | 29.7 | 1.2 |
| 2012 | | 69.95 | 5.55 | 22.49 | 22.02 | 2.64 | 17 | 276 | 140 | 433 | 41.5 | 7.5 |
| 2013 | | 67.71 | 4.44 | 21.32 | 28.82 | 2.54 | 13 | 362 | 128 | 503 | 50.7 | 7.2 |
| 2014 | | 52.36 | 3.81 | 24.58 | 29.27 | 2.62 | 9 | 248 | 68 | 325 | 38.6 | 4.1 |
| 2015 | | 62.50 | 4.11 | 15.58 | 28.33 | 2.46 | 10 | 250 | 50 | 310 | 57.3 | 3.4 |
| 2016 | | 62.50 | 4.11 | 12.34 | 28.33 | 2.46 | 10 | 250 | 50 | 310 | 63.7 | 3.5 |
| 2017 | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | |
| 2022 | | | | | | | | | | | | |
| 2023 | | | | | | | | | | | | |
| 2024 | | | | | | | | | | | | |
| 2025 | | | | | | | | | | | | |

## FIGURES




**Comments:**

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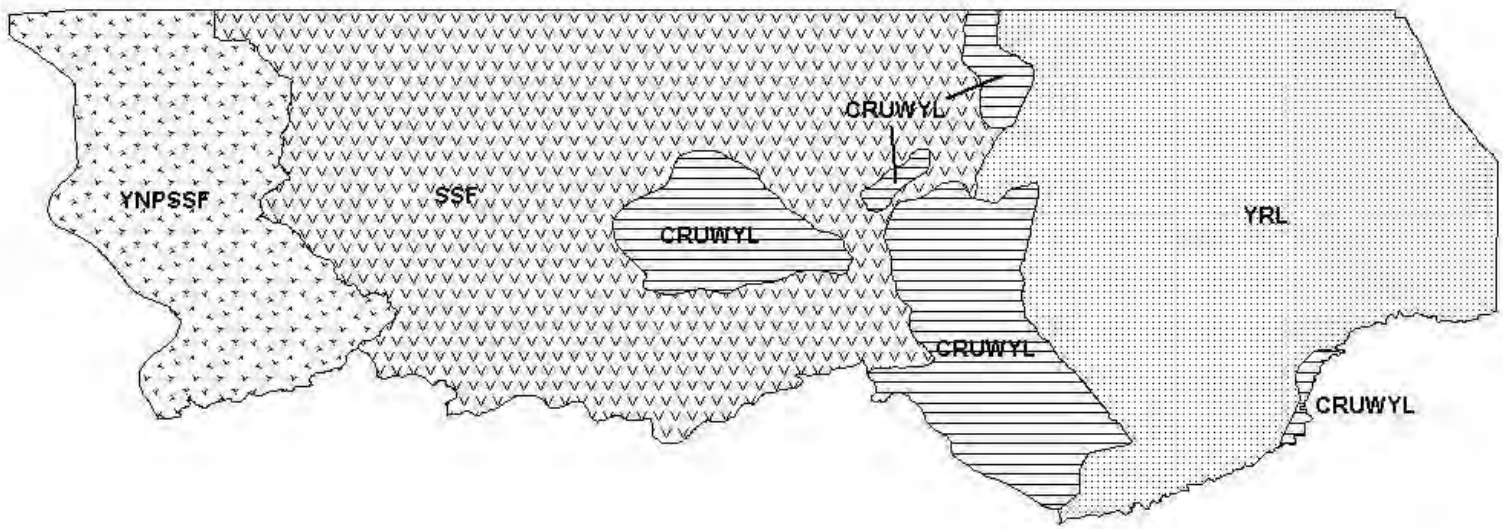


Mule Deer (MD216) - Clark's Fork
HA 105, 106, 109, 121
Revised - 2/94