

2015 - JCR Evaluation Form

SPECIES: White tailed Deer
 HERD: WD706 - BLACK HILLS
 HUNT AREAS: 1-6

PERIOD: 6/1/2015 - 5/31/2016
 PREPARED BY: JOE SANDRINI

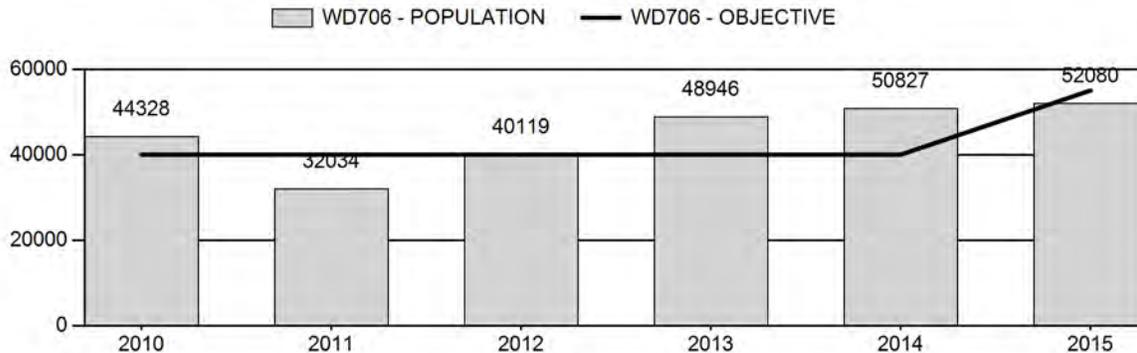
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	43,251	52,080	53,100
Harvest:	3,891	6,001	7,800
Hunters:	6,701	8,474	10,850
Hunter Success:	58%	71%	72 %
Active Licenses:	7,088	9,057	11,700
Active License Success:	55%	66%	67 %
Recreation Days:	29,019	34,231	44,200
Days Per Animal:	7.5	5.7	5.7
Males per 100 Females	25	29	
Juveniles per 100 Females	71	85	

Population Objective ($\pm 20\%$) : 55000 (44000 - 66000)
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: -5.3%
 Number of years population has been + or - objective in recent trend: 0
 Model Date: 02/18/2016

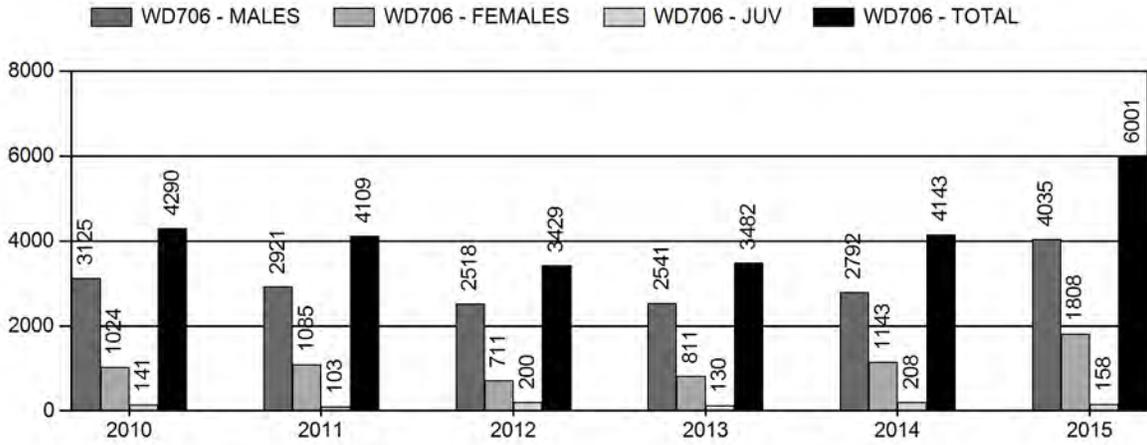
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	7.7%	11.5%
Males ≥ 1 year old:	39.4%	37.9%
Juveniles (< 1 year old):	0.8%	1.4%
Total:	11.2%	13.9%
Proposed change in post-season population:	+2.5%	+1.9%

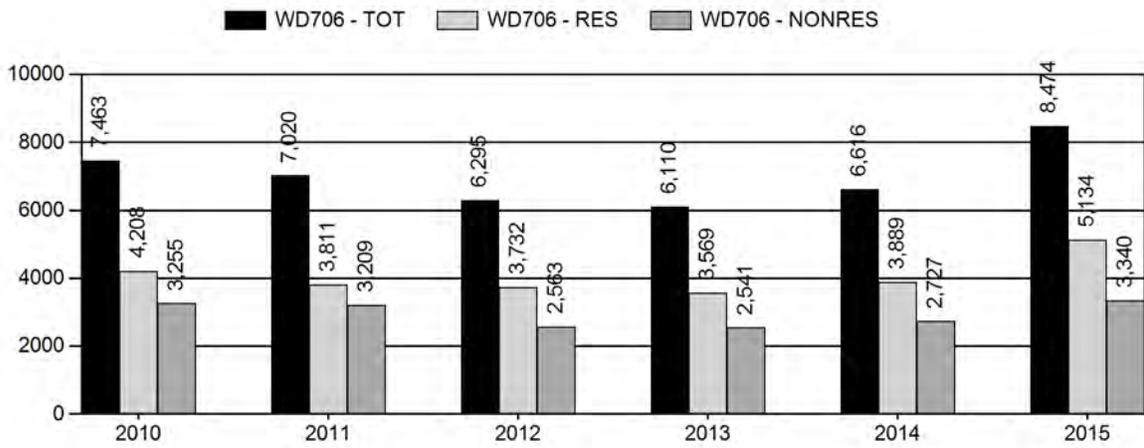
Population Size - Postseason



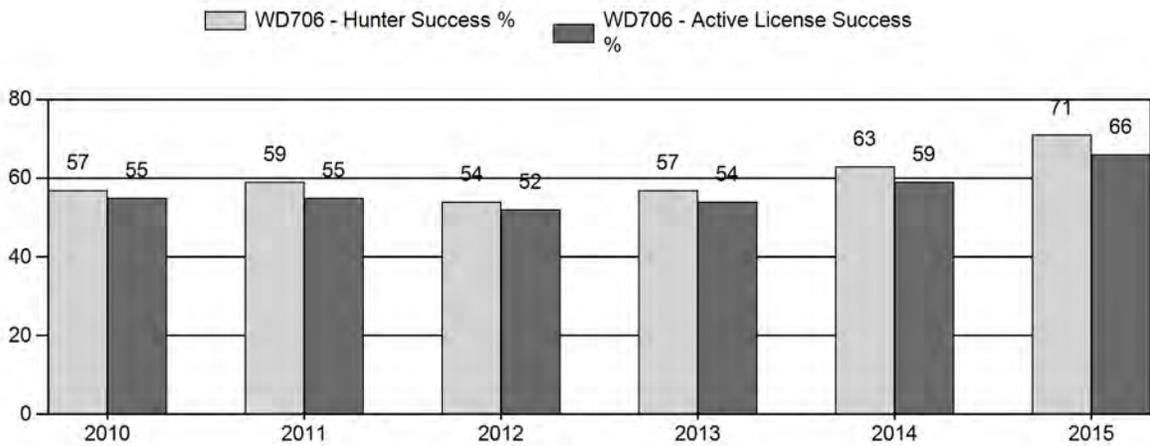
Harvest



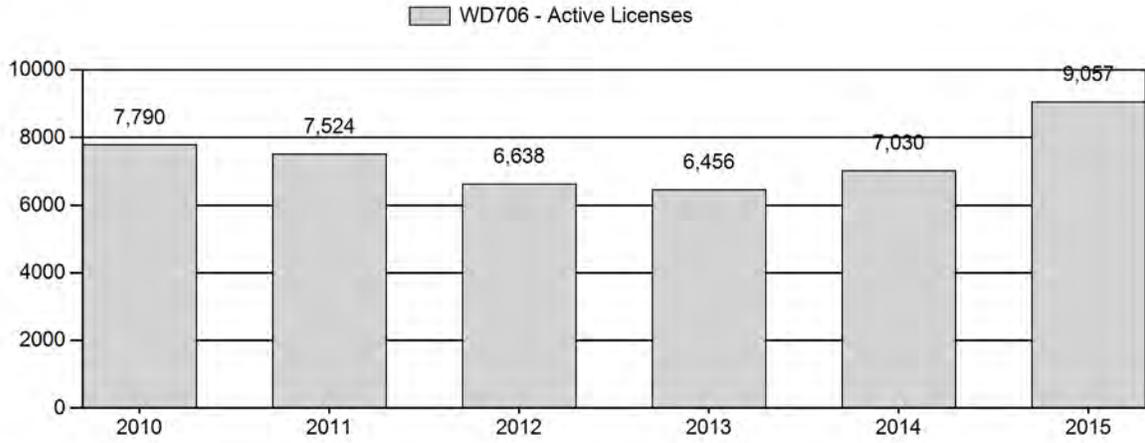
Number of Hunters



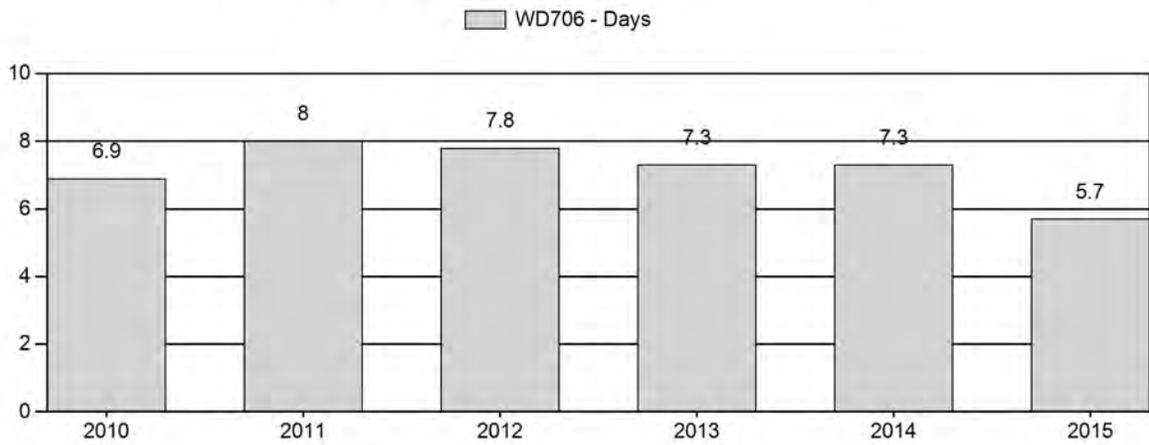
Harvest Success



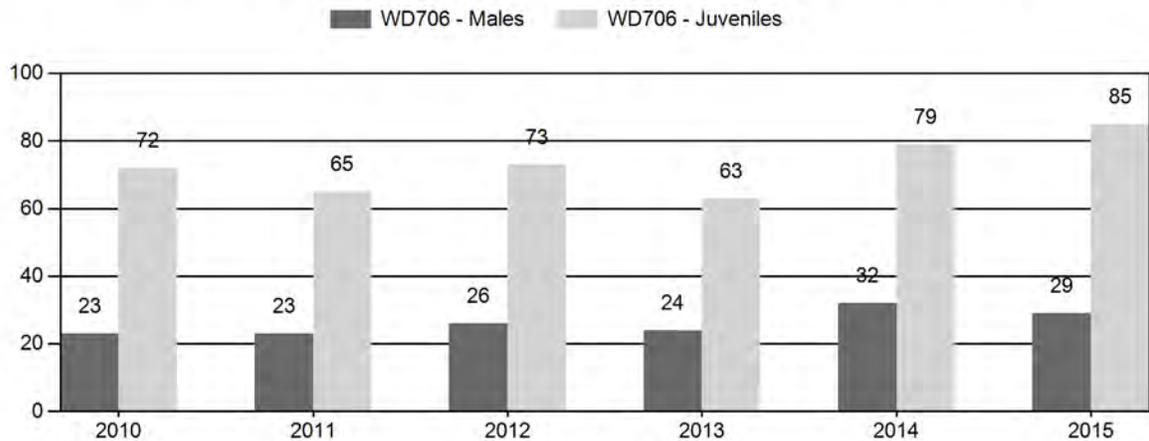
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for White tailed Deer Herd WD706 - BLACK HILLS

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	49,047	93	232	325	12%	1,407	51%	1,016	37%	2,748	1,536	7	16	23	± 0	72	± 0	59
2011	36,554	48	149	197	12%	856	53%	559	35%	1,612	1,278	6	17	23	± 0	65	± 0	53
2012	43,891	93	143	236	13%	919	50%	675	37%	1,830	1,590	10	16	26	± 0	73	± 0	58
2013	52,709	163	153	316	13%	1,303	53%	827	34%	2,446	1,232	13	12	24	± 0	63	± 0	51
2014	55,385	111	198	309	15%	980	47%	778	38%	2,067	1,888	11	20	32	± 0	79	± 0	60
2015	58,681	157	212	369	14%	1,276	47%	1,079	40%	2,724	2,132	12	17	29	± 0	85	± 0	66

**2016 HUNTING SEASONS
BLACK HILLS WHITE-TAILED DEER HERD (WD706)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
1		Nov. 1	Nov. 30		General	Antlered white-tailed deer off private land; any white-tailed deer on private land
1	7	Nov. 1	Nov. 20	100	Limited quota	Doe or fawn valid on private land
1, 2, 3	8	Nov. 1	Nov. 30	3,500		Doe or fawn white-tailed deer valid on private land
2		Nov. 1	Nov. 30		General	Antlered deer off private land; any deer on private land
2	6	Nov. 1	Nov. 30	500	Limited quota	Doe or fawn valid on private land
3		Nov. 1	Nov. 30		General	Antlered deer off private land; any deer on private land
4		Nov. 1	Nov. 20		General	Antlered deer off private land; any deer on private land, except the lands of the State of Wyoming's Ranch A property shall be closed
4	6	Nov. 1	Nov. 20	300	Limited quota	Doe or fawn valid on private land
5		Nov. 1	Nov. 20		General	Antlered deer off private land; any deer on private land
5	6	Nov. 1	Nov. 20	150	Limited quota	Doe or fawn
6		Nov. 1	Nov. 20		General	Antlered deer off private land; any deer on private land
Archery		Sep. 1	Sep. 30			Refer to license type and limitations in Section 2

Region A Nonresident Quota: 4,500

SUMMARY OF CHANGES IN LICENSE NUMBER¹

Hunt Area	License Type	Quota change from 2015
1	7	<i>see MD751</i>
1,2,3	8	+ 1,500
2	6	<i>see MD751</i>
4	6	<i>see MD751</i>
5	6	<i>see MD751</i>
Herd Unit Totals	6	<i>See MD751</i>
	7	<i>See MD751</i>
	8	+ 1,500
	<i>Region A</i>	<i>See MD751</i>

Management Evaluation

Current Management Objective: 55,000

Management Strategy: Recreational

2015 Postseason Population Estimate: ~ 52,000

2016 Proposed Postseason Population Estimate: ~ 53,100

2015 Hunter Satisfaction: 82% Satisfied, 12% Neutral, 6% Dissatisfied

HERD UNIT ISSUES: In 2015, the management objective of the Black Hills White-Tailed Deer Herd Unit was revised to a post-season population of 55,000 white-tailed deer. Prior to this revision, an objective of 40,000 had been in place since 1983. The herd continues to be managed under the Department’s “Recreational Management Strategy,” which calls for 24 to 44 bucks per 100 does pre-season.

Over the years, modeling this population has been extremely difficult and frustrating. This is due to substantial interstate movement of deer, wide fluctuations in observed fawn:doe ratios, large changes in doe harvest, regular outbreaks of epizootic hemorrhagic disease virus (EHDV), mountain lion predation, a high level of vehicle-deer collisions, severe weather events, and low and irregular visibility of bucks during classifications. Consequently, the population model is thought to be of low quality and estimates produced by the model should be viewed cautiously. Because of this, and the fact that much of the herd unit is comprised of private property, management of this herd has been based heavily on perceptions of deer numbers relative to landowner tolerance.

The Black Hills White-Tailed Deer Herd unit is located primarily within Crook and Weston Counties in northeastern Wyoming and encompasses about 3,140 mi² of occupied habitat. Seasonal range maps for this herd were updated in 2004, and currently 335 mi² are delineated as crucial winter range. Dominant land uses in the herd unit include livestock grazing and forage crop production. Most forested lands are actively managed for timber production and harvest. There is some extraction of minerals, primarily bentonite and oil. The majority of white-tailed

¹ Type 6 and Region A quota changes for Hunt Areas 1-6 are captured in the MD751 JCR.

deer are found in the eastern two-thirds of this herd unit and within the Belle Fourche River drainage where habitat is most favorable.

Approximately 79% of the land within this herd unit is privately owned. The largest blocks of accessible public land are found on the Black Hills National Forest in Hunt Areas (HA) 2 and 4, Thunder Basin National Grasslands in HA 6, and BLM lands in HA 1. Due to the late timing of deer hunting season in the Black Hills relative to other areas in Wyoming and the potential to harvest a whitetail on public land, this herd unit is extremely popular with resident hunters (hosting over 5,100 resident hunters in 2015). Its proximity to the upper Midwestern United States and availability of sympatric mule deer hunted concurrently also make it very popular with non-residents as well. Access fees for hunting are very common on private land, and many holdings have been leased to outfitters. Consequently, accessible public lands are subject to very heavy hunting pressure, probably the highest in the State. Due to limited access for hunters to private land, keeping the growth of this herd in check is difficult when habitat and weather conditions are favorable.

Whitetails are the most numerous deer species in HA's 2 and 4, whereas more equal proportions or greater numbers of mule deer occupy HA's 1, 3, 5, and 6 depending upon habitat type. A high proportion of white-tailed deer in the herd unit reside on private land. This results in their management being strongly influenced by landowner sentiments. Field personnel report white-tailed deer numbers (primarily north of I-90) are now growing close to local tolerance. A survey of about 450 Black Hills landowners at the end of 2014 revealed half of the respondents (52%) having whitetails on their property believed their numbers to be "about right;" while just over a third (35%) reported their numbers to be "too low;" and only 13% felt whitetail numbers were "too high." More recently, as this population has rebounded, fewer landowners are asking to see more deer on the landscape, hunter satisfaction has increased, and more landowners would like to reduce white-tailed deer numbers.

WEATHER: The second half of the last decade saw a transition from persistent drought to decent growing season moisture, while about average winter conditions persisted most years. This deer population peaked during that time and then began to decline. The weather may have contributed to the decline as peak populations coincided with the last couple years of an eight year drought, sending high populations into poor forage winters. This resulted in some detected mortality in late winter and early spring each year, most notably during the 2010-11 winter, which was severe. Drought returned to the Black Hills in 2012, with well above normal summer temperatures and little rainfall during the growing season. Forage production was very poor, and the dry conditions led to several large wildfires in the southern half of the herd unit. These warm and dry conditions continued until the spring of 2013 when temperatures dropped below normal and good precipitation was again received. As the growing season progressed, temperatures remained above average and precipitation above normal. This same pattern generally followed in 2014 and 2015, resulting in good to excellent forage growth each year. Fall and winter weather over the 2013-2015 timeframe was essentially characterized by normal to above average temperatures and average to below normal precipitation (<http://www.ncdc.noaa.gov/cag/>). The only outstanding weather event of this period being winter storm "Atlas" experienced in October, 2013. This storm blanketed the Black Hills with anywhere from about a foot of wet heavy snow near Newcastle, to three feet on the Bearlodge, and over five feet near Cement Ridge. No large scale die-offs of mule deer were witnessed after this storm, but a few white-tailed deer mortalities on the National Forest were discovered.

Based upon weather and habitat conditions over the past five years, it is likely white-tailed deer entered the winter in fair condition most years, except bio-year 2012. More normal winter temperatures and precipitation punctuated by some severe winter and spring weather have increased stress on white-tailed deer compared to the previous decade, as did the drought of 2012. This weather pattern resulted in fluctuations in observed fawn:doe ratios and inconsistent, annual recruitment of fawns into the adult population. However, with favorable conditions the past two years, this population has grown.

HABITAT: Ponderosa pine (*Pinus ponderosa*) is the dominant overstory species on forested lands. Quaking aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), and bur oak (*Quercus macrocarpa*) stands are also present. Many areas dominated by deciduous trees are in late successional stages. Important shrubs include Saskatoon serviceberry (*Amelanchier alnifolia*), Oregon grape (*Berberis repens*), common chokecherry (*Prunus virginiana*), and wild spiraea (*Spiraea betulifolia*). Non-timbered lands in this portion of the herd unit are used to produce agricultural crops such as winter wheat (*Triticum aestivum*), alfalfa hay (*Medicago sativa*), or mixed-grass hay. White-tailed deer in the western one-third of the herd unit are limited mainly to riparian habitats and associated agricultural ground. Outside of these riparian corridors habitat in this portion of the herd unit is dominated by sagebrush steppe and grasslands with scattered ponderosa pine covered hills.

FIELD DATA: Preseason age and sex classifications are conducted in this herd unit during the second half of October each year along standardized routes. Most of these routes have been used for over 40 years. Since the 1980's, fawn production and survival has been generally below that observed in most white-tailed deer herds, and at times fluctuated dramatically. The underlying cause is thought to be related to nutrition and body condition of does. However, over the last 10-years observed fawn:doe ratios have generally trended towards improvement (Figure 1), likely a result of vegetative responses to fire enhancing forage conditions. Further, observed fawn:doe ratios during this time did not fluctuate as drastically as during the previous decade and a half.

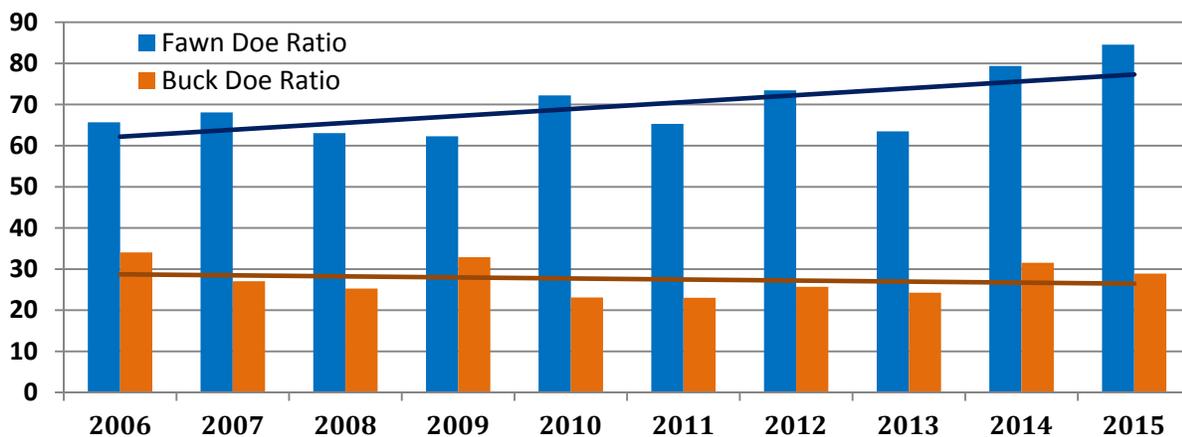


Figure 1. Observed, preseason fawn:doe and buck:doe ratios in the Black Hills White-Tailed Deer Herd (2006-2015).

This herd's observed, preseason buck:doe ratios are at the lower end of the Department's recreational management criteria. It should be noted, however, that classifications are made

outside the rut, and because whitetails are secretive we have always modeled this herd's preseason buck:doe ratio about 30% above observed values. This corrective factor was determined from historical modeling efforts with POP-II and the inflation in buck:doe ratios needed to get those models to run given harvest levels of bucks. Additionally, there have been occasional years when observed buck ratios inexplicably jumped about 30% (something attributed to intermittently enhanced visibility of bucks). Overall, preseason buck:doe ratios the past ten years have been generally stable (mean₍₀₆₋₁₅₎ = 28:100; std. dev = 4.1), but do exhibit a slightly declining trend (Figure 1). General stability in the buck:doe ratio between 2010 and 2013 is thought to have been the result of substantial reductions in buck hunting pressure while this population declined and non-hunting mortality increased. The recent, observed increases in the preseason buck:doe ratio have probably been due to a combination of transient, enhanced visibility (2014) and increased fawn production and survival (2015).

HARVEST DATA: In the Black Hills, deer management entails regulating both mule deer and whitetail harvest under General License season structures across a variety of habitats and habitat conditions, and with serious deference given to landowner desires. Historical analysis of harvest information suggests hunter number has the greatest impact on buck harvest. Therefore, buck harvest has been regulated by altering non-resident hunter participation via changes in the Region A quota, while resident buck hunter participation can only be limited by shortening the season - notably by inclusion or removal of the Thanksgiving Day weekend and the days following in November in HA's 1, 2, & 3. This alteration of season length impacts resident hunter participation by encouraging or curtailing the late season influx of hunters during a period when buck deer are highly vulnerable to harvest. For example, when the 30-day white-tailed deer hunting season was reinstated in these hunt areas during 2015, resident hunter numbers increased 34% above the average number witnessed the five preceding years when shorter seasons were in place.

When conservative hunting season structures were in place between 2010 and 2013, harvest of both antlered and antlerless whitetails dropped. In 2014 and 2015, as this herd began to recover, doe/fawn license issuance was increased and buck harvest climbed with increases in the Region A quota and resident hunter participation. As a result, the total harvest in 2014 was about 8% above that of 2013; and the 2015 harvest 45% greater than 2014. Additionally, after a five year period of fairly consistent harvest success, both hunter success and active license success climbed in 2014, and again in 2015. Overall, harvest statistics strongly support the current population model's projection that this population peaked in 2007, declined substantially into 2011, and has since increased.

Hunting seasons between 2010 and 2014 reduced harvest of whitetail bucks on average about 30% from that experienced during the traditional November season the preceding four years. Comparing these time periods, resident harvest of white-tailed bucks dropped about 20%, while non-resident harvest of white-tailed bucks dropped closer to 40%. As mentioned above, resident hunter number increased by about 34% (1,250 hunters) in 2015 as the white-tailed deer hunting season was extended to the entire month of November in HA's 1, 2, & 3. Likewise, the Region A quota increased 27% in 2015 putting an additional 600⁺ General License hunters on the ground. As a result, white-tailed buck harvest rose 45% in 2015 to 4,035.

Despite the harvest trends, preseason whitetail buck:doe ratios held fairly stable and deer hunter satisfaction remained essentially unchanged between 2011 and 2013, with about 68% of white-

tailed deer hunters reporting they were either satisfied or very satisfied with their Black Hills deer hunt, and only around 15% indicating they were either dissatisfied or very dissatisfied. Satisfaction improved in 2014 as hunter success climbed and effort dropped, with 75% of the white-tailed deer hunters reporting they were satisfied with their Black Hills deer hunt and only 10% reporting negative satisfaction. With continued good hunter success and declines in the effort required to harvest a deer, improved hunter satisfaction was again exhibited in 2015, as 82% of the white-tailed deer hunters affirmed they were satisfied, while only 6% logged dissatisfaction.

POPULATION: As noted above, population modeling of this herd has always been difficult and fraught with problems. In 2014, the spreadsheet model for this herd was reconstructed and re-initiated after correcting errors detected in the previous model and experimenting with models of various constructions. Of the final three competing spreadsheet models, the Semi-Constant Juvenile / Semi-Constant Adult survival (SCJ SCA) model was selected to estimate this population. The present model was set to solve only on years for which field data were available (1993-2015) and used to project 2016 populations.

While the Constant Juvenile / Constant Adult survival (CJ CA) model will function with this herd's observed data set, it produces an essentially stable population of about 85,000 deer since 1993, which does not comport at all with field observations or harvest statistics. The AICc of this model is also about double that of the competing models and it most poorly fits observed data. On the other hand, the Time Sensitive Juvenile / Constant Adult survival model (TSJ CA) yields the lowest AICc value and best fit. However, this model was rejected because in order to get it to function, juvenile survival rates had to be allowed to vary down to 25% in 6 out of 23 years, and it predicts very low (about 33%) survival in five other years. Additionally, this model is not correlated well with trend data or harvest statistics. Instead, the preseason population estimates produced by the SCJ SCA model are much better correlated with hunter success (88% compared to 45% with the TSJ CA model). Similarly, preseason population estimates of the SCJ SCA model exhibit a 68% inverse correlation with hunter effort, while the TSJ CA model predictions are negatively correlated at only 45%. The SCJ SCA model is also about 75% correlated with preseason trend counts while the TSJ CA model is only 60% correlated (Figure 2). Finally, the trends produced by the SCJ SCA model are more congruent with field personnel and landowner perceptions. However, this model does indicate a substantial decline in the population in 2009 that was not actually realized until after the 2010/11 winter. Also on the flip side, the SCJ SCA model estimates a mean buck harvest rate of harvest rate of 40% since 2000, while the TSJ CA model produces a mean buck harvest percentage value of 31% (something more tenable). Therefore, due to the variety of factors identified, we consider the chosen model to be of poor quality, but better than the competing models.

According to the chosen spreadsheet model, this population grew 55% between 2001 and 2007. The population then declined 51% to its low point in 2011, before rebounding 64% through 2015. This projected peak, subsequent decline, and rebound in the population reflects overall field observations. However, as previously noted, by all accounts this population dropped steadily from 2007 through 2010, before dipping significantly in 2011 – a trend shown one year antecedent in the model's projections. If population estimates produced by the spreadsheet model are close to accurate, then our current objective is near landowner and yields excellent hunter satisfaction.

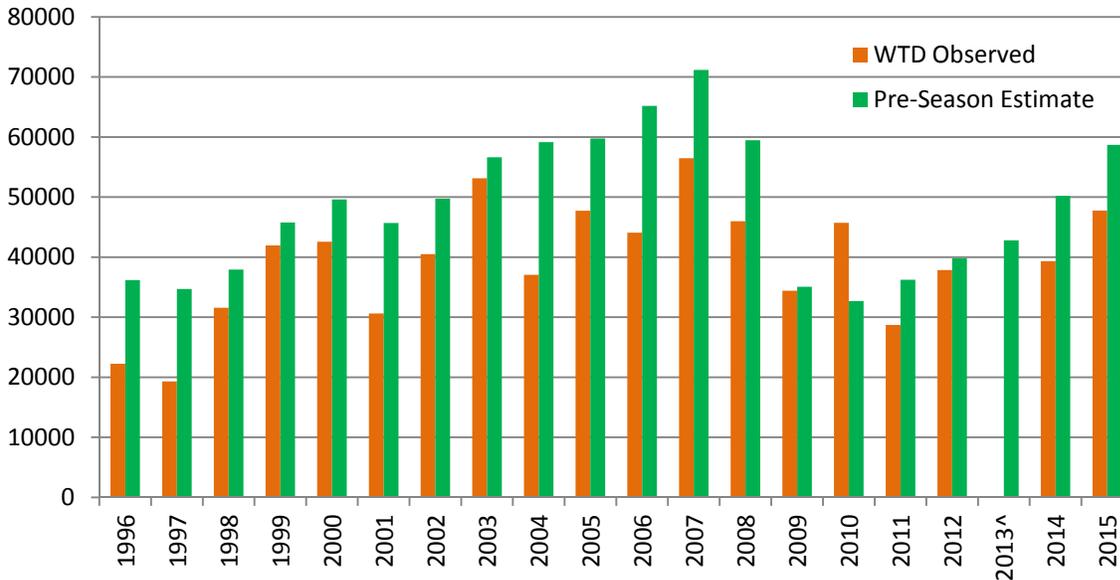


Figure 2. 1996-2015 white-tailed deer, estimated preseason population and trend count data, increased by a factor of 10. [^] trend count not completed 2013.

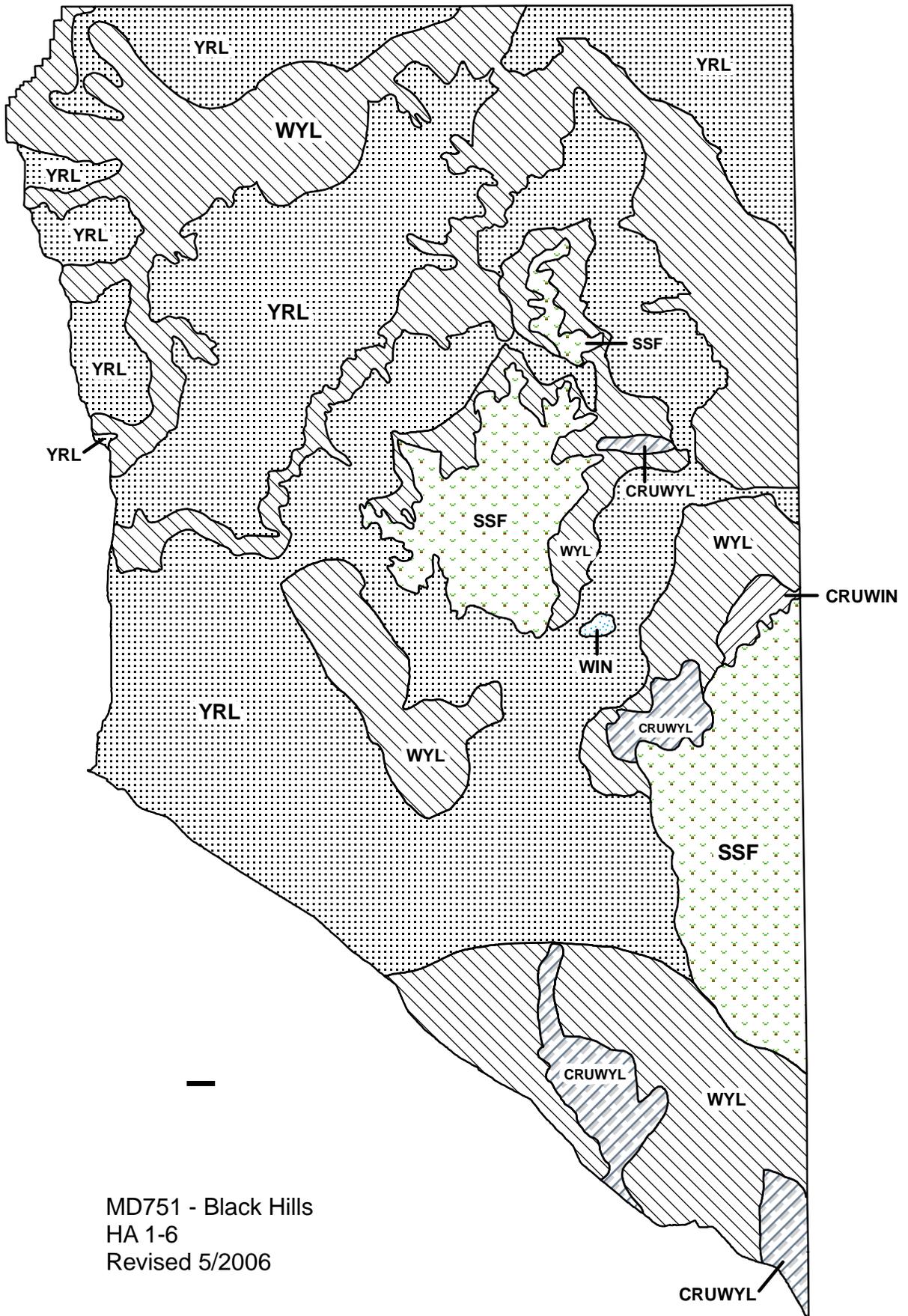
During the last population rise following a significant decline, hunting seasons in this herd unit were structured to retard growth, something that was only mildly successful. Population growth was reversed in 2007, but this directional change was due primarily to increased non-hunting mortality rather than enhanced harvest. Reductions in survival rates being most ostensibly attributed to increased over-winter mortality and EHDV outbreaks. Between 2007 and 2010, evidence also suggests the mountain lion population in the Black Hills reached historically high levels. As a result, elevated harvest, weather conditions, disease and increased predation acted in concert to reduce this population considerably. In response, hunting seasons were very conservative between 2010 and 2013, which allowed this herd to increase as reproduction and survival improved. As this herd has rebounded significantly in the past two years, hunting seasons again have been liberalized.

MANAGEMENT SUMMARY: Changes to the 2016 white-tailed deer hunting season in the Black Hills were designed to allow more generous harvest of bucks and increased take of antlerless white-tailed deer. The season structure also maintains the traditional November 30th closing date in Hunt Areas 1, 2, and 3, and that of November 20th in HA's 4, 5, & 6.

Whitetail buck numbers are improving and, based upon classification data and population estimates, there should be a strong cohorts of 1 and 2 year-old bucks available for hunters in 2016, along with a good contingent of 4 & 5 year-old bucks. As such, it seems prudent to liberalize buck harvest, something that also attracts more hunters into the area, many of whom also harvest does. White-tailed doe harvest needs to be encouraged now as we must stabilize this population. It is projected the increase in Region A license issuance and continuation of a 30-day season north of Interstate Highway 90 will increase buck harvest about 13% above the 2015 figure. But, even with this increase in buck harvest, the preseason buck:doe ratio should remain stable or increase slightly.

In order to help limit herd growth and allow landowners to be proactive in curbing increases in whitetail numbers, issuance of Type 8 doe/fawn white-tailed deer licenses valid on private land in HA's 1, 2, & 3 has been increased 75% for 2016. This follows a 67% increase in 2015 and a 50% increase in 2014. Availability of Type 6 & 7 doe/fawn licenses in HA's 1 & 2, which are valid for both mule deer and white-tailed deer on private land, have also been increased from a total of 250 licenses to 600. South of I-90, Type 6 license issuance in HA's 4 and 5 has been augmented from 250 to 450 total licenses.

The 2016 hunting season is expected to yield an estimated 2016 postseason population of about 53,100 white-tailed deer, which represents about a 2% increase in the current post-season population. These projections assume over-winter survival will be good and summer losses to EHDV minimal. Provided the change in population is reached, this herd would be 3% below objective and hopefully at a number of deer most hunters and landowners would like to see.



MD751 - Black Hills
 HA 1-6
 Revised 5/2006

2015 - JCR Evaluation Form

SPECIES: White tailed Deer

PERIOD: 6/1/2015 - 5/31/2016

HERD: WD707 - CENTRAL

HUNT AREAS: 7-14, 21-22, 34, 65-67, 88-89

PREPARED BY: WILLOW STEEN

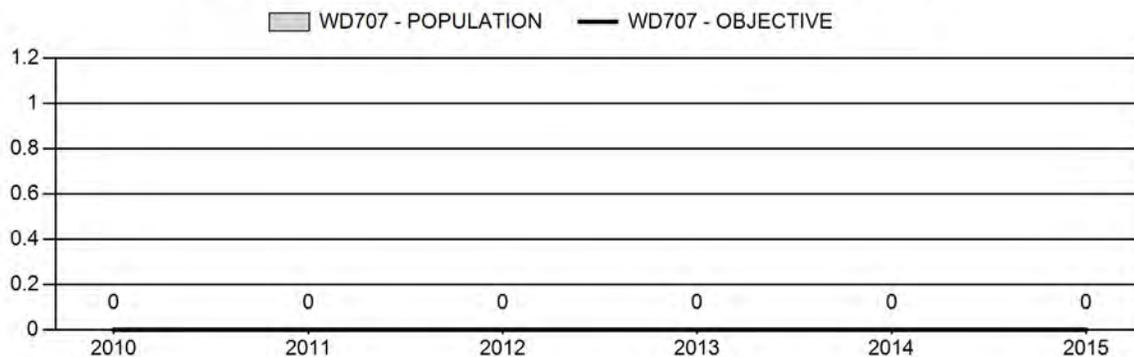
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	0	N/A	N/A
Harvest:	1,277	739	750
Hunters:	2,710	1,650	1,650
Hunter Success:	47%	45%	45 %
Active Licenses:	3,115	1,873	1,900
Active License Success:	41%	39%	39 %
Recreation Days:	13,368	7,074	7,200
Days Per Animal:	10.5	9.6	9.6
Males per 100 Females	34	48	
Juveniles per 100 Females	64	88	

Population Objective (\pm 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

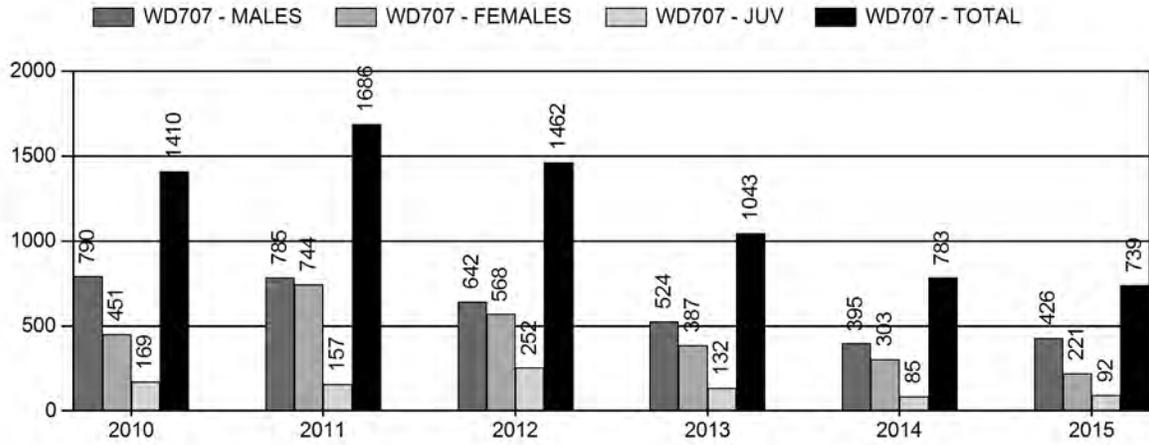
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	0%	0%
Males \geq 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%
Total:	0%	0%
Proposed change in post-season population:	0%	0%

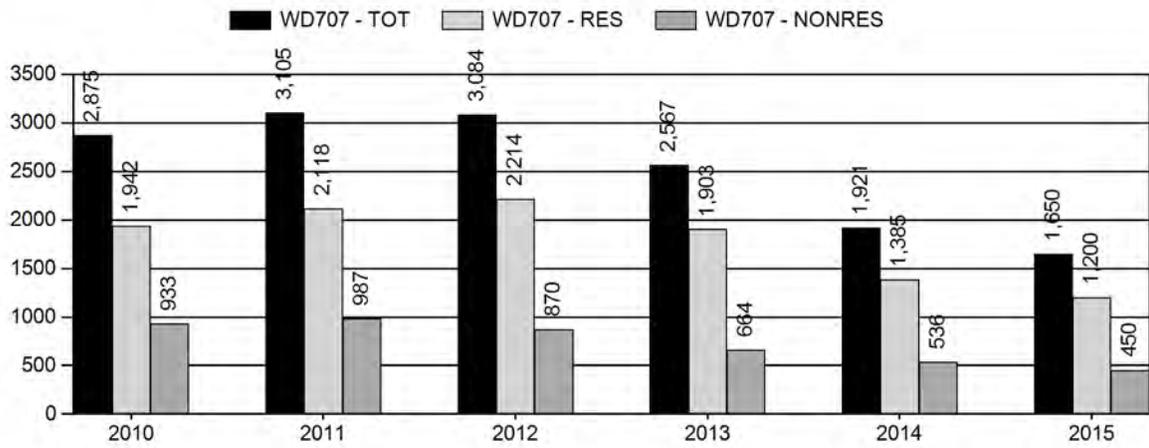
Population Size - Postseason



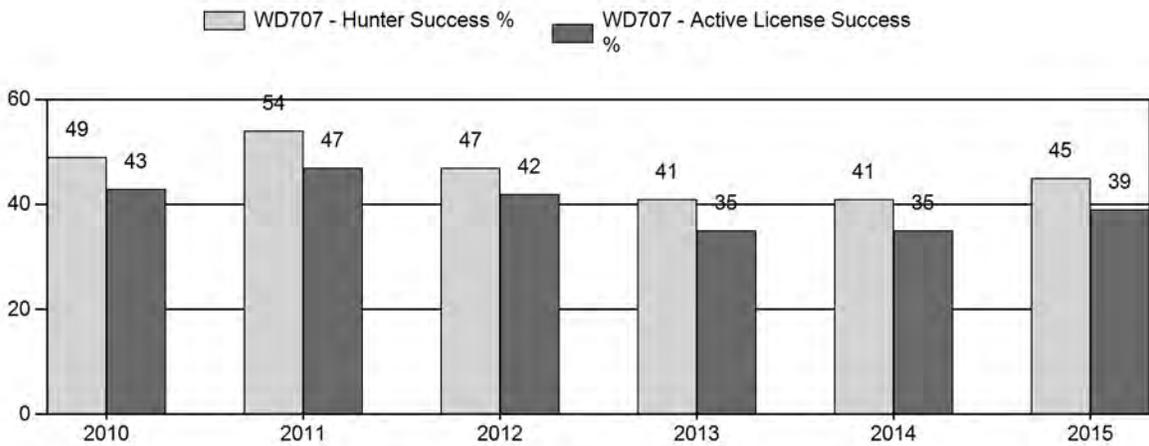
Harvest



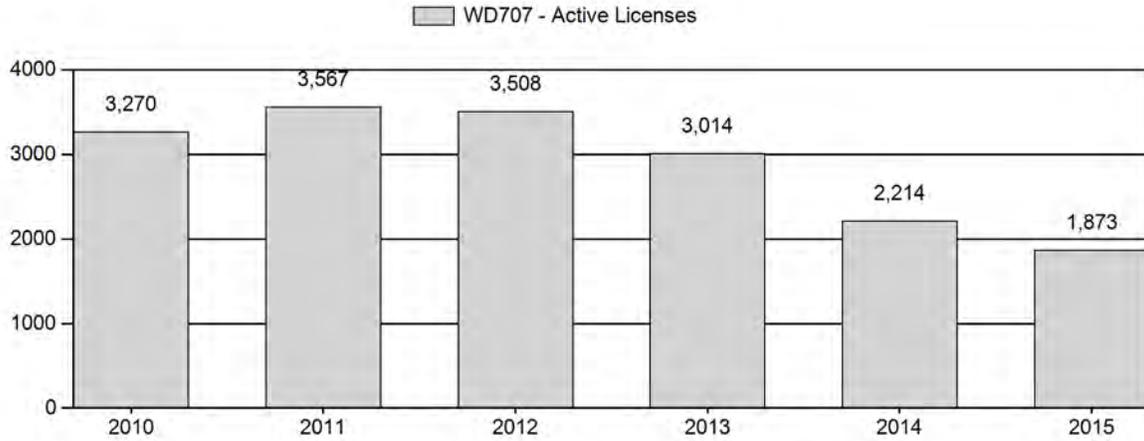
Number of Hunters



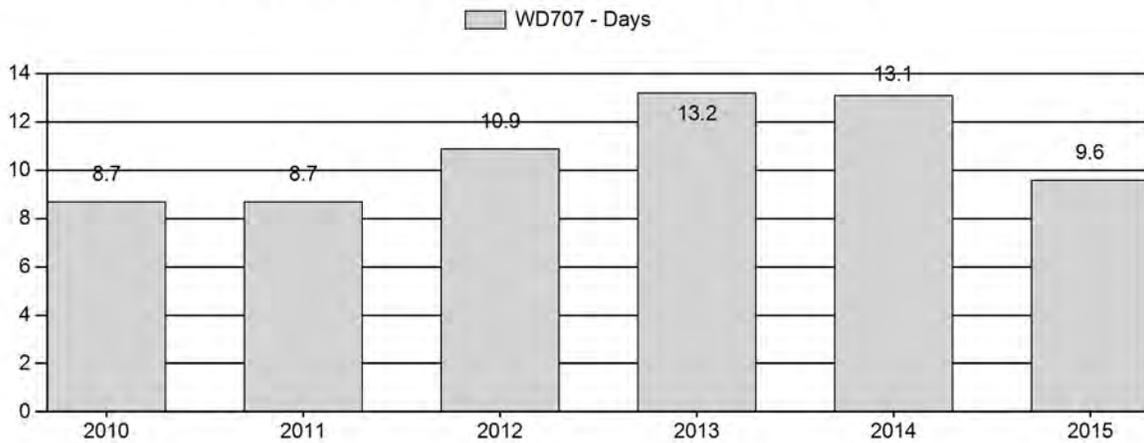
Harvest Success



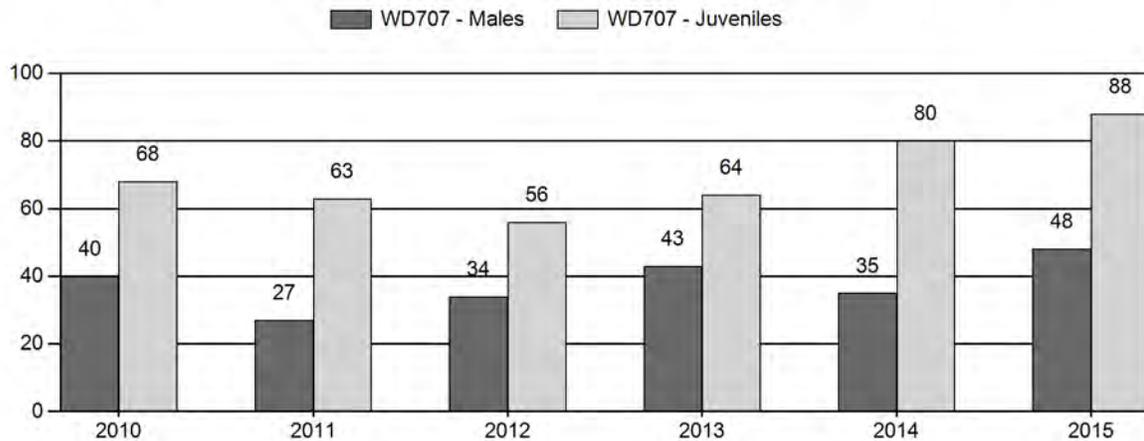
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for White tailed Deer Herd WD707 - CENTRAL

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	0	60	87	147	19%	372	48%	253	33%	772	0	16	23	40	± 0	68	± 0	49
2011	0	45	81	126	14%	467	53%	292	33%	885	0	10	17	27	± 0	63	± 0	49
2012	0	54	76	130	18%	381	53%	212	29%	723	0	14	20	34	± 0	56	± 0	41
2013	0	19	61	80	21%	188	48%	121	31%	389	0	10	32	43	± 0	64	± 0	45
2014	0	11	24	35	16%	100	47%	80	37%	215	0	11	24	35	± 0	80	± 0	59
2015	0	48	59	107	20%	223	42%	196	37%	526	0	22	26	48	± 0	88	± 0	59

**2016 HUNTING SEASONS
CENTRAL WHITE-TAILED DEER (WD707)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
10,11,12 13,14	3	Oct. 1	Nov. 30	300	Limited quota	Any white-tailed deer
	8	Oct. 1	Nov. 30	300	Limited quota	Doe or fawn white-tailed deer
		Oct. 16	Nov. 30		General	Any white-tailed deer
22	3	Oct. 1	Nov. 30	50	Limited quota	Any white-tailed deer
	8	Oct. 1	Nov. 30	25	Limited quota	Doe or fawn white-tailed deer
34	3	Oct. 15	Nov. 30	25	Limited quota	Any white-tailed deer
65	3	Oct. 15	Nov. 30	150	Limited quota	Any white-tailed deer, also valid in that portion of Area 66 in Converse County
	8	Oct. 15	Nov. 30	100	Limited quota	Doe or fawn white-tailed deer, also valid in that portion of Area 66 in Converse County
66,88,89	3	Oct. 15	Nov. 30	50	Limited quota	Any white-tailed deer
66,88,89	8	Oct. 15	Nov. 30	25	Limited quota	Doe or fawn white-tailed deer
Archery						Refer to license type and limitations in Section 2

Note: The above season limitations are restricted to only those lines in the Chapter 6 Regulation that directly affect white-tailed deer hunting. Additional general and limited quota seasons occur in hunt areas 7-14, 22, 34, 65-67, 88, and 89 but are not captured here.

Hunt Area	License Type	Quota Change from 2015
65, 66	3	-200
	8	-100
65	3	+150
	8	+100
66, 88, 89	3	+25
Herd Unit	3	-25
Total	8	0

Management Evaluation

Current Management Objective: ≥ 20 bucks:100 does postseason

Management Strategy: Recreational

2015 Postseason Population Estimate: NA

2016 Proposed Postseason Population Estimate: NA

2016 Hunter Satisfaction: 64% Satisfied, 19% Neutral, 17% Dissatisfied

The Central White-tailed Deer Herd Unit has a postseason management objective of ≥ 20 bucks per 100 does. No population model exists for this herd unit, as this is not a well-defined or closed population. Managers are unable to obtain adequate classifications over this large herd unit as it is not a budget priority for helicopter surveys and there is poor sightability of white-tailed deer in cottonwood riparian habitats. Access to perform ground surveys is inconsistent and highly variable from year to year as most white-tailed deer inhabit private lands.

Herd Unit Issues

White-tailed deer densities in this herd are highest along major cottonwood riparian communities of the Cheyenne River and North Platte River drainages and on irrigated hay fields in the La Prele Creek, La Bonte Creek, and Casper Creek drainages. Most white-tailed deer habitats in this herd unit are on private lands. Landowners typically have a low tolerance for white-tailed deer, and access to hunt them is generally good. Periodic disease outbreaks (i.e. hemorrhagic diseases, adenovirus, Asian louse, Chronic Wasting Disease) are known to occur within this herd, and can contribute to population declines in localized areas when environmental conditions are suitable. Female harvest in this herd is typically insufficient to curtail growth when the population is high since many Type 8 licenses typically remain unsold each year. Epizootic Hemorrhagic Disease (EHD) often regulates this population given the lack of female harvest.

Weather

In addition to EHD outbreaks, white-tailed deer likely experienced increased mortality in recent years due to the harsh winter conditions of 2010-2011 and the 2012 drought. In addition, such weather conditions were not conducive to good fawn productivity/survival over this time frame. Conditions improved in 2013 with adequate precipitation throughout the growing season and moderate winter conditions. Weather conditions throughout 2014 and 2015 produced above average precipitation, especially during the growing season, which resulted in excellent forage production throughout the herd unit. Improved forage, coupled with low competition for resources due to low white-tailed deer densities, yielded good fawn production and excellent body condition of white-tailed deer going into winter. The 2015-2016 winter has been moderate to date in the western portion of the herd unit, with above average precipitation and consistently cold temperatures which have maintained snow cover throughout most of the winter. However, snow accumulations were most likely not significant enough to limit access to forage. The eastern portion of the herd unit experienced mild winter conditions. Therefore white-tail deer should exhibit normal over-winter survival this winter.

Habitat

This herd unit has no established habitat transects that measure growth and/or utilization on shrub species that are preferred browse of white-tailed deer. However, browse quality and availability were relatively high along riparian corridors as substantial moisture was received in 2014 and 2015. Anecdotal observations from field personnel noted above-average moisture conditions resulting in good browse and herbaceous forb conditions throughout the herd unit. Many landowners also reported improved conditions for irrigation of hay fields during the 2014 and 2015 growing seasons.

Field Data

Fawn production is typically good for this herd, with ratios ranging in the 60-70s per 100 does. Observed fawn ratios were above average in 2014 and 2015 at 80 and 88 per 100 does, respectively. Still, this herd appears to be at a low point due to disease outbreak, harsh winters in 2010 and 2011, and the severe drought of 2012. This herd unit will require several more years of improved fawn production and survival before managers can expect any significant increase in population size.

Buck ratios for the Central White-tailed Deer Herd historically average in the mid 30s per 100 does, but occasionally swell into the 40s or drop into the 20s. In 2015 the observed buck ratio was 48 per 100 does, with 22 of those being yearling bucks. Observed ratios may vary from year to year due to differing levels of effort or success in sampling white-tailed deer during post-

season classification surveys. Buck ratios vary widely across the large variety of habitats in this herd unit as well. Additionally, white-tailed deer can be difficult to classify on private lands and in riparian cover, particularly bucks that may be solitary and elusive. Still, observed buck ratios have always met management objectives for this herd by remaining at or above 20 bucks per 100 does. However, postseason classification ratios in this herd should be viewed with caution as sample sizes are typically small and are not well stratified throughout the herd unit.

Harvest Data

License success in this herd unit is typically in the 40-50th percentile, and was 39 percent in 2014. License issuance varies greatly between the many hunt areas contained within the herd unit. Hunters can typically take white-tailed deer on general licenses and also purchase additional limited quota licenses valid for any white-tailed deer or doe/fawn white-tailed deer. In recent years, reductions in limited quota white-tailed deer licenses have been made due to low deer densities, declining hunter success, and few complaints regarding damage on private lands.

White-tailed deer hunting opportunity peaked in 2011 with a total of over 3,100 hunters afield. Since then license issuance has been gradually reduced as the population and hunting access have decreased resulting in only 1,650 hunters afield in 2015. From 2011-2014, harvest success declined 26% while hunter effort increased 50%, although this trend is beginning to reverse in 2015 as harvest success and hunter effort were improved by 11% and 27%, respectively since 2014. Hunter comments in recent years reflect reduced access resulting from declining numbers of white-tailed deer in the herd unit. Many phone calls were received by Casper Region personnel from hunters seeking access for white-tailed deer hunting, as landowners with fewer deer turned hunters away. Additional comments were received via harvest surveys from hunters expressing their dissatisfaction as opportunity to hunt white-tails on private lands was low. Observations from field personnel, landowners, harvest statistics, and hunter comments all indicate this herd has declined considerably. As a result, licenses were cut significantly in recent years. While buck availability showed an increase in 2015, especially for yearling bucks, the overall population still appears to be low. Consequently, Type 3 and 8 license issuance will remain relatively conservative within this herd unit for 2016.

Population

Currently there is no population model that accurately represents this herd. Therefore, management is based on maintaining postseason buck ratios with a goal of ≥ 20 bucks per 100 does. While field data indicates that buck ratios exceed this goal, this population has experienced significant decline in the past 5 years. However, this population has the potential to rebound rapidly when environmental conditions are favorable and presence of EHD is minimal.

Management Summary

Traditional season dates in this herd vary from one hunt area to the next. Generally, white-tailed deer seasons run concurrently with October mule deer seasons, and are extended into November to maximize hunter opportunity and harvest. The 2016 season includes 575 Type 3 licenses, 450 Type 8 licenses, and additional opportunities to harvest white-tailed deer on General, Type 1, and Type 6 licenses. Some sportsmen have been expressing concern over white-tail numbers in Hunt Area 88. Since the bulk of whitetail licenses were used in Hunt Area 65 when it was combined with Areas 66, 88, and 89, this area was split off in order to manage slightly more conservatively in less populated white-tail areas. Area 65 Type 3 and 8 licenses were made valid for that portion of Area 66 in Converse County in order to allow sportsmen the ability to hunt both sides of Deer Creek. Areas 66, 88, and 89 are now hunted with one set of Type 3 and 8 licenses. Goals for 2016 are to maintain buck ratios, improve hunter opportunity, afford landowners the opportunity to address agricultural damage on private lands if necessary, and generally allow for population increase.

If we attain the projected harvest of 750 white-tailed deer with fawn production/survival similar to the five-year average, buck ratios should be maintained above 20 per 100 does.

**Central White-tailed Deer Herd Unit
(WD707)
Revised May 12, 2010
Hunt Areas 7-15, 21, 22, 34, 65-67, 88, 89**

