

## 2014 - JCR Evaluation Form

SPECIES: White tailed Deer

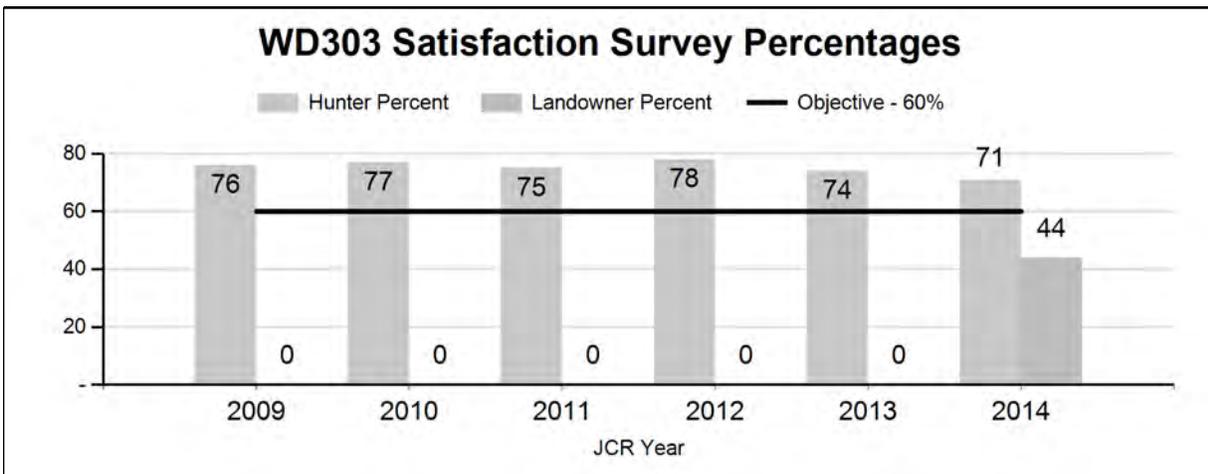
PERIOD: 6/1/2014 - 5/31/2015

HERD: WD303 - POWDER RIVER

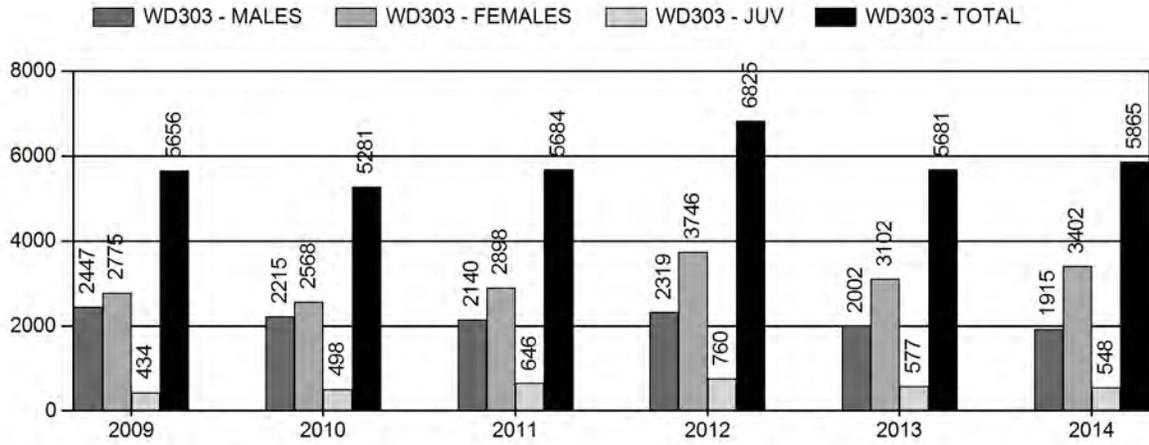
HUNT AREAS: 17-20, 23-33, 163, 169

PREPARED BY: TIM THOMAS

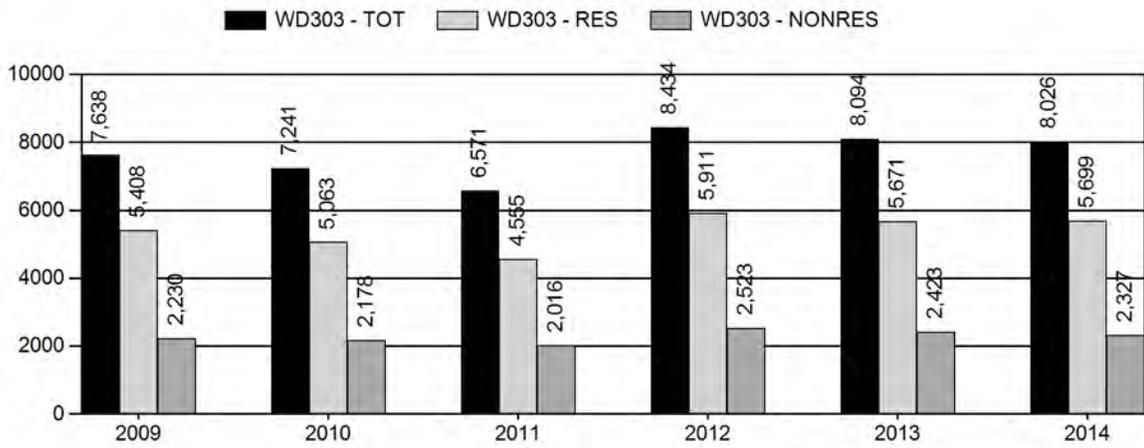
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Hunter Satisfaction Percent	76%	71%	73%
Landowner Satisfaction Percent	0%	44%	45%
Harvest:	5,825	5,865	6,000
Hunters:	7,596	8,026	8,000
Hunter Success:	77%	73%	75%
Active Licenses:	9,022	9,492	9,500
Active License Success:	65%	62%	63%
Recreation Days:	39,406	37,934	39,000
Days Per Animal:	6.8	6.5	6.5
Males per 100 Females:	35	35	
Juveniles per 100 Females	67	70	
Satisfaction Based Objective			60%
Management Strategy:			Private Land
Percent population is above (+) or (-) objective:			-2%
Number of years population has been + or - objective in recent trend:			1



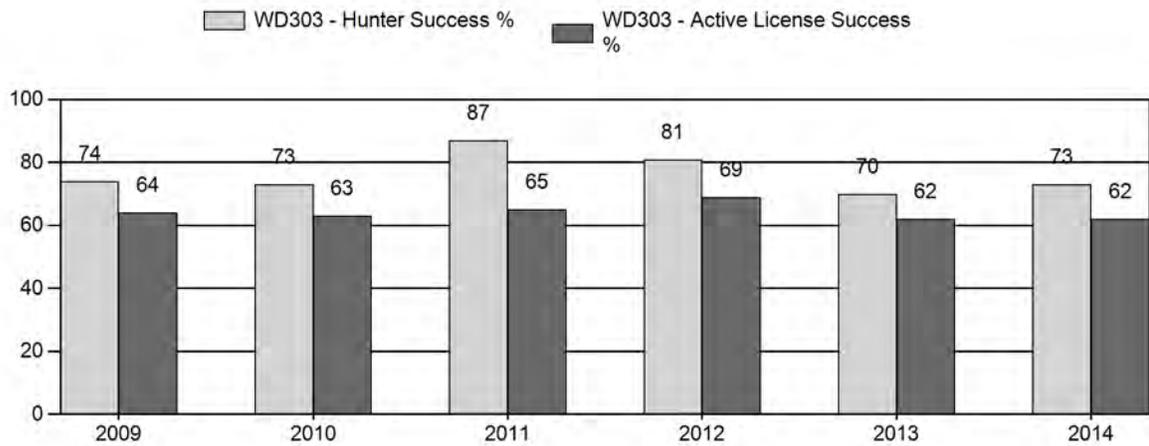
# Harvest



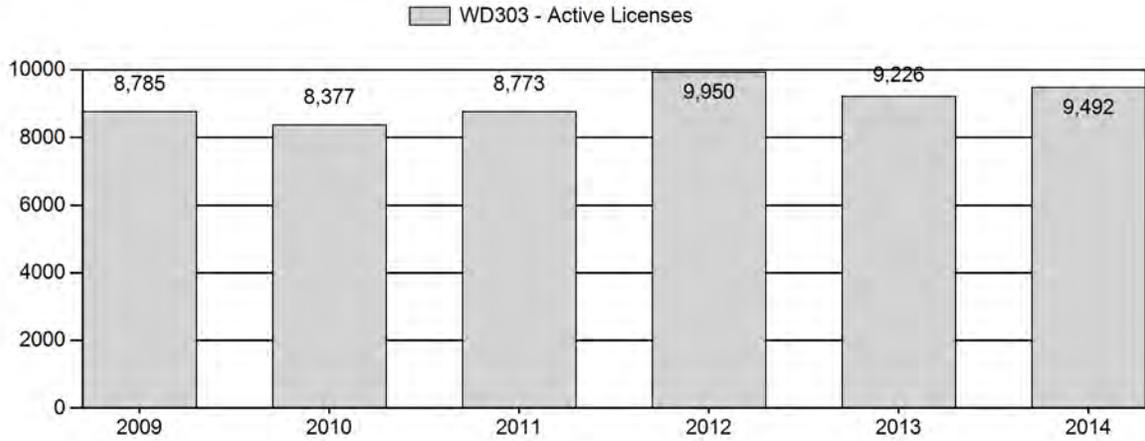
# Number of Hunters



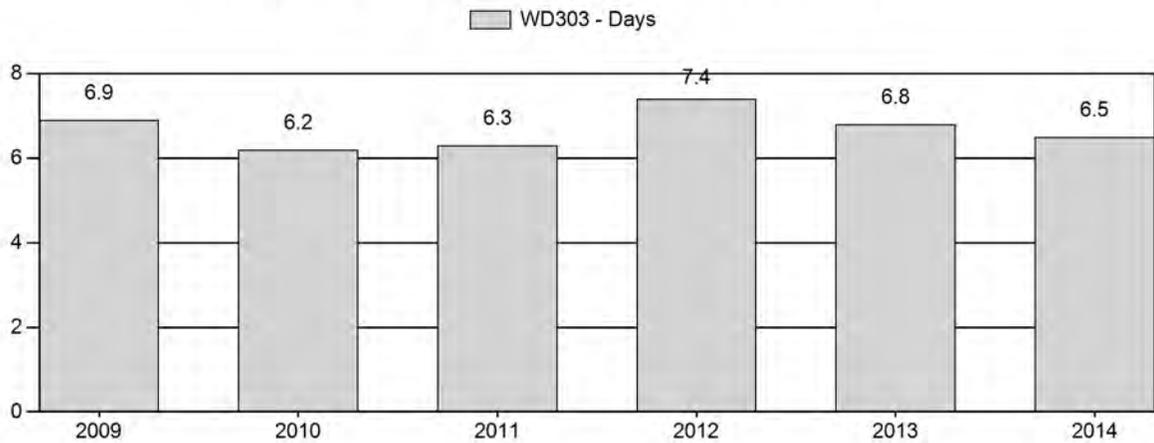
# Harvest Success



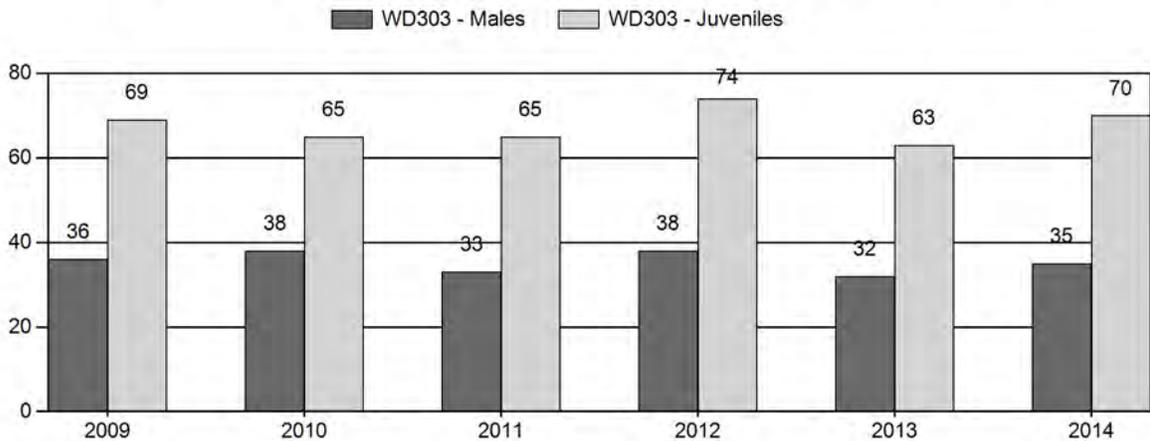
# Active Licenses



# Days per Animal Harvested



# Postseason Animals per 100 Females



## 2009 - 2014 Postseason Classification Summary

for White tailed Deer Herd WD303 - POWDER RIVER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	32,004	180	328	508	18%	1,393	49%	964	34%	2,865	1,435	13	24	36	± 2	69	± 4	51
2010	27,881	134	230	364	19%	946	49%	619	32%	1,929	1,349	14	24	38	± 3	65	± 4	47
2011	23,091	162	267	429	17%	1,302	50%	851	33%	2,582	1,286	12	21	33	± 2	65	± 3	49
2012	16,600	193	249	442	18%	1,163	47%	861	35%	2,466	1,573	17	21	38	± 3	74	± 4	54
2013	18,000	150	303	453	16%	1,437	51%	907	32%	2,797	1,211	10	21	32	± 2	63	± 3	48
2014	20,000	235	401	636	17%	1,839	49%	1,296	34%	3,771	1,484	13	22	35	± 2	70	± 3	52

**2015 HUNTING SEASONS  
POWDER RIVER WHITE-TAILED DEER HERD (WD303)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
17		Oct. 1	Oct. 20		General license; antlered mule deer or any white-tailed deer
	8	Nov. 1	Nov. 30	200	General license; any white-tailed deer
		Oct. 1	Nov. 30		Limited quota licenses; doe or fawn white-tailed deer
18		Oct. 1	Oct. 20		General license; antlered mule deer or any white-tailed deer
	8	Oct. 1	Nov. 30	50	Limited quota licenses; doe or fawn white-tailed deer valid on private land
19		Oct. 1	Oct. 20		General license; antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 15		General license; any white-tailed deer
19,20	6	Oct. 1	Oct. 20	25	Limited quota licenses; doe or fawn valid on private land
20		Oct. 1	Oct. 20		General license; antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 15		General license; any white-tailed deer
23		Oct. 1	Oct. 14		General license; antlered deer off private land, any deer on private land
		Nov. 1	Nov. 30		General license; any white-tailed deer
23,26	3	Nov. 1	Nov. 30	100	Limited quota licenses; any white-tailed deer
	6	Oct. 1	Dec. 15	1,900	Limited quota licenses; doe or fawn valid on private land
24		Oct. 15	Oct. 31		General license; antlered deer off private land, any deer on private land
		Nov. 1	Nov. 30		General license; any white-tailed deer
		Dec. 1	Dec. 15		General license; antlerless white-tailed deer
	3	Nov. 1	Nov. 30	150	Limited quota licenses; any white-tailed deer
	6	Sep. 1	Dec. 15	400	Limited quota licenses; doe or fawn valid on private land
	8	Sep. 1	Dec. 15	Unlimited	Doe or fawn white-tailed deer
25		Oct. 15	Oct. 24		General license; antlered mule deer or any white-tailed deer

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
26		Oct. 1	Oct. 14		General license; antlered deer off private land, any deer on private land
		Nov. 1	Nov. 30		General license; any white-tailed deer
27		Oct. 15	Oct. 31		General license; any deer
		Nov. 1	Nov. 30		General license; any white-tailed deer
		Dec. 1	Dec. 15		General license; antlerless white-tailed deer
	8	Sep. 1	Sep. 30	1,200	Limited quota licenses; doe or fawn white-tailed deer valid on private land
		Oct. 15	Dec. 15		Unused Area 27 Type 8 licenses valid in the entire area
28		Oct. 15	Oct. 24		General license; antlered mule deer or any white-tailed deer
29		Oct. 1	Oct. 14		General license; antlered deer off private land, any deer on private land
		Nov. 1	Nov. 15		General license; any white-tailed deer
		Nov. 16	Dec. 15		General license; antlerless white-tailed deer
	8	Sep. 1	Sep. 30	700	Limited quota licenses; doe or fawn white-tailed deer valid on private land north of Crazy Woman Creek
		Oct. 1	Dec. 15		Unused Area 29 Type 8 licenses valid in the entire area
30		Oct. 15	Oct. 31		General license; antlered deer off private land, any deer on private land
		Nov. 1	Nov. 30		General license; any white-tailed deer
		Dec. 1	Dec. 15		General license; antlerless white-tailed deer
	8	Sep. 1	Sep. 30	500	Limited quota licenses; doe or fawn white-tailed deer valid on private land
		Oct. 15	Dec. 15		Unused Area 30 Type 8 licenses valid in the entire area
31		Oct. 1	Oct. 10		General license; antlered deer
32		Oct. 15	Oct. 31		General license; antlered deer off private land, any deer on private land
		Nov. 1	Nov. 15		General license; any white-tailed deer

---

**Hunt**                      **Dates of Seasons**

<b>Area</b>	<b>Type</b>	<b>Opens</b>	<b>Closes</b>	<b>Quota</b>	<b>Limitations</b>
32,163	8	Oct. 15	Nov. 15	50	Limited quota licenses; doe or fawn white-tailed deer
33		Oct. 15	Oct. 31		General license; antlered deer off private land, any deer on private land
		Nov. 1	Nov. 15		General license; any white-tailed deer
		Nov. 16	Dec. 15		General license; antlerless white-tailed deer
	6	Oct. 15	Oct. 31	25	Limited quota licenses; doe or fawn valid on private land
	8	Sep. 1	Sep. 30	500	Limited quota licenses; doe or fawn white-tailed deer valid on private land
		Oct. 15	Dec. 15		Unused Area 33 Type 8 licenses valid in the entire area
163		Oct. 15	Oct. 21		General license; antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 15		General license; any white-tailed deer
169		Oct. 15	Oct. 21		General license; antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 15		General license; any white-tailed deer
Archery		Sep. 1	Sep. 30		General license; any deer Limited quota licenses; Refer to Section 3 of this Chapter

<b>Hunt Area</b>	<b>Type</b>	<b>Quota change from 2014</b>
23,26	6	+ 200
33	6	- 25
<b>Herd Unit Total</b>	<b>6</b>	<b>+ 175</b>
<b>Region C</b>		<b>No Change</b>
<b>Region Y</b>		<b>- 200</b>

## **Management Evaluation**

**Current Hunter / Landowner Management Objective:** 60% Landowner / Hunter Satisfaction

**Secondary Management Objective:** 20 bucks:100 does observed minimum

**Management Strategy:** Private Land

**2014 Hunter Satisfaction Estimate:** 71%

**2014 Landowner Satisfaction Estimate:** 44%

**Most Recent 3-year Running Average Hunters Satisfaction Estimate:** 75%

**Most Recent 3-year Running Average Landowner Satisfaction Estimate:** n/a

## **Herd Unit Issues**

The management objective for the Powder River White-tailed Deer Herd Unit is Hunter and Landowner Satisfaction at 60% or above, with a secondary objective of 20 or more bucks observed per 100 does. The management strategy is Private Land Management. The objective and management strategy were last revised in 2014.

We do not have a reliable population estimate at this time for this herd unit. The spreadsheet simulation model developed for white-tailed deer populations with postseason classification data does not function with the limited empirical data available from this herd unit.

Most white-tailed deer in this herd unit occur on private lands. There is substantial rural development in portions of this herd unit that act as refuges for white-tailed deer, allowing them to quickly repopulate surrounding areas that receive harvest. Our ability to control this deer population with hunting is very limited and localized. Mortalities due to deer-vehicle collisions and disease (i.e. viral hemorrhagic diseases) help keep this population from being even higher than it is.

White-tailed deer depredation of standing and stored agricultural crops, especially alfalfa, is a significant problem in localized areas of this herd unit. Game wardens and damage technicians spend considerable amounts of time and effort to address these damage concerns. The WGFD pays damage payments to some landowners to compensate them for damage caused by high numbers of white-tailed deer.

## **Weather**

The spring and summer of 2014 was generally warm and wet, resulting in good conditions for forage production in the northwest portion of the region. Conditions generally became warmer and drier as you went south and east, which is consistent with normal weather patterns. This likely did not adversely affect white-tailed deer as they are closely associated with riparian habitats and irrigated croplands. The 2014-15 winter was highly variable, with open conditions into early November, cold and snowy conditions from early November through January, then periods of warm weather alternating with colder temperatures and snow. Several thaw/freeze cycles resulted in hard, crusted snow that was difficult for animals to paw through to access forage during portions of the winter. Overall, adults entered the winter in good condition and likely survived the winter well. Fawns likely saw about average over-winter survival. White-tailed deer seem to be able to utilize stored hay crops better than mule deer. This fact likely increases their over-winter survival, especially during normal or above normal winter conditions.

## **Habitat**

We do not have an established habitat transect in this herd unit to monitor white-tailed deer use. Monitoring of other habitat programs, such as Conservation Reserve Program (CRP) riparian strips, indicate high white-tailed deer populations have done extensive damage to native deciduous woodlands and riparian areas. Irrigated croplands and refuge areas allow these populations to be maintained at levels higher than native habitats would normally support. Woody species such as native plum and serviceberry, as well as desirable forbs such as sunflowers, are being severely suppressed or eliminated in some woody draw communities along the Bighorn Mountains.

## **Field Data**

Field personnel conducted post-season classification surveys during mid-November through mid-December using ground survey techniques. Personnel were assigned designated routes to survey. We classified a total of 3,771 white-tailed deer, the highest classification ever recorded in this herd unit. The higher count could have been influenced by increased snow cover during the survey period, making deer generally more visible. Also, colder temperatures may have resulted in longer feeding periods where deer were more readily visible.

Fawn production, as measured by the observed fawn to doe ratio, was 70 fawns:100 does, an increase from the previous year, but still below the long-term (n=33 years) average of 76 fawns:100 does. Relatively low fawn production under favorable environmental conditions could be a density dependent response. Reduced fawn production could slow the growth of this herd, which has declined in recent years in response to increased harvest and mortalities due to viral hemorrhagic disease. We documented epizootic hemorrhagic disease (EHD) during 3 of the past 4 years, with the 2013 outbreak the most extensive and widespread.

Field personnel observed 35 bucks:100 does, similar to the previous 5-year average. Due to the secretive nature of male white-tailed deer, we likely under observe bucks compared to does and fawns. We are likely maintaining a high buck:doe ratio due to the increased harvest of females and restricted access for harvesting bucks. There are sufficient males in this population to meet recreational management criteria (i.e. 20-29 bucks:100 does), satisfying our secondary management objective of a minimum of 20 bucks:100 does.

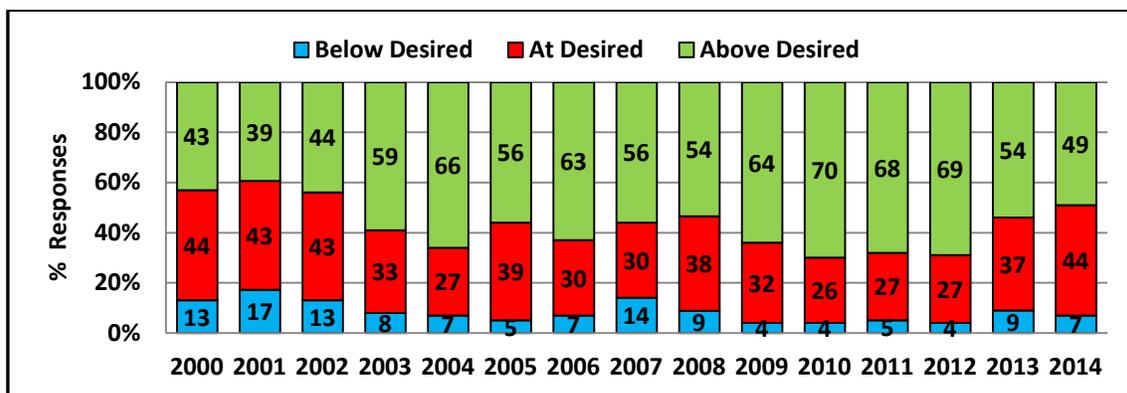
During the 2014 season, 71% of hunters (n=1,586) who completed a harvest survey indicated they were satisfied (42%) or very satisfied (29%) with their hunting experience in this herd unit. At the hunt area level, satisfaction levels varied from 20% (Hunt Area 169) to 77% (Hunt Area 26) although the sample size for several hunt areas was very low (n ≤ 15 responses).

Nonresident hunters were generally more satisfied (77%) than resident hunters (69%). There is limited buck hunting opportunity for resident hunters in this herd unit, which may lower satisfaction levels for some resident hunters. Access to private lands through trespass fees or outfitted hunts, which is common in this herd unit, caters more to nonresident than resident hunters. Hunter satisfaction in both groups declined slightly in 2014 compared to 2013 and 2012, possibly in response to lower deer numbers, especially mature bucks, due to a disease outbreak in 2013.

We surveyed landowners to gauge their level of satisfaction with white-tailed deer numbers. Ninety six landowners in HA 23, 24, 26, 27, 29, 30, 33, 163 and 169 completed the satisfaction portion of their survey. Thirty-four percent (n=33) of landowners were “Very Satisfied”(6%; n=6) or “Satisfied” (28%; n=27) with white-tailed deer numbers, while 46% (n=44) of landowners were “Dissatisfied” (30%; n=29) or “Very Dissatisfied” (16%; n=15). The balance (20%; n=19) were neutral. It is difficult to interpret these data as satisfaction or dissatisfaction can mean different things to different individuals. For example some landowners who indicated they had higher than desired white-tailed deer indicated they were satisfied and some landowners who indicated they had fewer than desired white-tailed deer indicated they were also satisfied.

A better index of landowner desires may be the long-term survey sent annually to landowners in the Sheridan Region. This survey simply asks if big game numbers are at, above or below desired levels. Desired level is also a subjective expression of individual landowner tolerance or preference but less ambiguous than a satisfaction level.

Of landowners that completed an annual survey (n=112) within the Sheridan Region, 49% (n=55) indicated white-tailed deer numbers were higher than desired and 44% (n=49) believed numbers were at or near desired levels (Fig. 1). Most respondents (57%) suggested similar or more liberal (36%) season strategies for 2015. Based on these data, we appear to be moving in the desired direction with white-tailed deer numbers.



**Figure 1.** Relative landowner perceptions of white-tailed deer populations on their property in the Powder River White-tailed Deer Herd Unit, by percentage. Desired level is a subjective expression of individual landowner tolerance of white-tailed deer and not necessarily correlated to the established management objective.

## Harvest

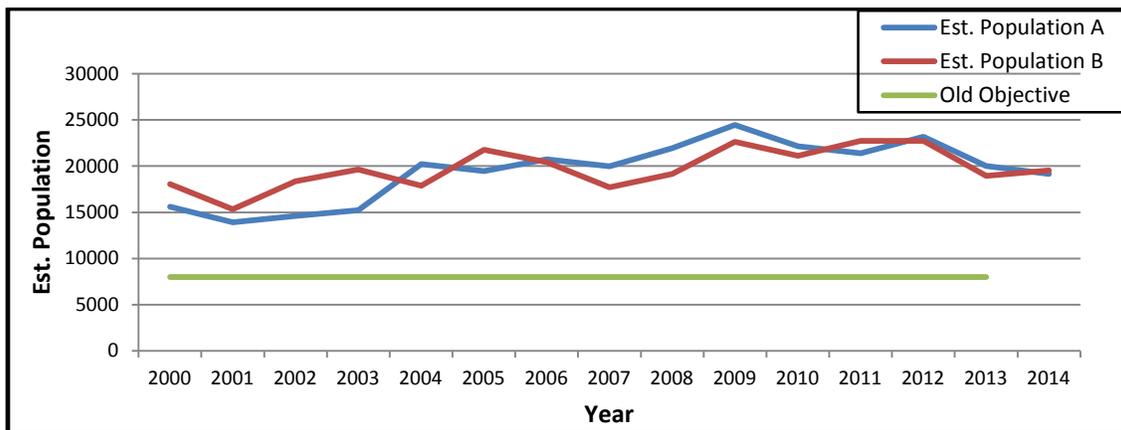
An estimated 8,026 hunters (5,699 resident hunters; 2,327 nonresident hunters) harvested an estimated 5,865 white-tailed deer in 2014, an increase of 3% from 2013 and similar to the previous 5 year mean (2009-2013; n=5,825). This is the second highest harvest ever in this herd unit. Hunters harvested an estimated 1,915 bucks, 3,402 does and 548 fawns. Both buck and fawn harvest declined slightly (4% and 5% respectively) in 2014 while doe harvest increased about 10%. This was the lowest buck harvest since 2003 (n=1,522), likely a residual effect of a 2013 viral hemorrhagic disease outbreak. Mature bucks seem to die at a proportionally higher rate than other sex and age classes from hemorrhagic diseases. This results in fewer mature bucks available for harvest for 2-3 years post outbreak (i.e. 2013-2015 seasons).

The hunter success rate was 73%, up slightly from 2013 (70%) and below the previous 5 year average of 77%. Effort, as measured by days hunted per deer harvested, was 6.5 days/harvest, a slight decrease from 2013 but similar to the 5 year average (6.7 days/ harvest). In summary, a similar number of hunters harvested more white-tailed deer with less effort. This suggested deer in general were relatively available for harvest during the 2014 season. This could have been a function of cold, snowy weather conditions during much of the season, resulting in deer on agricultural lands where they are easily accessible.

## Population

High white-tailed deer harvest in recent years (2010-2014; 5-year mean=5,867) suggests this population has been significantly higher than the previous population management objective of 8,000 deer. The spreadsheet model developed for white-tailed deer populations with postseason classification data does not work with the available data from this herd unit. Under all three possible model scenarios, it simulates a negative population.

Assuming hunters harvest approximately 30% of the total population in recent years, this population would be near 20,000 deer postseason (Fig. 2). Assuming hunters harvested 10% of the available bucks, this population would be about 19,000 white-tailed deer postseason based on 2014 buck harvest (Fig. 2). These are relatively broad, generic estimates but demonstrate that this white-tailed deer population is well over the desired level.



**Figure 2.** Estimated Powder River white-tailed deer population based on estimated harvest rates during the 2000-2014 hunting seasons. The estimated Population A (blue line) is based on harvesting 10% of available bucks. The estimated Population B (red line) is based on total harvest being 15-30% of total population.

We believe we have reduced this population through increased harvest over the past decade. We harvested an average of 5,368 white-tailed deer annually (average of: 2,125 bucks; 2,738 does; 504 fawns) during the 2005-2014 hunting seasons, compared to an average of 2,428 white-tailed deer harvested annually (average of: 1,344 bucks; 896 does; 189 fawns) during the 1995-2004 seasons.

Periodic outbreaks of viral hemorrhagic diseases also contribute to reduced numbers. We documented a significant outbreak of epizootic hemorrhagic disease (EHD) in 2013, resulting in

white-tailed deer mortality across the herd unit. Based on landowner and hunter reports, the level of mortality was localized, and likely varied from ~10% - 70% of local populations.

### **Management Summary**

The regular hunting season for white-tailed deer has generally been concurrent with mule deer seasons during October, as well as continuing for white-tailed deer through November. An archery pre-season runs the month of September in all hunt areas. Seasons for antlerless white-tailed deer have been extended as early as September 1 and as late as December 15 to provide additional opportunities to harvest deer as well as address damage concerns of landowners.

We increased Type 6 (doe or fawn) licenses in Areas 23,26 for 2015 to address landowner desires to continue to harvest deer, especially white-tailed deer, later in the season. The October season in Areas 25 and 28 were reduced to a 10-day season, primarily to address concerns associated with mule deer management. White-tailed deer harvest in these hunt areas accounts for about 1% of the total harvest in this herd unit so this shorter season will have negligible impact on white-tailed deer harvest. General license limitations during October were changed in Areas 30, 32 and 33 to protect antlerless deer on public lands. This change was primarily designed to reduce mule deer doe harvest on public lands. The Area 33 Type 6 licenses were reduced and the season shortened as the need for this license has declined. We will likely eliminate this license type in 2016.

Most white-tailed deer hunting is on private land within this herd unit. Access for antlered harvest is generally through payment of a trespass fee or outfitted hunts. Access for antlerless harvest is generally easier, with several landowners on a publically available list allowing free access. Some landowners removed their name from this list in 2013 and 2014 due to decreased deer numbers resulting from a disease outbreak in 2013, and the large volume of calls received.

Legal firearm calibers changed starting with the 2013 season. Hunters are now able use buck shot (00 or bigger) in shotguns, and .22 or larger centerfire cartridges (60 grain minimum bullet weight). We are not aware of any problems associated with the change in allowable methods of take during the 2013 or 2014 seasons.

Landowners were able to bait white-tailed deer - with a permit - starting in 2013. This change was designed to increase harvest of white-tailed deer in areas with safety concerns such as rural developments. In 2014, the Department issued 9 permits to 3 individuals, all in Hunt Area 24 near the Big Horn area. Two permits were for individual landowners with 1 bait site on each property. The other 7 permits were issued to a local outfitter with 11 bait sites on 3 different landowners. All permits were for antlerless white-tailed deer only. Harvest was estimated at less than 100 white-tailed deer at these baits sites in 2014. We are not aware of any problems with this program during the 2014 season. We plan to make these permits available as appropriate for the 2015 season.

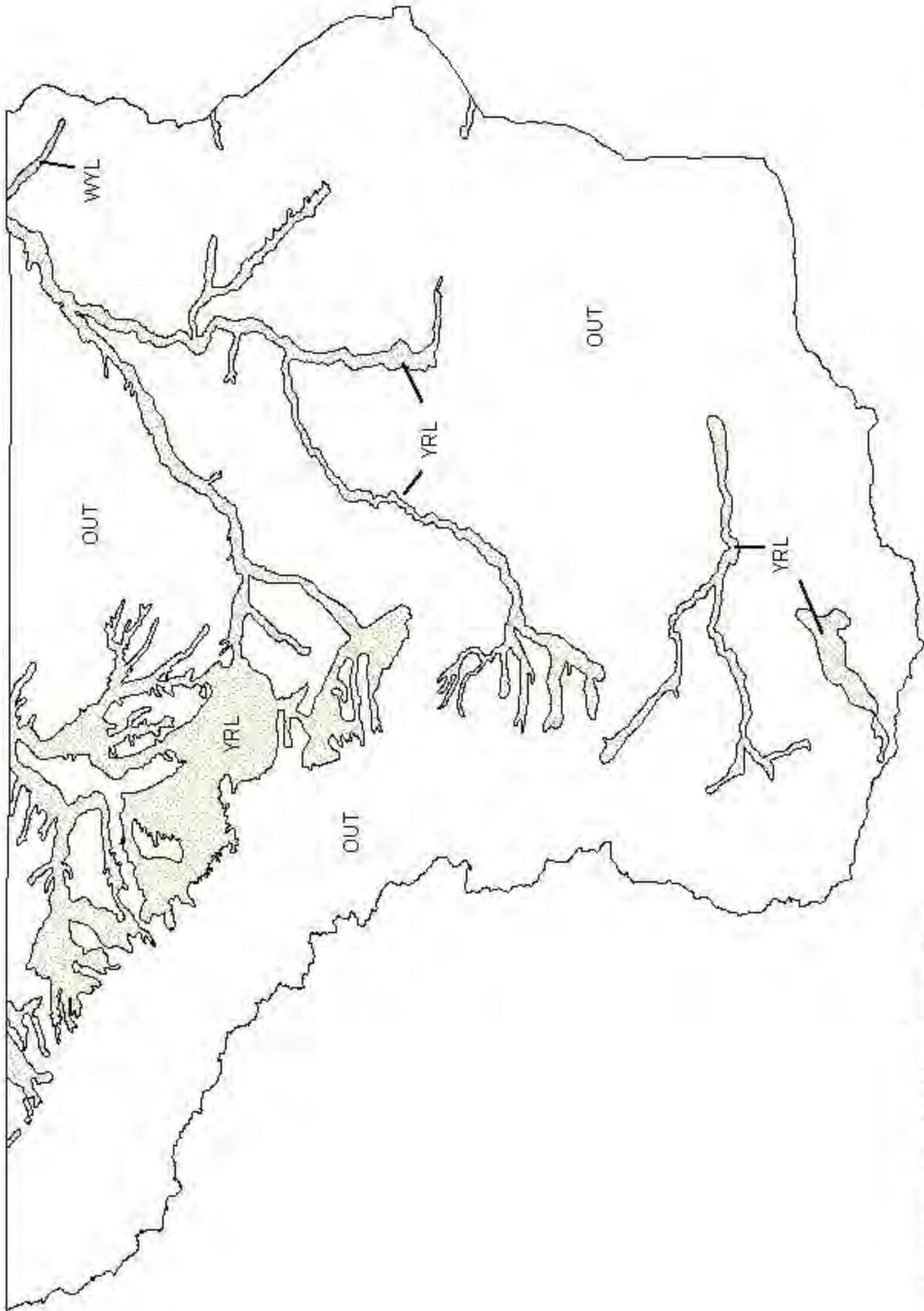
We estimate a harvest of about 6,000 white-tailed deer in 2015, an increase from recent years. The outbreak of EHD in 2013 reduced the number of mature males in the population. Male harvest will probably take 2-3 years to recover to pre-2013 levels (~2,250 bucks/year) while female harvest should remain strong.

We are likely lowering this population in some areas through harvest, but with the numerous refuges available that do not allow hunting within this herd unit, it will be difficult to bring the overall population down to desired levels.

We maintained the nonresident Region C deer quota at 2,100 licenses for the 2015 season. Region C contains Hunt Areas 17-20, 23, 26, 29 and 31. Nonresident deer hunters generally target mule deer as most can hunt white-tailed deer in their home state. White-tailed deer harvest in Region C hunt areas accounts for about 23% of total harvest in this herd unit.

We reduced the nonresident Region Y general license deer quota from 2,000 to 1,800 licenses for 2015. This reduction was intended to reduce mule deer buck harvest in an effort to increase buck numbers and quality of mule deer. Region Y contains Hunt Areas 24, 25, 27, 28, 30, 32, 33, 163 and 169. These hunt areas account for 77% of the white-tailed deer harvest in this herd unit.

We maintained Type 3 (any white-tailed deer) licenses at 2014 levels while buck numbers recover from a 2013 EHD outbreak. We will review these license types for the 2016 season in light of the decreased Region Y general licenses.



White-tailed Deer (WT303) - Powder River  
HA 17, 19, 23-33, 163, 169  
Revised 4/67