WHITE-TAILED DEER

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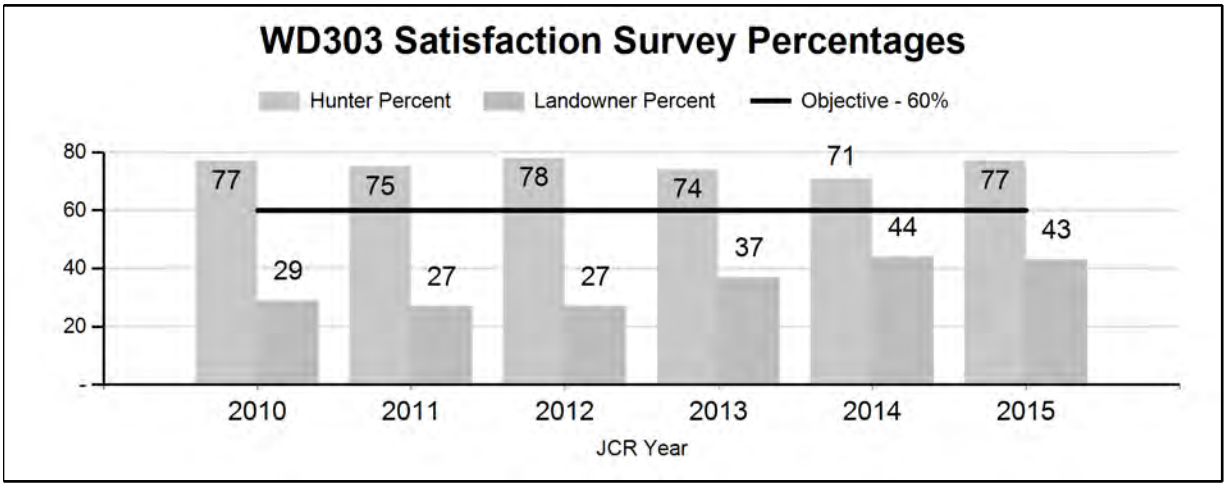
2015 - JCR Evaluation Form

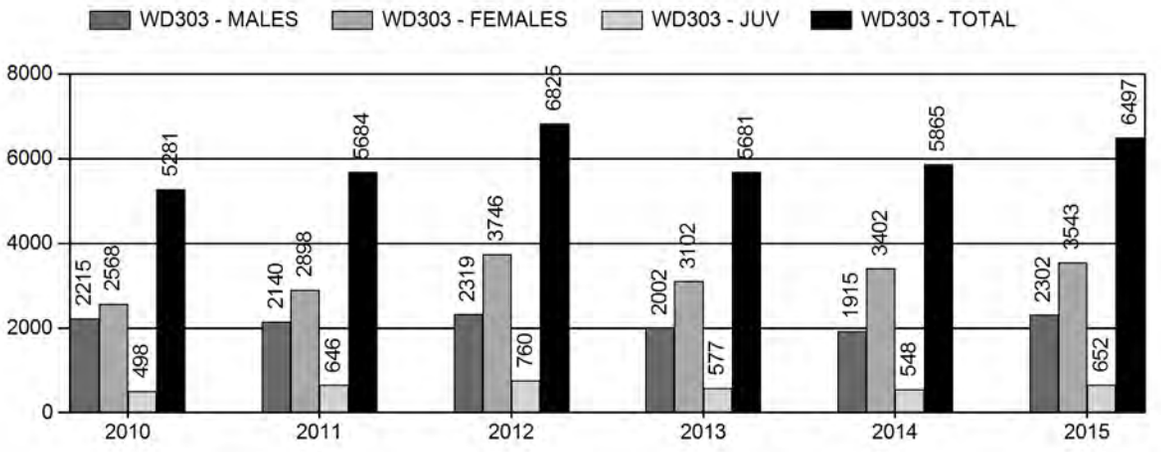
SPECIES: White tailed Deer
PERIOD: 6/1/2015 - 5/31/2016
HERD: WD303 - POWDER RIVER
HUNT AREAS: 17-20, 23-33, 163, 169
PREPARED BY: TIM THOMAS

	2010 - 2014 Average	2015	2016 Proposed
Hunter Satisfaction Percent	75%	77%	77%
Landowner Satisfaction Percent	33%	43%	45%
Harvest:	5,867	6,497	6,500
Hunters:	7,673	8,298	8,300
Hunter Success:	76%	78%	78%
Active Licenses:	9,164	9,633	9,650
Active License Success:	64%	67%	67%
Recreation Days:	39,188	35,930	36,000
Days Per Animal:	6.7	5.5	5.5
Males per 100 Females:	35	39	
Juveniles per 100 Females	68	71	

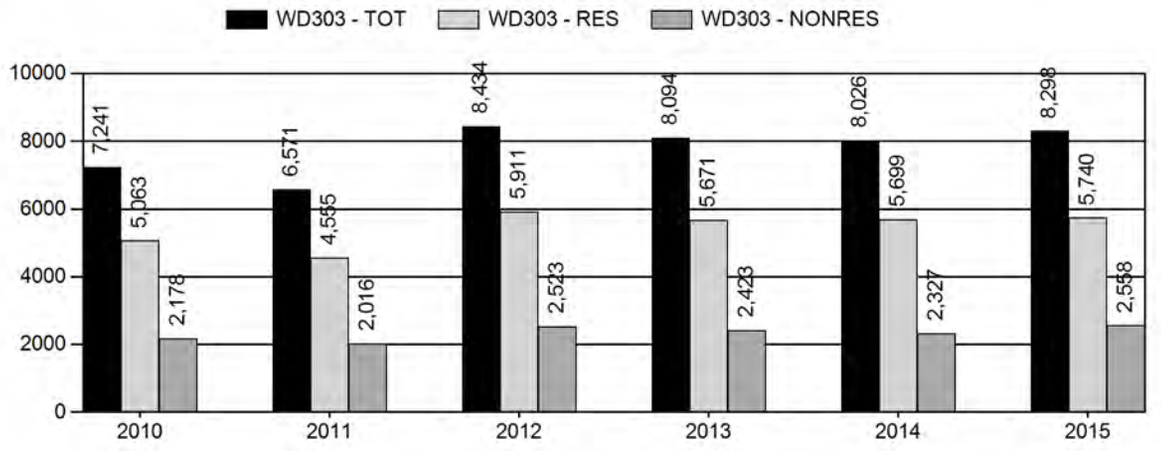
Satisfaction Based Objective	60%
Management Strategy:	Private Land
Percent population is above (+) or (-) objective:	0%
Number of years population has been + or - objective in recent trend:	3



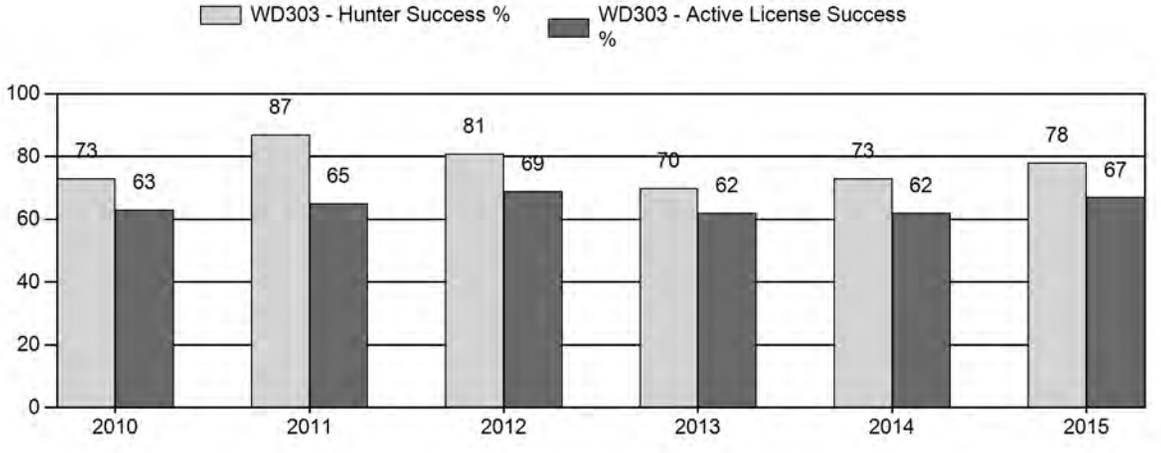
Harvest



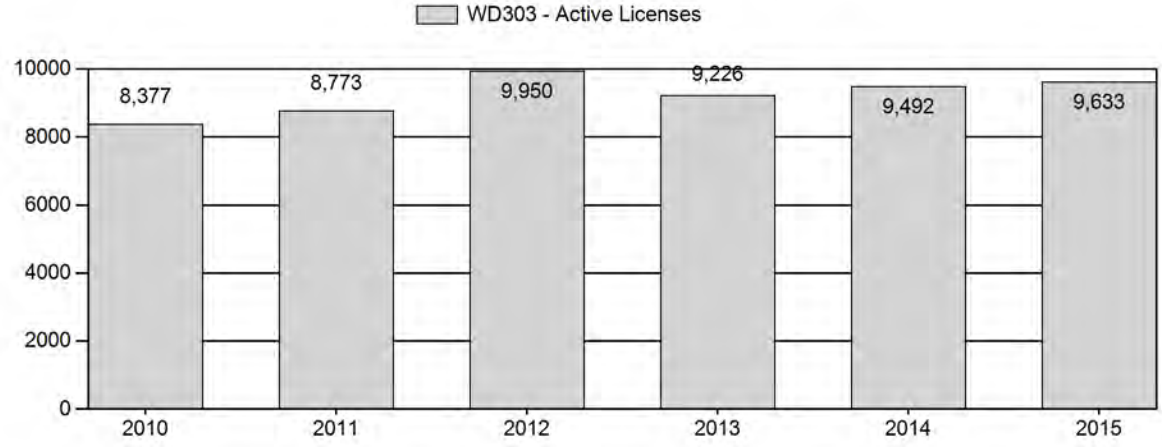
Number of Hunters



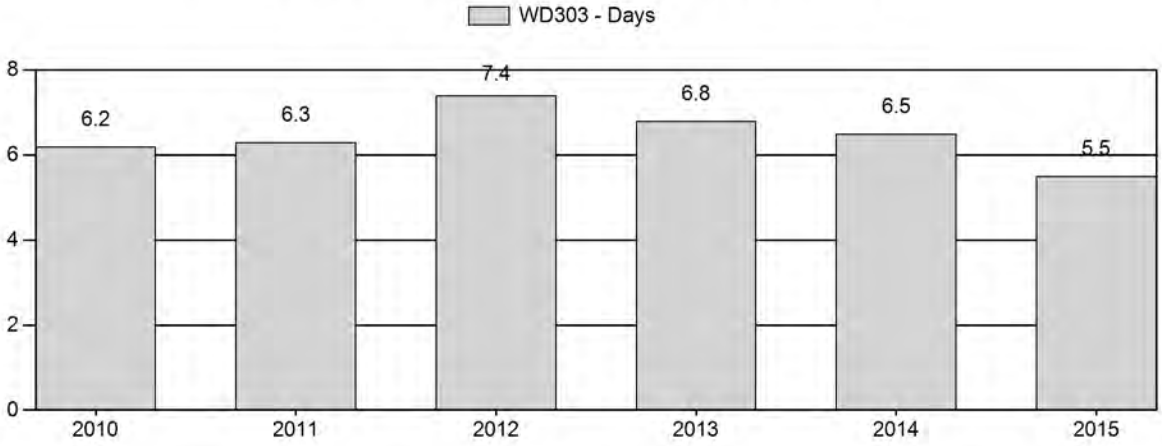
Harvest Success



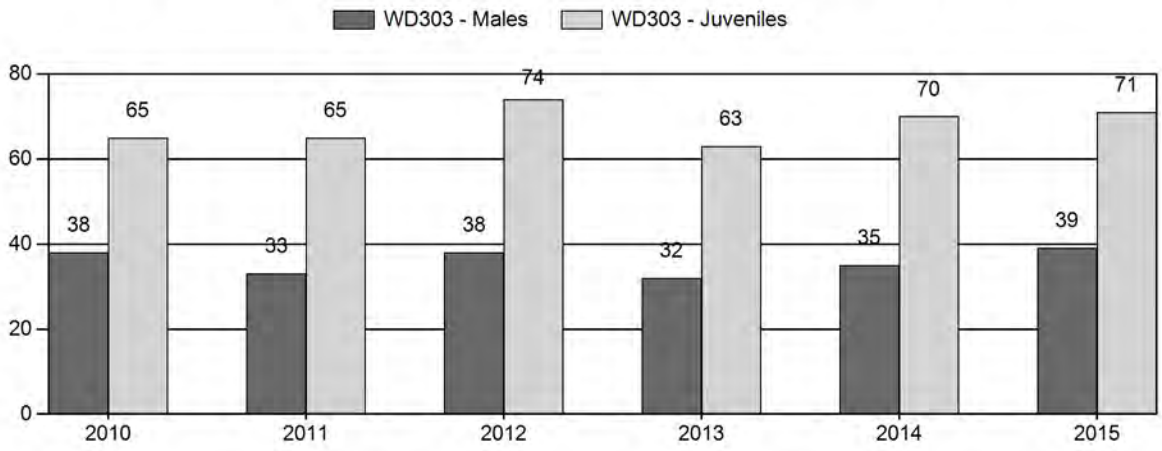
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for White tailed Deer Herd WD303 - POWDER RIVER

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	0	206	375	581	19%	1,483	48%	1,058	34%	3,122	1,554	14	25	39	± 0	71	± 0	51

2016 HUNTING SEASONS
POWDER RIVER WHITE-TAILED DEER HERD (WD303)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
17		Oct. 1	Oct. 20		General	Antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 30		General	Any white-tailed deer
	8	Oct. 1	Nov. 30	250	Limited quota	Doe or fawn white-tailed deer
18		Oct. 1	Oct. 20		General	Antlered mule deer or any white-tailed deer
	8	Oct. 1	Oct. 31	50	Limited quota	Doe or fawn white-tailed deer valid on private land
19		Oct. 1	Oct. 20		General	Antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 15		General	Any white-tailed deer
	6	Oct. 1	Oct. 20	50	Limited quota	Doe or fawn valid on private land
	8	Nov. 1	Nov.15	50	Limited quota	Doe or fawn white-tailed deer
23		Oct. 1	Oct. 14		General	Antlered deer off private land, any deer on private land
		Nov. 1	Nov. 30		General	Any white-tailed deer
23, 26	3	Nov. 1	Nov. 30	100	Limited quota	Any white-tailed deer
	6	Oct. 1	Dec. 15	2,000	Limited quota	Doe or fawn valid on private land
24		Oct. 15	Oct. 31		General	Antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 30		General	Any white-tailed deer
	3	Nov. 1	Nov. 30	200	Limited quota	Any white-tailed deer
	6	Sep. 1	Dec. 15	300	Limited quota	Doe or fawn valid on private land
	8	Sep. 1	Dec. 15	Unlimited	Limited quota	Doe or fawn white-tailed deer
25		Oct. 15	Oct. 24		General	Antlered mule deer or any white-tailed deer
26		Oct. 1	Oct. 14		General	Antlered deer off private land, any deer on private land
		Nov. 1	Nov. 30		General	Any white-tailed deer

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
27		Oct. 15	Oct. 31		General	Antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 30		General	Any white-tailed deer
	8	Sep. 1	Sep. 30	1,200	Limited quota	Doe or fawn white-tailed deer valid on private land
	8	Oct. 15	Dec. 15		Limited quota	Doe or fawn white-tailed deer valid in the entire area
28		Oct. 15	Oct. 24		General	Antlered mule deer or any white-tailed deer
29		Oct. 1	Oct. 14		General	Antlered deer off private land, any deer on private land
		Nov. 1	Nov. 15		General	Any white-tailed deer
		Nov. 16	Dec. 15		General	Antlerless white-tailed deer
	8	Sep. 1	Sep. 30	700	Limited quota	Doe or fawn white-tailed deer valid on private land north of Crazy Woman Creek
	8	Oct. 1	Dec. 15		Limited quota	Doe or fawn white-tailed deer valid in the entire area
30		Oct. 15	Oct. 31		General	Antlered deer off private land, any deer on private land
		Nov. 1	Nov. 30		General	Any white-tailed deer
		Dec. 1	Dec. 15		General	Antlerless white-tailed deer
	8	Sep. 1	Sep. 30	500	Limited quota	Doe or fawn white-tailed deer valid on private land
	8	Oct. 15	Dec. 15		Limited quota	Doe or fawn white-tailed deer valid in the entire area
31		Oct. 1	Oct. 10		General	Antlered deer
32		Oct. 15	Oct. 31		General	Antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 15		General	Any white-tailed deer
32, 163	8	Oct. 15	Nov. 15	50	Limited quota	Doe or fawn white-tailed deer

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
33		Oct. 15	Oct. 31		General	Antlered deer off private land, any deer on private land
		Nov. 1	Nov. 15		General	Any white-tailed deer
		Nov. 16	Dec. 15		General	Antlerless white-tailed deer
	6	Oct. 15	Oct. 31	25	Limited quota	Doe or fawn valid on private land
	8	Sep. 1	Sep. 30	500	Limited quota	Doe or fawn white-tailed deer valid on private land
	8	Oct. 15	Dec. 15		Limited quota	Doe or fawn white-tailed deer valid in the entire area
163		Oct. 15	Oct. 21		General	Antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 15		General	Any white-tailed deer
169		Oct. 15	Oct. 21		General	Antlered mule deer or any white-tailed deer
		Nov. 1	Nov. 15		General	Any white-tailed deer

Special Archery Season Hunt Areas	Season Dates	
	Opens	Closes
17-19, 23-33, 163, 169	Sep. 1	Sep. 30

Region	Deer Hunt Areas	Quotas
C	17-19, 23, 26, 29, 31	2,200
Y	24, 25, 27, 28, 30, 32, 33, 163, 169	1,800

Hunt Area	Type	Quota change from 2014
17	8	+ 50
19	6	+ 25
	8	+ 50
23,26	6	+ 100
24	3	+ 50
	6	- 100
Herd Unit Total	**3**	**+ 50**
	6	**+ 25**
	8	**+ 100**
Region C		**+ 100**
Region Y		**No Change**

Management Evaluation

Current Hunter / Landowner Management Objective: 60% Landowner / Hunter Satisfaction
Secondary Management Objective: 20 bucks:100 does observed minimum
Management Strategy: Private Land
2015 Hunter Satisfaction Estimate: 77%
2015 Landowner Satisfaction Estimate: 43%
Most Recent 3-year Running Average Hunters Satisfaction Estimate: 74%
Most Recent 3-year Running Average Landowner Satisfaction Estimate: 41%

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 early summer of 2015 was generally warm and wet, resulting in good conditions for forage production in the Sheridan Region. Conditions generally became warmer and drier as you went south and east, which is consistent with normal weather patterns, but were still favorable during most of the summer. The fall of 2015 was generally warm and open well into November. The 2015-16 winter was mostly open, with short periods of cold and snowy conditions followed by periods of warm weather. Record El Nino conditions existed in the Pacific Ocean during 2015-16, influencing intermountain west weather patterns. Overall, adults entered the winter in good condition and likely survived the winter well. Fawns likely saw average to above 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 3,122 white-tailed deer, the second highest classification ever recorded in this herd unit. The higher count could have been influenced by snow cover during the survey period, making deer generally more visible. Also, colder temperatures during the survey period 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 71 fawns:100 does, similar to the previous year, but still below the long-term (n=34 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 5 years, with the 2013 outbreak the most extensive and widespread.

Field personnel observed 39 bucks:100 does, an increase over recent years. 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 our secondary management objective of a minimum of 20 bucks:100 does.

During the 2015 season, 77% of hunters (n=1,701) who completed a harvest survey indicated they were satisfied (43%) or very satisfied (35%) with their hunting experience in this herd unit. Excluding Hunt Area 31 (100% satisfaction; n=1) and Hunt Area 169 (0% satisfaction; n=2), at the hunt area level, satisfaction levels varied from 58% (Hunt Area 33; n=118) to 86% (Hunt Area 26; n=117). Hunt areas with higher densities of white-tailed deer tended to have higher satisfaction levels, even in predominately private land hunt areas.

Nonresident hunters were generally more satisfied (78%) than resident hunters (76%). 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 increased slightly in 2015 compared to 2014, possibly in response to recovering deer numbers after the EHD disease outbreak in 2013.

We surveyed landowners to gauge their level of satisfaction with white-tailed deer numbers. One hundred twenty three landowners in HA 17, 18, 19, 23, 24, 26, 27, 29, 30, 32, 33, and 163 completed the white-tailed portion of their survey. Of these landowners, 49% (n=60) indicated white-tailed deer numbers were higher than desired and 43% (n=53) believed numbers were at or near desired levels (Fig. 1). Most respondents (57%, n=70) suggested similar or more liberal (38%, n=46) season strategies for 2016. Based on these data, we appear to be moving in the desired direction with white-tailed deer numbers.

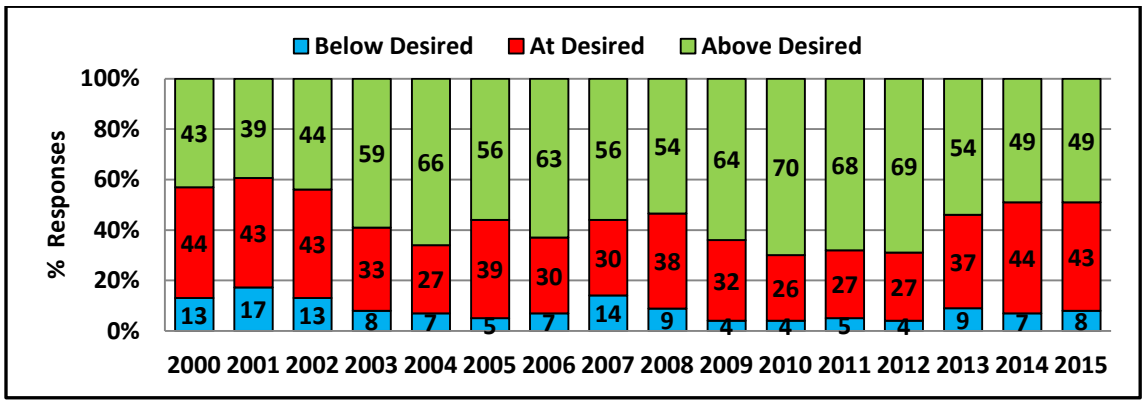


Figure 1. Relative landowner perceptions of white-tailed deer populations on their property in the Powder River White-tailed Deer Herd Unit, by percentage. Desired level is a subjective expression of individual landowner tolerance of white-tailed deer.

Harvest

An estimated 8,298 hunters (5,740 resident hunters; 2,558 nonresident hunters) harvested an estimated 6,497 white-tailed deer in 2015, an increase of 10% from 2014 and the previous 5 year mean (2001-2014; n=5,867). This is the second highest harvest ever in this herd unit. Hunters harvested an estimated 2,302 bucks, 3,543 does and 652 fawns. Both buck and fawn harvest increased significantly (20% and 19% respectively) in 2015 while doe harvest increased only slightly (4%).

The hunter success rate was 78%, up slightly from 2014 (73%) and near the previous 5 year average of 77%. Effort, as measured by days hunted per deer harvested, was 5.5 days/harvest, a decrease from 2014. This was the lowest effort rate observed in over 20 years in this herd unit.

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 2015 season. This could have been a function open, mild weather conditions during much of the season, resulting in very favorable hunting conditions.

Population

High white-tailed deer harvest in recent years (2011-2015; 5-year mean=6,110) suggests this population is robust. 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 21,600 deer postseason (Fig. 2). Assuming hunters harvested 10% of the available bucks, this population would be about 23,000 white-tailed deer postseason based on 2015 buck harvest (Fig. 2). These are relatively broad, generic estimates but demonstrate that this white-tailed deer population is doing very well.

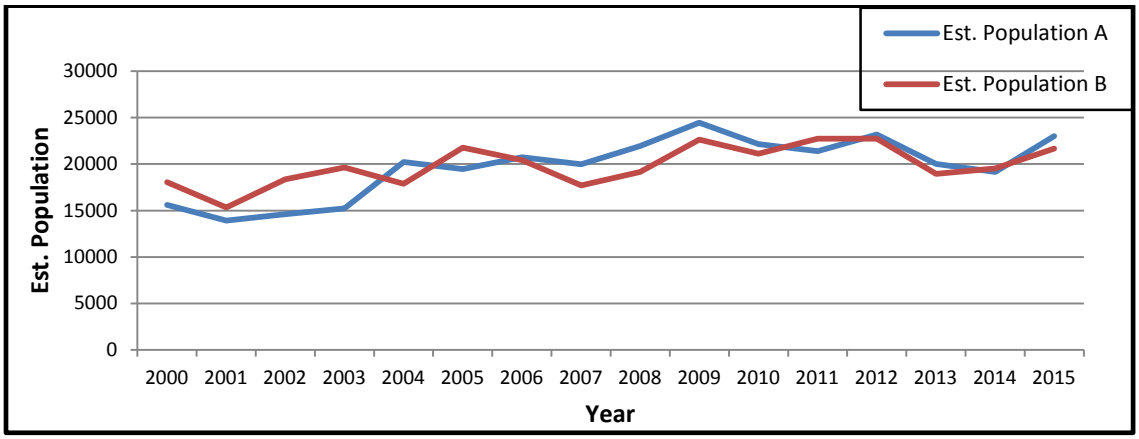


Figure 2. Estimated Powder River white-tailed deer population based on estimated harvest rates during the 2000-2015 hunting seasons. The estimated Population A (blue line) is based on harvesting 10% of available bucks. The estimated Population B (red line) is based on total harvest being 15-30% of total population.

We believe we have reduced this population through increased harvest over the past decade. We harvested an average of 5,582 white-tailed deer annually (average of: 2,161 bucks; 2,901 does; 520 fawns) during the 2006-2015 hunting seasons, compared to an average of 2,668 white-tailed deer harvested annually (average of: 1,436 bucks; 1,009 does; 223 fawns) during the 1996-2005 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.

The deer Hunt Area 17 boundary was changed to correspond with antelope Hunt Area 17. Basically we moved the western half of deer Area 18 into deer Area 17, decreasing Area 18 and increasing Area 17. Also, deer Area 19 was expanded to incorporate all of deer Area 20, which was eliminated. The herd unit boundary did not change due to any hunt area boundary changes.

We increased Type 8 licenses in Area 17 to account for the larger area now in that hunt area. We increased Area 19 Type 6 licenses by 25 and added a Type 8 license (50 licenses) to address deer damage issues on specific ranches.

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.

We increased Type 3 licenses in Area 24 to provide some additional opportunity, and reduced Type 6 licenses slightly to limit mule deer harvest on these licenses.

We eliminated the general license extension into December in Areas 24 and 27 to simplify regulations. There are sufficient Type 8 licenses in both hunt areas to address desired harvest.

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.

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 2015, 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 100-125 white-tailed deer at these baits sites in 2015. We are not aware of any problems with this program during the 2015 season. We plan to make these permits available as appropriate for the 2016 season.

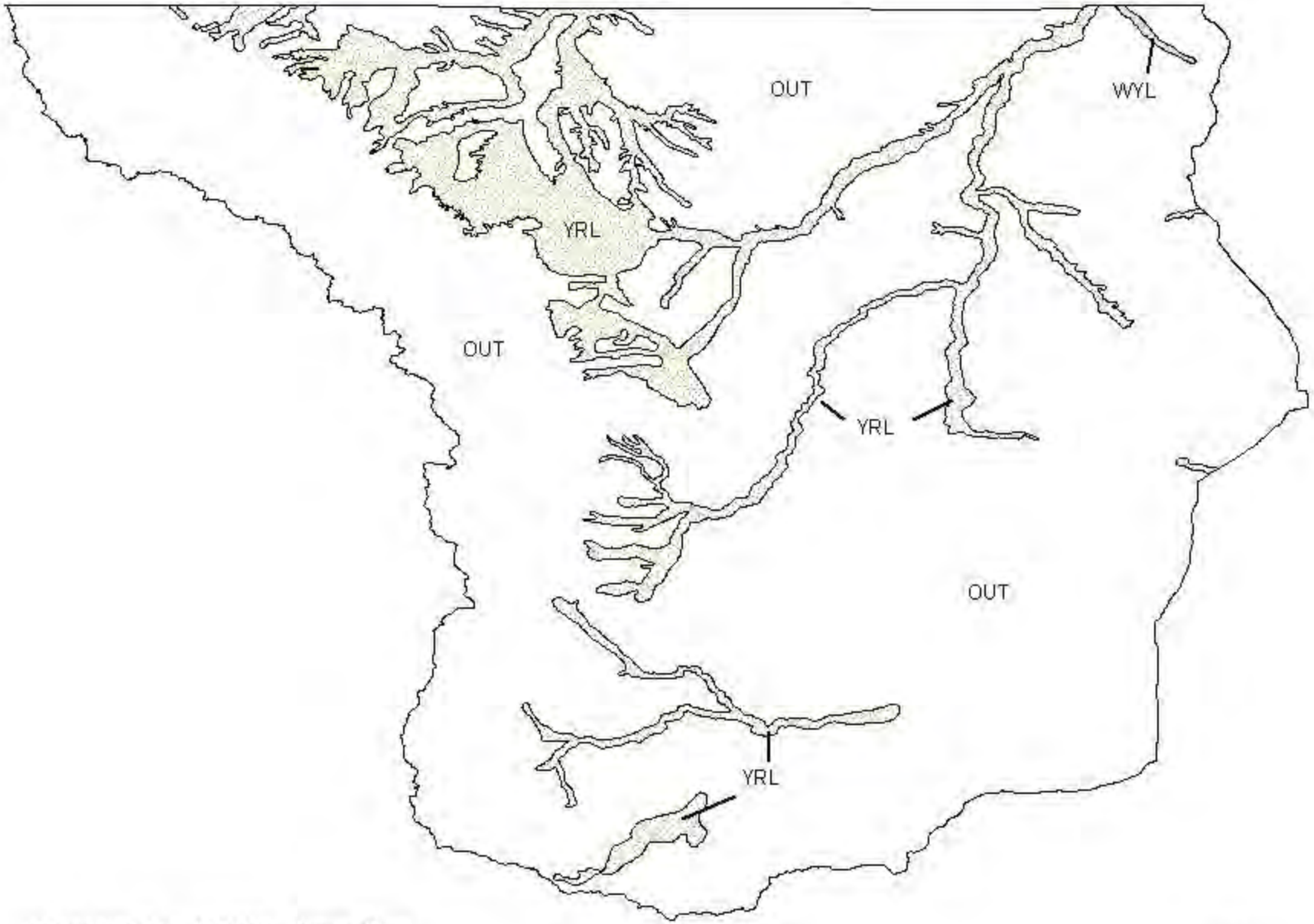
We estimate a harvest of about 7,000 white-tailed deer in 2016, an increase from recent years. Buck deer are recovering well following the 2013 EHD outbreak. Antlerless harvest continues to be strong.

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 increased the nonresident Region C deer quota from 2,100 to 2,200 licenses for the 2016 season. Region C contains Hunt Areas 17-19, 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 accounted for about 28% of total harvest in this herd unit in 2015.

We maintained the nonresident Region Y general license deer quota at 1,800 licenses for 2016. Region Y contains Hunt Areas 24, 25, 27, 28, 30, 32, 33, 163 and 169. These hunt areas accounted for 72% of the white-tailed deer harvest in this herd unit during 2015.

We increased Type 3 (any white-tailed deer) licenses by 50 in 2016 to provide additional opportunity. We will likely return to pre-2013 levels for the 2017 season as this population recovers from a 2013 EHD outbreak.



White-tailed Deer (WT303) - Powder River
HA 17, 19, 23-33, 163, 169
Revised 4/87