

# **WHITE-TAILED DEER**

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## 2012 - JCR Evaluation Form

SPECIES: White tailed Deer

PERIOD: 6/1/2012 - 5/31/2013

HERD: WD303 - POWDER RIVER

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

PREPARED BY: TIM THOMAS

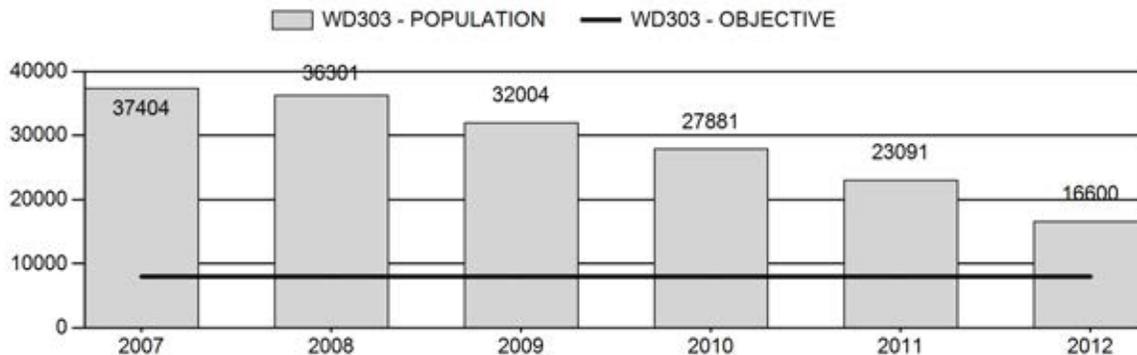
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	31,336	16,600	9,122
Harvest:	5,168	6,825	6,550
Hunters:	6,986	8,434	8,400
Hunter Success:	74%	81%	78%
Active Licenses:	8,245	9,950	10,000
Active License Percent:	63%	69%	66%
Recreation Days:	34,873	50,230	47,000
Days Per Animal:	6.7	7.4	7.2
Males per 100 Females	35	38	
Juveniles per 100 Females	68	74	

Population Objective:	8,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	108%
Number of years population has been + or - objective in recent trend:	12
Model Date:	03/06/3012

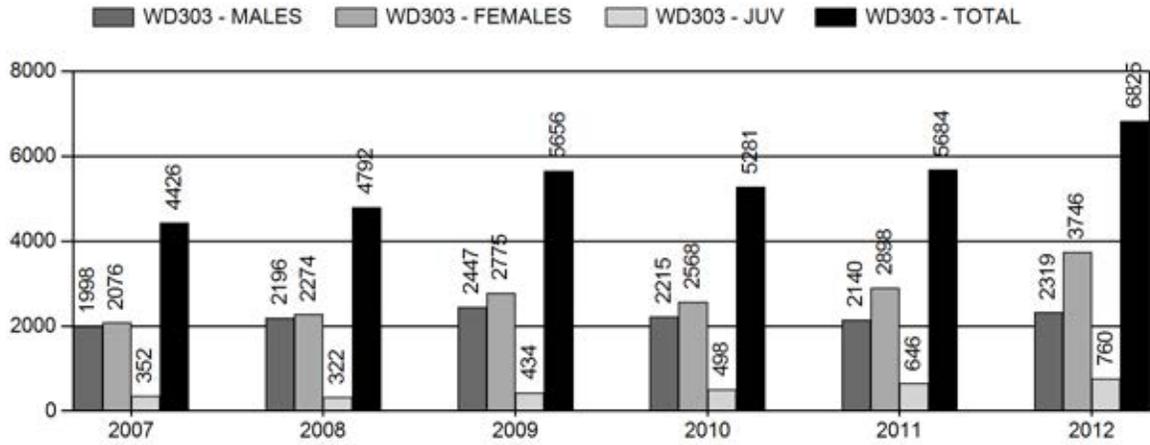
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	38%	54%
Males ≥ 1 year old:	33%	43%
Juveniles (< 1 year old):	13%	23%
Total:	28%	40%
Proposed change in post-season population:	-18%	-32%

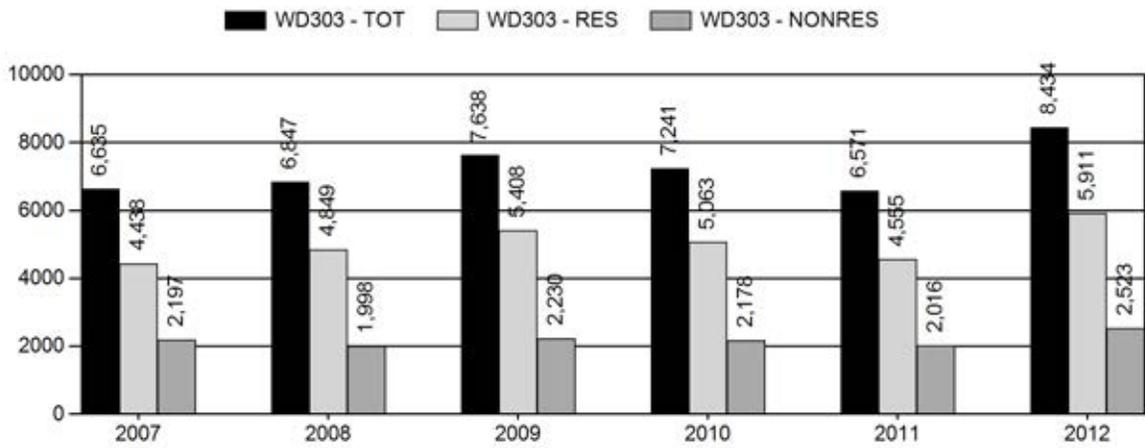
### Population Size - Postseason



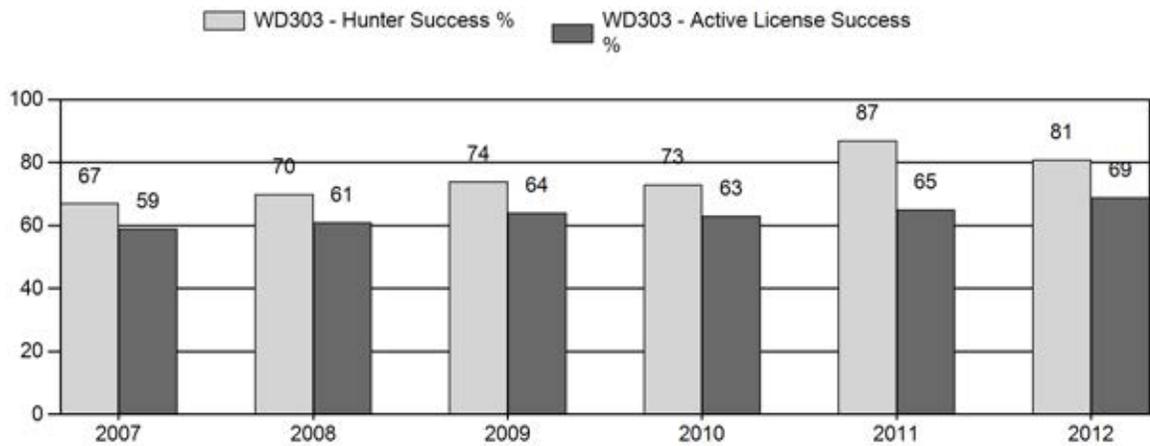
# Harvest



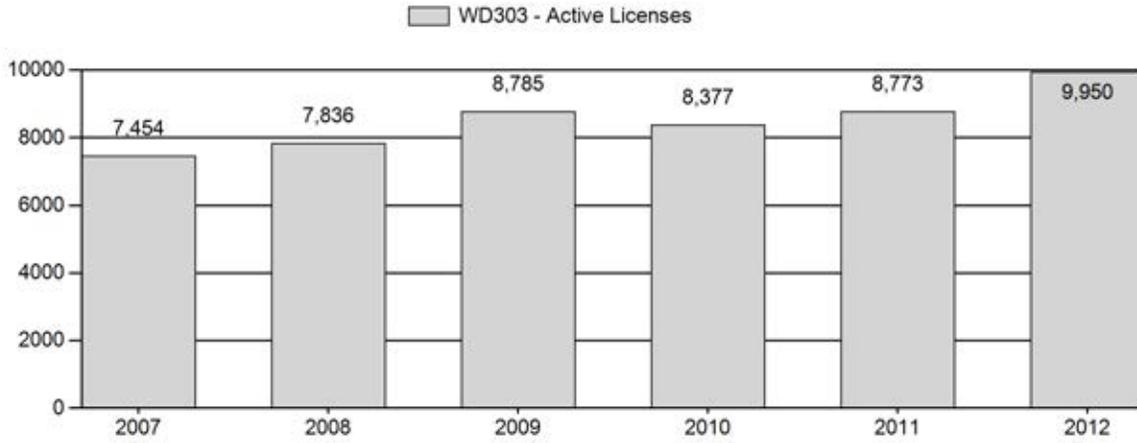
# Number of Hunters



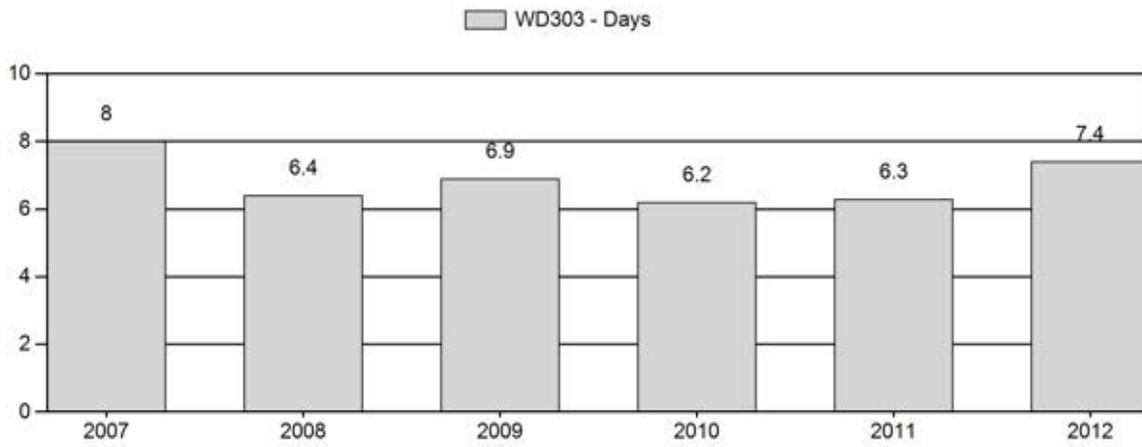
# Harvest Success



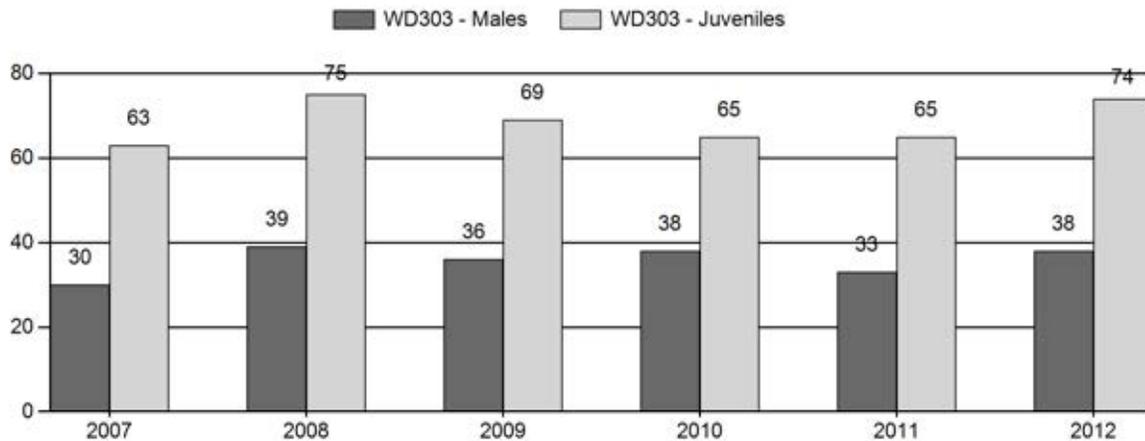
# Active Licenses



# Days per Animal Harvested



# Postseason Animals per 100 Females



## 2007 - 2012 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
2007	37,404	139	257	396	16%	1,319	52%	836	33%	2,551	1,200	11	19	30	± 2	63	± 3	49
2008	36,301	173	312	485	18%	1,251	47%	936	35%	2,672	1,631	14	25	39	± 3	75	± 4	54
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 HUNTING SEASONS  
POWDER RIVER WHITE-TAILED DEER HERD (WD303)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
17	8	Oct. 1	Oct. 20	200	General license; antlered mule deer or any white-tailed deer
		Nov. 1 Oct. 1	Nov. 30 Nov. 30		General license; any white-tailed deer Limited quota licenses; doe or fawn white-tailed deer
18	6	Oct. 1	Oct. 20	50	General license; antlered mule deer or any white-tailed deer
		Oct. 1	Oct. 20		Limited quota licenses; doe or fawn valid on private land
19	6	Oct. 1	Oct. 20	25	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. 31		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	1,500	Limited quota licenses; doe or fawn valid on private land
24	3	Oct. 15	Oct. 31	300	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
		Nov. 1	Nov. 30		Limited quota licenses; any white-tailed deer
24	6	Sep. 1	Dec. 15	600	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. 31		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 General license; any white-tailed deer
		Nov. 1	Nov. 30		
27	8	Oct. 15	Oct. 31	1,200	General license; any deer General license; any white-tailed deer General license; antlerless white-tailed deer Limited quota licenses; doe or fawn white-tailed deer valid on private land Unused Area 27 Type 8 licenses valid in the entire area
		Nov. 1	Nov. 30		
		Dec. 1	Dec. 31		
		Sep. 1	Sep. 30		
		Oct. 15	Dec. 31		
28		Oct. 15	Oct. 31		General license; antlered mule deer or any white-tailed deer
29	8	Oct. 1	Oct. 14	700	General license; antlered deer off private land, any deer on private land General license; any white-tailed deer General license; antlerless white-tailed deer Limited quota licenses; doe or fawn white-tailed deer valid on private land north of Crazy Woman Creek Unused Area 29 Type 8 licenses valid in the entire area
		Nov. 1	Nov. 15		
		Nov. 16	Dec. 31		
		Sep. 1	Sep. 30		
		Oct. 1	Dec. 31		
30	8	Oct. 15	Oct. 31	700	General license; any deer General license; any white-tailed deer General license; antlerless white-tailed deer Limited quota licenses; doe or fawn white-tailed deer valid on private land Unused Area 30 Type 8 licenses valid in the entire area
		Nov. 1	Nov. 30		
		Dec. 1	Dec. 31		
		Sep. 1	Sep. 30		
		Oct. 15	Dec. 31		
31		Oct. 1	Oct. 10		General license; antlered deer
32		Oct. 15	Oct. 31		General license; any deer General license; any white-tailed deer
		Nov. 1	Nov. 15		
32,163	8	Oct. 15	Nov. 15	50	Limited quota licenses; doe or fawn white-tailed deer

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
33		Oct. 15	Oct. 31		General license; any deer
		Nov. 1	Nov. 15		General license; any white-tailed deer
		Nov. 16	Dec. 15		General license; antlerless white-tailed deer
	6	Oct. 15	Nov. 30	50	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 4 of this Chapter

Hunt Area	Type	Quota change from 2012
17	8	+ 125
18	6	+ 50
19,20	6	- 25
23,26	6	+ 300
24	6	-600
24	8	Change to Unlimited
25	6	- 50
27	8	+ 200
29	6	- 50
	8	+ 200
30	8	+ 200
33	6	+ 50
<b>Herd Unit Total</b>	<b>6</b>	<b>- 325</b>
	<b>8</b>	<b>+ 725</b>
<b>Region C</b>		<b>- 200</b>

## **Management Evaluation**

**Current Postseason Population Management Objective: 8,000**

**Management Strategy: Recreational**

**2012 Postseason Population Estimate: ~ 16,600**

**2013 Proposed Postseason Population Estimate: ~ 9,100**

## **Herd Unit Issues**

The management objective for the Powder River White-tailed Deer Herd Unit is a post-season population objective of 8,000 white-tailed deer. The management strategy is recreational management. The objective and management strategy were last revised in 1996.

We do not have a reliable population estimate at this time although we are confident it is significantly higher than the management objective. The spreadsheet model developed for white-tailed deer populations with postseason classifications does not function well.

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. In an effort to increase harvest in some of these areas, we will allow the use of buckshot (00 or bigger) and controlled baiting starting with the 2013 season.

## **Weather**

The spring and summer of 2012 was warm and dry, resulting in drought conditions throughout the region. The winter of 2012-13 was generally mild and open until late January, when several winter storms occurred weekly through February and again in April. It is unclear how drought conditions may be affecting white-tailed deer, as they generally utilize riparian habitats or irrigated crop lands, which should negate or moderate any adverse effects.

## **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 crop lands 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 eliminated in some woody draw communities along the Bighorn Mountains.

## **Field Data**

Fawn production was 74 fawns:100 does, an increase from the previous three years, and similar to the long-term (n=23 years) average of 75 fawns:100 does. This level of fawn production seems more than adequate to grow the population without sufficient harvest to temper that growth. Field personnel observed 38 bucks:100 does, similar to recent years. We are likely maintaining a high buck:doe ratio due to the increased harvest of females and restricted access for harvesting bucks.

During the 2012 season, 78% hunters (n=1,572) who completed a harvest survey indicated they were satisfied (41%) or very satisfied (37%) with their hunting experience in this herd unit. At the hunt area level, there was higher levels of dissatisfaction in hunt areas with low deer densities and/or limited distribution of white-tailed deer, specifically Areas 25, 28, 163 and 166.

Nonresident hunters were more often satisfied (88%) than resident hunters (75%). This is likely a function of access to private lands through trespass fees or outfitted hunts which cater more to nonresidents than resident hunters. There is limited buck hunting opportunity for resident hunters in this herd unit.

## **Harvest**

Hunters harvested an estimated 6,852 white-tailed deer in 2012, the highest harvest ever recorded in this herd unit and a 20% increase over 2011. Hunter success rate was 80% and effort, as measured by days hunted per deer harvested, was 7.1 days/harvest. It is difficult to use these data to infer population dynamics for white-tailed deer. There are numerous variables that influence annual harvest statistics, including access in private lands areas and changes in deer distribution. Also, the ability of an individual to purchase unlimited Type 8 licenses influences these statistics.

## **Population**

White-tailed deer harvest in recent years suggest this population is significantly higher than the management objective of 8,000 deer. The current population for 2012 is 16,600 based on spreadsheet modeling. This is likely unrealistically low.

The “Constant Juvenile – Constant Adult Survival Rate” (CJ,CA) spreadsheet model was chosen to estimate the post-season population for this herd. We do not have much confidence in the current spreadsheet model for this herd unit for several reasons, including: all models have a high AICs value (293-393); we do not have survival data for this or any white-tailed deer herd in Wyoming; and we do not have an independent population estimate. We consider this a “poor” model.

Of landowners that completed an annual survey (n=73), 71% (n=51) indicated white-tailed deer numbers were higher than desired and 25% (n=18) believed numbers were at or near desired levels. All respondents suggested similar (41%) or more liberal (59%) season strategies for 2013.

## **Management Summary**

The regular hunting season for white-tailed deer have generally been concurrent with mule deer seasons during October, as well as during November. An archery pre-season runs the month of September. Seasons for antlerless white-tailed deer have been extended as early as September 1 and as late as December 31 to provide additional opportunities to harvest deer as well as address damage concerns of landowners. 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 an outfitter. Access for antlerless harvest is generally easier, with several landowners on a list allowing free access.

There were changes to legal firearm calibers for the 2013 season. Hunters will be able use buck shot (00 or bigger) in shotguns and .22 or larger centerfire cartridges (60 grain minimum bullet weight) starting with the 2013 season. Landowners will also be able to bait white-tailed deer - with a permit - starting in 2013. These changes could help increase harvest of white-tailed deer in areas with safety concerns such as rural developments.

We estimated a harvest of about 6,550 white-tailed deer in 2013, similar to the 2012 harvest. We are likely lowering this population in some areas through harvest, but with the numerous refuges that do not allow hunting within this herd unit, it will be difficult to bring this population down to the established management objective. The management objective should be reviewed in the near future.

## Deer Control within Cities of Buffalo and Sheridan

High deer numbers within and adjacent to the Cities of Buffalo and Sheridan have resulted in numerous conflicts, including damage to landscaping, deer-vehicle collisions, and deer-dog interactions. As a result the cities of Buffalo and Sheridan continued their urban deer reduction programs in 2012. Below is summary of these efforts. Complete reports in compliance with their respective Chapter 56 report are on file at the Casper Regional Office.

### **Buffalo**

This was the fourth year the city of Buffalo removed deer within the city limits. Sixty-one deer (51 white-tail deer and 10 mule deer) were removed over five days, all of which tested negative for chronic wasting disease. The deer were processed and donated to the food pantry. A summary of the Buffalo program is provided in Table 1.

**Table 1. City of Buffalo Deer Reduction Program Summary, 2009-2012.**

	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
<b>No Deer Permitted</b>	50	75	100	60
<b>No. of Days</b>	2	5	4	5
<b>Mule Deer</b>	16	16	35	10
<b>White-tailed Deer</b>	34	59	26	51
<b>Total</b>	<b>50</b>	<b>75</b>	<b>61</b>	<b>61</b>
<b>CWD Positive</b>	0	3 WTD	0	0

### **Sheridan**

In 2011, 100 deer were taken, including 51 mule deer and 49 white-tailed deer. Mule deer taken included 29 adult does, 21 fawns and 1 adult buck that was already injured (broken leg).

In 2012, 81 deer were taken, including 42 mule deer and 39 white-tailed deer. One fawn mule deer appeared sick and was disposed of at the Sheridan landfill.

All deer have tested negative for chronic wasting disease (CWD). All deer are either donated whole to individuals or processed and donated to food banks.

Any calls of nuisance deer are referred to the Police Department to specifically target problem deer.

**INPUT**  
 Species: White-Tailed Deer  
 Biologist: Timothy P. Thomas  
 Herd Unit & No.: Powder River  
 Model date: 03/06/13

Clear form

MODELS SUMMARY		Relative AICc	Fit	Notes
CJ,CA	Constant Juvenile & Adult Survival	293	284	
SCJ,S CA	Semi-Constant Juvenile & Semi-Constant Adult Survival	393	384	<input checked="" type="checkbox"/> CJ,CA Model <input type="checkbox"/> SCJ,S CA Mod
TSJ,J,CA	Time-Specific Juvenile & Constant Adult Survival	318	199	<input type="checkbox"/> TSJ,CA Model

Check best model to create report

Year	Posthunt Population Est. Field Est	Field SE	Trend Count	Predicted Prehunt Population		Predicted Posthunt Population		Total	Objective		
				Juveniles	Total Males	Females	Total			Juveniles	Total Males
1993				8478	7650	13074	29202	6382	11892	26546	8000
1994				8895	7739	12973	29608	6284	11756	26728	8000
1995				10789	7715	12933	31437	6584	12068	29280	8000
1996				9297	8409	13618	31324	7289	12383	28805	8000
1997				9217	8760	13619	31596	7706	12930	29652	8000
1998				11801	9148	14110	35059	7449	13409	32553	8000
1999				13023	9447	15108	37578	8445	14475	35702	8000
2000				13236	10612	16342	40190	8895	15327	37212	8000
2001				13349	11083	17193	41624	9551	16437	39095	8000
2002				13424	11730	18271	43425	10124	17077	40398	8000
2003				16727	12292	18897	47916	10617	17560	44676	8000
2004				12635	13430	20025	46090	11203	18592	42153	8000
2005				15080	13147	20167	48393	11005	18059	43599	8000
2006				11788	13400	20101	45290	11118	17215	39671	8000
2007				10761	12859	18652	42272	10662	16368	37404	8000
2008				11690	12231	17652	41572	9815	15150	36301	8000
2009				9915	11621	16680	38225	8929	13637	32004	8000
2010				8428	10395	14868	33690	7959	12043	27881	8000
2011				7148	9157	13037	29343	6803	9849	23091	8000
2012				5678	7768	10661	24108	5217	6541	16600	8000
2013				3194	5937	7195	16327	3407	3345	9122	8000
2014											8000
2015											8000
2016											8000
2017											8000
2018											8000
2019											8000
2020											8000
2021											8000
2022											8000
2023											8000
2024											8000
2025											8000

Survival and Initial Population Estimates

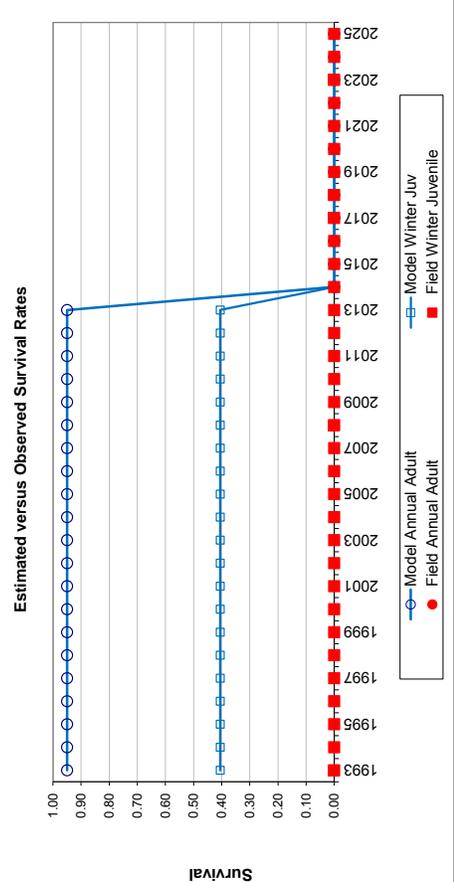
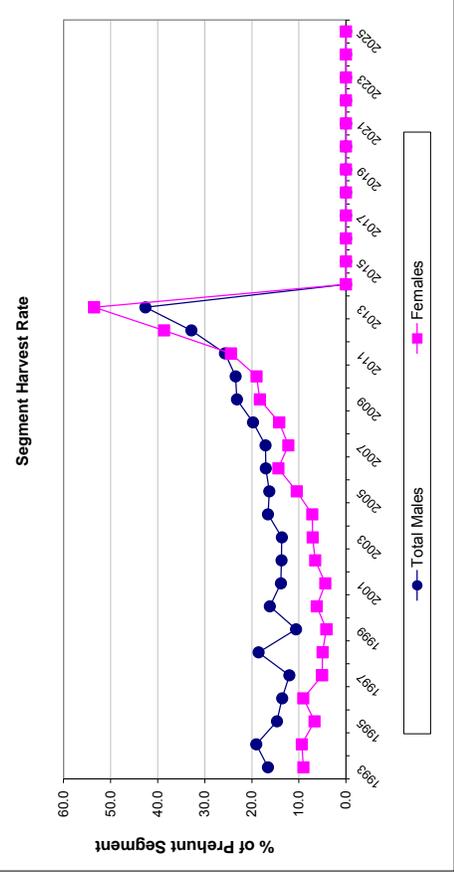
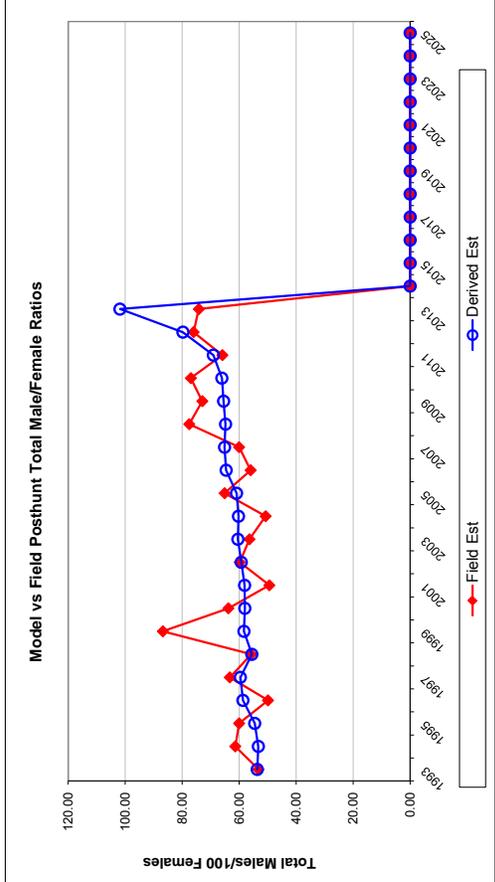
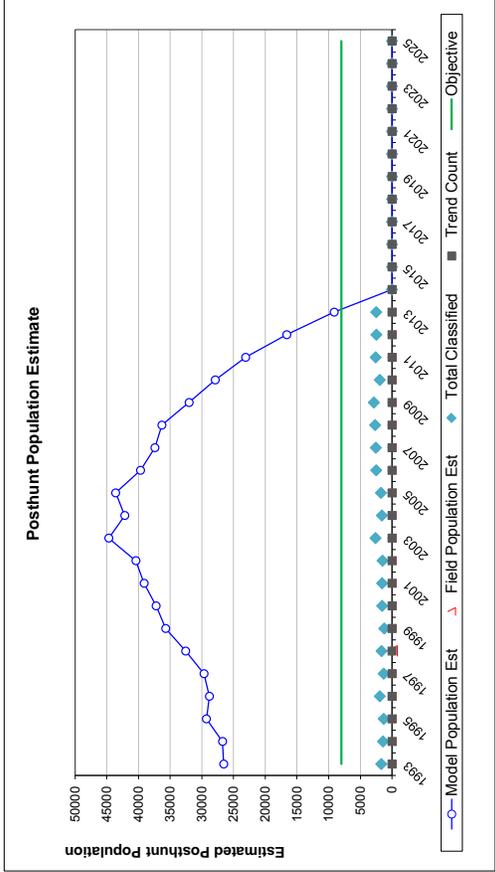
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.41		0.95	
1994	0.41		0.95	
1995	0.41		0.95	
1996	0.41		0.95	
1997	0.41		0.95	
1998	0.41		0.95	
1999	0.41		0.95	
2000	0.41		0.95	
2001	0.41		0.95	
2002	0.41		0.95	
2003	0.41		0.95	
2004	0.41		0.95	
2005	0.41		0.95	
2006	0.41		0.95	
2007	0.41		0.95	
2008	0.41		0.95	
2009	0.41		0.95	
2010	0.41		0.95	
2011	0.41		0.95	
2012	0.41		0.95	
2013	0.41		0.95	
2014				
2015				
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

Parameters:	Optim cells
Juvenile Survival =	0.405
Adult Survival =	0.950
Initial Total Male Pop/10,000 =	0.638
Initial Female Pop/10,000 =	1.189

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

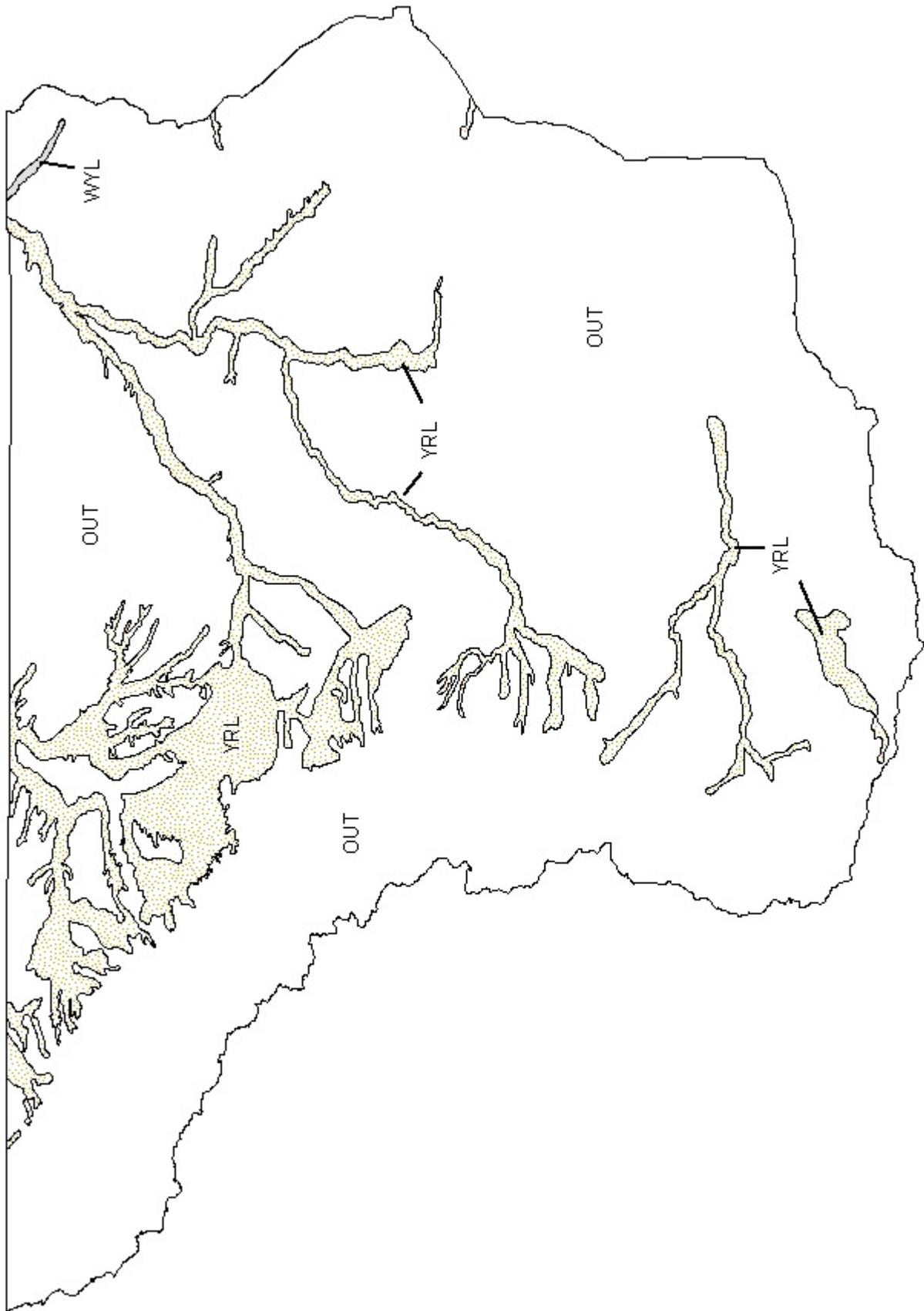
Year	Classification Counts										Harvest			
	Juvenile/Female Ratio					Total Male/Female Ratio					Segment Harvest Rate (% of Prehunt Segment)			
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/o buck adj	Field Est w/ buck adj	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females	
1993		69.56	3.69	53.67	53.24	26.62	1.98	187	1153	1075	2415	16.6	9.0	
1994		74.06	4.31	53.28	61.38	30.69	2.40	171	1341	1106	2618	19.1	9.4	
1995		88.06	5.24	54.56	60.03	30.02	2.54	147	1028	786	1961	14.7	6.7	
1996		73.92	3.64	58.70	49.90	24.95	1.79	131	1036	1123	2290	13.6	9.1	
1997		69.72	4.25	59.60	63.30	31.65	2.52	183	958	626	1767	12.0	5.1	
1998		87.22	4.61	55.56	55.80	27.90	2.16	96	1544	638	2278	18.6	5.0	
1999		88.30	5.60	58.34	86.79	43.40	3.43	219	1561	575	1705	10.6	4.2	
2000		84.74	4.66	58.04	63.80	31.90	2.42	225	1561	922	2708	16.2	6.2	
2001		79.74	4.33	58.11	49.41	24.71	2.01	220	1392	687	2299	13.8	4.4	
2002		77.29	4.36	59.28	59.83	29.92	2.32	206	1460	1086	2752	13.7	6.5	
2003		93.95	3.94	60.46	56.39	28.19	1.75	208	1522	1215	2945	13.6	7.1	
2004		66.47	3.65	60.26	50.72	25.36	1.95	252	2024	1303	3579	16.6	7.2	
2005		80.49	4.21	60.94	65.12	32.56	2.29	495	1947	1916	4358	16.3	10.5	
2006		65.86	2.91	64.58	55.99	27.99	1.67	409	2075	2624	5108	17.0	14.4	
2007		63.38	2.80	65.14	60.05	30.02	1.72	352	1988	2076	4426	17.1	12.2	
2008		74.82	3.23	64.78	77.54	38.77	2.07	322	2196	2274	4792	19.8	14.2	
2009		69.20	2.90	65.48	72.94	36.47	1.89	434	2447	2775	5656	23.2	18.3	
2010		65.43	3.38	66.09	76.96	38.48	2.37	498	2215	2568	5281	23.4	19.0	
2011		65.36	2.88	69.07	65.90	32.95	1.83	646	2140	2898	5684	25.7	24.5	
2012		74.03	3.33	79.76	76.01	38.01	2.12	760	2319	3746	6825	32.8	38.6	
2013		70.83	3.18	101.86	74.17	37.08	2.06	750	2300	3500	6550	42.6	53.5	
2014														
2015														
2016														
2017														
2018														
2019														
2020														
2021														
2022														
2023														
2024														
2025														

FIGURES



Comments:

END



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