

## 2010 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2010 - 5/31/2011

HERD: MD319 - POWDER RIVER

HUNT AREAS: 17-18, 23, 26

PREPARED BY: HEATHER  
O'BRIEN

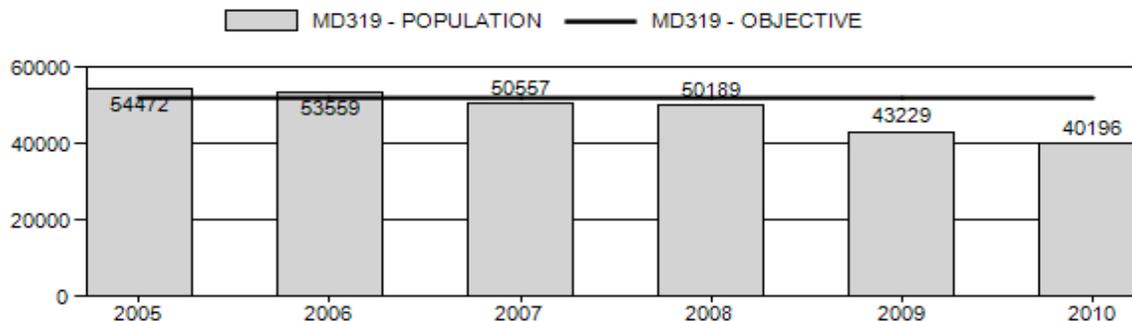
	<u>2005 - 2009 Average</u>	<u>2010</u>	<u>2011 Proposed</u>
Population:	50,401	40,196	37,715
Harvest:	3,684	2,925	2,230
Hunters:	5,141	4,519	3,500
Hunter Success:	72%	65%	64%
Active Licenses:	5,348	4,704	3,600
Active License Percent:	69%	62%	62%
Recreation Days:	20,481	18,160	14,900
Days Per Animal:	5.6	6.2	6.7
Males per 100 Females	38	34	
Juveniles per 100 Females	67	62	

Population Objective:	52,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-22.7%
Number of years population has been + or - objective in recent trend:	2
Model Date:	4/5/2011

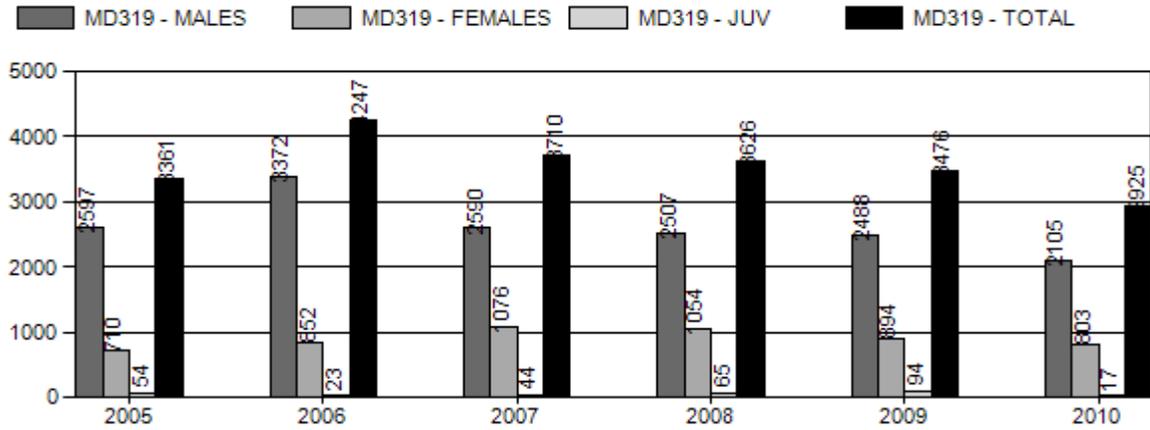
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	3.9%	2.3%
Males ≥ 1 year old:	19.2%	18.9%
Juveniles (< 1 year old):	.1%	.1%
Total:	6.74%	5.55%
Proposed change in post-season population:	-11.9%	-44.5%

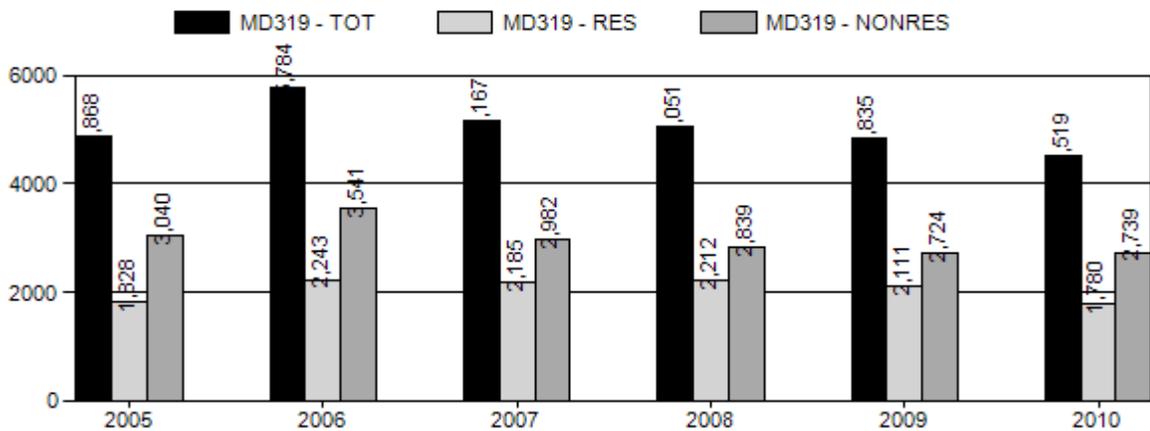
### Population Size - Postseason



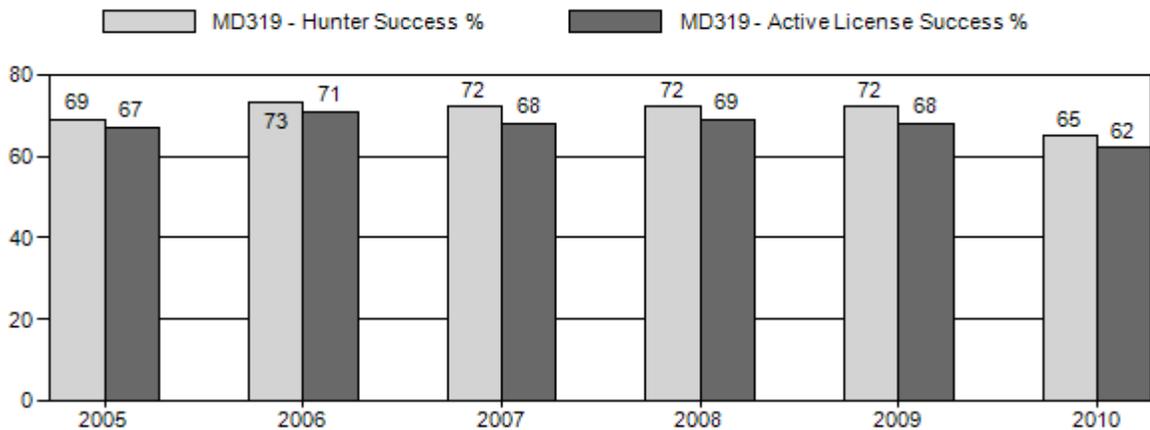
# Harvest



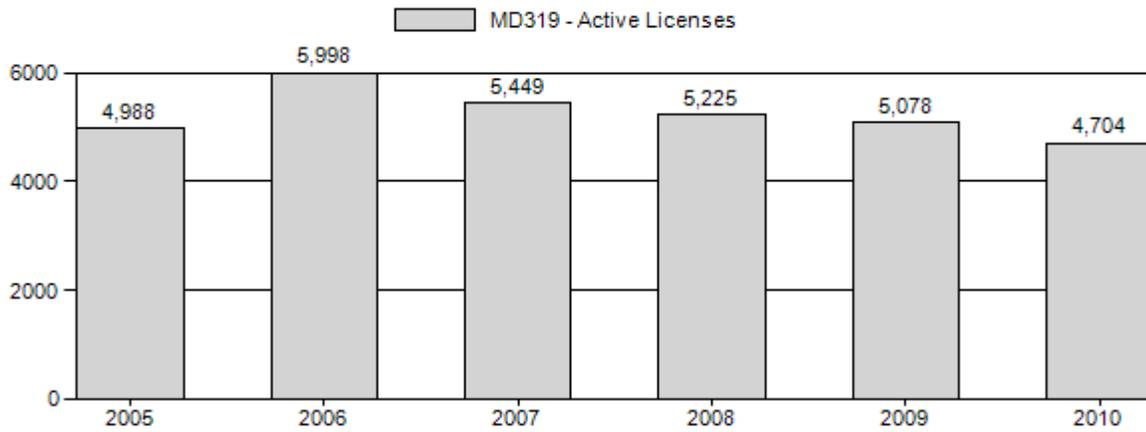
# Number of Hunters



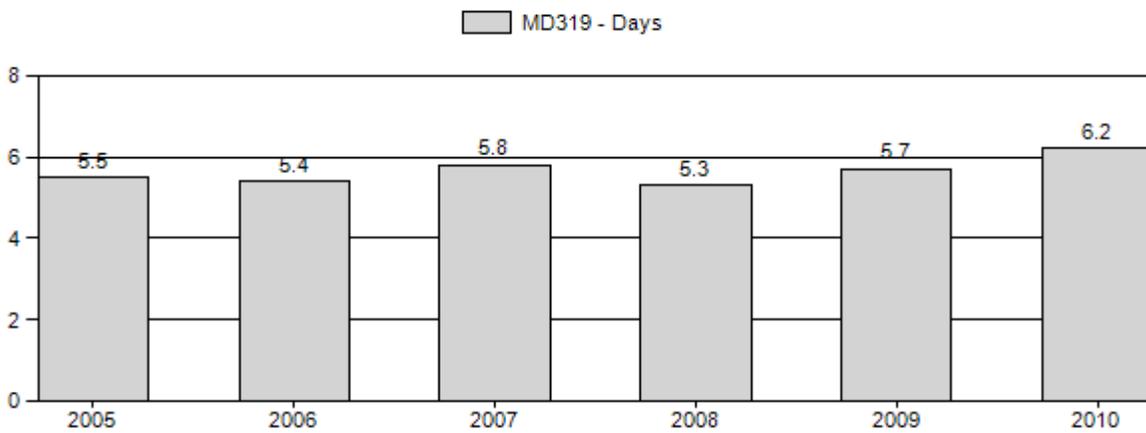
# Harvest Success



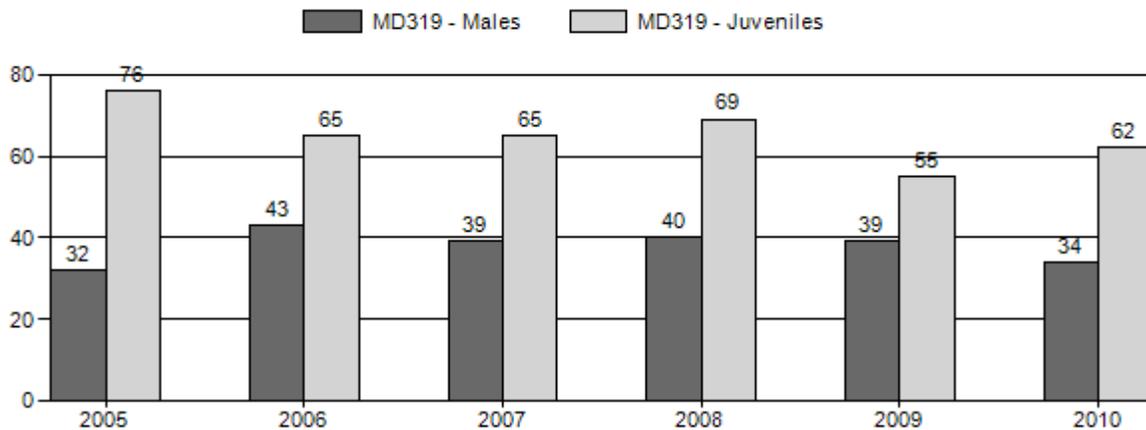
## Active Licenses



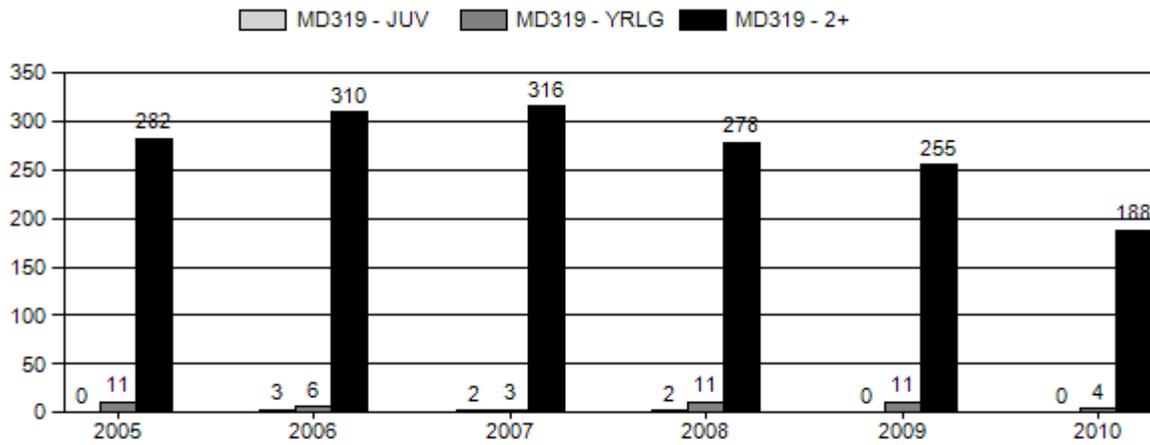
## Days per Animal Harvested



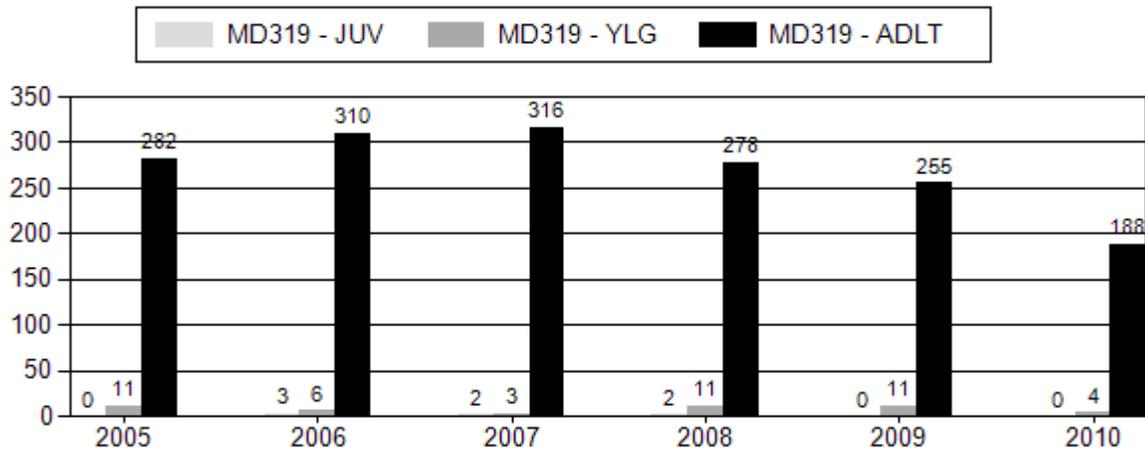
## Postseason Animals per 100 Females



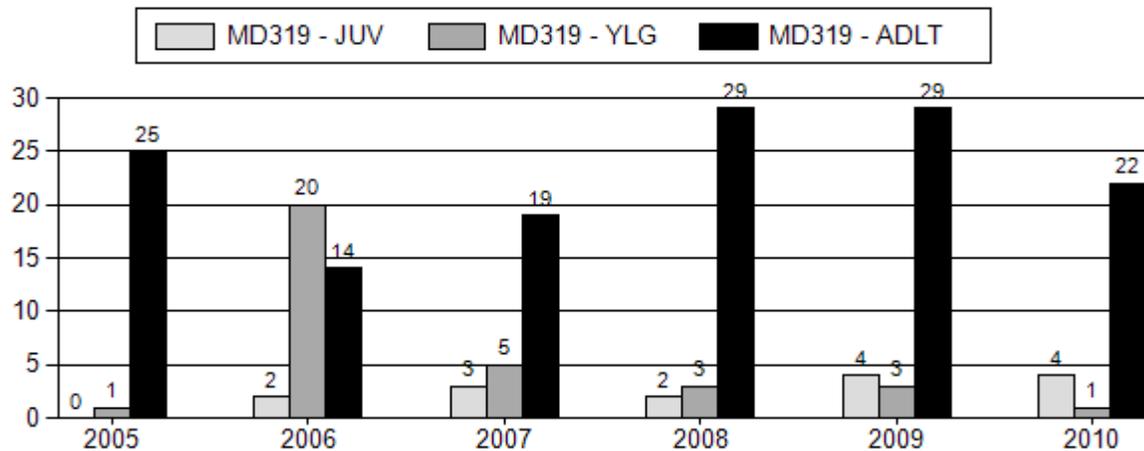
## Age Structure of Field Checked Males



## Age Structure Data (Field and Laboratory) - Male



## Age Structure Data (Field and Laboratory) - Female



## 2005 - 2010 Postseason Classification Summary

for Mule Deer Herd MD319 - 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
2005	54,472	234	372	606	15%	1,919	48%	1,450	36%	3,975	2,820	12	19	32	± 2	76	± 4	57
2006	53,559	283	438	721	21%	1,672	48%	1,088	31%	3,481	2,314	17	26	43	± 0	65	± 0	45
2007	50,557	168	498	666	19%	1,715	49%	1,107	32%	3,488	2,632	10	29	39	± 0	65	± 0	46
2008	50,189	215	499	714	19%	1,775	48%	1,222	33%	3,711	1,403	12	28	40	± 2	69	± 3	49
2009	43,229	103	415	518	20%	1,336	52%	736	28%	2,590	920	8	31	39	± 3	55	± 3	40
2010	40,196	91	364	455	17%	1,348	51%	832	32%	2,635	1,494	7	27	34	± 2	62	± 3	46

# 2010 HUNTING SEASONS

MD319 - POWDER RIVER

<u>Hunt Area</u>	<u>Add'l Hunt Areas</u>	<u>Type</u>	<u>Quota</u>	<u>Season Dates</u>	<u>Limitations</u>
17	18	GEN		10/01 - 10/20	Antlered deer off private land, any deer on private land
17		GEN		11/01 - 11/30	Any white-tailed deer
17	18	Type 6	700	10/01 - 10/31	Reduced Price doe/fawn
18		Type 3	100	10/01 - 11/20	Any White-Tailed Deer
18		Type 8	200	10/01 - 11/20	Reduced Price doe/fawn white-tailed Deer
23	26	GEN		10/01 - 10/14	Antlered deer off private land, any deer on private land
23	26	GEN		11/01 - 11/30	Any white-tailed deer
23	26	Type 3	100	11/01 - 11/30	Any White-Tailed Deer
23	26	Type 6	1200	10/01 - 12/19	Reduced Price doe/fawn

### 2010 MD319 Harvest by Hunt Area Summary

Area	Type	Active Lic/Htrs	Buck	Doe	Fawn	Total	Success	Days/Harvest	Days	Licenses Sold
2010										
17 NORTHWEST GILLETTE										
	General	940	522	11	0	533	56.70%	7	3748	
	Type 6	203	0	127	0	127	62.60%	7.5	953	487
	Pooled Total	1085 (1143)*	522	138	0	660	60.80% (57.7%)*	7.1	4701	
	Pooled Resident	380	118	34	0	152	40%	9.2	1406	
	Pooled Nonresident	705	404	104	0	508	72.10%	6.5	3295	
18 CAMPBELL										
	General	963	451	29	7	487	50.60%	8	3885	
	Type 6	183	0	92	10	102	55.70%	6.1	618	0
	Pooled Total	1110 (1146)*	451	121	17	589	53.10% (51.4%)*	7.6	4503	
	Pooled Resident	419	104	22	7	133	31.70%	13.2	1757	
	Pooled Nonresident	691	347	99	10	456	66.00%	6	2746	
23 CLEARMONT										
	General	1295	809	15	0	824	63.60%	5.5	4532	
	Type 6	593	0	435	0	435	73.40%	4.1	1803	1167
	Pooled Total	1781 (1888)*	809	450	0	1259	70.70% (66.7%)*	5	6335	
	Pooled Resident	761	226	235	0	461	60.60%	5.9	2726	
	Pooled Nonresident	1020	583	215	0	798	78.20%	4.5	3609	
26 UCROSS										
	General	604	323	16	0	339	56.10%	7.1	2395	
	Type 6	103	0	78	0	78	75.70%	2.9	226	0
	Pooled Total	699 (707)*	323	94	0	417	59.70% (59.0%)*	6.3	2621	
	Pooled Resident	272	94	40	0	134	49.30%	9.5	1278	
	Pooled Nonresident	427	229	54	0	283	66.30%	4.7	1343	
	2010 Hunt Area Total	4675 (4884)*	2105	803	17	2925	62.60% (59.9%)*	6.2	18160	1654
	2010 Herd Total	4519 (4704)*	2105	803	17	2925	64.70% (62.2%)*	6.2	18160	1654
	*Active Licenses									

## 2005 - 2010 Harvest Age Structure

for Mule Deer Herd MD319 - POWDER RIVER

Year	Males									Females									Herd Tot
	Juv	1	% *	2 ^	% **	Tot Aged ++	Not Aged +++	Unk	Tot Chkd	Juv	1	% *	2 ^	% **	Tot Aged ++	Not Aged +++	Unk	Tot Chkd	
2005	0	11	4%	0	0%	11	282	16	309	0	1	4%	0	0%	1	25	1	27	336
2006	3	6	2%	310	98%	319	0	1	320	2	20	59%	14	41%	36	0	0	36	356
2007	2	3	1%	17	85%	22	299	7	328	3	5	21%	1	17%	9	18	4	31	359
2008	2	11	4%	25	69%	38	253	4	295	2	3	9%	1	25%	6	28	0	34	329
2009	0	11	4%	255	96%	266	0	7	273	4	3	9%	29	91%	36	0	0	36	309
2010	0	4	2%	2	33%	6	186	1	193	4	1	4%	1	50%	6	21	3	30	223

\* Percent of aged animals (including unaged adults but excluding juveniles) 1 1/2 years old

^ Number of animals two years old and older. Animals aged older than two (excluding unaged adults) are lumped into this two plus category

\*\* Percent of aged animals (not including juveniles or unaged adults) two years old or older

++ includes juveniles

+++ Unaged adults - unaged animals older than yearlings

**2011 SEASON RECOMMENDATIONS  
POWDER RIVER MULE DEER (MD319)**

HUNT AREA	TYPE	DATE OF SEASONS		LIMITATIONS
		OPENS	CLOSES	
17,18	General	Oct 1	Oct 20	Antlered mule deer or any white-tailed deer
17	General	Nov 1	Nov 30	Any white-tailed deer
18	3	Oct 1	Oct 31	Limited quota; 25 licenses any white-tailed deer
17,18	6	Oct 1	Oct 31	Limited quota; 50 licenses doe or fawn valid on private land
18	8	Oct 1	Oct 31	Limited quota; 25 licenses doe or fawn white-tailed deer
23,26	General	Oct 1	Oct 14	Antlered deer off private land, any deer on private land
23,26	General	Nov 1	Nov 30	Any white-tailed deer
23,26	3	Nov 1	Nov 30	Limited quota; 100 licenses any white-tailed deer
	6	Oct 1	Dec 18	Limited quota; 1,000 licenses doe or fawn valid on private land

**SUMMARY OF CHANGES IN LICENSE NUMBER**

Area	Type	Change from 2010
18	3	-75
17,18	6	-650
18	8	-175
23,26	6	-200
<b>MD319 Total</b>	<b>3</b>	<b>-75</b>
	<b>6</b>	<b>-850</b>
	<b>8</b>	<b>-175</b>

**ARCHERY**

17,18,23,26

Sept 1

Sept 30

See Section 4 of this chapter

## **MANAGEMENT EVALUATION**

**Current Post-season Objective:** 52,000

**2010 Post-season Population Estimate:** 40,196 (-23%)

**2011 Post-season Population Estimate:** 37,715 (- 27%)

**Current Population Trend:** The Powder River Mule Deer Herd fluctuated very near the objective from 2002-2008. Despite some reports of starvation over the winter of 2007, population growth overall in this herd continued to be steady, and fawn recruitment remained steady until 2009, when fawn recruitment dropped significantly. This was especially true in Areas 17 and 18. This drop in fawn numbers is likely due to heavy snows in early 2009 followed by a very cold and wet spring. 2009 also experienced a reduction in forage due to an outbreak of grasshoppers, which could have had an effect on overwintering deer in search of forage. Snow cover in the northern portions of this herd unit was persistent in 2010, and spring fawning conditions were quite cold and wet. Fawn numbers and health continue to be average to slightly below average in the western portion of the herd unit (Areas 23 and 26), which may help to compensate for lower recruitment rates in the eastern portion of the herd. However, in the eastern portion of the herd unit (Areas 17 and 18), fawn ratios continue to be poor.

Buck ratios in this herd often exceed the threshold (30:100) to qualify for special management status. However, recreation opportunity is underutilized due to limited access to private lands. If there is an increase in hunters applying to the area it is unlikely that private ranches will increase their level of access. The few public land areas in this herd unit would then be subject to further pressure, which is not desirable. Buck quality on public land versus private is consistently poor due to higher level hunting pressure.

The Pop-II population simulation model developed for this herd unit has been aligned with post-season herd classification surveys. Classification sample goals are consistently met or exceeded, thus improving confidence intervals for fawn and buck ratios. The model reasonably simulates the observed population dynamics for this herd and should be considered “medium” to “high” quality.

2010 harvest included 2105 bucks, 803 does, and 17 fawns for a total of 2925 deer. Pooled resident and non-resident success was 65%, which is slightly lower than the 5-year average. Hunter days averaged 6.1, which is slightly higher than the 5-year average.

**Proposed 2011 Harvest:** The projected 2011 harvest for this herd includes 1,800 bucks, 420 does, and 10 fawns for a total estimated harvest of 2,230 deer, which would be a reduced harvest for this herd compared to the recent years. Landowner perceptions of low deer numbers in this herd are likely to result in greatly restricted hunting access on private lands for 2011. Many landowners who have been contacted in Hunt Areas 17 and 18 have expressed alarm over the low number of deer compared to two to three years ago. There have been no observations of deer carcasses found by landowners or personnel and thus disease seems an unlikely explanation. Many landowners also question the validity of harsh winters and cold springs the past two years as an explanation of poor fawn recruitment and low deer numbers. Many complain instead of increased predator numbers including coyotes and mountain lions. As a result, landowners seem to be planning much more restrictive deer hunting on their ranches or no deer hunting at all. Recommendations are to change the general license limitation in Hunt Areas 17 and 18 to allow only antlered mule deer or any white-tailed deer harvest. It is also recommended that Type 6

doe/fawn licenses be greatly reduced, leaving only enough licenses to address landowners with potential damage issues. To avoid excessive pressures on public lands and Walk-in Areas, it is recommended that non-resident licenses be reduced as well. Even with great reductions in harvest, this herd is still expected to decline for 2011 due to poor recruitment of fawns into the adult portion of the population from 2010 to 2011. Thus, the projected harvest for 2011 seems reasonable. The projected harvest assumes similar license sales, participation, and success rates as in 2010. Despite being conservative, the proposed harvest strategy will result in a decreasing mule deer population.

**Management Challenges:** Management issues associated with this herd include hunter access to private land, increased activity related to coal-bed methane (CBM) industry, and trying to balance private and public land use. Nearly all landowners charge access fees or outfit for buck hunting, and tend to cater to non-resident hunters. Increases in land use by the CBM industry create additional restrictions, as landowners become concerned about safety issues and restrict hunting where CBM activity is high. Increased traffic and other activities associated with CBM also interfere with an “enjoyable hunt”, and this issue has become a more frequent complaint on both hunter and landowner surveys for the region. When these factors cause landowners to control access to private lands more tightly, it increases pressure on the few areas of public land available in this herd unit. Many hunters who were contacted on public land (mainly Thunder Basin National Grassland) complained of the low quality and young age of bucks and high density of fellow hunters sharing public land. New GPS technologies are helping hunters find smaller pieces of unmarked public lands, but at the same time this new accessibility has increased complaints of trespass and congestion by neighboring landowners. The addition of employees working on the Bison Pipeline also resulted in elevated complaints from landowners. This was particularly true in the Recluse area during the 2010 hunting season.

Solutions to these issues could be found by opening more private lands to free-access hunting. Educating and encouraging landowners to enroll portions of their lands in the Department’s Walk-in Access program would create more hunting opportunity on private lands, but it is difficult to compete with the high-dollar fees that landowners are able to get for buck mule deer hunts or from leasing to an outfitter. Local personnel are making a concerted effort to increase public access by soliciting landowners to participate in the PLPW Walk-in Area program. Securing public access to land-locked pieces of public land or encouraging exchanges of lands to concentrate public access areas would also increase options for hunting in this herd unit.

Powder River Mule Deer Herd (Hunt Areas 17, 18, 23, and 26). POP-II Ver. 11.1.  
Data from 1995 to 2011 Simulation from 2005 to 2011

Age Class	Init Pop. Prop.		Presn Mort%		Postsn Mort%		Effort Set 1		Effort Set 2	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0	18986.0	18986.0	50.0	50.0	35.0	35.0	1.00	1.00	1.00	1.00
1	4703.0	4703.0	2.0	2.0	5.0	5.0	0.50	1.00	0.20	1.00
2	3996.0	4913.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00
3	1405.0	2945.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00
4	723.0	2569.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00
5	456.0	2567.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00
6	365.0	3161.0	2.0	2.0	10.0	7.0	1.00	1.00	1.00	1.00
7	170.0	2301.0	2.0	2.0	20.0	10.0	1.00	1.00	1.00	1.00
8	67.0	1486.0	2.0	2.0	40.0	25.0	1.00	1.00	1.00	1.00
9	33.0	1272.0	2.0	2.0	60.0	50.0	1.00	1.00	1.00	1.00
10	15.0	981.0	2.0	2.0	75.0	75.0	1.00	1.00	1.00	1.00
11	2.0	141.0	2.0	2.0	100.0	100.0	1.00	1.00	1.00	1.00
Sum = 76946.0		Estimated Sum = 76946				Subadults: Ages 0 to 0				

Bio-Year	MSI Function is Linear				Postseason MSI	Effort & Wound Set Used
	Preseason MSI	Harvest Subadults#	Des. Pop Males#	Size in NA Females#		
1995	1.08	3	2954	409	1.20	1
1996	1.08	32	2521	378	1.70	1
1997	1.40	0	2862	73	1.40	1
1998	1.15	0	2815	10	1.45	1
1999	1.10	4	3057	61	1.10	1
2000	1.20	7	3327	218	1.45	1
2001	1.43	14	3310	227	1.05	1
2002	1.39	9	3210	267	1.10	1
2003	1.09	13	3337	344	1.00	1
2004	1.20	51	3241	608	1.35	1
2005	0.95	54	2597	710	1.20	1
2006	1.08	26	3372	850	1.50	1
2007	1.17	45	2600	1047	1.40	1
2008	1.10	65	2507	1054	1.65	1
2009	1.29	94	2488	894	1.65	1
2010	1.24	17	2105	803	1.85	1
2011	1.10	10	1800	420	1.00	1
Set 1 Wounding Loss		10.0%	10.0%	10.0%	Yearling Male 10.0%	
Set 1 Wounding Loss		10.0%	10.0%	10.0%	Yearling Male 10.0%	

Bio-Year	Young/100 Fems			Sex Ratio: 50 : 50
	Age 1 - 1	Age 2 - 11	Disabled	
1996	0.0	170.0	0.0	
1997	0.0	170.0	0.0	

Bio- Year	Young/100 Fems Age 1 - 1	Young/100 Fems Age 2 - 11	Young/100 Fems Disabled	Sex Ratio: 50 : 50
1998	0.0	170.0	0.0	
1999	0.0	170.0	0.0	
2000	0.0	170.0	0.0	
2001	0.0	170.0	0.0	
2002	0.0	170.0	0.0	
2003	0.0	170.0	0.0	
2004	0.0	170.0	0.0	
2005	0.0	170.0	0.0	
2006	0.0	170.0	0.0	
2007	0.0	170.0	0.0	
2008	0.0	170.0	0.0	
2009	0.0	170.0	0.0	
2010	0.0	170.0	0.0	
2011	0.0	170.0	0.0	
2012	0.0	0.0	0.0	

Table 1. Population Size During Bio-Year for MD319 2010 v2.GN1 06/27/2010 04:23 pm

Bio-Year	Start	Pre-Season	Post Season	End	%Growth
2005	76946	58169	54472	39344	-1.5
2006	75792	54500	49827	41353	4.9
2007	79508	57016	52955	40199	-2.3
2008	77696	56384	52395	41557	0.7
2009	78239	54273	50450	41336	0.7
2010	78798	56307	52193	43526	2.6

Table 3. Harvest Mortality for MD319 2010 v2.GN1 06/27/2010 04:23 pm

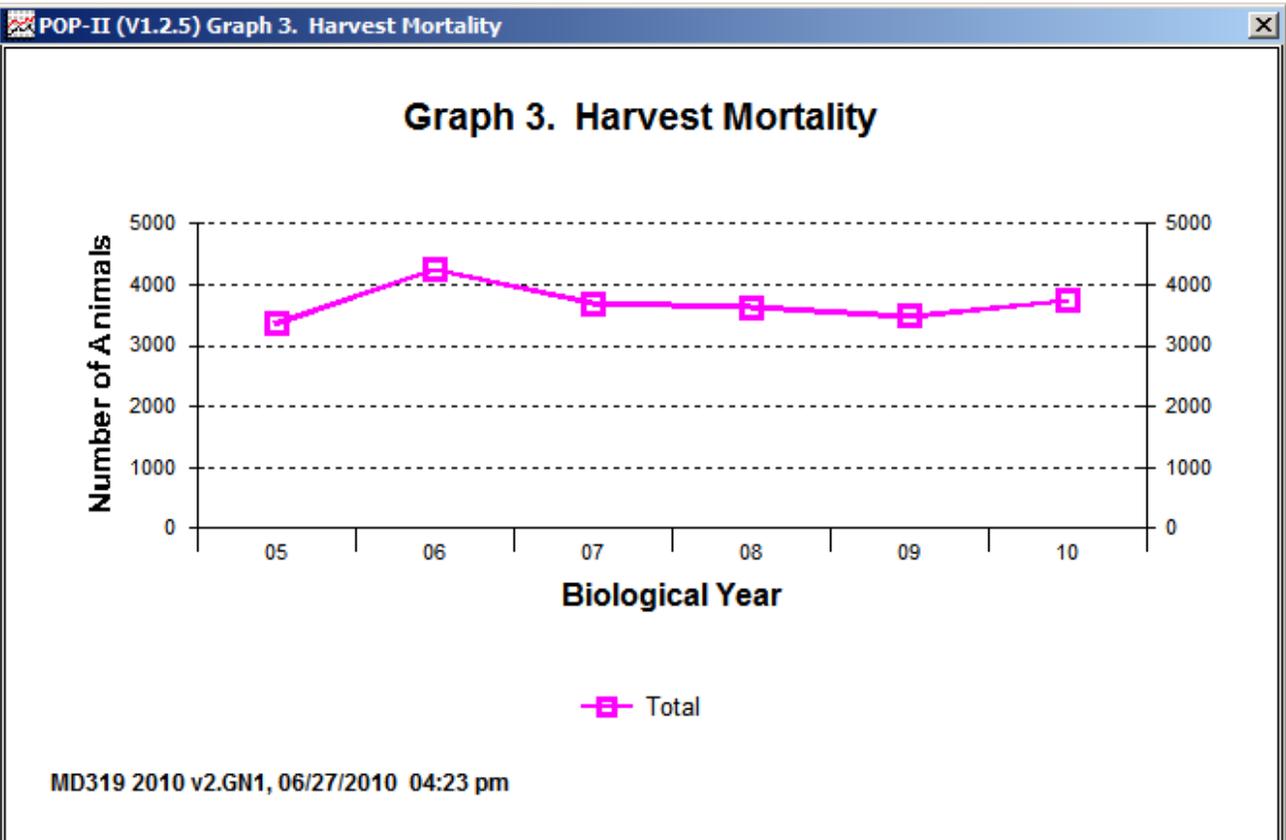
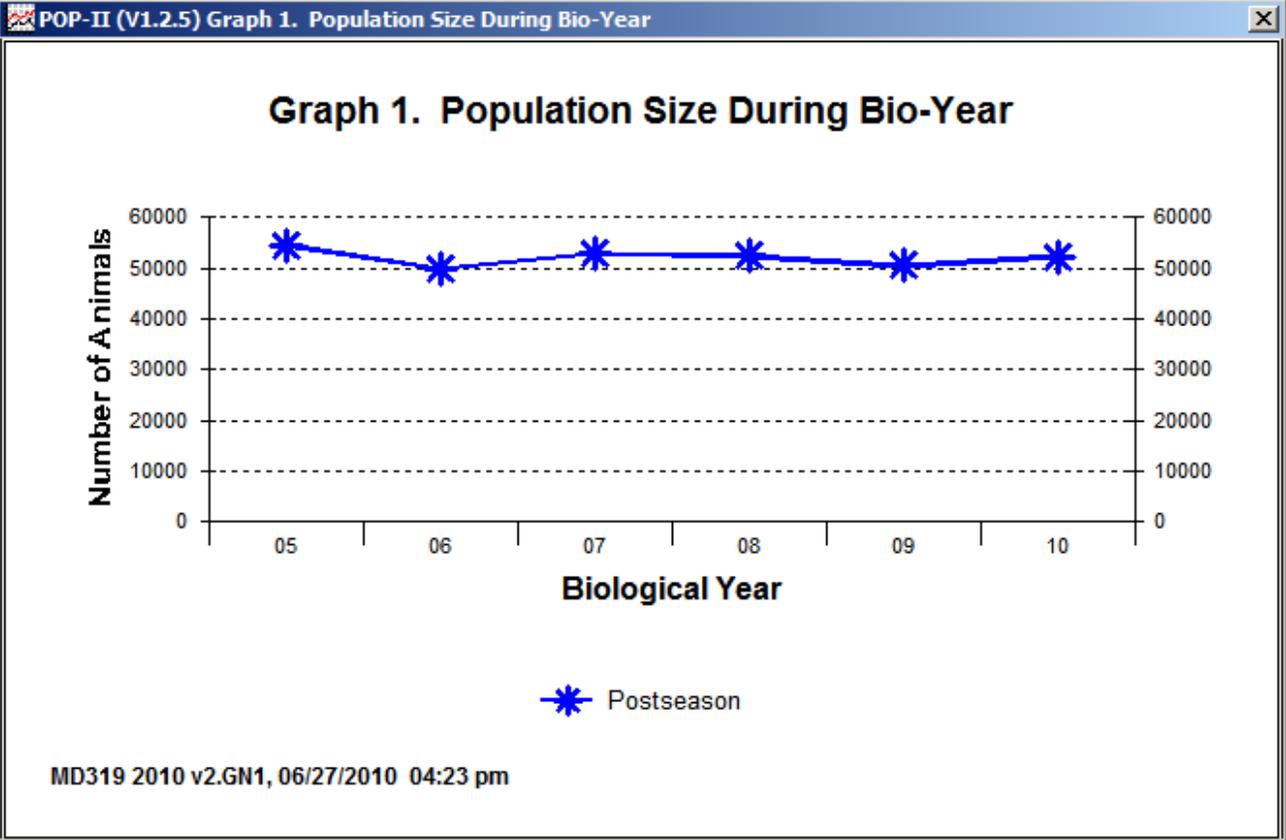
Bio-Year	Sub-Adults	Adult Males	Adult Females	Total	% of Pop
2005	54	2597	710	3361	5.8
2006	26	3372	850	4248	7.8
2007	45	2600	1047	3692	6.5
2008	65	2507	1054	3626	6.4
2009	94	2488	894	3476	6.4
2010	50	2600	1090	3740	6.6

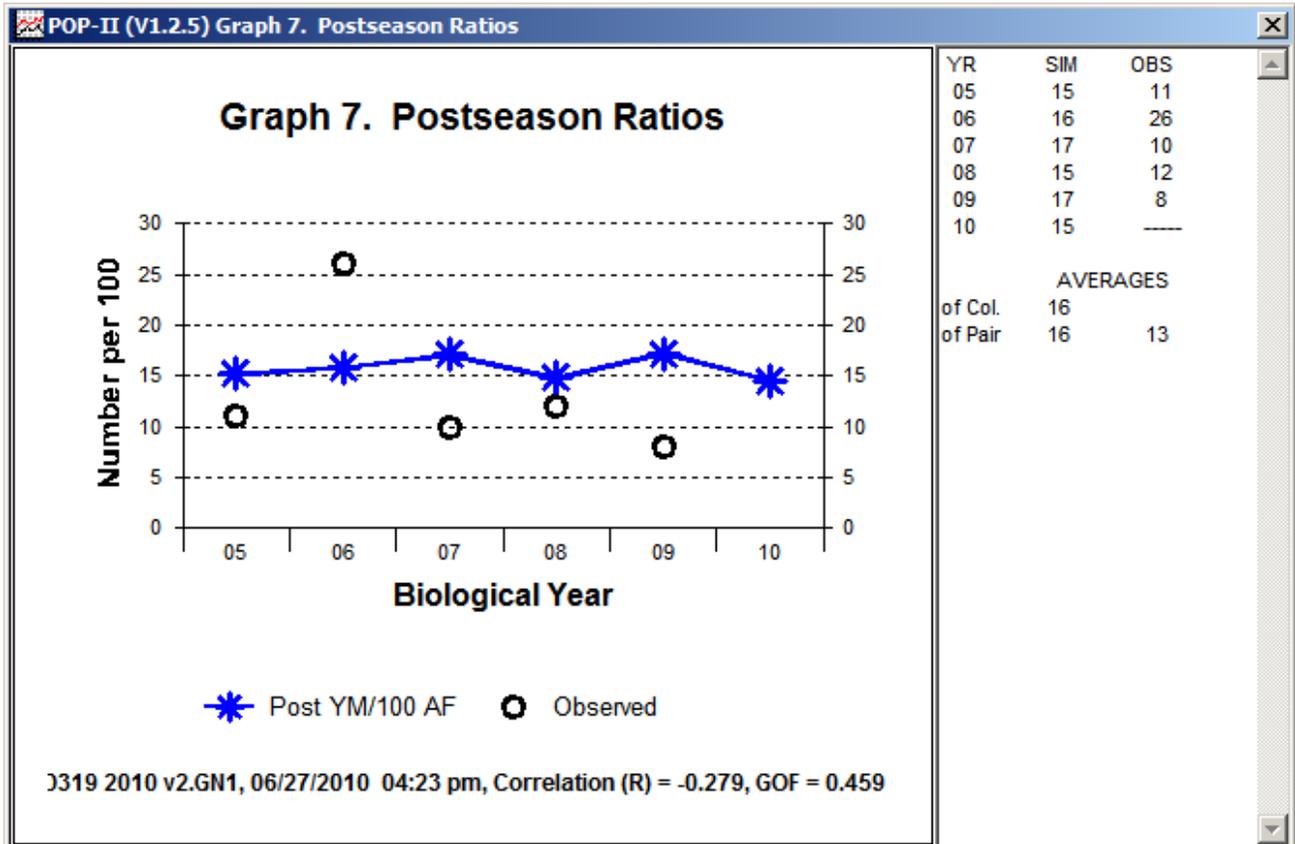
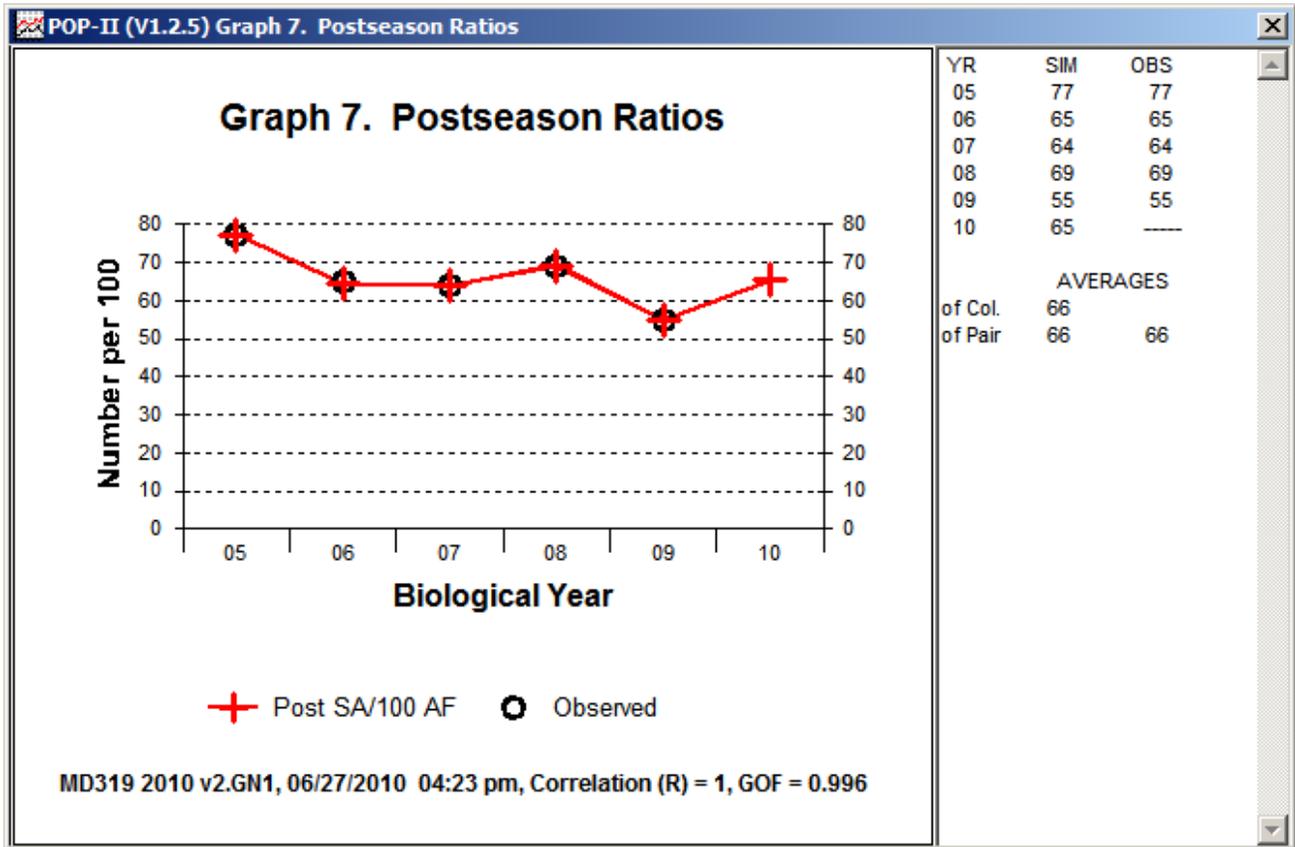
Table 4. Harvest Percentages for MD319 2010 v2.GN1 06/27/2010 04:23 pm

Bio-Year	Sub-Adults	Adult Males	Adult Females	Total	Yearling Males
2005	0.3	22.2	2.7	5.78	24.5
2006	0.2	26.5	3.3	7.79	23.2
2007	0.3	19.4	3.9	6.48	23.4
2008	0.4	18.4	4.1	6.43	17.9
2009	0.7	17.0	3.5	6.40	19.6
2010	0.3	17.5	4.3	6.64	15.5

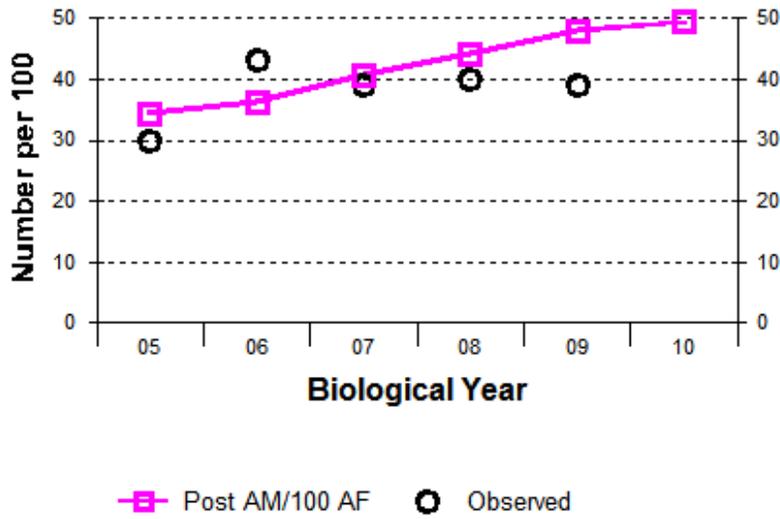
Table 7. Postseason Ratios for MD319 2010 v2.GN1 06/27/2010 04:23 pm

Bio-Year	Subadults /100 1+F	2+ Males /100 1+F	Yr. Males /100 1+F	Ad Males /100 1+F
2005	77.2	19.2	15.2	34.4
2006	64.5	20.5	15.8	36.3
2007	64.0	23.7	17.1	40.7
2008	69.2	29.4	14.8	44.2
2009	54.9	30.9	17.2	48.0
2010	65.3	34.8	14.6	49.4





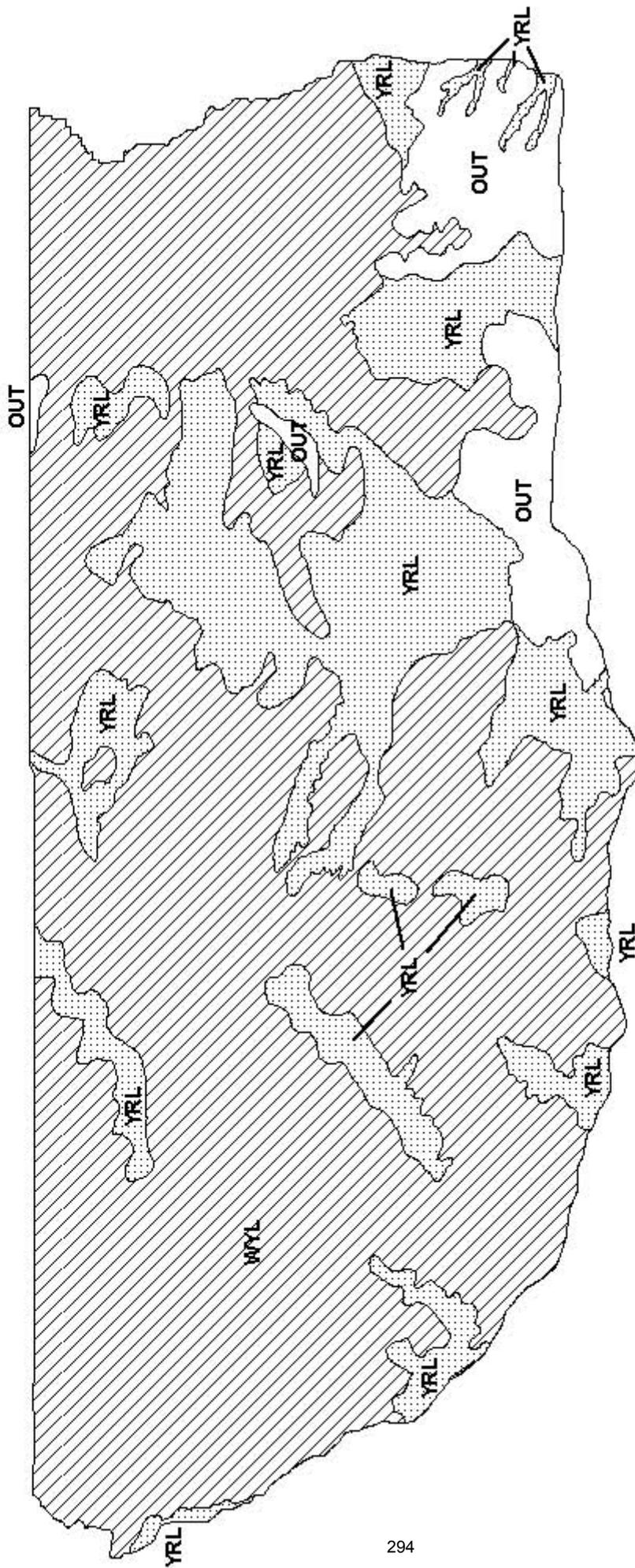
**Graph 7. Postseason Ratios**



YR	SIM	OBS
05	34	30
06	36	43
07	41	39
08	44	40
09	48	39
10	49	---

AVERAGES		
of Col.	42	
of Pair	41	38

ID319 2010 v2.GN1, 06/27/2010 04:23 pm, Correlation (R) = 0.394, GOF = 0.849



**Mule Deer (MD319) - Powder River**  
**HA 17, 18, 23, 26**  
**Revised - 3/87**

## 2010 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2010 - 5/31/2011

HERD: MD320 - PUMPKIN BUTTES

HUNT AREAS: 19-20, 29, 31

PREPARED BY: DAN THIELE

	2005 - 2009 Average	2010	2011 Proposed
Population:	12,650	10,782	11,294
Harvest:	897	605	725
Hunters:	1,262	975	1,100
Hunter Success:	71%	62%	66%
Active Licenses:	1,319	1,003	1,150
Active License Percent:	68%	60%	63%
Recreation Days:	4,668	3,971	4,000
Days Per Animal:	5.2	6.6	5.5
Males per 100 Females	45	41	
Juveniles per 100 Females	69	72	

Population Objective:	11,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-2.0%
Number of years population has been + or - objective in recent trend:	1
Model Date:	4/8/2011

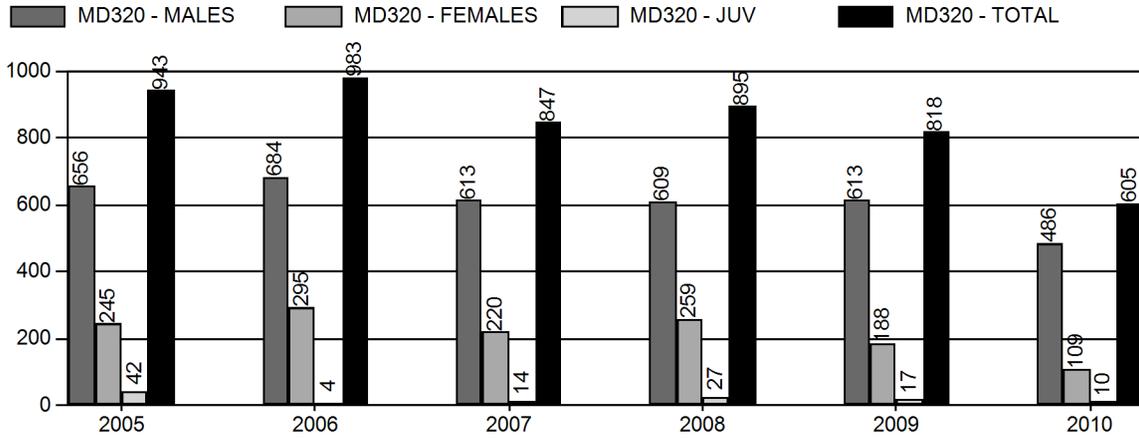
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	2%	2%
Males ≥ 1 year old:	16%	18%
Juveniles (< 1 year old):	0%	1%
Total:	5%	6%
Proposed change in post-season population:	-10%	+5%

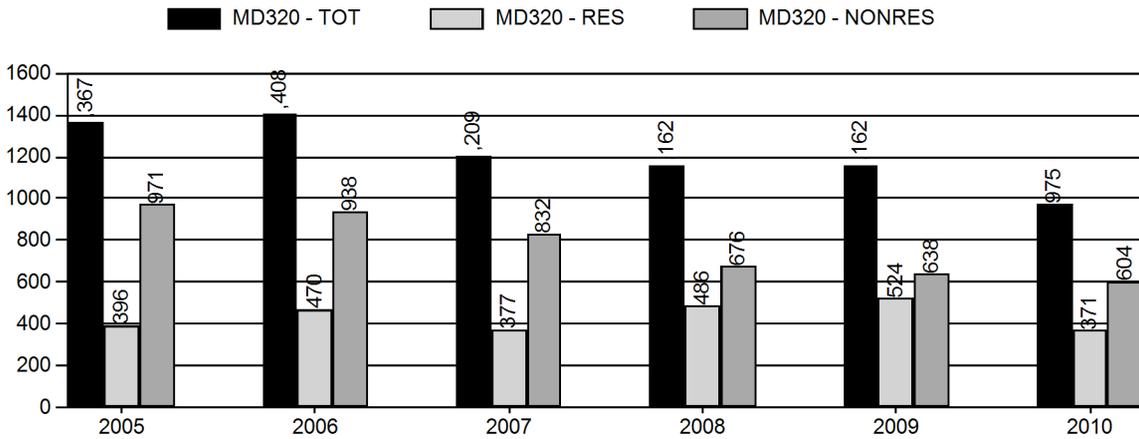
## Population Size - Postseason



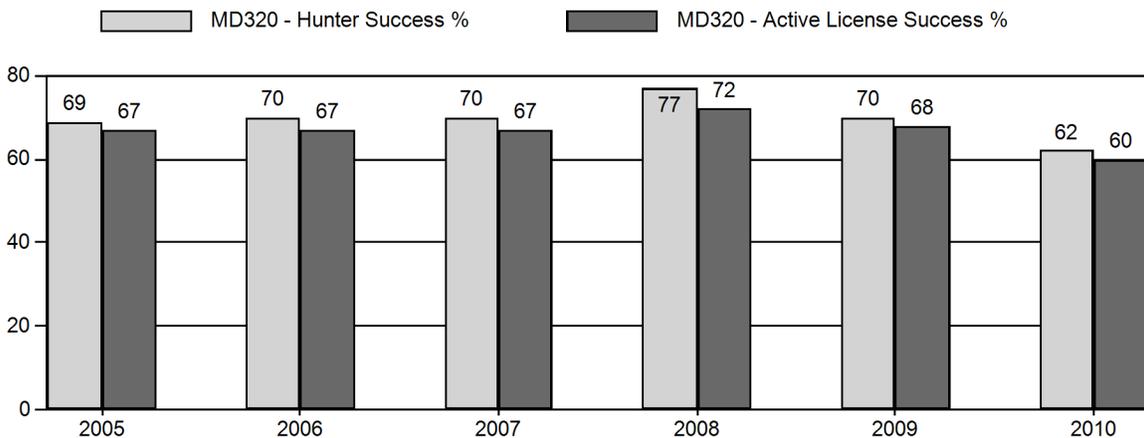
# Harvest



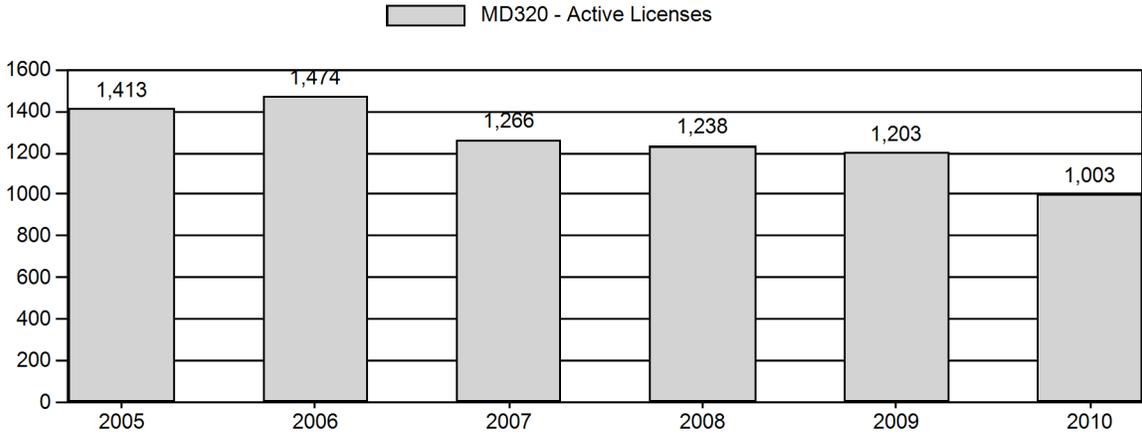
# Number of Hunters



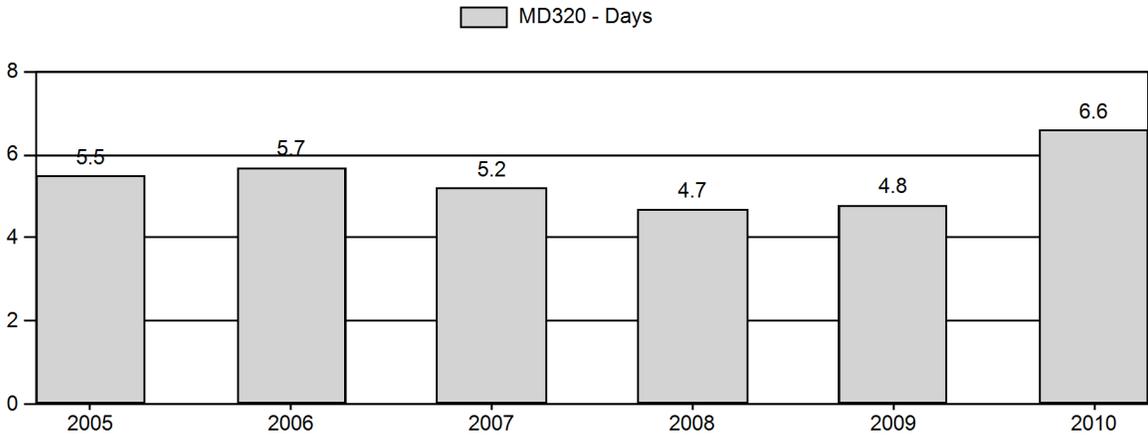
# Harvest Success



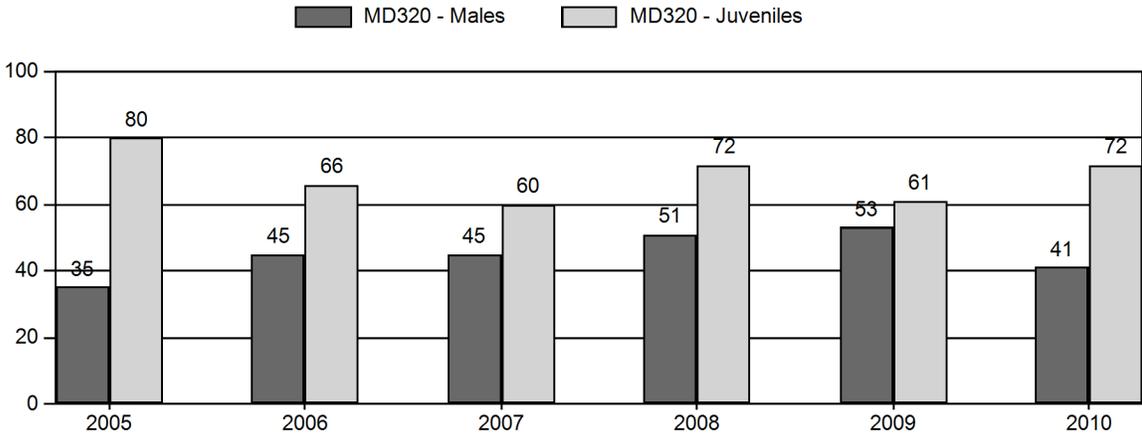
# Active Licenses



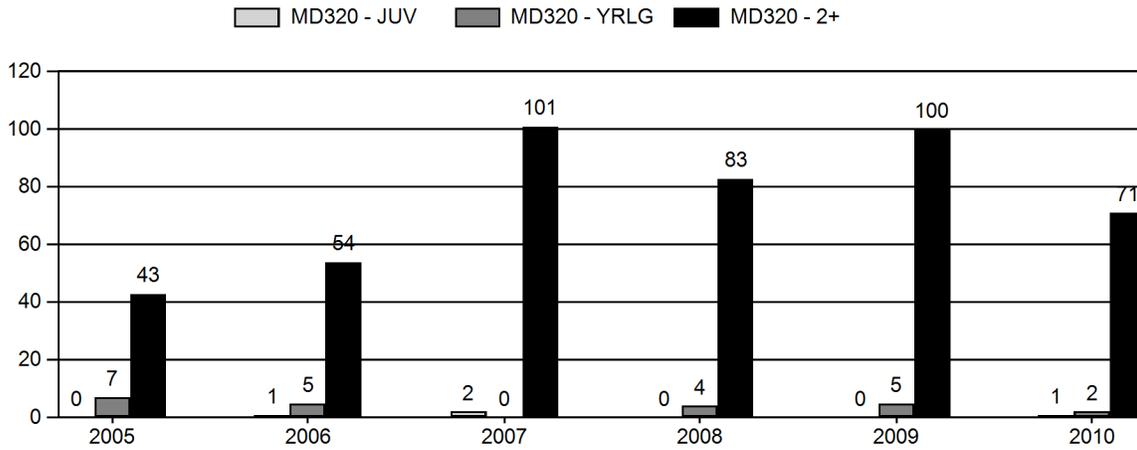
# Days per Animal Harvested



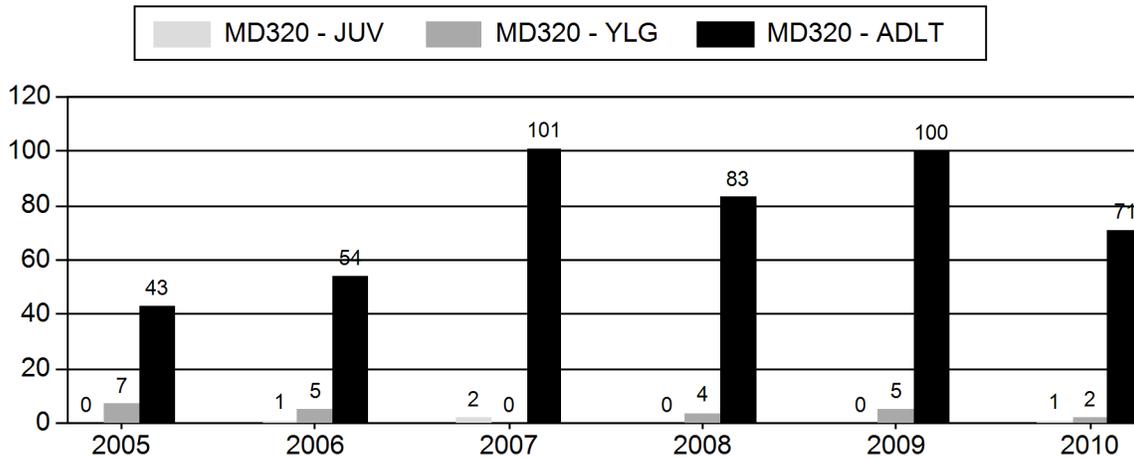
# Postseason Animals per 100 Females



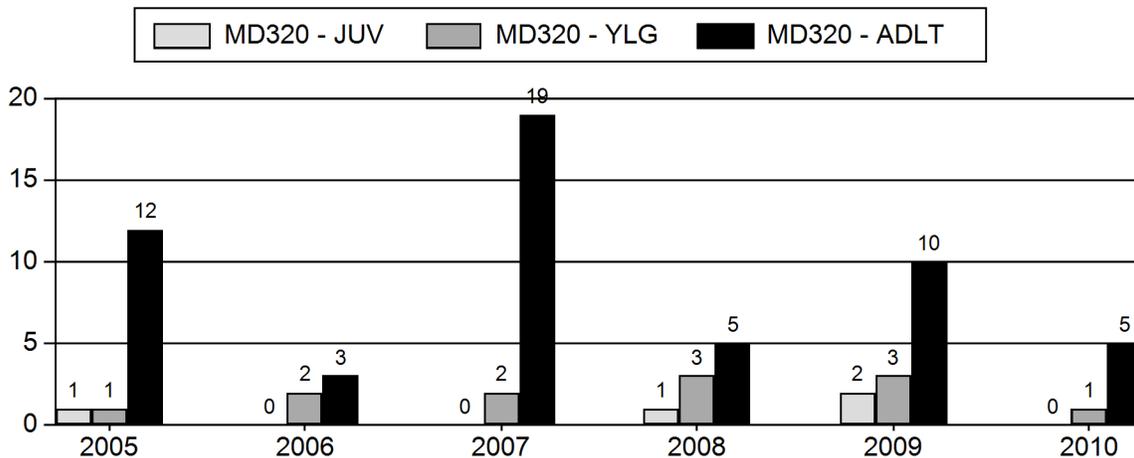
## Age Structure of Field Checked Males



## Age Structure Data (Field and Laboratory) - Male



## Age Structure Data (Field and Laboratory) - Female



## 2005 - 2010 Postseason Classification Summary

for Mule Deer Herd MD320 - PUMPKIN BUTTES

Year	Post 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
2005	13,197	151	196	347	16%	1,001	47%	804	37%	2,152	1,751	15	20	35	±	380	± 4	60
2006	13,461	165	214	379	21%	840	47%	557	31%	1,776	1,364	20	25	45	±	366	± 4	46
2007	11,893	110	285	395	22%	883	49%	533	29%	1,811	1,165	12	32	45	±	360	± 4	42
2008	12,741	137	300	437	23%	861	45%	622	32%	1,920	1,605	16	35	51	±	072	± 0	48
2009	11,959	111	269	380	25%	715	47%	433	28%	1,528	1,250	16	38	53	±	061	± 0	40
2010	10,782	75	198	273	19%	659	47%	477	34%	1,409	1,493	11	30	41	±	072	± 0	51

# 2010 HUNTING SEASONS

MD320 - PUMPKIN BUTTES

<u>Hunt Area</u>	<u>Add'l Hunt Areas</u>	<u>Type</u>	<u>Quota</u>	<u>Season Dates</u>	<u>Limitations</u>
19	20, 29, 31	ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
19	20	GEN		10/01 - 10/20	Antlered deer off private land, any deer on private land
19	20,21	Type 6	100	10/01 - 10/31	Reduced price doe or fawn valid on private land
29		GEN		10/01 - 10/14	Antlered deer off private land, any deer on private land
29		Type 6	300	10/01 - 11/30	Reduced price doe or fawn valid on private land
31		GEN		10/01 - 10/10	Antlered deer

## 2010 MD 320 HARVEST BY HUNT AREA SUMMARY

Area	Type	Licenses	Buck	Doe	Fawn	Total	Success	Days/ Harvest	Days	Sold
19 PUMPKIN BUTTES										
	General	382	205	10	0	215	56.3%	6.2	1,338	
	Type 6	27	0	23	0	23	85.2%	3.7	84	100
Pooled Total		400 (409)*	205	33	0	238	59.5% (58.2%)*	6.0	1,422	
Pooled Resident		172	68	8	0	76	44.2%	8.9	677	
Pooled Nonresident		228	137	25	0	162	71.1%	4.6	745	
20 CLARKELEN										
	General	65	38	0	0	38	58.5%	5.0	191	
	Type 6	9	0	6	0	6	66.7%	4.2	25	0
Pooled Total		71 (74)*	38	6	0	44	62.0% (59.5%)*	4.9	216	
Pooled Resident		32	11	2	0	13	40.6%	7.2	94	
Pooled Nonresident		39	27	4	0	31	79.5%	3.9	122	
29 JOHNSON										
	General	400	223	6	4	233	58.2%	8.0	1,856	
	Type 6	98	0	64	6	70	71.4%	3.6	254	264
Pooled Total		483 (498)*	223	70	10	303	62.7% (60.8%)*	7.0	2,110	
Pooled Resident		143	40	12	6	58	40.6%	15.4	892	
Pooled Nonresident		340	183	58	4	245	72.1%	5.0	1,218	
31 NINE MILE										
	General	52	20	0	0	20	38.5%	11.2	223	
Pooled Total		52 (52)*	20	0	0	20	38.5% (38.5%)*	11.2	223	
Pooled Resident		37	12	0	0	12	32.4%	14.2	170	
Pooled Nonresident		15	8	0	0	8	53.3%	6.6	53	
2010 Hunt Area Total		1,006 (1033)*	486	109	10	605	60.1% (58.6%)*	6.6	3,971	364
2010 Herd Total		975 (1003)*	486	109	10	605	62.1% (60.3%)*	6.6	3,971	364

\*Active Licenses

## 2005 - 2010 Harvest Age Structure

for Mule Deer Herd MD320 - PUMPKIN BUTTES

Year	Males									Females									Herd
	Juv	1	% *	2 ^	% **	Tot Aged ++	Not Aged +++	Unk	Tot Chkd	Juv	1	% *	2 ^	% **	Tot Aged ++	Not Aged +++	Unk	Tot Chkd	Tot
2005	0	7	14%	43	86%	50	0	4	54	1	1	8%	12	92%	14	0	3	17	71
2006	1	5	8%	54	92%	60	0	0	60	0	2	40%	3	60%	5	0	0	5	65
2007	2	0	0%	0	0%	2	101	2	105	0	2	10%	0	0%	2	19	0	21	126
2008	0	4	5%	8	67%	12	75	2	89	1	3	38%	1	25%	5	4	0	9	98
2009	0	5	5%	100	95%	105	0	2	107	2	3	23%	10	77%	15	0	4	19	126
2010	1	2	3%	3	60%	6	68	1	75	0	1	17%	0	0%	1	5	0	6	81

\* Percent of aged animals (including unaged adults but excluding juveniles) 1 1/2 years old

^ Number of animals two years old and older. Animals aged older than two (excluding unaged adults) are lumped into this two plus category

\*\* Percent of aged animals (not including juveniles or unaged adults) two years old or older

++ includes juveniles

+++ Unaged adults - unaged animals older than yearlings

## 2011 HUNTING SEASONS

### PUMPKIN BUTTES MULE DEER (MD 320)

HUNT AREA	TYPE	DATE OF SEASONS		LIMITATIONS
		OPENS	CLOSES	
19, 20		Oct. 1	Oct. 20	General License, antlered mule deer
19,20	6	Oct. 1	Oct. 31	Limited Quota; 50 licenses doe or fawn valid on private land.
29		Oct. 1	Oct. 14	General License, antlered deer off private land; any deer on private land
	6	Oct. 1	Nov. 30	Limited Quota; 100 licenses doe or fawn valid on private land
31		Oct. 1	Oct. 10	General License, antlered deer
Archery Season		Sept. 1	Sept. 30	General License, any deer; Limited Quota License, Refer to Section 3 of this Chapter

#### Summary of changes

Changes include limiting general license harvest to antlered mule deer in Areas 19 and 20. Area 21 will be removed from the combined Area 19, 20 and 21 Type 6 license. Changes in license quotas are provided below.

Area	Type	Change from 2010
19, 20	6	-50
29	6	-200
<b>Total</b>	<b>6</b>	<b>-250</b>

#### MANAGEMENT EVALUATION

**Current Objective:** 11,000

**2010 Postseason Population Estimate (% above or below obj.):** 10,765 (-2%)

**2011 Proposed Postseason Population Estimate:** 11,278

**Current Population Trend:** This population is estimated to be just below the objective of 11,000 deer based on the updated POP-II model. The model aligns relatively well to yearling and total buck ratios and is considered a medium quality model. The population is estimated to have declined about 20% since 2006, including 10% since 2009. An adjustment to align a lower 2010 yearling buck ratio decreased the 2010 population estimate. The lower yearling buck ratio is thought to be the result of late spring storms in 2010 that resulted in above average fawn mortality. The declining population reflected in the model is supported by harvest data, landowner surveys and field observations suggesting this population has declined. Total harvest has trended down since 2006 from a high of 983 mule deer to 620 mule deer in 2010. The 2010 harvest was the lowest total harvest, buck harvest and doe/fawn harvest during the six-

year period. Total harvest decreased 24% from 2009 and was 31% below the five year average of 897 mule deer. Hunter numbers have declined nearly 30% over the same time as has active license success. Active license success reached a six year low while hunter effort reached a six year high of 6.6 days per animal harvested. If the population was stable, hunter success and hunter effort would be expected to be more favorable. The total buck ratio exceeded 50:100 the past two years but fell to 41:100 in 2010. The 2010 landowner survey provides additional support of a lower population as 57% of landowners thought deer numbers were too low. The 2009 and 2010 results show the highest percentage of landowners desiring more deer since the survey began in 2000. This year's results continue an increasing trend that began in 2006 with landowners desiring more deer. Only one landowner thought mule deer numbers were too high (3%). At the hunt area level, Area 19 landowners were generally satisfied (63%) with deer numbers. However, 25% of respondents wanted more deer. A majority (68%) of the landowners in the remaining three hunt areas (20, 29, 31) desire more deer. In Area 29, which contributed 49% of the herd unit harvest in 2010, 77% of responding landowners felt deer numbers were too low. These perceptions influence the availability of hunter access in these predominately private land areas. Lastly, the classification sample total fell to its lowest level since 1997.

Buck harvest remains well below the 1,053 bucks harvested in 1999 when the population was estimated to be 20% higher than present. Even though buck harvest and hunter success has decreased, the buck ratio remains high, exceeding 40:100 in each of the last five years. Buck ratios in all hunt areas except Area 20 meet the special management criteria for trophy management, however, this herd is managed as a recreational herd. The high buck ratios are not managed for, rather they occur by default due to landowner perceptions of the deer population and increased outfitter leasing of ranches. This suggests that general license hunters should find adequate numbers of buck deer, however, it does not account for restrictive access to private land. It is interesting to note that pronghorn hunt areas corresponding to the Pumpkin Buttes deer hunt areas are harvesting high numbers of pronghorn suggesting access is not always the limiting factor.

In recent years, the number of landowners complaining about too many deer has decreased along with fewer landowners experiencing depredation problems. The combined Area 19, 20 and 21 Type 6 license sold out after the quota was significantly reduced in 2009. In Area 29, only 66% of Type 6 licenses sold compared to 88% in 2009. Most of these licenses were used to hunt white-tailed deer with 72 mule deer and 122 white-tailed deer harvested. Mule deer hunters using Type 6 licenses averaged 77% while general license hunters averaged 58% success.

Although the population is at objective, most landowners prefer to see higher deer numbers. Based on the landowner survey, landowners in three of the four hunt areas believe deer numbers are too low. This indicates that the population objective of 11,000 deer is too low. A review of the postseason objective is currently underway.

Improved precipitation the last four years provided better forage conditions, although this was mitigated by grasshopper infestations in 2008 and 2009. The late cold wet springs of 2009 and 2010 provided for an extended period of spring green-up.

Proposed season changes for 2010 include restricting Area 19 and 20 hunters to bucks only on all lands. Area 29 and 31 general license seasons are unchanged. The Region C quota will be reduced about 10% to 2,700 licenses. The Area 29 general license season will continue to allow any deer hunting on private lands. Type 6 licenses have been limited to private lands to address depredation concerns. Reductions in both the Area 19/20 and Area 29 Type 6 quotas will address landowner concerns with low mule deer numbers. The reduction in Area 29 Type 6 licenses will be offset by an increase in the Area 29 Type 8 licenses. Management continues to focus on maintaining deer numbers on public lands by restricting harvest to antlered deer which will provide a higher quality hunting experience. This will help ensure hunting recreation on accessible blocks of public land. On private land, limited quota doe/fawn hunting will be allowed to address depredation concerns where they occur.

The population is projected to increase slightly with a 2011 postseason population estimate of 11,278 mule deer. Based on the landowner survey, the population objective is too low. However, if the objective and the population were increased, harvest may not increase enough to manage this population.

**Proposed 2011 Harvest:** The projected harvest for 2011 includes 600 bucks, 100 does and 25 fawns for a total of 725 deer.

**Management Challenges:** Managing this population is dependent on hunters obtaining access. Deer densities are highest on agricultural croplands in Areas 19, 20 and 29. Limiting hunting on public lands to antlered deer helps maintain hunting recreation for those unable or unwilling to access private lands.

Coalbed methane gas development in some areas is creating problems for some hunters. Publicly accessible BLM and state lands in the northern portions of Areas 19 and 29 are particularly problematic as intensive development activity has reduced quality hunting opportunity. In recent years these lands are attracting fewer hunters.

2011 Pumpkin Buttes Mule Deer Model

Data from 2005 to 2011

Simulation from 2005 to 2011

Age Class	Init Pop. Prop.		Presn Mort%		Postsn Mort%		Effort Set 1		Effort Set 2		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
0	4607.0	4607.0	50.0	50.0	35.0	35.0	1.00	1.00	1.00	1.00	
1	1043.0	1043.0	2.0	2.0	5.0	5.0	0.20	1.00	0.80	1.00	
2	667.0	727.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00	
3	538.0	805.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00	
4	294.0	594.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00	
5	279.0	748.0	2.0	2.0	10.0	5.0	1.00	1.00	1.00	1.00	
6	254.0	993.0	2.0	2.0	20.0	10.0	1.00	1.00	1.00	1.00	
7	117.0	830.0	2.0	2.0	40.0	20.0	1.00	1.00	1.00	1.00	
8	26.0	445.0	2.0	2.0	60.0	40.0	1.00	1.00	1.00	1.00	
9	3.0	238.0	2.0	2.0	80.0	60.0	1.00	1.00	1.00	1.00	
10	0.0	39.0	2.0	2.0	100.0	80.0	1.00	1.00	1.00	1.00	
11	0.0	0.0	2.0	2.0	100.0	100.0	1.00	1.00	1.00	1.00	
Sum = 18897.0		Estimated Sum = 18700				Subadults: Ages 0 to 0					

Bio-Year	MSI Function is Linear				Postseason MSI	Effort & Wound Set Used
	Preseason MSI	Harvest // Subadults#	Des. Pop Size Males#	Pop Size Females#		
2005	0.94	42	656	245	1.00	1
2006	1.06	4	684	295	1.50	1
2007	1.21	14	613	220	1.00	1
2008	1.03	27	609	259	1.30	1
2009	1.16	17	618	188	1.95	1
2010	1.09	10	486	109	1.00	1
2011	1.10	25	600	100	1.00	1
Set 1 Wounding Loss		10.0%	10.0%	10.0%	Yearling Male 10.0%	
Set 1 Wounding Loss		10.0%	10.0%	10.0%	Yearling Male 10.0%	

Bio-Year	Young/100 Fems		Young/100 Fems		Sex Ratio: 50 : 50
	Age 1 - 1	Age 2 - 11	Young/100 Fems	Disabled	
2006	0.0	170.0	0.0	0.0	
2007	0.0	170.0	0.0	0.0	
2008	0.0	170.0	0.0	0.0	
2009	0.0	170.0	0.0	0.0	
2010	0.0	170.0	0.0	0.0	
2011	0.0	170.0	0.0	0.0	
2012	0.0	170.0	0.0	0.0	

Table 1. Population Size During Bio-Year for Md320-11a.GN1 04/08/2011 08:59 am

Bio-Year	Start	Pre-Season	Post Season	End	%Growth
2005	18700	14234	13197	10573	4.3
2006	19497	14543	13461	9657	-6.3
2007	18269	12825	11893	9819	0.1
2008	18290	13725	12741	9694	-2.8
2009	17777	12864	11959	8181	-11.4
2010	15751	11447	10782	8971	3.8
2011	16345	12092	11294	9382	6.1

Table 3. Harvest Mortality for Md320-11a.GN1 04/08/2011 08:59 am

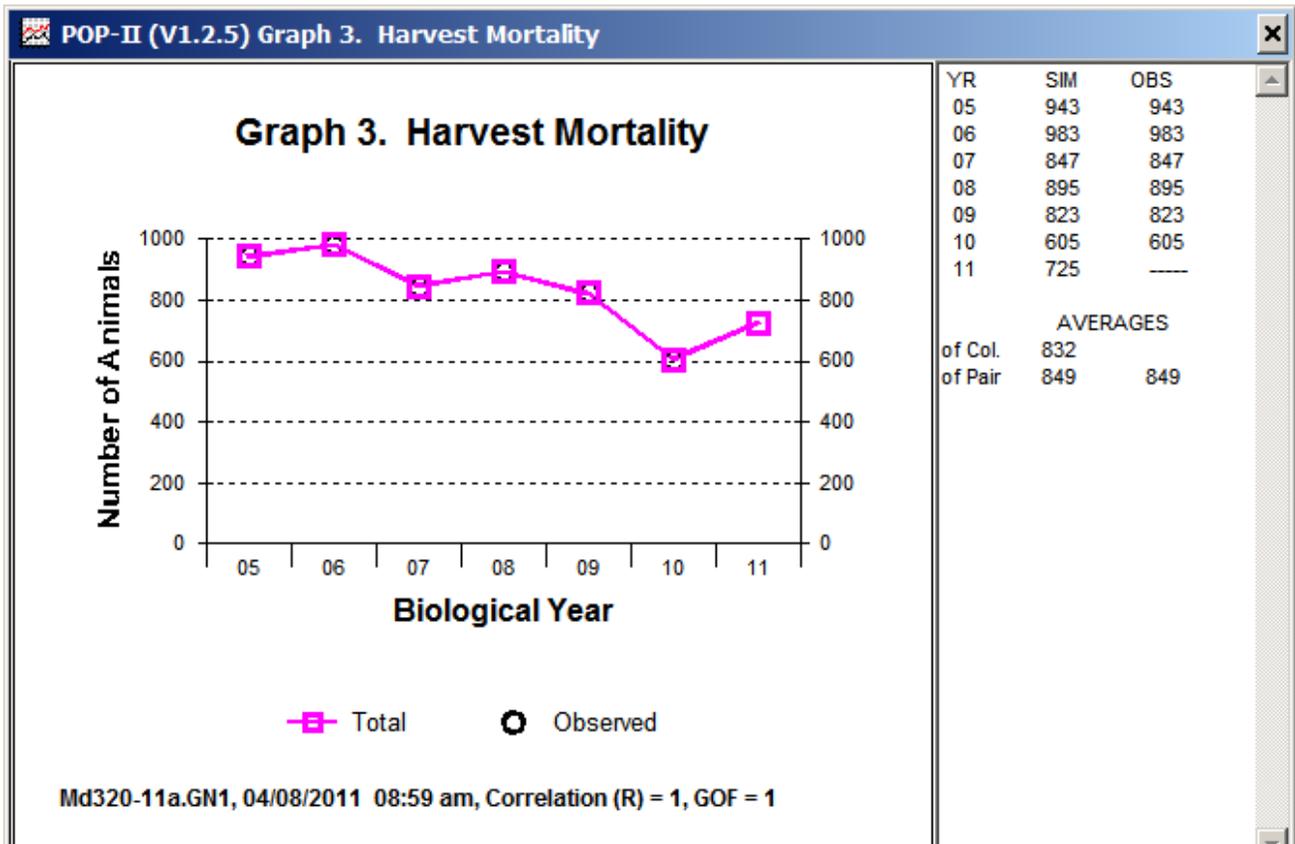
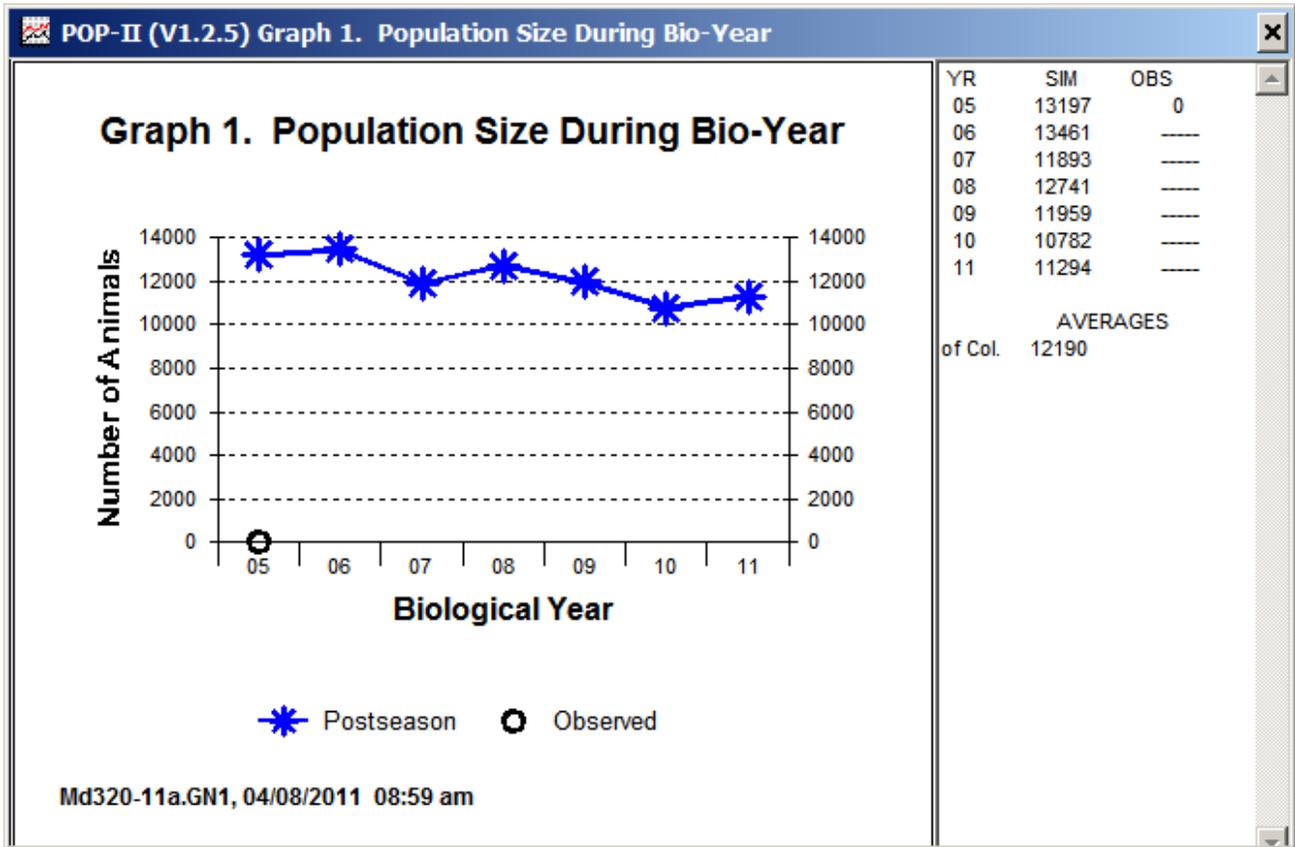
Bio-Year	Sub-Adults	Adult Males	Adult Females	Total	% of Pop
2005	42	656	245	943	6.6
2006	4	684	295	983	6.8
2007	14	613	220	847	6.6
2008	27	609	259	895	6.5
2009	17	618	188	823	6.4
2010	10	486	109	605	5.3
2011	25	600	100	725	6.0

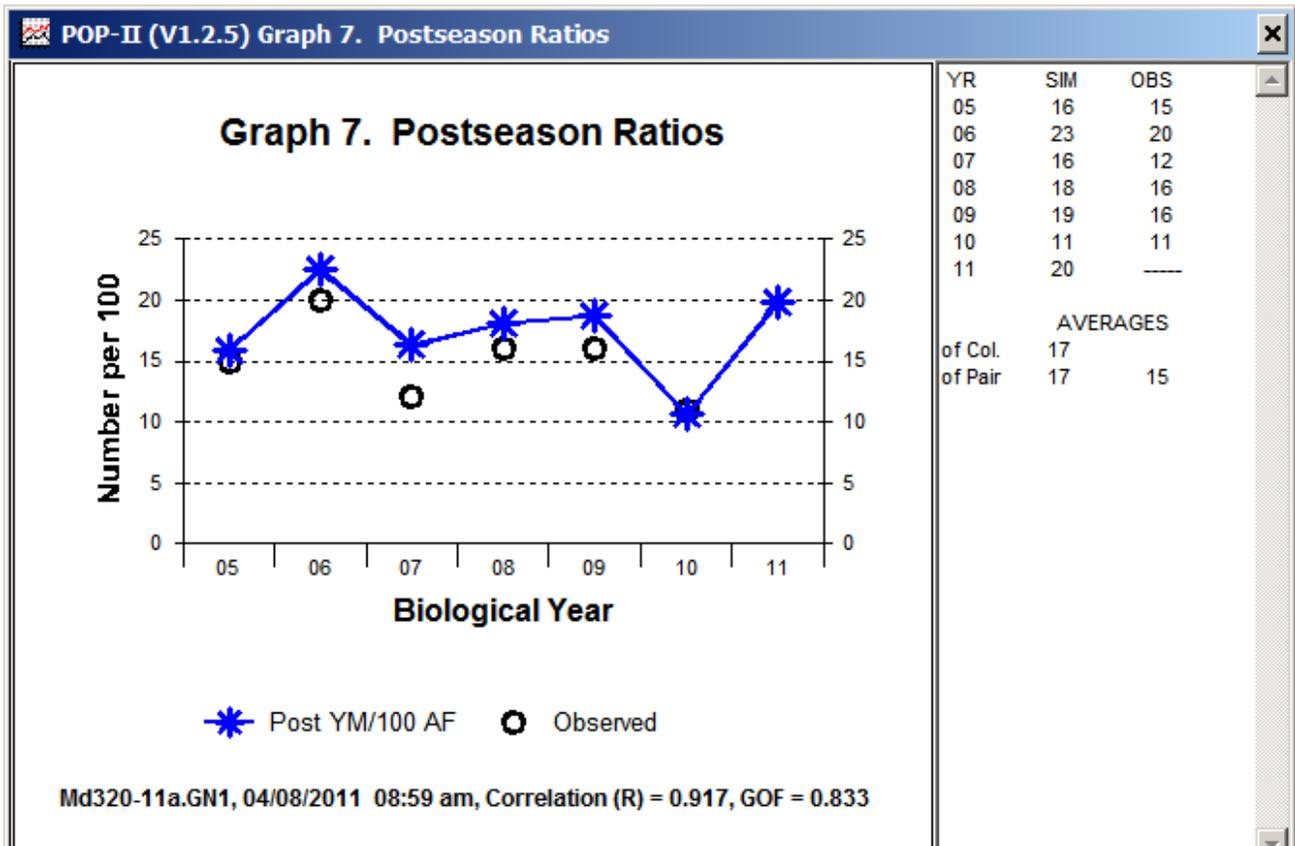
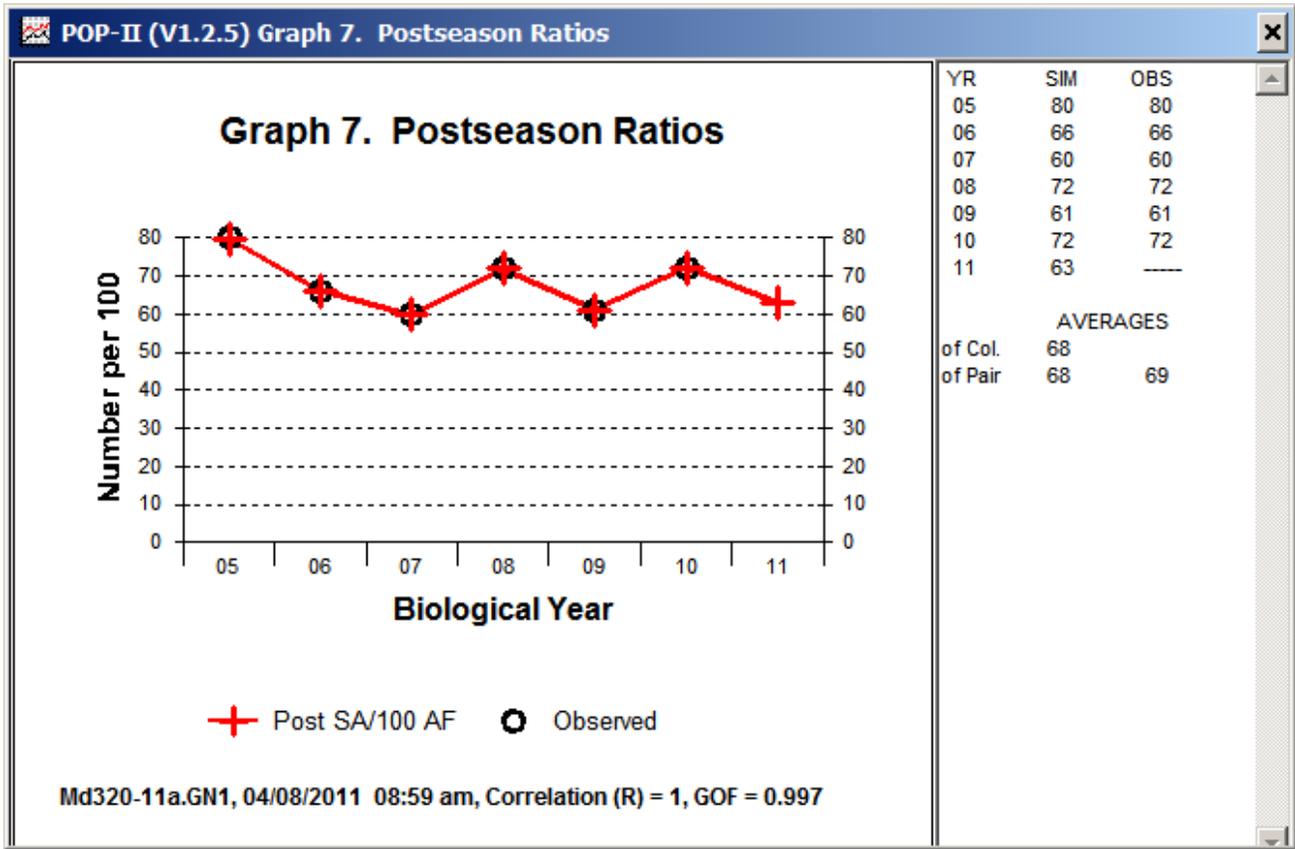
Table 4. Harvest Percentages for Md320-11a.GN1 04/08/2011 08:59 am

Bio-Year	Sub-Adults	Adult Males	Adult Females	Total	Yearling Males
2005	0.9	21.0	3.9	6.62	8.7
2006	0.1	18.5	4.4	6.76	12.3
2007	0.4	17.5	3.7	6.60	7.1
2008	0.7	16.6	4.3	6.52	7.7
2009	0.5	16.5	3.3	6.40	7.6
2010	0.3	15.6	2.2	5.29	3.9
2011	0.8	17.4	1.9	6.00	8.5

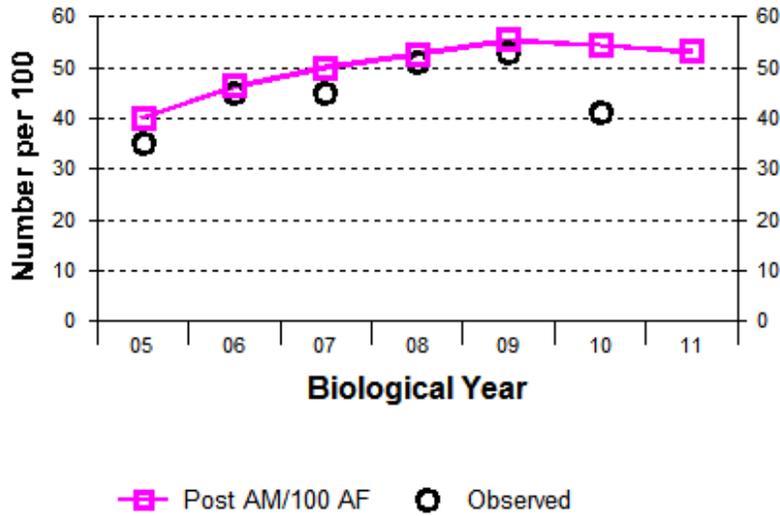
Table 7. Postseason Ratios for Md320-11a.GN1 04/08/2011 08:59 am

Bio-Year	Subadults /100 1+F	2+ Males /100 1+F	Yr. Males /100 1+F	Ad Males /100 1+F
2005	79.7	24.3	15.8	40.1
2006	66.1	23.8	22.6	46.3
2007	59.7	33.7	16.3	50.0
2008	71.9	34.6	18.1	52.7
2009	61.1	36.7	18.7	55.4
2010	72.1	43.8	10.6	54.4
2011	63.0	33.4	19.8	53.2





**Graph 7. Postseason Ratios**



YR	SIM	OBS
05	40	35
06	46	45
07	50	45
08	53	51
09	55	53
10	54	41
11	53	---

AVERAGES		
of Col.	50	
of Pair	50	45

Md320-11a.GN1, 04/08/2011 08:59 am, Correlation (R) = 0.743, GOF = 0.86





## 2010 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2010 - 5/31/2011

HERD: MD321 - NORTH BIGHORN

HUNT AREAS: 24-25, 27-28, 50-53

PREPARED BY: TIM THOMAS

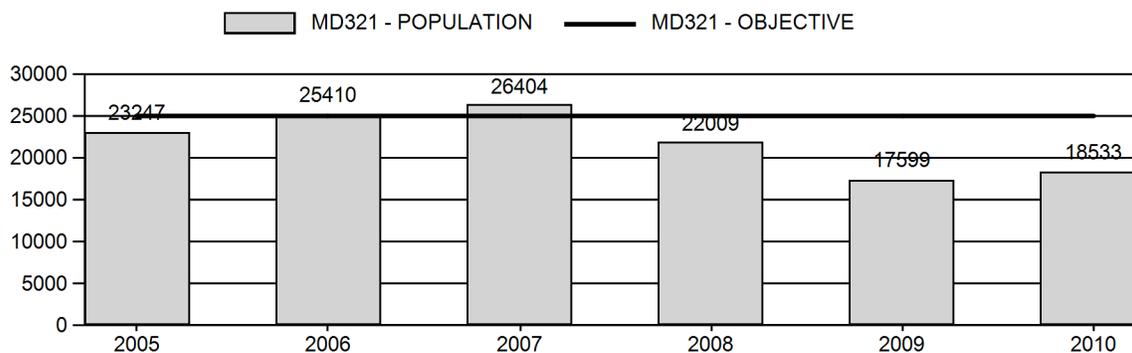
	<b>2005 - 2009 Average</b>	<b>2010</b>	<b>2011 Proposed</b>
Population:	22,934	18,533	19,722
Harvest:	2,067	1,984	2,100
Hunters:	4,275	4,331	4,350
Hunter Success:	48%	46%	48%
Active Licenses:	4,462	4,539	4,600
Active License Percent:	46%	44%	46%
Recreation Days:	20,286	20,280	20,500
Days Per Animal:	9.8	10.2	9.8
Males per 100 Females	31	33	
Juveniles per 100 Females	70	76	

Population Objective:	25,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-25.9%
Number of years population has been + or - objective in recent trend:	4
Model Date:	04/27/2011

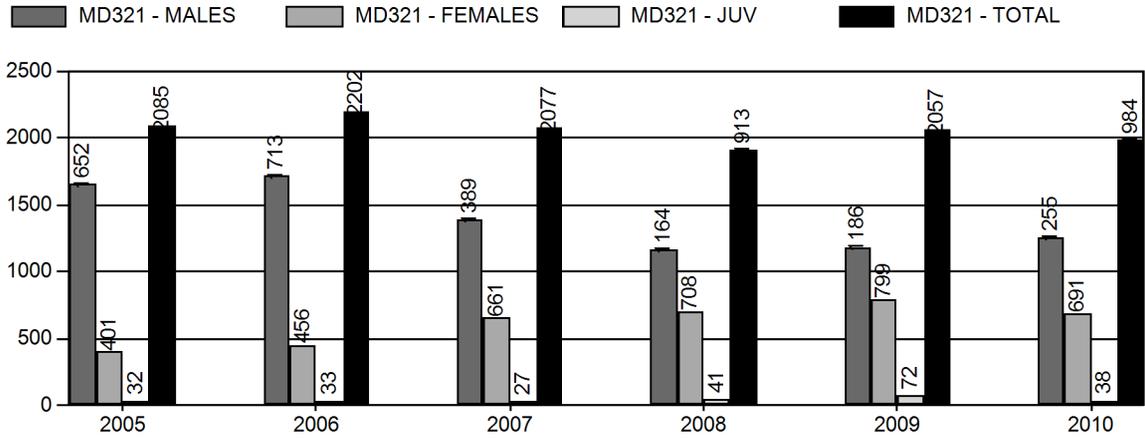
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	7%	7%
Males ≥ 1 year old:	26%	25%
Juveniles (< 1 year old):	1%	1%
Total:	10%	10%
Proposed change in post-season population:	5%	6%

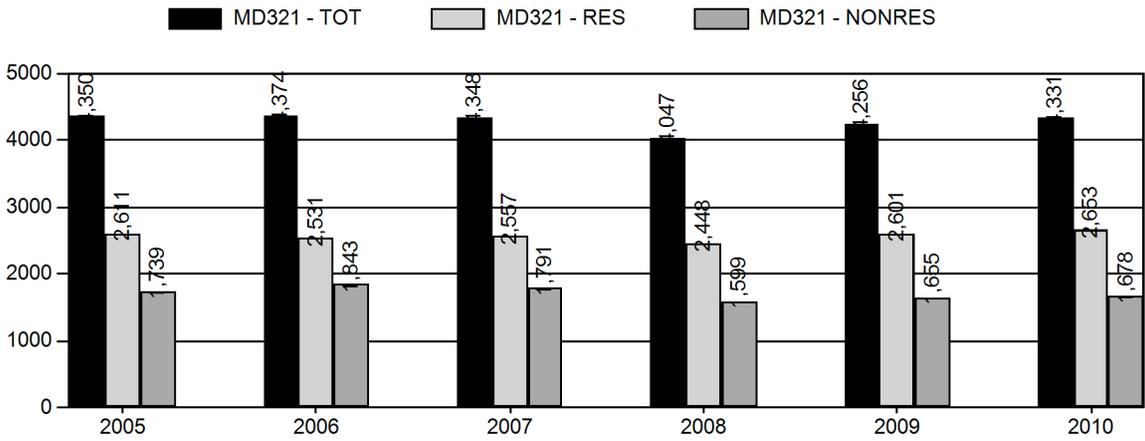
## Population Size - Postseason



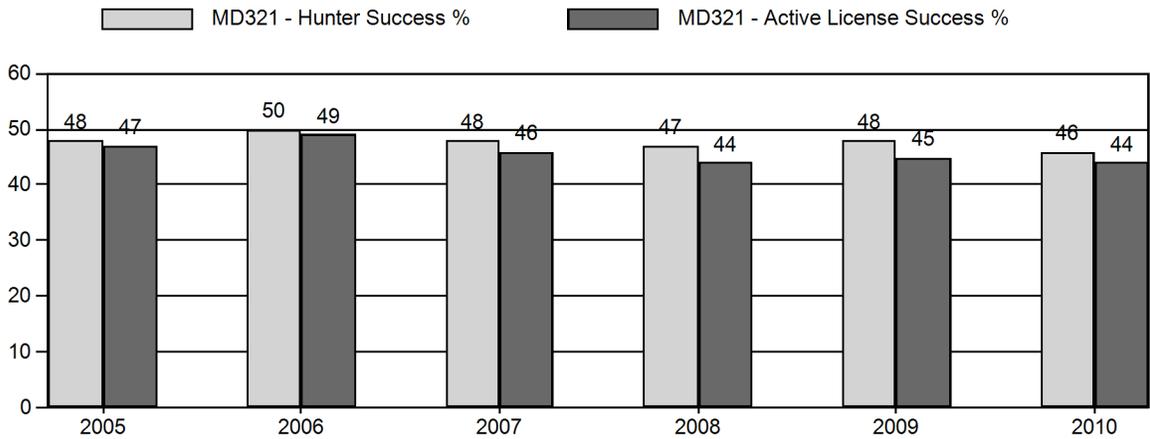
# Harvest



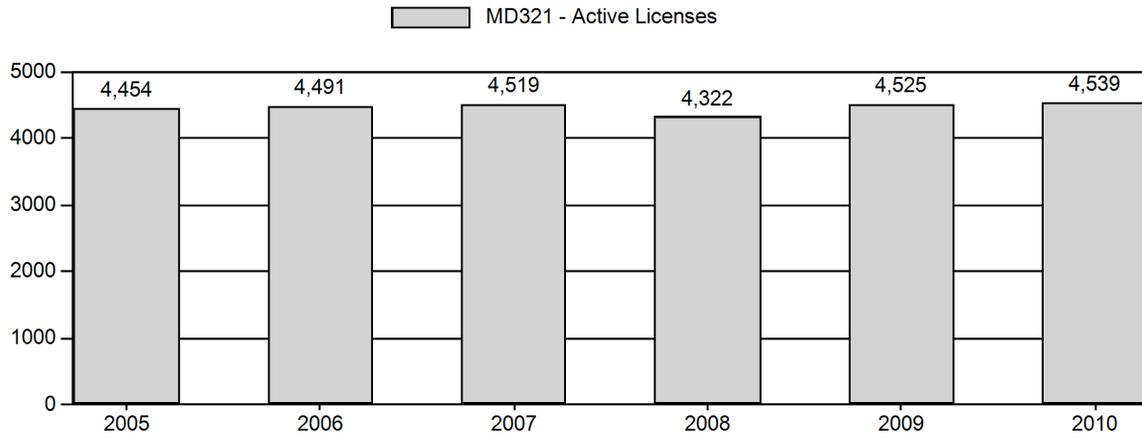
# Number of Hunters



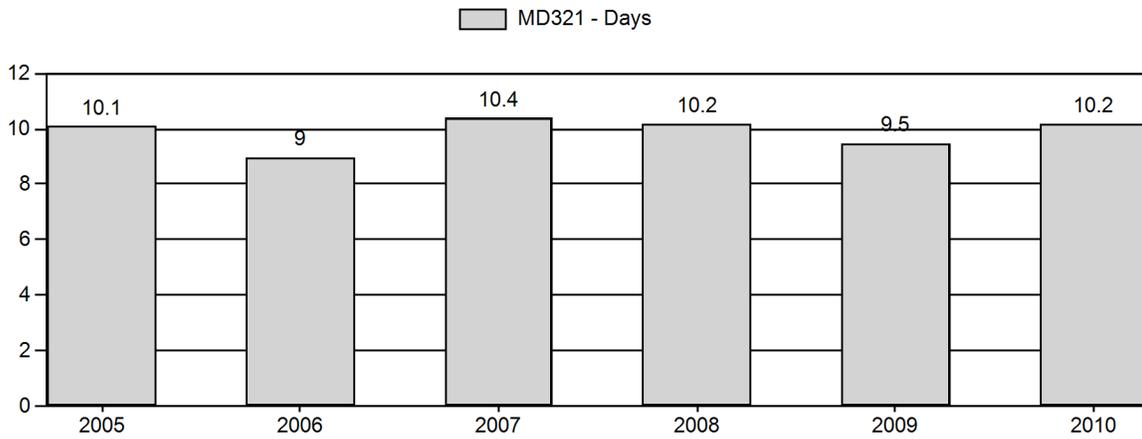
# Harvest Success



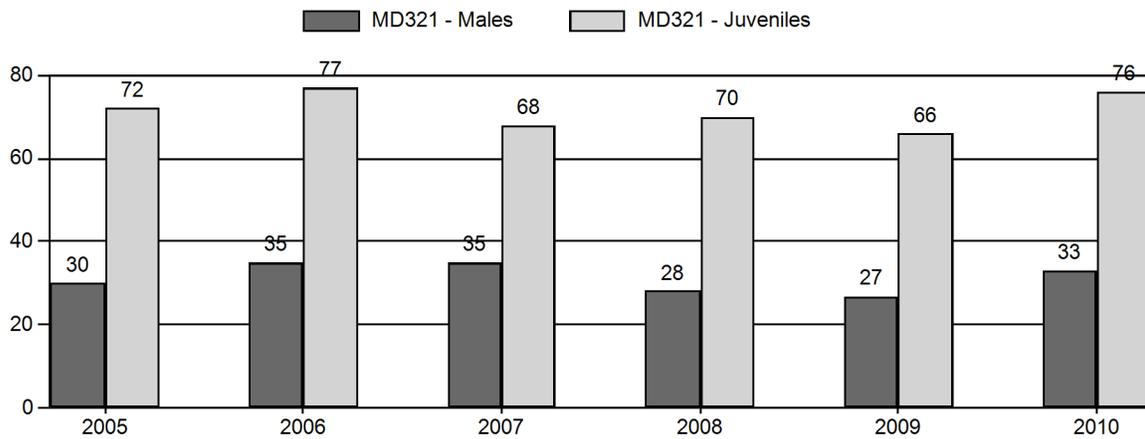
# Active Licenses



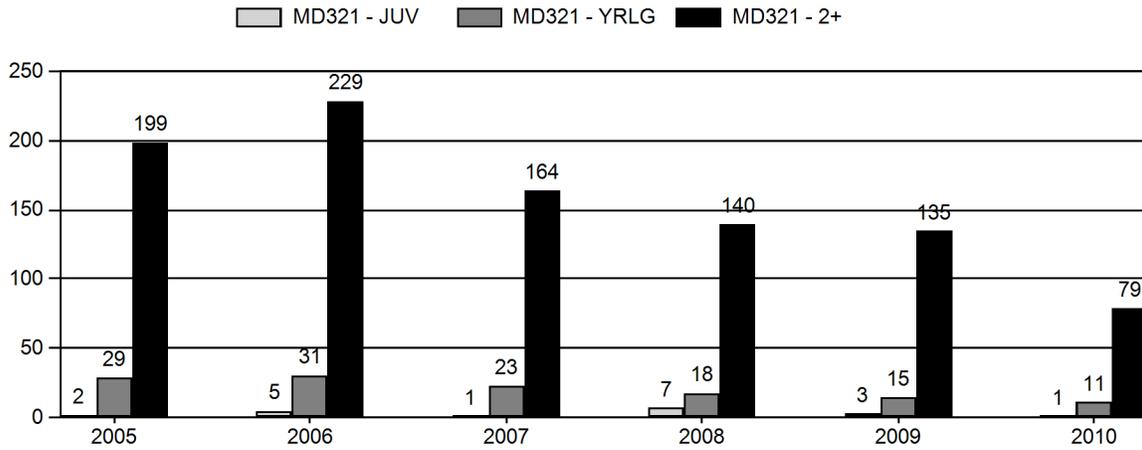
# Days per Animal Harvested



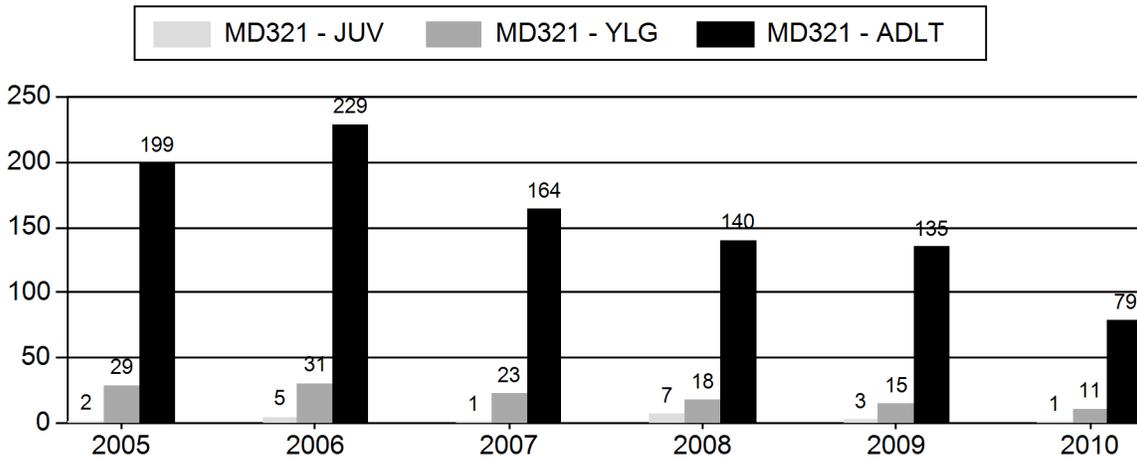
# Postseason Animals per 100 Females



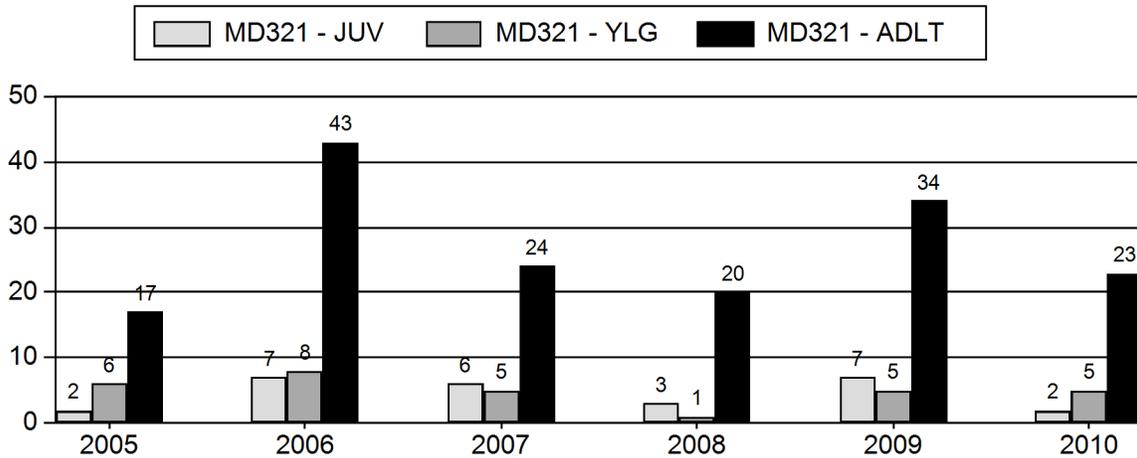
## Age Structure of Field Checked Males



## Age Structure Data (Field and Laboratory) - Male



## Age Structure Data (Field and Laboratory) - Female



## 2005 - 2010 Postseason Classification Summary

for Mule Deer Herd MD321 - NORTH BIGHORN

Year	Post 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
2005	23,247	165	183	348	15%	1,179	50%	845	36%	2,372	2,402	14	16	30	±	372	± 5	55
2006	25,410	190	211	401	16%	1,153	47%	887	36%	2,441	2,778	16	18	35	±	377	±	57
2007	26,404	114	224	338	17%	973	49%	665	34%	1,976	2,308	12	23	35	±	368	± 5	51
2008	22,009	126	235	361	14%	1,286	51%	896	35%	2,543	1,448	10	18	28	±	070	± 0	54
2009	17,599	117	204	321	14%	1,204	52%	792	34%	2,317	1,289	10	17	27	±	066	± 0	52
2010	18,533	136	226	362	16%	1,099	48%	838	36%	2,299	1,672	12	21	33	±	276	± 4	57

# 2010 HUNTING SEASONS

MD321 - NORTH BIGHORN

<u>Hunt Area</u>	<u>Add'l Hunt Areas</u>	<u>Type</u>	<u>Quota</u>	<u>Season Dates</u>	<u>Limitations</u>
24		ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
24		GEN		10/15 - 10/31	Antlered deer off private land, any deer on private land
24		Type 6	1500	09/01 - 12/19	Reduced Price doe/fawn
25		ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
25		GEN		10/15 - 10/31	Antlered mule deer
25		Type 6	50	10/15 - 10/31	Reduced Price doe/fawn
27		ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
27		GEN		10/15 - 10/31	Any deer
27		Type 6	200	10/15 - 12/19	Reduced Price doe/fawn
28		ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
28		GEN		10/15 - 10/31	Antlered mule deer
50		ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
50		GEN		10/15 - 10/24	Any deer
51		ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
51		GEN		10/15 - 10/24	Any deer
51		GEN		10/24 - 10/31	Antlerless deer on private land
51		Type 6	400	10/01 - 10/31	Reduced Price doe/fawn
51		Type 6	0	11/01 - 11/30	Reduced Price doe/fawn
52		ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
52		GEN		10/15 - 10/24	Any deer
53		ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
53		GEN		10/15 - 10/24	Any deer
53		GEN		10/25 - 11/04	Antlered deer

## 2010 MD 321 Harvest by Hunt Area

Area	Type	Active License	Hnts	Buck	Doe	Fawn	Total	Success	Days/ Harvest	Days	Licenses Sold
24 SHERIDAN											
	General	1092		415	37	4	456	41.80%	10.1	4626	
	Type 6	463		0	292	0	292	63.10%	4.1	1203	1202
	Pooled Total	1502	(1555)*	415	329	4	748	49.80% (48.1%)*	7.8	5829	
	Pooled Resident	918		198	201	0	399	43.50%	8.5	3410	
	Pooled Nonresident	584		217	128	4	349	59.80%	6.9	2419	
25 TONGUE-GOOSE											
	General	757		248	0	0	248	32.80%	15.7	3884	
	Type 6	40		0	29	0	29	72.50%	9.2	267	50
	Pooled Total	781	(797)*	248	29	0	277	35.50% (34.8%)*	15	4151	
	Pooled Resident	449		82	9	0	91	20.30%	25.6	2333	
	Pooled Nonresident	332		166	20	0	186	56.00%	9.8	1818	
27 BUFFALO											
	General	379		100	23	0	123	32.50%	11.3	1389	
	Type 6	136		0	89	6	95	69.90%	4.4	414	199
	Pooled Total	471	(515)*	100	112	6	218	46.30% (42.3%)*	8.3	1803	
	Pooled Resident	273		29	53	3	85	31.10%	12	1018	
	Pooled Nonresident	198		71	59	3	133	67.20%	5.9	785	
28 HUNTER MESA											
	General	417		114	0	0	114	27.30%	14.5	1658	
	Pooled Total	417	(417)*	114	0	0	114	27.30% (27.3%)*	14.5	1658	
	Pooled Resident	271		43	0	0	43	15.90%	26.4	1136	
	Pooled Nonresident	146		71	0	0	71	48.60%	7.4	522	
50 UPPER SHELL-BEAVER CREEK											
	General	250		85	11	0	96	38.40%	12.4	1190	
	Pooled Total	250	(250)*	85	11	0	96	38.40% (38.4%)*	12.4	1190	
	Pooled Resident	134		44	0	0	44	32.80%	15.5	683	
	Pooled Nonresident	116		41	11	0	52	44.80%	9.8	507	
51 BEAVER CREEK											
	General	390		136	19	0	155	39.70%	10.8	1670	
	Type 6	279		0	148	11	159	57.00%	7.3	1166	400
	Pooled Total	588	(669)*	136	167	11	314	53.40% (46.9%)*	9	2836	
	Pooled Resident	282		61	56	0	117	41.50%	11.2	1305	
	Pooled Nonresident	306		75	111	11	197	64.40%	7.8	1531	
52 CRYSTAL CREEK											
	General	151		46	12	3	61	40.40%	9.2	560	
	Pooled Total	151	(151)*	46	12	3	61	40.40% (40.4%)*	9.2	560	
	Pooled Resident	125		27	8	3	38	30.40%	10.4	396	
	Pooled Nonresident	26		19	4	0	23	88.50%	7.1	164	
53 DEVILS CANYON											
	General	407		111	31	14	156	38.30%	14.4	2253	
	Pooled Total	407	(407)*	111	31	14	156	38.30% (38.3%)*	14.4	2253	
	Pooled Resident	355		74	27	14	115	32.40%	17.6	2026	
	Pooled Nonresident	52		37	4	0	41	78.80%	5.5	227	
2010 Hunt Area Total		4567	(4761)*	1255	691	38	1984	43.40% (41.7%)*	10.2	20280	1851
2010 Herd Total		4331	(4539)*	1255	691	38	1984	45.80% (43.7%)*	10.2	20280	1851

\*Active Licenses

## 2005 - 2010 Harvest Age Structure

for Mule Deer Herd MD321 - NORTH BIGHORN

Year	Males									Females									Herd
	Juv	1	% *	2 ^	% **	Tot Aged ++	Not Aged +++	Unk	Tot Chkd	Juv	1	% *	2 ^	% **	Tot Aged ++	Not Aged +++	Unk	Tot Chkd	Tot
2005	2	29	13%	48	62%	79	151	8	238	2	6	26%	4	40%	12	13	1	26	264
2006	5	31	12%	44	59%	80	185	2	267	7	8	16%	4	33%	19	39	0	58	325
2007	1	23	12%	52	69%	76	112	19	207	6	5	17%	5	50%	16	19	18	53	260
2008	7	18	11%	33	65%	58	107	8	173	3	1	5%	5	83%	9	15	16	40	213
2009	3	15	10%	97	87%	115	38	23	176	7	5	13%	16	76%	28	18	16	62	238
2010	1	11	12%	9	45%	21	70	14	105	2	5	18%	0	0%	7	23	16	46	151

\* Percent of aged animals (including unaged adults but excluding juveniles) 1 1/2 years old

^ Number of animals two years old and older. Animals aged older than two (excluding unaged adults) are lumped into this two plus category

\*\* Percent of aged animals (not including juveniles or unaged adults) two years old or older

++ includes juveniles

+++ Unaged adults - unaged animals older than yearlings

**NORTH BIGHORN MULE DEER (MD 321)**  
**Hunt Areas 24, 25, 27, 28, 50, 51, 52, 53**  
**2011 Hunting Seasons**

HUNT AREA	TYPE	DATE OF SEASONS		LIMITATIONS
		OPENS	CLOSES	
24		Oct. 15	Oct. 31	General license; antlered deer off private land, any deer on private land
	6	Sept. 1	Dec. 18	Limited quota; 1,500 licenses doe or fawn valid on private land
25		Oct. 15	Oct. 31	General license; antlered mule deer or any white-tailed deer
	6	Oct. 15	Oct. 31	Limited quota; 50 licenses doe or fawn valid in that portion of Area 25 north or west of U.S. Highway 14
27		Oct. 15	Oct. 31	General license; any deer
	6	Oct. 15	Dec. 18	Limited quota; 100 licenses doe or fawn
28		Oct. 15	Oct. 31	General license; antlered mule deer or any white-tailed deer
50		Oct. 15	Oct. 24	General license; any deer
51		Oct. 15	Oct. 24	General license; any deer
		Oct. 25	Oct. 31	General license; antlerless deer on private land
	6	Oct. 1	Oct. 31	Limited quota; 400 licenses doe or fawn valid on private land
		Nov. 1	Nov. 30	Unused Type 6 licenses valid for doe or fawn white-tailed deer
52		Oct. 15	Oct. 24	General license; any deer
53		Oct. 15	Oct. 24	General license; any deer
		Oct. 25	Nov. 4	General license; antlered deer
ARCHERY 24,25,27,28, 50,51,52,53		Sept. 1	Sept. 30	General license; any deer. Limited quota license; refer to Section 4 of this Chapter.

**SUMMARY OF CHANGES**

Area	Type	Change
Area 24 and 27	Type 6	Close on December 18 (-1 day)
Area 27	Type 6	Reduce licenses from 200 to 100 (100)
Area 51	Type 6	Restrict licenses to doe/fawn white-tailed deer after October 31

## **MANAGEMENT EVALUATION**

**Current Post-season Objective:** 25,000

**2010 Post-season Population Estimate:** ~ 18,533 (74% of objective)

**2011 Post-season Population Estimate:** ~ 19,722

**Current Population Trend:** This mule deer population appears to have decreased from 2006 – 2009, and now appears stable to slightly increasing. We estimate this population to be about 25% below the postseason management objective of 25,000 mule deer. A POP-II (ver. 1.2.5) population simulation model has been created for this herd unit using standardized model parameters adopted in 2003. We consistently collect adequate classification samples and consider the current model as medium quality. The current population model reasonably simulates observed population dynamics of this herd unit.

There are periodic outbreaks of diseases that affect mule deer in this herd unit. There was an outbreak of epizootic hemorrhagic disease (EHD) along the Tongue River and several of its tributaries in the fall of 2006. This outbreak seemed to primarily affect white-tailed deer, but some mule deer were definitely affected. The extent of the die-off for either species is not known but it is not thought to be significant for mule deer except in some very localized situations. Increased winter mortality during 2007, 2009 and 2010 due to more normal environmental conditions, along with increased antlerless harvest, have combined to reduce this population below the management objective.

The observed fawn to doe ratio (76 fawns:100 does) is the second highest in the past 10 years, suggesting good production in 2010. Observed yearling buck to doe ratio (12 yearling bucks:100 does) suggests good recruitment of animals into the adult cohort. Both indices suggest this population is starting to increase.

**Proposed 2011 Harvest:** The projected harvest for 2011 includes 1,300 bucks, 750 does and 50 fawns for a total estimated harvest of 2,100 mule deer. Estimated harvest is based on similar doe/fawn license allocation and similar hunter numbers compared to 2010. The proposed harvest strategy, along with normal environmental conditions, should allow this population to increase towards the established management objective.

Antlered deer harvest decreased unexpectedly in 2008 and 2009. Antlered harvest increased 6% in 2010 to more expected levels. Weather conditions were mild through October, allowing hunters access to areas normally not accessible this late. Deer also didn't migrate as early as some years, resulting in an increased buck harvest in hunt areas on the Bighorns, especially Areas 25 (83% increase) and 28 (14% increase).

There is some concern about trophy quality in some areas. Managers prefer to manage this herd unit at or near the upper limits of males:100 females (29 male:100 females) for recreational management. Even with relatively high buck ratios, we recommend maintaining non-resident quotas at current levels in Region R and Y. Non-residents comprise 38% of the hunters in this herd unit, but harvest approximately 54% of the bucks. Keeping buck harvest under control may result in an increase in buck quality available to all hunters.

Hunters can harvest either-species (mule deer or white-tailed deer) on general and type 6 licenses in this herd unit. Doe/fawns permits are being continued in some hunt areas to address localized concerns and damage situations. In Hunt Area 24, 39% of the type 6 licenses are used for mule deer while the rest are used for white-tailed deer. Only 10% of the general license harvest was antlerless deer in 2010.

**Management Challenges:** Problems associated with the management of this herd include: migration of deer between hunt areas and nonresident deer regions; below desired mature buck numbers; and hunter/harvest distribution associated with private versus public lands.

Access to private lands within the herd unit is fairly restrictive, resulting in high hunting pressure on public lands, hence the conservative season strategies within hunt areas with a significant amount of accessible public land. This herd unit is split between two nonresident deer hunting regions (Regions Y and R), which can be frustrating to nonresident hunters when deer move out of Hunt Area 25 (Region Y) west into Hunt Area 50 or 53 (Region R) due primarily to the onset of winter weather conditions.

Region C was split into two nonresident deer regions (new Region C and Region Y) starting with the 2008 season to address hunter distribution and access to public versus private land. The new Region C is made up of Hunt Areas 17, 18, 19, 20, 23, 26, 29 and 31, which are predominately private lands or inaccessible public lands. The majority of mule deer hunting in these hunt areas occur on private lands. Region Y contains Hunt Areas 24, 25, 27, 28, 30, 32, 33, 163 and 169. These hunt areas vary from predominately private lands (areas 24, 27) to mixed public / private lands (30, 32, 33, 163, and 169) to predominately public lands (areas 25, 28). Hunt Areas 50, 51, 52 and 53 are part of Region R.

This herd unit is managed under recreational management guidelines, meaning we manage for observed buck to doe ratios between 20 – 29 bucks: 100 does. Over the past 10 years, we have averaged 28.5 bucks per 100 does, near the upper end of the recreational management guidelines. While the observed buck to doe ratio is still relatively high, it appears that a lot of these bucks are in the 2-4 year old cohorts, especially in hunt areas with more public lands. Based on antler measurements from deer harvested in hunt areas 50-53 in 2008, approximately 1% of the adult bucks harvested had antlers > 25 inches. Managers would like to increase the number of mature bucks (i.e. 4+ years old) in this herd unit to provide some level of trophy hunting opportunity on public lands.

In Hunt Area 24, 22 landowners responded to our annual landowner survey. Eleven landowners thought the mule deer population was below desired levels on their properties, similar to results from the 2009 landowner survey. Only three landowners considered mule deer numbers above desired levels this year. This is a big shift from 2007, when most landowners thought the population was at or above desired levels. "Desired level" is a measurement of landowner tolerance for wildlife and is not necessarily correlated to the established post-season population management objective.

Some hunters have questioned the continuation of antlerless harvest in parts of this herd unit as this population has declined. Most antlerless harvest is focused on private lands where landowners control access and thus harvest, or designed to address damage situations.

We propose to remove the limit on reduced price doe/fawn licenses (Type 6, 7, or 8) that an individual may purchase in certain hunt areas, specifically Areas 24 and 27 of this herd unit. Currently, an individual is restricted to the purchase of four doe/fawn license per year. The removal of this restriction is in response to the request of a few individuals and landowners who want to increase the harvest of white-tailed deer. While we do not think we will see a significant increase in harvest, it may allow landowners to address specific problems using selected hunters. In 2010, 105 individuals (9% of total Area 24 doe/fawn hunters) purchased four doe/fawn licenses in Hunt Area 24.

The Cities of Buffalo and Sheridan have both passed ordinances banning the feeding of certain wildlife, including big game animals, within the city limits. Both municipalities have been issued Chapter 56 Permits authorizing them to take deer within the city limits.

North Bighorn Mule Deer 2004 - 2012  
Data from 2004 to 2011

Simulation from 2004 to 2011

Age Class	Init Pop.		Prop.		Presn		Mort%		Postsn		Mort%		Effort Set 1		Effort Set 2		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
0	7800.0	7800.0	50.0	50.0	30.0	30.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
1	2000.0	2000.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
2	1300.0	1600.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
3	800.0	1300.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
4	500.0	1200.0	2.0	2.0	5.0	5.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
5	250.0	1100.0	2.0	2.0	10.0	5.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
6	150.0	1000.0	2.0	2.0	20.0	8.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
7	75.0	850.0	2.0	2.0	30.0	10.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
8	50.0	750.0	2.0	2.0	40.0	15.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
9	30.0	500.0	2.0	2.0	50.0	20.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
10	20.0	300.0	2.0	2.0	60.0	30.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
11	10.0	200.0	2.0	2.0	70.0	40.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
12	8.0	100.0	2.0	2.0	80.0	50.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
13	5.0	50.0	2.0	2.0	90.0	75.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
14	0.0	25.0	2.0	2.0	100.0	100.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Sum =		31773.0	Estimated Sum =				31000	Subadults: Ages 0 to 0									

Bio-Year	MSI Function is Linear					Effort & Wound	
	Preseason MSI	Harvest Subadults#	Des. Males#	Pop Size in NA Females#	Postseason MSI	Set Used	Set Used
2004	0.97	16	1601	285	0.90	1	1
2005	0.95	32	1652	401	0.50	1	1
2006	0.86	33	1712	456	2.00	1	1
2007	1.12	27	1389	661	2.30	1	1
2008	1.15	41	1164	708	2.30	1	1
2009	1.21	72	1186	799	1.25	1	1
2010	1.00	38	1255	691	1.00	1	1
2011	1.00	50	1300	750	1.00	1	1
Set 1 Wounding Loss		10.0%	10.0%	10.0%	Yearling Male	10.0%	10.0%
Set 1 Wounding Loss		10.0%	10.0%	10.0%	Yearling Male	10.0%	10.0%

Bio-Year	Young/100 Fems Age 1 - 1	Young/100 Fems Age 2 - 14	Young/100 Fems Disabled	Sex Ratio: 50 : 50
2005	0.0	170.0	0.0	
2006	0.0	170.0	0.0	
2007	0.0	170.0	0.0	
2008	0.0	170.0	0.0	
2009	0.0	170.0	0.0	
2010	0.0	170.0	0.0	
2011	0.0	170.0	0.0	
2012	0.0	170.0	0.0	

Table 1. Population Size During Bio-Year for N Bighorn Mule Deer 2004 - 2012.GN1  
04/27/2011 03:18 pm

Bio-Year	Start	Pre-Season	Post Season	End	%Growth
2004	31000	23312	21220	18047	9.4
2005	33912	26033	23739	21834	19.4
2006	40502	32099	29678	20129	-3.1
2007	39238	28086	25801	17060	-12.8
2008	34211	23956	21852	14460	-15.2
2009	29021	19862	17599	14393	-4.9
2010	27614	20715	18533	15620	5.3
2011	29069	22032	19722	16635	6.3

Table 3. Harvest Mortality for N Bighorn Mule Deer 2004 - 2012.GN1 04/27/2011 03:18 pm

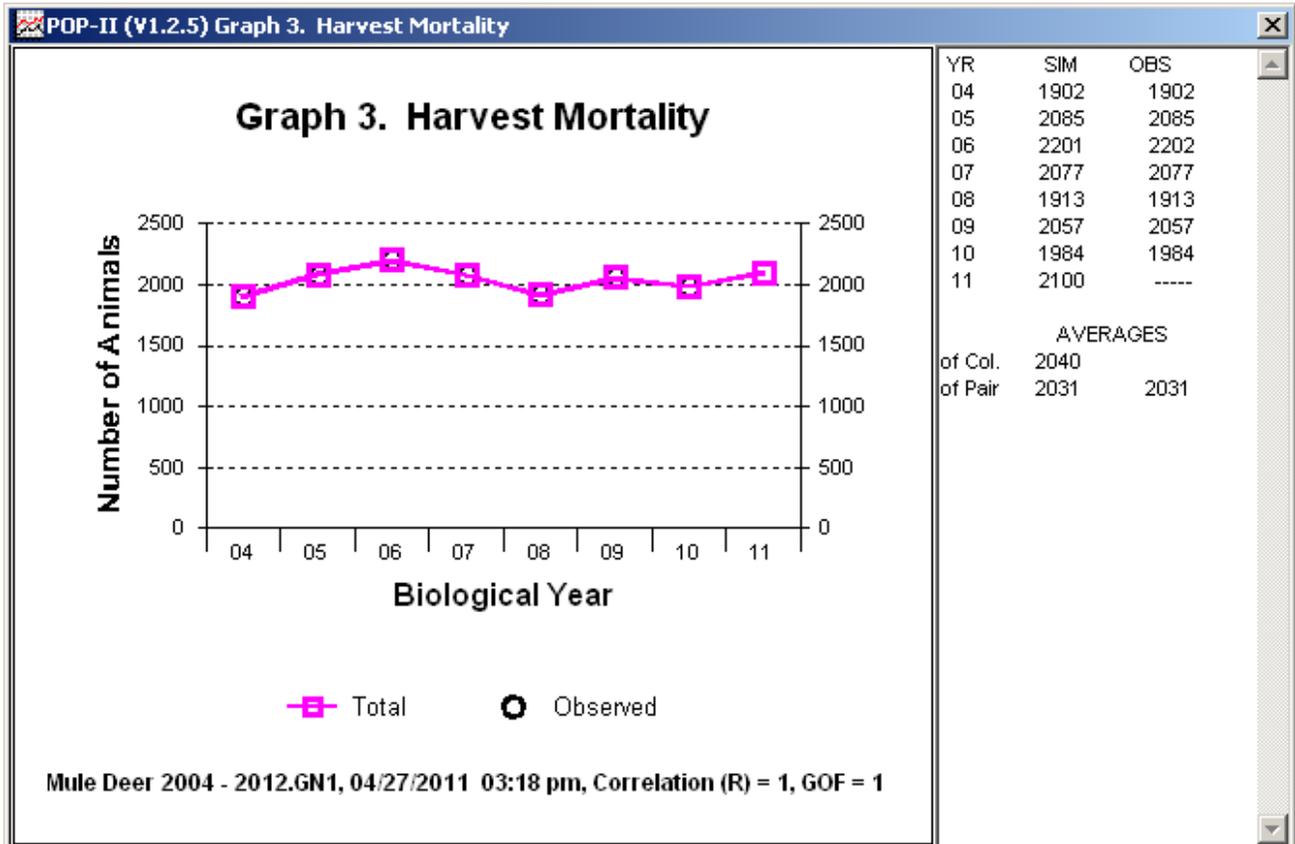
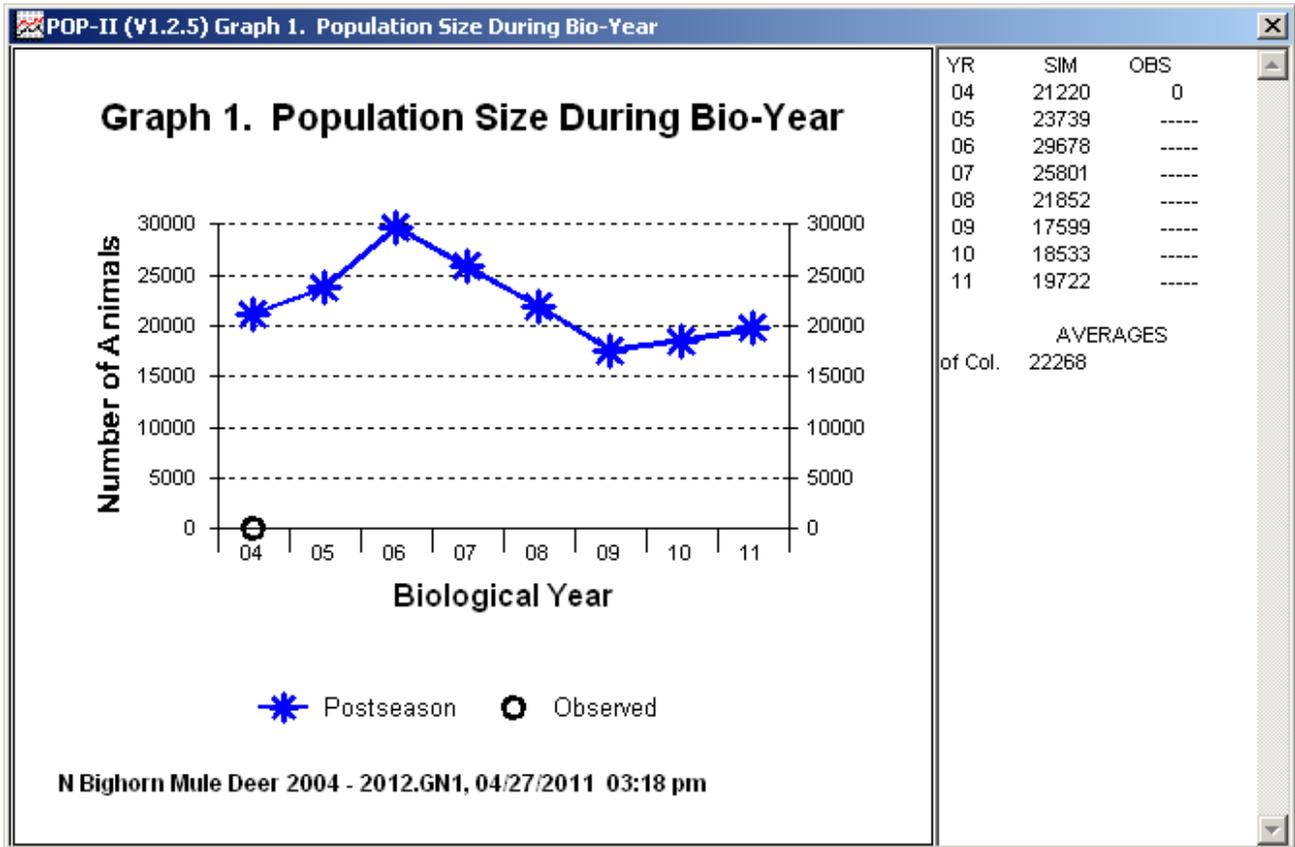
Bio-Year	Sub-Adults	Adult Males	Adult Females	Total	% of Pop
2004	16	1601	285	1902	8.2
2005	32	1652	401	2085	8.0
2006	33	1712	456	2201	6.9
2007	27	1389	661	2077	7.4
2008	41	1164	708	1913	8.0
2009	72	1186	799	2057	10.4
2010	38	1255	691	1984	9.6
2011	50	1300	750	2100	9.5

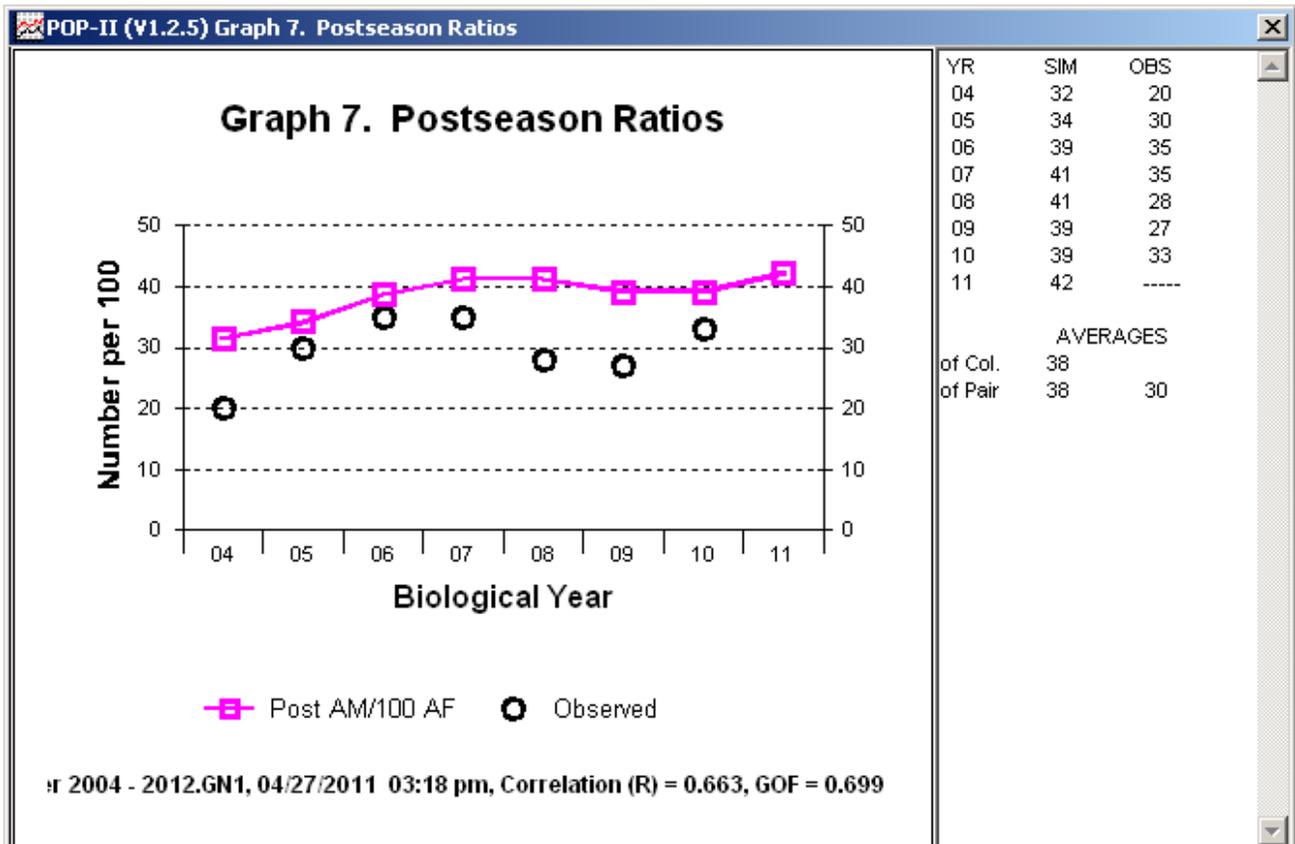
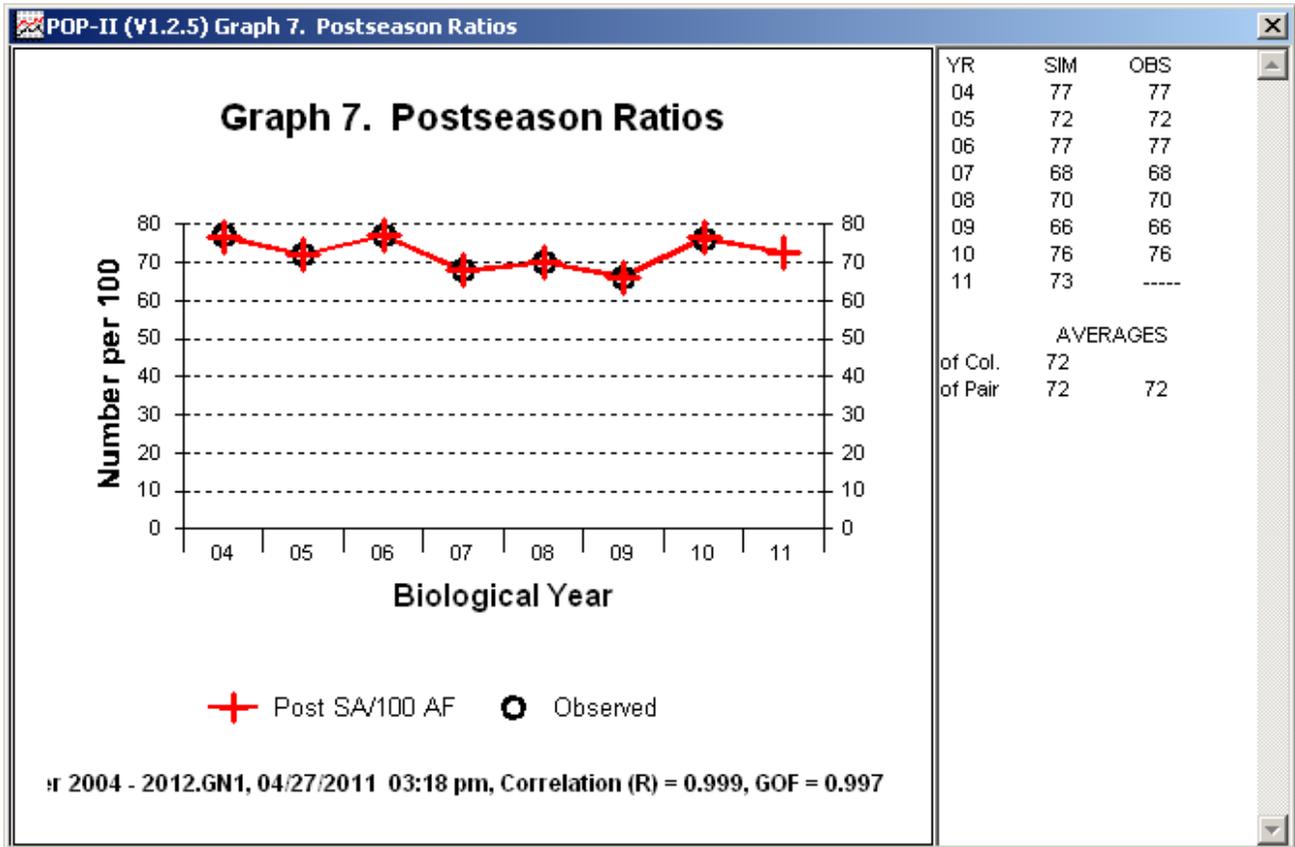
Table 4. Harvest Percentages for N Bighorn Mule Deer 2004 - 2012.GN1 04/27/2011 03:18 pm

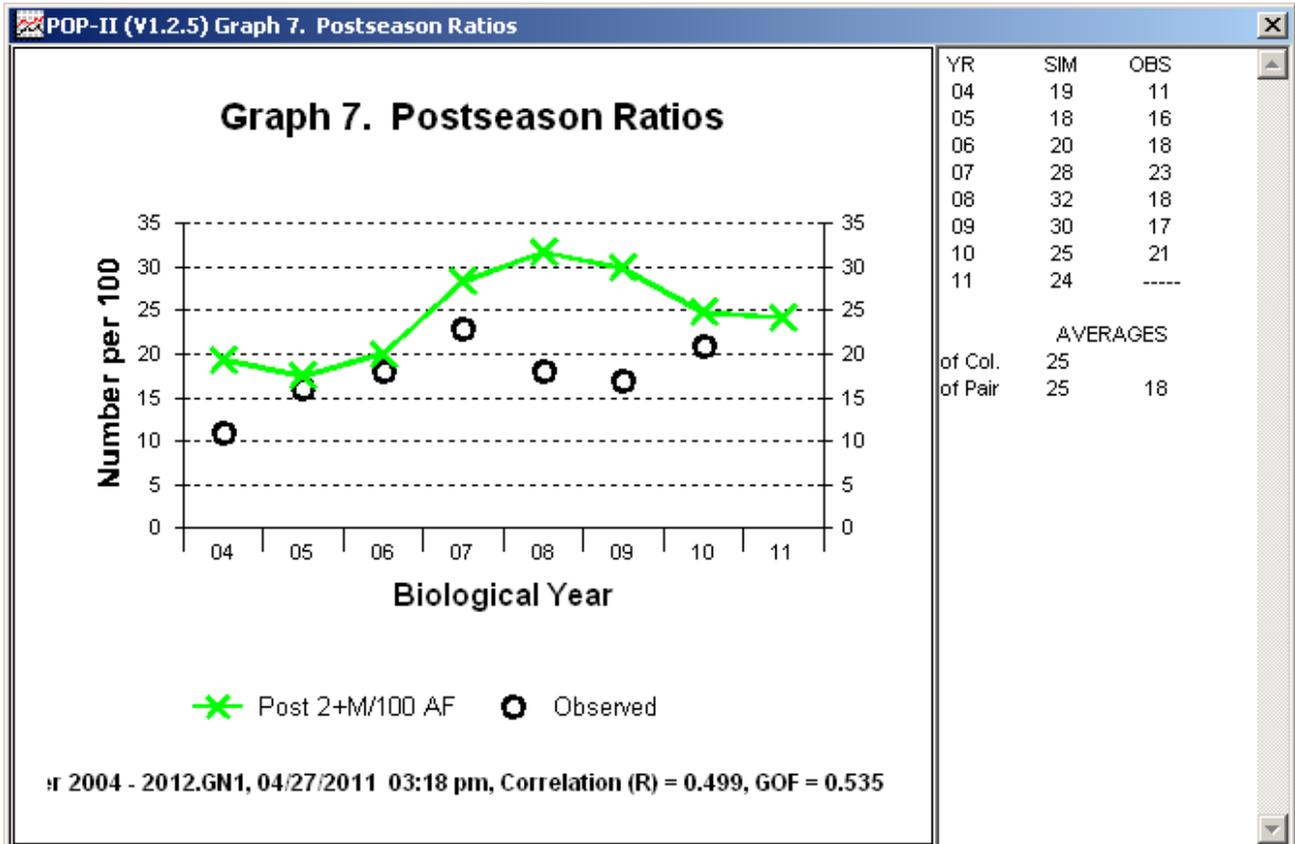
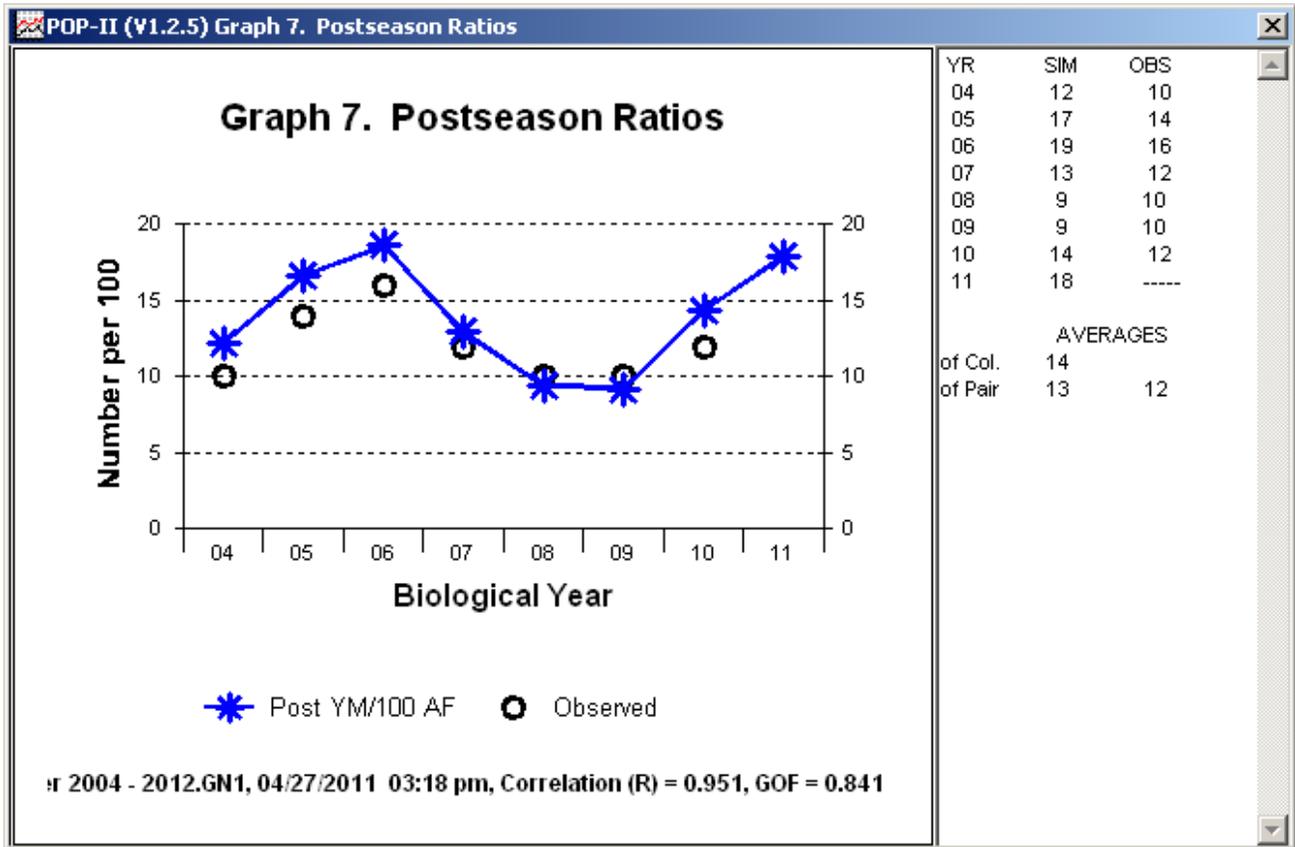
Bio-Year	Sub-Adults	Adult Males	Adult Females	Total	Yearling Males
2004	0.2	32.2	2.7	8.16	38.5
2005	0.4	28.7	3.4	8.01	48.7
2006	0.3	23.8	3.2	6.86	48.1
2007	0.3	21.0	5.1	7.40	31.3
2008	0.6	21.0	6.4	7.99	22.9
2009	1.3	25.5	8.5	10.36	23.5
2010	0.6	26.4	7.4	9.58	36.6
2011	0.7	24.5	7.5	9.53	42.5

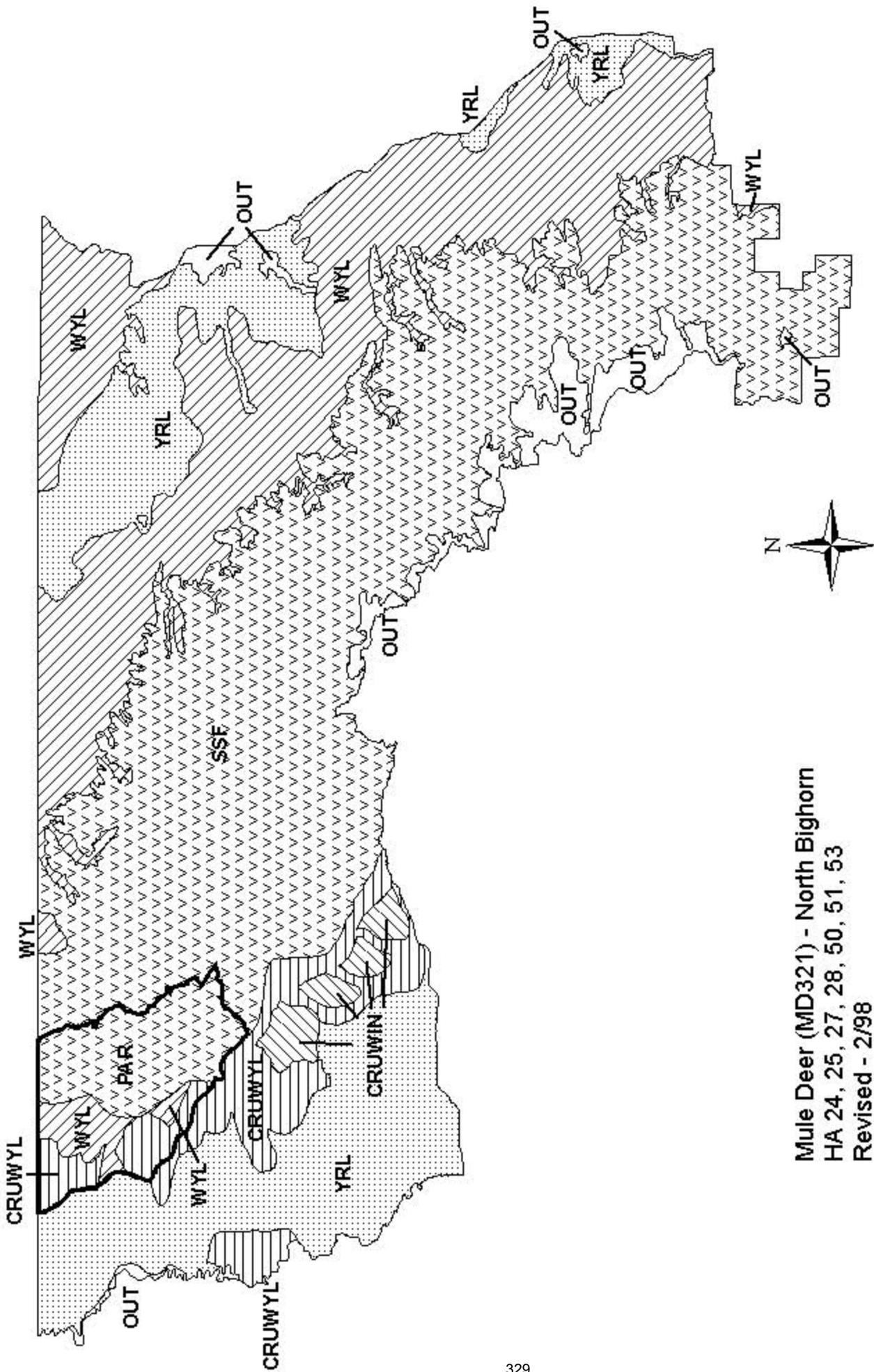
Table 7. Postseason Ratios for N Bighorn Mule Deer 2004 - 2012.GN1 04/27/2011 03:18 pm

Bio-Year	Subadults /100 1+F	2+ Males /100 1+F	Yr. Males /100 1+F	Ad Males /100 1+F
2004	76.8	19.4	12.1	31.5
2005	72.0	17.5	16.6	34.1
2006	77.1	20.1	18.6	38.7
2007	67.9	28.3	12.9	41.2
2008	70.0	31.8	9.4	41.2
2009	66.2	29.9	9.2	39.1
2010	76.4	24.8	14.3	39.1
2011	72.6	24.3	17.9	42.2









Mule Deer (MD321) - North Bighorn  
 HA 24, 25, 27, 28, 50, 51, 53  
 Revised - 2/98



## 2010 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2010 - 5/31/2011

HERD: MD322 - UPPER POWDER RIVER

HUNT AREAS: 30, 32-33, 163, 169

PREPARED BY: DAN THIELE

	<b>2005 - 2009 Average</b>	<b>2010</b>	<b>2011 Proposed</b>
Population:	13,546	10,876	11,474
Harvest:	1,132	1,081	1,170
Hunters:	1,693	1,712	1,800
Hunter Success:	67%	63%	65%
Active Licenses:	1,810	1,847	1,850
Active License Percent:	63%	59%	63%
Recreation Days:	7,400	6,384	7,000
Days Per Animal:	6.5	5.9	6.0
Males per 100 Females	39	30	
Juveniles per 100 Females	61	67	

Population Objective:	18,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-39.6%
Number of years population has been + or - objective in recent trend:	8
Model Date:	4/8/2011

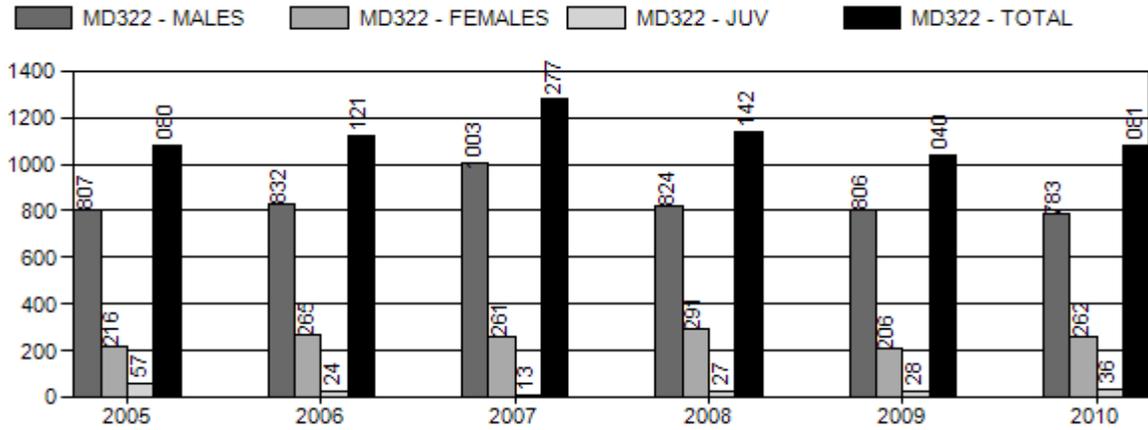
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	5%	5%
Males ≥ 1 year old:	26%	27%
Juveniles (< 1 year old):	1%	1%
Total:	9%	9%
Proposed change in post-season population:	-6%	+6%

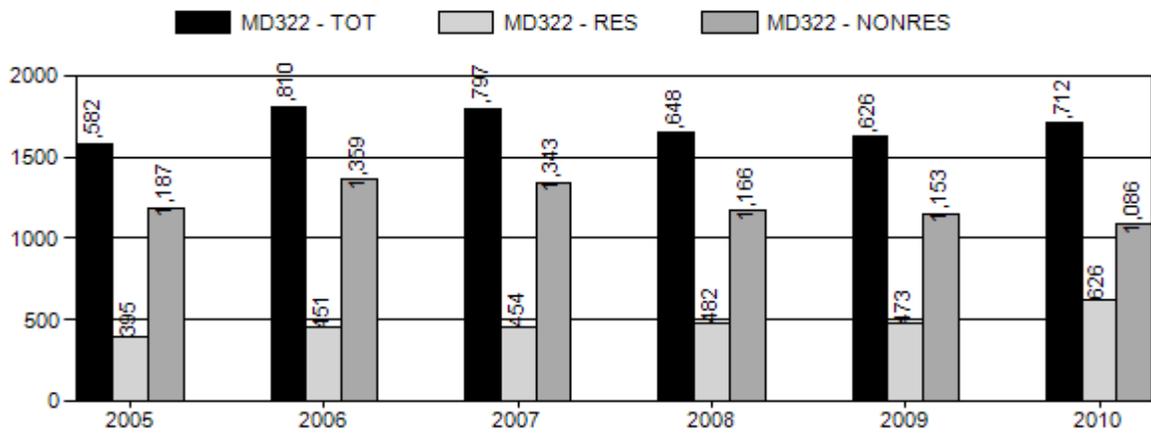
## Population Size - Postseason



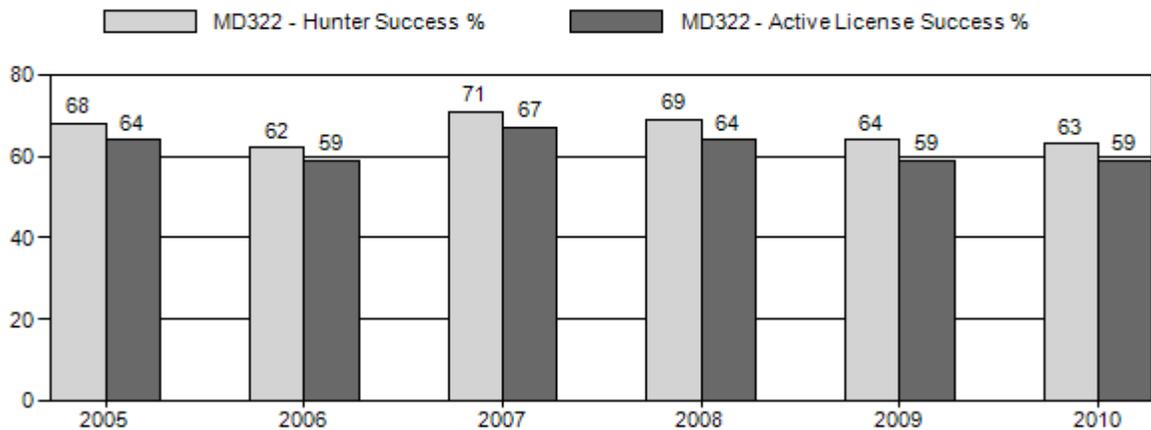
# Harvest



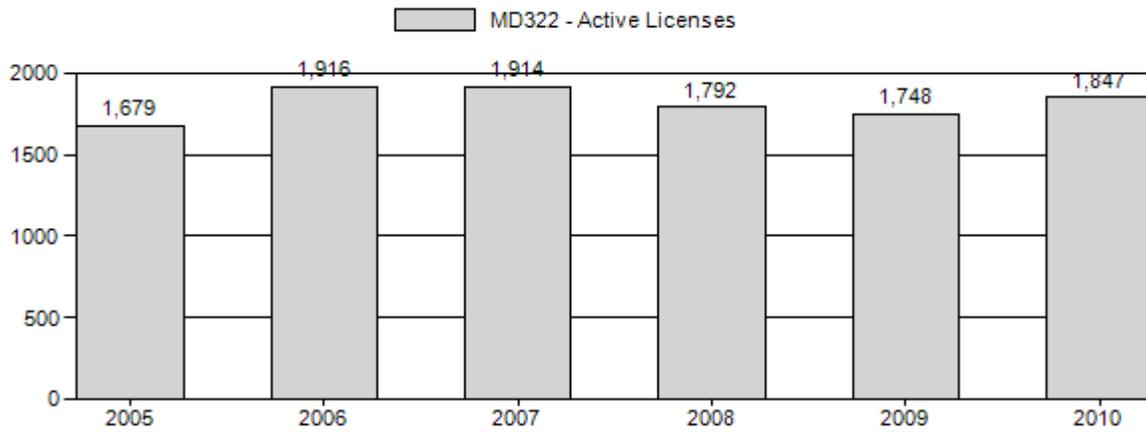
# Number of Hunters



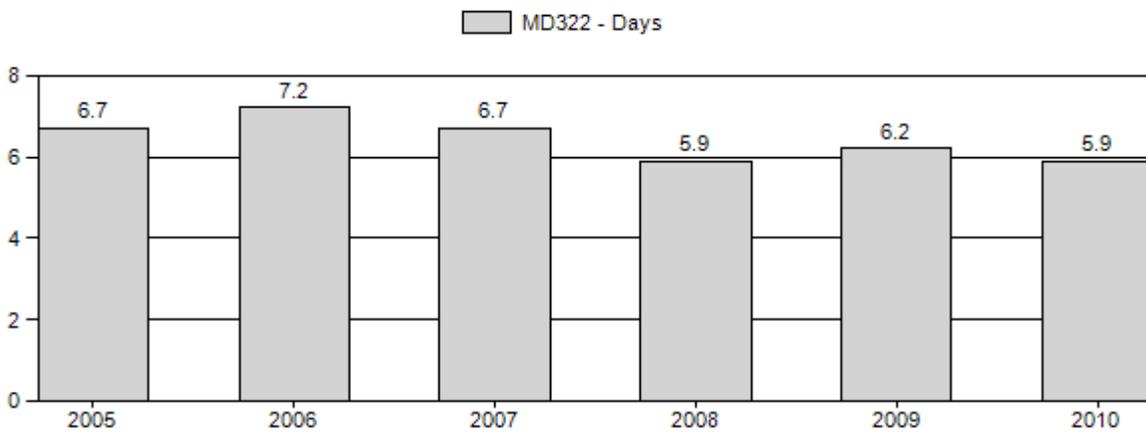
# Harvest Success



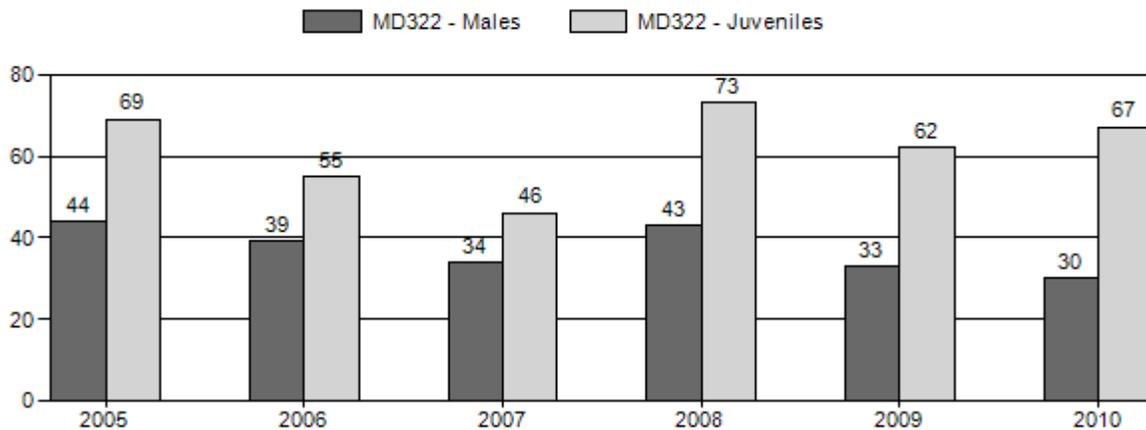
## Active Licenses



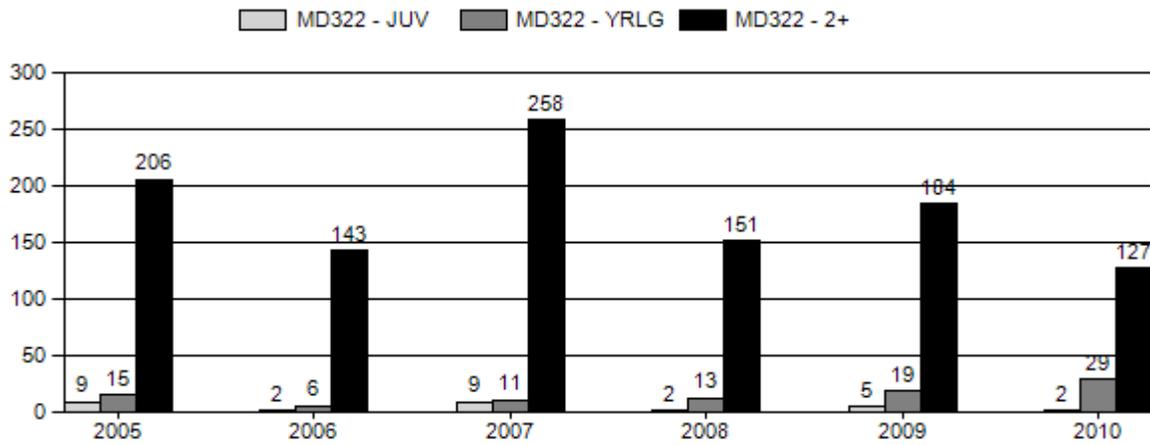
## Days per Animal Harvested



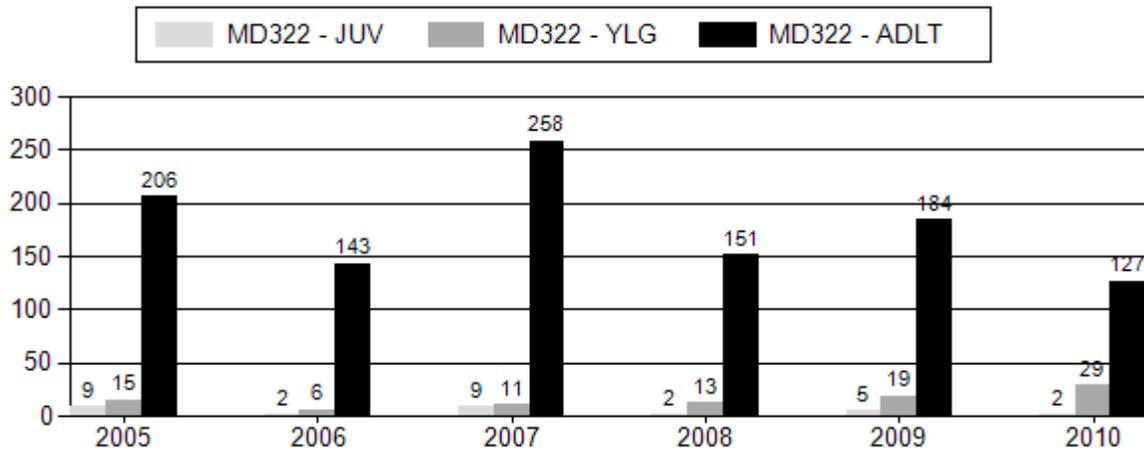
## Postseason Animals per 100 Females



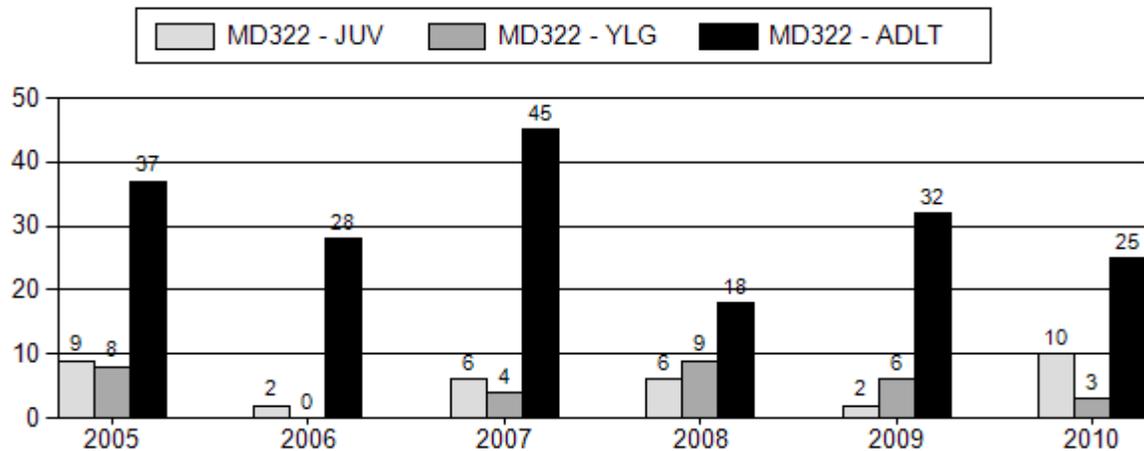
## Age Structure of Field Checked Males



## Age Structure Data (Field and Laboratory) - Male



## Age Structure Data (Field and Laboratory) - Female



## 2005 - 2010 Postseason Classification Summary

for Mule Deer Herd MD322 - UPPER POWDER RIVER

Year	Post 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
2005	15,590	216	293	509	21%	1,152	47%	799	32%	2,460	1,491	19	25	44	±	369	± 4	48
2006	13,729	143	240	383	20%	976	51%	539	28%	1,898	1,026	15	25	39	±	355	± 4	40
2007	12,831	83	282	365	19%	1,067	56%	487	25%	1,919	747	8	26	34	±	246	± 3	34
2008	14,004	117	248	365	20%	847	46%	616	34%	1,828	1,604	14	29	43	±	373	± 5	51
2009	11,576	127	165	292	17%	880	51%	542	32%	1,714	1,170	14	19	33	±	062	± 0	46
2010	10,876	115	196	311	15%	1,047	51%	697	34%	2,055	1,279	11	19	30	±	067	± 0	51

# 2010 HUNTING SEASONS

MD322 - UPPER POWDER RIVER

<u>Hunt Area</u>	<u>Add'l Hunt Areas</u>	<u>Type</u>	<u>Quota</u>	<u>Season Dates</u>	<u>Limitations</u>
30	32, 33, 163, 169	ARCH		09/01 - 09/30	Refer to Section 3 of this Chapter
30		GEN		10/15 - 10/31	Any deer
30		Type 6	300	10/15 - 11/30	Reduced price doe or fawn valid on private land
32		GEN		10/15 - 10/31	Any deer
33		GEN		10/15 - 10/31	Any deer
33		Type 6	200	10/15 - 11/15	Reduced Price doe/fawn
163		GEN		10/15 - 10/21	Antlered deer
169		GEN		10/15 - 10/21	Antlered deer

## 2010 MD 322 HARVEST BY HUNT AREA SUMMARY

Area	Type	Licenses	Buck	Doe	Fawn	Total	Success	Days/		
								Harvest	Days	Sold
30 UPPER POWDER RIVER										
	General	370	184	35	0	219	59.2%	5.7	1,243	
	Type 6	133	0	80	5	85	63.9%	4	339	300
Pooled Total		427 (503)*	184	115	5	304	71.2% (60.4%)*	5.2	1,582	
Pooled Resident		151	42	35	0	77	51.0%	7.8	599	
Pooled Nonresident		276	142	80	5	227	82.2%	4.3	983	
32 BEARTRAP CREEK										
	General	89	39	4	0	43	48.3%	8	345	
Pooled Total		89 (89)*	39	4	0	43	48.3% (48.3%)*	8	345	
Pooled Resident		54	15	4	0	19	35.2%	10.1	191	
Pooled Nonresident		35	24	0	0	24	68.6%	6.4	154	
33 RED FORK										
	General	762	358	56	16	430	56.4%	5.8	2,500	
	Type 6	156	0	87	15	102	65.4%	5.3	538	200
Pooled Total		861 (918)*	358	143	31	532	61.8% (58.0%)*	5.7	3,038	
Pooled Resident		298	58	71	25	154	51.7%	4.4	672	
Pooled Nonresident		563	300	72	6	378	67.1%	6.3	2,366	
163 MIDDLE FORK										
	General	214	112	0	0	112	52.3%	7.5	845	
Pooled Total		214 (214)*	112	0	0	112	52.3% (52.3%)*	7.5	845	
Pooled Resident		72	29	0	0	29	40.3%	9.6	277	
Pooled Nonresident		142	83	0	0	83	58.5%	6.8	568	
169 TISDALE										
	General	197	90	0	0	90	45.7%	6.4	574	
Pooled Total		197 (197)*	90	0	0	90	45.7% (45.7%)*	6.4	574	
Pooled Resident		63	27	0	0	27	42.9%	4.6	125	
Pooled Nonresident		134	63	0	0	63	47.0%	7.1	449	
2010 Hunt Area Total		1,788 (1921)*	783	262	36	1,081	60.5% (56.3%)*	5.9	6,384	500
2010 Herd Total		1,712 (1847)*	783	262	36	1,081	63.1% (58.5%)*	5.9	6,384	500

\*Active Licenses

## 2005 - 2010 Harvest Age Structure

for Mule Deer Herd MD322 - UPPER POWDER RIVER

Year	Males									Females									Herd
	Juv	1	% *	2 ^	% **	Tot Aged ++	Not Aged +++	Unk	Tot Chkd	Juv	1	% *	2 ^	% **	Tot Aged ++	Not Aged +++	Unk	Tot Chkd	Tot
2005	9	15	7%	206	93%	230	0	3	233	9	8	18%	37	82%	54	0	2	56	289
2006	2	6	4%	143	96%	151	0	0	151	2	0	0%	28	100%	30	0	0	30	181
2007	9	11	4%	0	0%	20	258	7	285	6	4	8%	0	0%	10	45	2	57	342
2008	2	13	8%	0	0%	15	151	4	170	6	9	33%	0	0%	15	18	9	42	212
2009	5	19	9%	184	91%	208	0	3	211	2	6	16%	32	84%	40	0	2	42	253
2010	2	29	19%	13	31%	44	114	3	161	10	3	11%	0	0%	13	25	2	40	201

\* Percent of aged animals (including unaged adults but excluding juveniles) 1 1/2 years old

^ Number of animals two years old and older. Animals aged older than two (excluding unaged adults) are lumped into this two plus category

\*\* Percent of aged animals (not including juveniles or unaged adults) two years old or older

++ includes juveniles

+++ Unaged adults - unaged animals older than yearlings

## 2011 HUNTING SEASONS

### UPPER POWDER RIVER MULE DEER (MD 322)

HUNT AREA	TYPE	DATE OF SEASONS		LIMITATIONS
		OPENS	CLOSES	
30	6	Oct. 15 Oct. 15	Oct. 31 Nov. 30	General License, any deer Limited Quota, 100 licenses doe or fawn deer valid on private land
32		Oct. 15	Oct. 31	General License, any deer
33	6	Oct. 15 Oct. 15	Oct. 31 Nov. 15	General License, any deer Limited Quota, 100 licenses doe or fawn
163,169		Oct. 15	Oct. 21	General License, antlered mule deer
Archery Season		Sept. 1	Sept. 30	General License, any deer; Limited Quota License, Refer to Section 3 of this Chapter

#### Summary of changes

Area	Type	Change from 2010
30	6	-200
33	6	-100
<b>Total</b>	<b>6</b>	<b>-300</b>

#### MANAGEMENT EVALUATION

**Current Objective:** 18,000

**2010 Postseason Population Estimate (% below or above obj.):** 10,876 (40% below)

**2011 Proposed Postseason Population Estimate:** 11,474

**Current Population Trend:** This population is estimated to be well below objective based on the updated POP-II model. The model is considered to be a low quality model because alignment to total buck ratio and percent yearling males in the harvest is poor. The high buck harvest percentages may also be unrealistically high. Adjustments to align the model to the 2010 yearling buck ratio forced a lower postseason population estimate of 10,876 deer, 40% below objective. This estimate extends a decreasing 10 year trend in the population even though fawn ratios have been favorable two of the last three years and antlerless harvest has been minimal. This population has not been at objective since 2000. For the six year period, harvest has been relatively stable with the 2010 harvest of 1,134 deer 10% above the 2009 harvest and equal to the five year average. Buck harvest totaled 831 bucks in 2010 and was comparable to the five year average of 854 bucks. Hunter numbers increased to equal the six year high due to a 32% increase in resident hunters. However, hunter success and active license success decreased for the third year in a row. Active license success averaged 58%, the lowest for the six year period.

However, hunter effort remained favorable at 6.0 days per animal harvested compared to the five year average of 6.5 days. The harvest suggests a stable to slightly declining population, however, the buck ratio is trending down, suggesting harvest is influencing this herd. The 2010 buck ratio (30:100) was the lowest for the six year period, down from 33:100 in 2009 and below the six year high of 44:100.

An additional factor influencing this population is mortality attributed to the mountain lion population. The majority of the mountain lion habitat and harvest in Hunt Area 15 corresponds to this herd unit. Lion harvest for this hunt area has reached an all time high ranging from 26 lions in 2007-08 to 35 lions in 2009-10. The current hunting season harvest is at 29 lions. It is reasonable to assume the high lion harvest correlates to high lion numbers and this population is contributing significant mortality in the more rugged country of the herd unit. Lower deer numbers have been observed the past three years in the western portion of the herd unit including the South Bighorn Mountain slope and the Red Wall.

This herd is designated for recreational management. Buck ratios remain adequate with a 2010 ratio of 30:100, the lowest observed buck ratio of the six year period. Buck ratios in all five hunt areas exceeded 20:100 this year although public land portions of Areas 163 and 169 typically have lower buck ratios. In Area 33 which supports the highest harvest of the herd unit's five hunt areas, the buck ratio decreased to 26:100, the lowest ratio in more than 10 years.

Landowners responding to the 2010 Landowner Survey indicated that more deer are desired in three of the four hunt areas from which responses were received. At the herd unit level, 62% of responding landowners want more deer, the highest percentage in the 11 years of the survey. Thirty-one percent of responding landowners were satisfied with deer numbers while 7% (n=2) thought there were too many deer. Areas 30 and 33 supported 77% of the 2010 harvest. In these two areas, 57% and 73% of the responding landowners desire more deer, respectively. Combined responses for the herd unit correlate to the current population estimate being 40% below objective.

Proposed seasons are similar to the past two years with no change proposed in the Region Y quota (2200 licenses). Region Y was split off from Region C in 2008. The number of nonresident hunters decreased an average of 10% following this change. The Area 30 and 33 Type 6 quotas will be reduced since the herd is below objective and mule depredation problems are minimal. Management is focusing on maintaining deer numbers on public lands while providing a quality hunting experience. This will help ensure hunting recreation on accessible blocks of public land. On private land, general license any deer and doe/fawn hunting will be allowed to address depredation concerns where they occur.

This population is expected to increase about 6% in 2011 with conservative harvest strategies and an expected increase in the fawn ratio following an excellent moisture year in 2010. Harvest will remain relatively stable. The 2011 postseason population is projected to be about 11,474 deer, 36% below objective.

Area 163 and 169 contain some of the largest blocks of accessible public land outside of the Bighorn National Forest in Region Y. Antler point restrictions were implemented in these two areas in 2005 and 2006. Buck ratios responded, enabling a return to an "antlered deer" restriction in 2007. In 2010, Area 163 nonresident hunter numbers increased 23% after 2009 snowstorms reduced hunter access. Even so, hunter numbers are only one-half of what they were 10 years ago. This may be due in part to a landowner restricting access to significant amounts of public lands in the hunt area. The south river (public lands hunting) buck ratio remained adequate at 24:100, down from 30:100 in 2009. Comparable data is not available for Area 169.

Habitat conditions improved the last four years with normal to above normal precipitation levels. Sagebrush and mountain mahogany leader growth measured during habitat transects was excellent in 2010. Although grasshopper infestations reduced grass and forb availability in 2008 and 2009, the insects were not much of an issue in 2010. A county wide spray project and/or the cold wet spring may have suppressed the hatch, or, the grasshopper cycle may have run its course.

**Proposed 2011 Harvest:** The projected harvest for 2011 is 850 bucks, 300 does and 20 fawns for a total of 1,170 mule deer.

**Management Challenges:** Areas 163 and 169 contain relatively large areas of accessible public lands. These areas typically support heavy hunting pressure. In Area 163, access across private lands to public lands beyond the Ed O. Taylor WHMA was restricted by the neighboring ranch beginning in 2007 which resulted in high hunter densities on public lands along the Outlaw Cave Road and on the Ed O. Taylor WHMA.

Trespass fees and outfitter leasing of ranches in nonresident deer Region Y contribute to high hunter densities on public lands. Nonresidents comprise the majority of the hunters in this herd unit.

2011 Upper Powder River Mule Deer  
Data from 2003 to 2011

Simulation from 2003 to 2011

Age Class	Init Pop. Prop.		Presn Mort%		Postsn Mort%		Effort Set 1		Effort Set 2	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0	5848.0	5848.0	50.0	50.0	30.0	30.0	1.00	1.00	1.00	1.00
1	1545.0	1545.0	2.0	2.0	8.0	8.0	0.40	1.00	0.20	1.00
2	1000.0	1071.0	2.0	2.0	8.0	8.0	1.00	1.00	1.00	1.00
3	700.0	774.0	2.0	2.0	8.0	8.0	1.00	1.00	1.00	1.00
4	500.0	1390.0	2.0	2.0	8.0	8.0	1.00	1.00	1.00	1.00
5	248.0	1160.0	2.0	2.0	8.0	8.0	1.00	1.00	1.00	1.00
6	122.0	907.0	2.0	2.0	15.0	8.0	1.00	1.00	1.00	1.00
7	57.0	726.0	2.0	2.0	25.0	20.0	1.00	1.00	1.00	1.00
8	19.0	435.0	2.0	2.0	35.0	30.0	1.00	1.00	1.00	1.00
9	6.0	278.0	2.0	2.0	60.0	50.0	1.00	1.00	1.00	1.00
10	1.0	99.0	2.0	2.0	75.0	60.0	1.00	1.00	1.00	1.00
11	0.0	41.0	2.0	2.0	100.0	100.0	1.00	1.00	1.00	1.00
Sum = 24320.0		Estimated Sum = 23991				Subadults: Ages 0 to 0				

Bio-Year	MSI Function is Linear				Postseason MSI	Effort & Wound Set Used
	Preseason MSI	Harvest // Subadults#	Des. Pop Size in NA Males#	Des. Pop Size in NA Females#		
2003	1.03	12	898	214	1.70	1
2004	1.20	51	1007	196	1.00	1
2005	1.04	71	803	219	1.50	1
2006	1.24	24	832	265	1.00	1
2007	1.38	13	1003	261	1.00	1
2008	1.04	27	824	291	1.80	1
2009	1.15	28	806	206	1.50	1
2010	1.11	36	783	262	1.00	1
2011	1.00	20	850	300	1.00	1
Set 1 Wounding Loss		10.0%	10.0%	10.0%	Yearling Male 10.0%	
Set 1 Wounding Loss		10.0%	10.0%	10.0%	Yearling Male 10.0%	

Bio-Year	Young/100 Fems		Young/100 Fems Disabled	Sex Ratio: 50 : 50
	Age 1 - 1	Age 2 - 11		
2004	0.0	170.0	0.0	
2005	0.0	170.0	0.0	
2006	0.0	170.0	0.0	
2007	0.0	170.0	0.0	
2008	0.0	170.0	0.0	
2009	0.0	170.0	0.0	
2010	0.0	170.0	0.0	
2011	0.0	170.0	0.0	
2012	0.0	170.0	0.0	

Table 1. Population Size During Bio-Year for MD322-11.GN1 04/08/2011 09:22 am

Bio-Year	Start	Pre-Season	Post Season	End	%Growth
2003	23991	17793	16556	11595	-7.5
2004	22201	15559	14180	11830	2.0
2005	22635	16770	15568	11400	-4.9
2006	21519	14962	13729	11403	0.2
2007	21555	14236	12831	10688	-4.1
2008	20677	15260	14004	9388	-14.2
2009	17737	12720	11576	8713	-6.0
2010	16679	12065	10876	9013	1.1
2011	16869	12761	11474	9414	3.3

Table 3. Harvest Mortality for MD322-11.GN1 04/08/2011 09:22 am

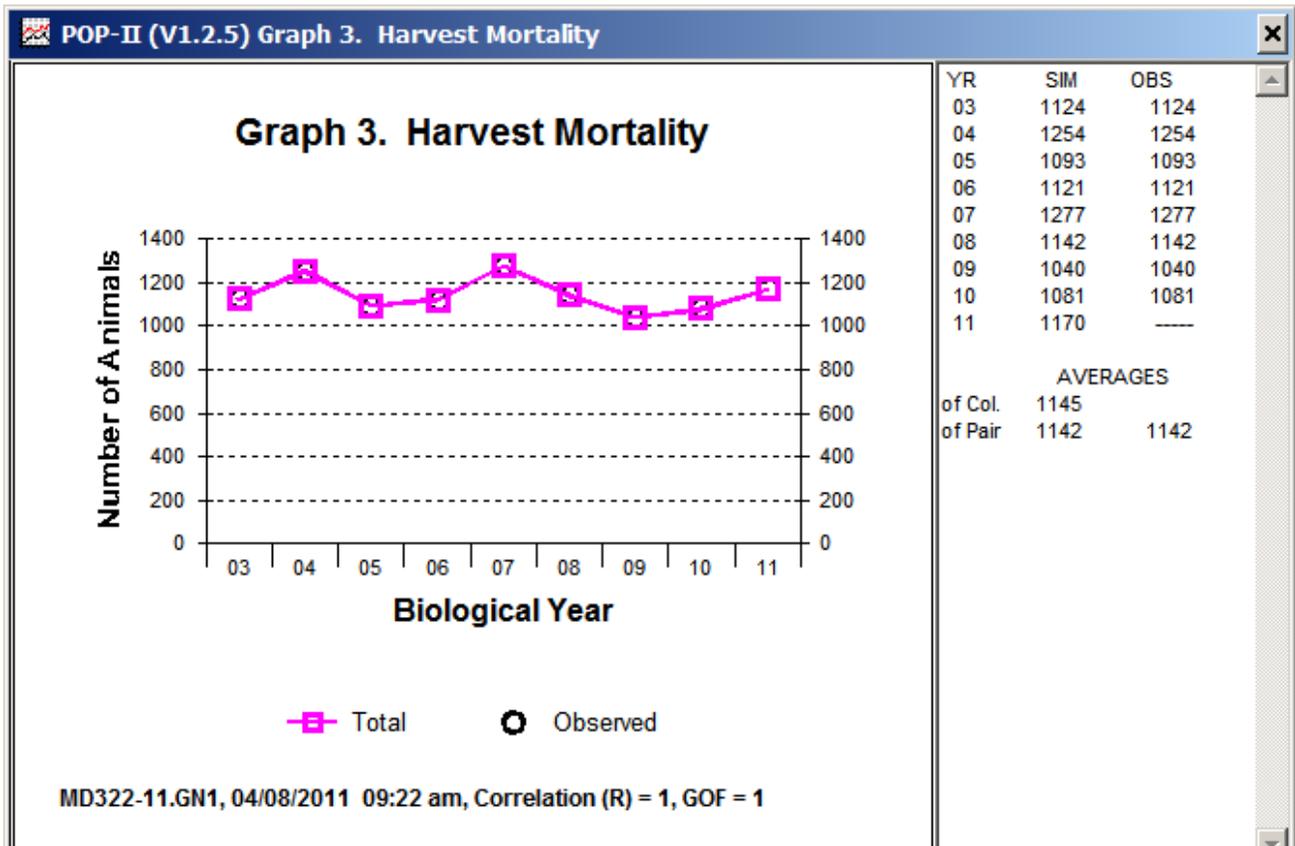
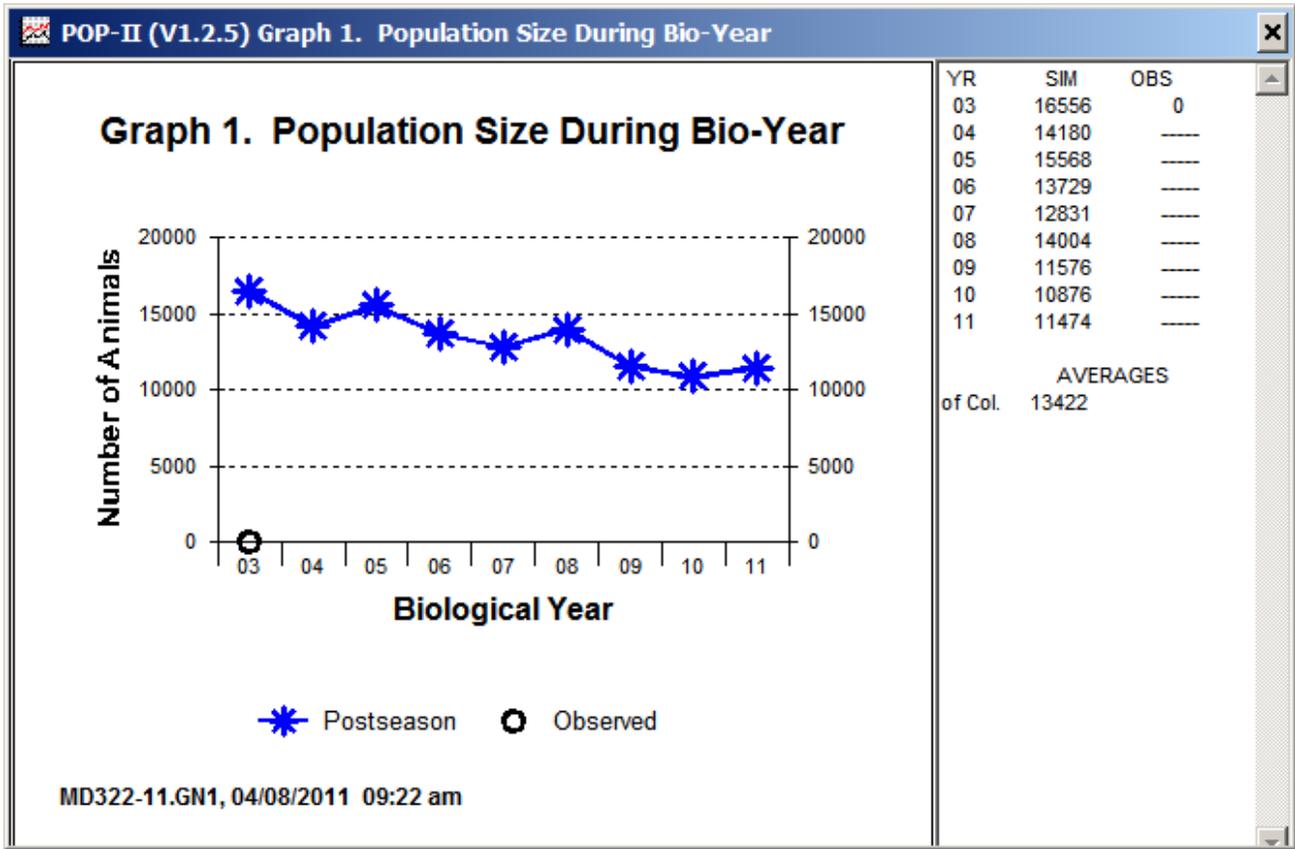
Bio-Year	Sub-Adults	Adult Males	Adult Females	Total	% of Pop
2003	12	898	214	1124	6.3
2004	51	1007	196	1254	8.1
2005	71	803	219	1093	6.5
2006	24	832	265	1121	7.5
2007	13	1003	261	1277	9.0
2008	27	824	291	1142	7.5
2009	28	806	206	1040	8.2
2010	36	783	262	1081	9.0
2011	20	850	300	1170	9.2

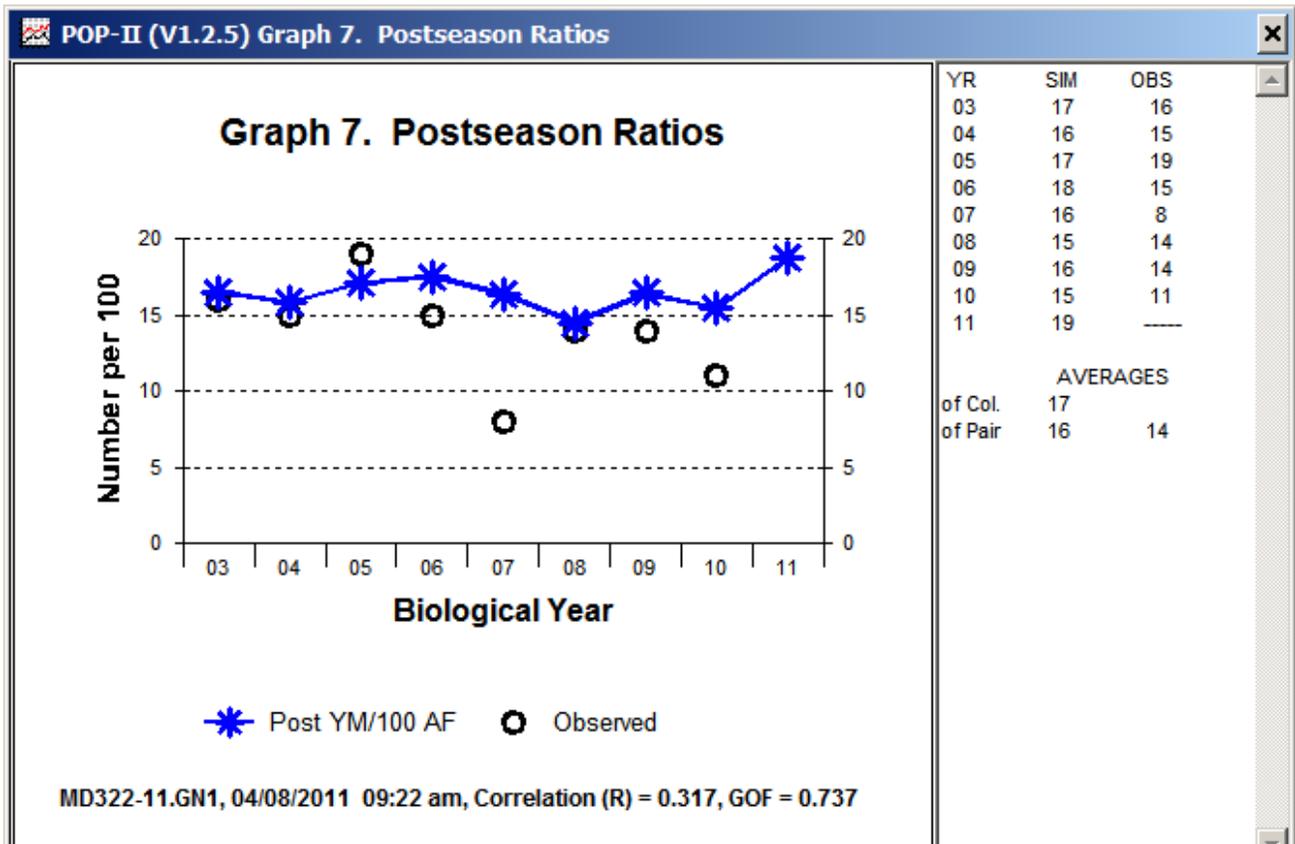
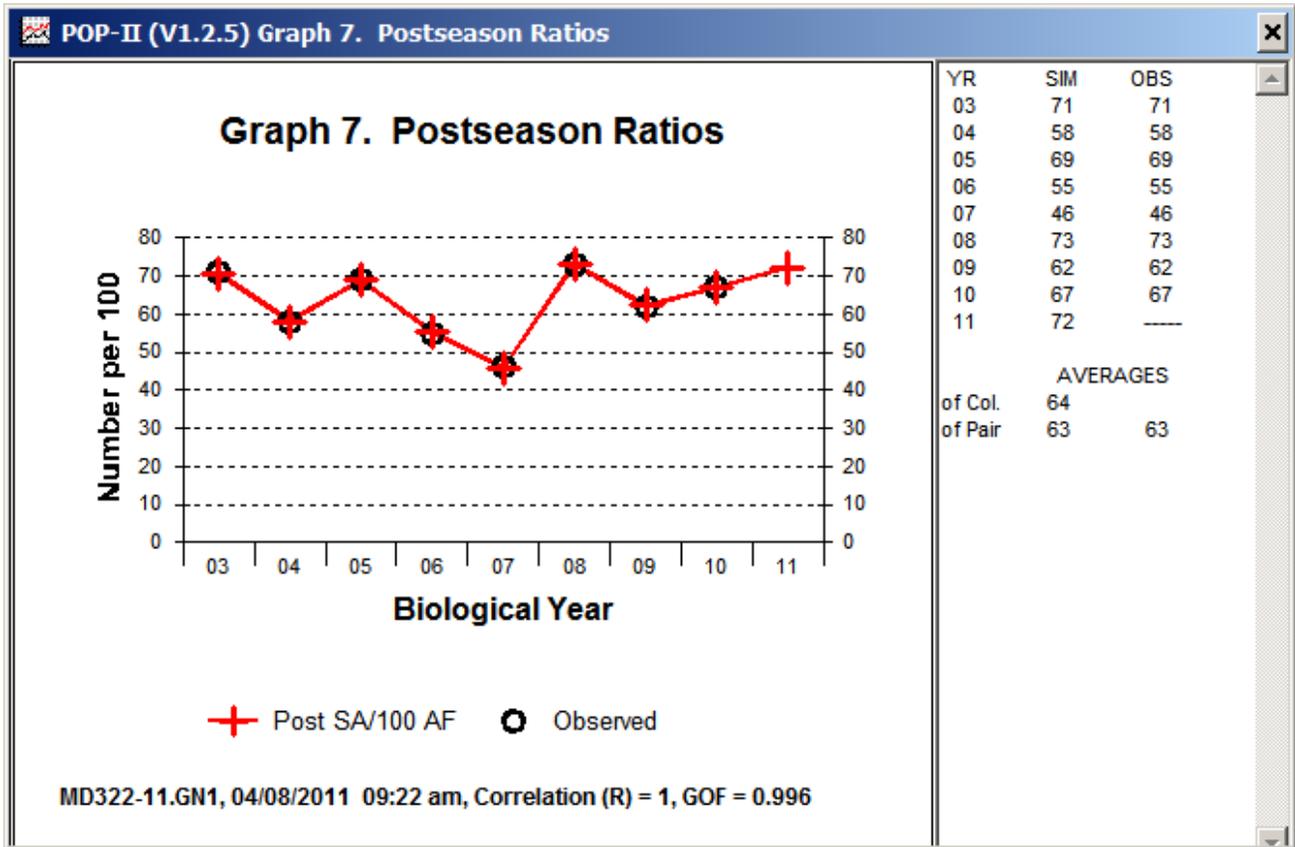
Table 4. Harvest Percentages for MD322-11.GN1 04/08/2011 09:22 am

Bio-Year	Sub-Adults	Adult Males	Adult Females	Total	Yearling Males
2003	0.2	22.1	2.6	6.32	18.9
2004	1.2	25.9	2.6	8.06	17.3
2005	1.4	20.5	2.9	6.52	18.7
2006	0.6	21.1	3.7	7.49	17.6
2007	0.4	25.2	3.7	8.97	16.2
2008	0.6	22.6	4.3	7.48	14.3
2009	0.8	24.4	3.5	8.18	16.1
2010	1.0	26.2	4.7	8.96	15.6
2011	0.5	27.4	5.2	9.17	20.2

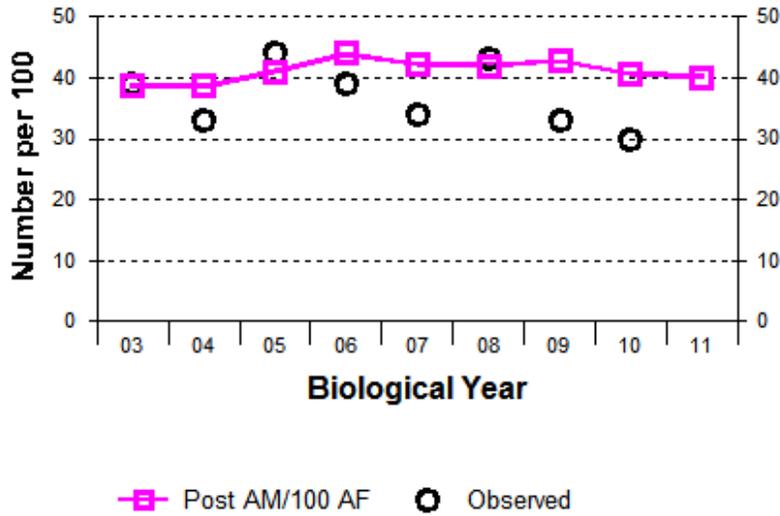
Table 7. Postseason Ratios for MD322-11.GN1 04/08/2011 09:22 am

Bio-Year	Subadults /100 1+F	2+ Males /100 1+F	Yr. Males /100 1+F	Ad Males /100 1+F
2003	70.6	22.3	16.5	38.8
2004	58.1	22.8	15.9	38.6
2005	68.9	23.9	17.1	41.0
2006	55.5	26.4	17.6	44.0
2007	45.9	25.8	16.4	42.2
2008	73.2	27.5	14.5	42.0
2009	62.3	26.4	16.4	42.8
2010	66.9	25.2	15.5	40.7
2011	72.3	21.4	18.8	40.1





**Graph 7. Postseason Ratios**



YR	SIM	OBS
03	39	39
04	39	33
05	41	44
06	44	39
07	42	34
08	42	43
09	43	33
10	41	30
11	40	---

AVERAGES		
of Col.	41	
of Pair	41	37

MD322-11.GN1, 04/08/2011 09:22 am, Correlation (R) = 0.132, GOF = 0.822

