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ACKNOWLEDGEMENT

The field data contained in these reports is the result of the combined efforts of the Lander Region Wildlife Division personnel including District Wildlife Biologists, District Game Wardens, the Habitat Biologist, the Wildlife Management Coordinator and Region Supervisor, and other Department personnel working at check stations. CWD technician, Amanda Hicks, collected CWD samples throughout the Region. The authors wish to express their appreciation to all those who assisted in data collection.

2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR615 - RED DESERT

HUNT AREAS: 60-61, 64

PREPARED BY: GREG HIATT

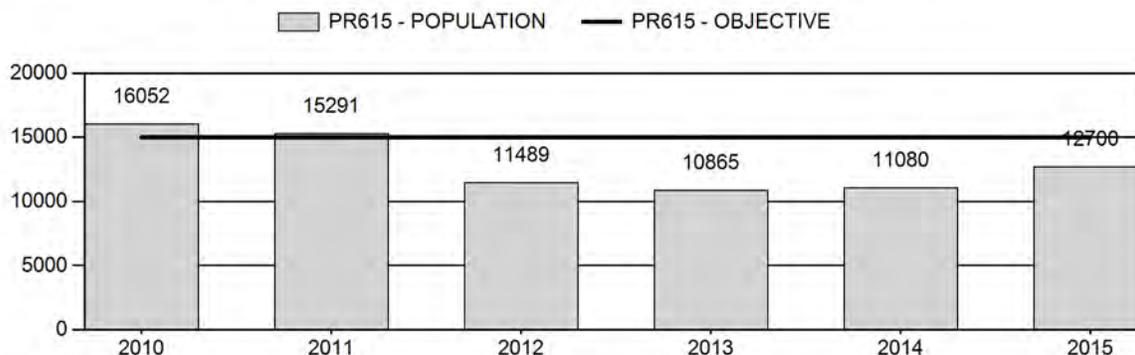
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	12,955	12,700	11,930
Harvest:	749	221	240
Hunters:	765	268	280
Hunter Success:	98%	82%	86 %
Active Licenses:	841	277	280
Active License Success:	89%	80%	86 %
Recreation Days:	2,356	812	880
Days Per Animal:	3.1	3.7	3.7
Males per 100 Females	63	60	
Juveniles per 100 Females	53	67	

Population Objective (\pm 20%) :	15000 (12000 - 18000)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-15.3%
Number of years population has been + or - objective in recent trend:	4
Model Date:	2/27/2016

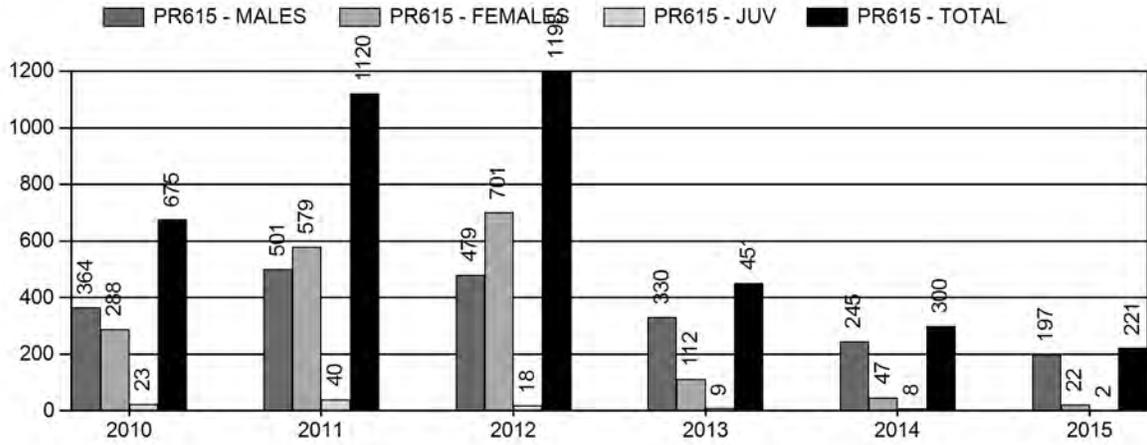
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	0.6%	0.5%
Males \geq 1 year old:	6.5%	6.1%
Juveniles (< 1 year old):	0.5%	0.2%
Total:	2.0%	2.0%
Proposed change in post-season population:	+6.5%	-6.0%

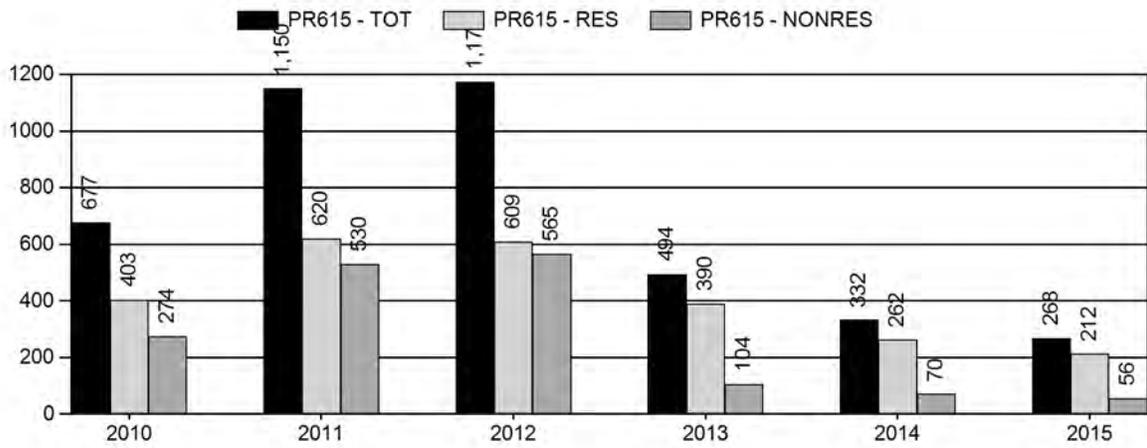
Population Size - Postseason



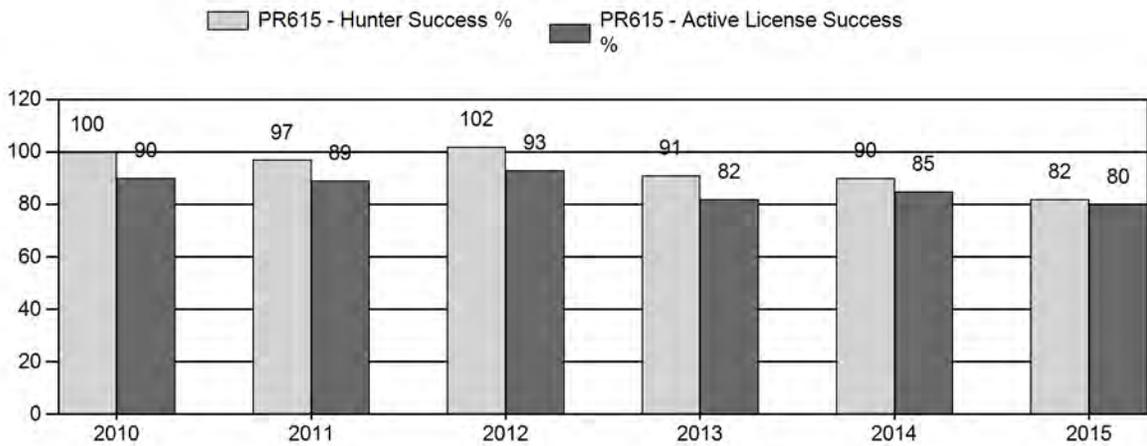
Harvest



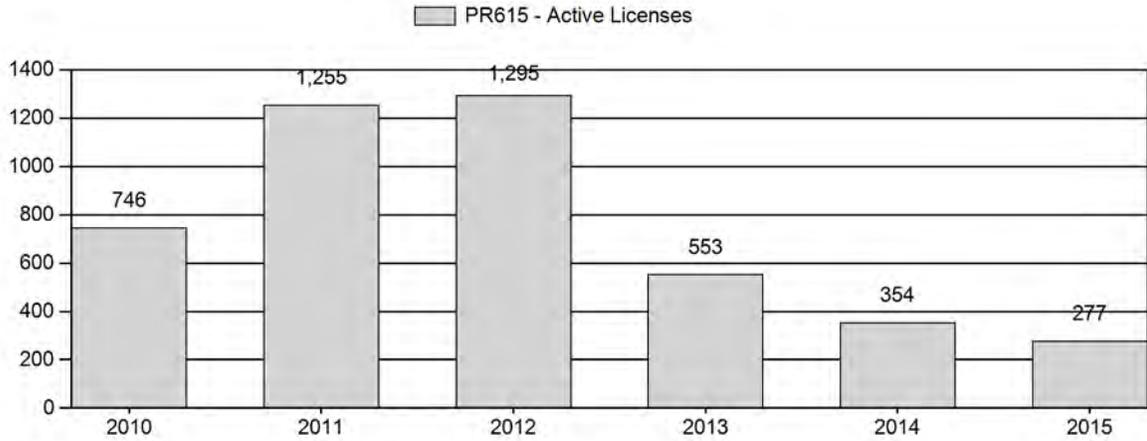
Number of Hunters



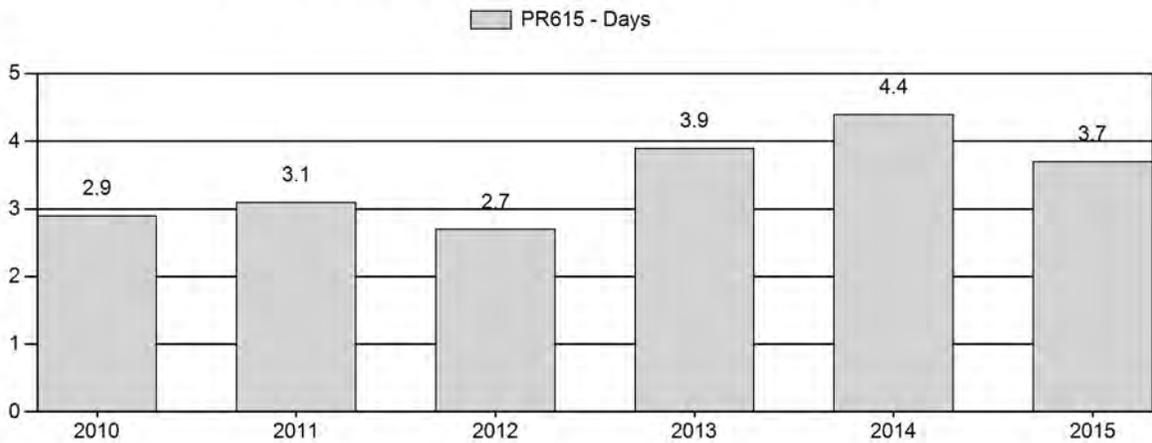
Harvest Success



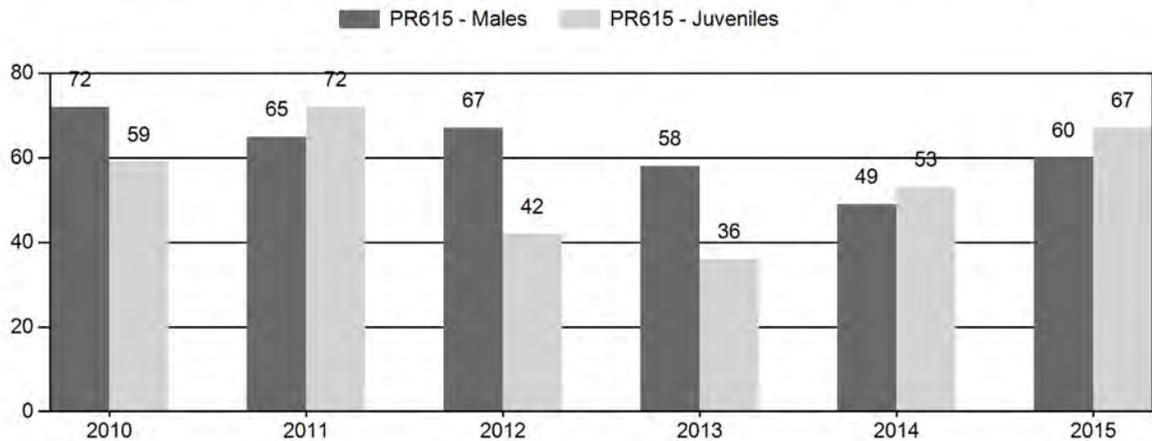
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR615 - RED DESERT

Year	Pre 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
2010	16,795	361	951	1,312	31%	1,823	43%	1,077	26%	4,212	2,595	20	52	72	± 4	59	± 3	34
2011	16,523	263	736	999	27%	1,540	42%	1,115	31%	3,654	2,650	17	48	65	± 4	72	± 4	44
2012	12,798	177	888	1,065	32%	1,600	48%	667	20%	3,332	2,103	11	56	67	± 4	42	± 3	25
2013	11,361	66	809	875	30%	1,517	52%	539	18%	2,931	1,629	4	53	58	± 3	36	± 3	23
2014	11,410	110	519	629	24%	1,285	49%	686	26%	2,600	1,535	9	40	49	± 3	53	± 4	36
2015	12,940	257	697	954	26%	1,585	44%	1,063	30%	3,602	2,267	16	44	60	± 3	67	± 4	42

**2016 HUNTING SEASONS
RED DESERT PRONGHORN HERD (PR615)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
60	1	Sep. 17	Oct. 31	50	Limited quota	Any antelope
	6	Sep. 17	Oct. 31	25	Limited quota	Doe or fawn
61	1	Sep. 10	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	25	Limited quota	Doe or fawn
64	1	Sep. 17	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 17	Oct. 31	25	Limited quota	Doe or fawn
Archery 60, 64		Aug. 15	Sep. 16			Refer to Section 2 of this Chapter
61		Aug. 15	Sep. 9			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
60	1	0
	6	+25
61	1	0
	6	0
64	1	0
	6	0
Herd Unit Total	1	0
	6	+25

Management Evaluation

Current Postseason Population Management Objective: 15,000

Management Strategy: Special

2015 Postseason Population Estimate: ~12,700

2016 Proposed Postseason Population Estimate: ~11,900

Herd Unit Issues

The Red Desert pronghorn herd is managed toward a post-hunt population of 15,000 pronghorn, an objective last reviewed in 2015. Population size is estimated using a spreadsheet model developed in 2012 and last updated in 2016. The herd is in special management, with harvest quotas designed to maintain pre-hunt buck:doe ratios above 60:100.

Historically, access in this herd unit has been good. Much of the unit is public land, and hunters have been able to acquire access to most private lands in the checkerboard. The seasonal distribution map for the herd has not been updated for many years, and it is likely there are crucial winter habitats, particularly in Area 60, that have not yet been delineated.

Habitat issues in this herd unit include continued gas field development, coalbed natural gas development, opening of an *in situ* uranium mine with other mines proposed and possible development of shale oil. Many miles of sheep-tight fences exist in the herd unit, impeding pronghorn movements and migrations, and increasing losses during severe winters.

Weather

Following severe drought conditions in 2012 and 2013, improved precipitation arrived in the latter half of 2014 and continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and improving fawn survival. Condition of pronghorn going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

Only one shrub transect has been established in this herd unit, on the Chain Lakes WHMA, but was not read in 2015. Shrub production presumably improved with the increased moisture and many sagebrush plants that had appeared dead from drought in 2013 produced small but viable sprouts of green growth in 2015. While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation.

Habitat losses to uranium development have increased with opening of the *Ur in situ* uranium mine in Area 61, but are not in or near crucial pronghorn ranges. Habitat losses to gas development have slowed due to low oil and gas prices.

Field Data

Classification sample size increased in 2015, the largest sample in four years. The 2015 sample exceeded the statistically adequate sample by almost 60 percent. Sample size increased in all the areas, with Area 61 providing the largest sample, and Area 60 the least.

With increased precipitation, fawn production improved to 67:100, the highest ratio in seven years. Fawn production improved in all three hunt areas. Unusually, production was highest in Area 60 at 81:100. Production was noticeably lower in Areas 61 and 64, at 58:100 and 69:100 respectively. Normally fawn production is significantly lower in Area 60. Both Area 61 and Area 64 have significant numbers of does that fawn at higher elevations, and loss to hypothermia due to some of the late spring storms may have reduced fawn survival in portions of those two areas, while having little effect in the low elevations found in Area 60.

The herd buck:doe ratio barely met the special management criterion of 60:100 in 2015, having failed to meet it in the two years prior. Both Area 60 and Area 64 exceeded this criterion, at 70:100 and 68:100 respectively. Most of the increase in these two areas came from increased supplies of yearling bucks. The buck:doe ratio in Area 61 was considerably poorer, at only 49:100, generating large numbers of complaints from hunters. Both yearling and adult buck:doe ratios were significantly lower in Area 61 than in the other two hunt areas.

Harvest Data

Hunter success declined to 80 percent, its lowest level since 2007 and the second poorest rate of success since the herd was delineated in 1976. Hunter effort decreased, despite the poor success, to 3.7 days per animal. Statistically, the past three years have seen the poorest hunting in this herd since it was delineated in 1976. As in 2014, hunter success was highest in Area 60 and lowest in Area 64. The average days of effort required to harvest an animal was again highest in Area 61. Hunters with Type 1 licenses in Area 60 enjoyed the highest success, at 86 percent, while doe/fawn hunters in Area 64 had the poorest (52 percent).

Population

The Time-Specific Juvenile & Constant Adult Survival (TSJ,CA) spreadsheet model provided the best fit with observed buck:doe ratios for this herd and behaved predictably when 2015 classification and harvest data were added. The model aligns with three out of five line-transect estimates, but underestimates the two most recent. Because of these concerns, it is considered a “Fair” model of the herd. Annual adult survival was predicted at 90 percent, a reasonable level. Juvenile survival rates fluctuated within the allowed range but did hover at maximum or minimum values for many years. The CJ,CA and SCJ,SCA models each had nearly identical AIC values, but both models predicted herd sizes well below line-transect estimates and generated roughly stable buck:doe estimates that did not track the dips and rises of observed values. Fawn production in 2016 was projected to be near the five-year average and the model was run with median juvenile survival in 2016.

The model predicts the herd has been roughly 20 percent below objective for the past four years. Assuming average fawn production and survival, the 2016 pre-hunt population should be less than seen in 2015 and herd growth will be minimal. Without major improvement in fawn production and survival, harvest quotas for 2016 will provide little or no increase in herd size.

Management Summary

This herd was well below objective size following a record harvest and severe winter losses in 1992. Conservative harvests after that winter combined with improved fawn production and survival beginning in 2007 allowed the herd to reach and be maintained at objective size in 2010 and 2011.

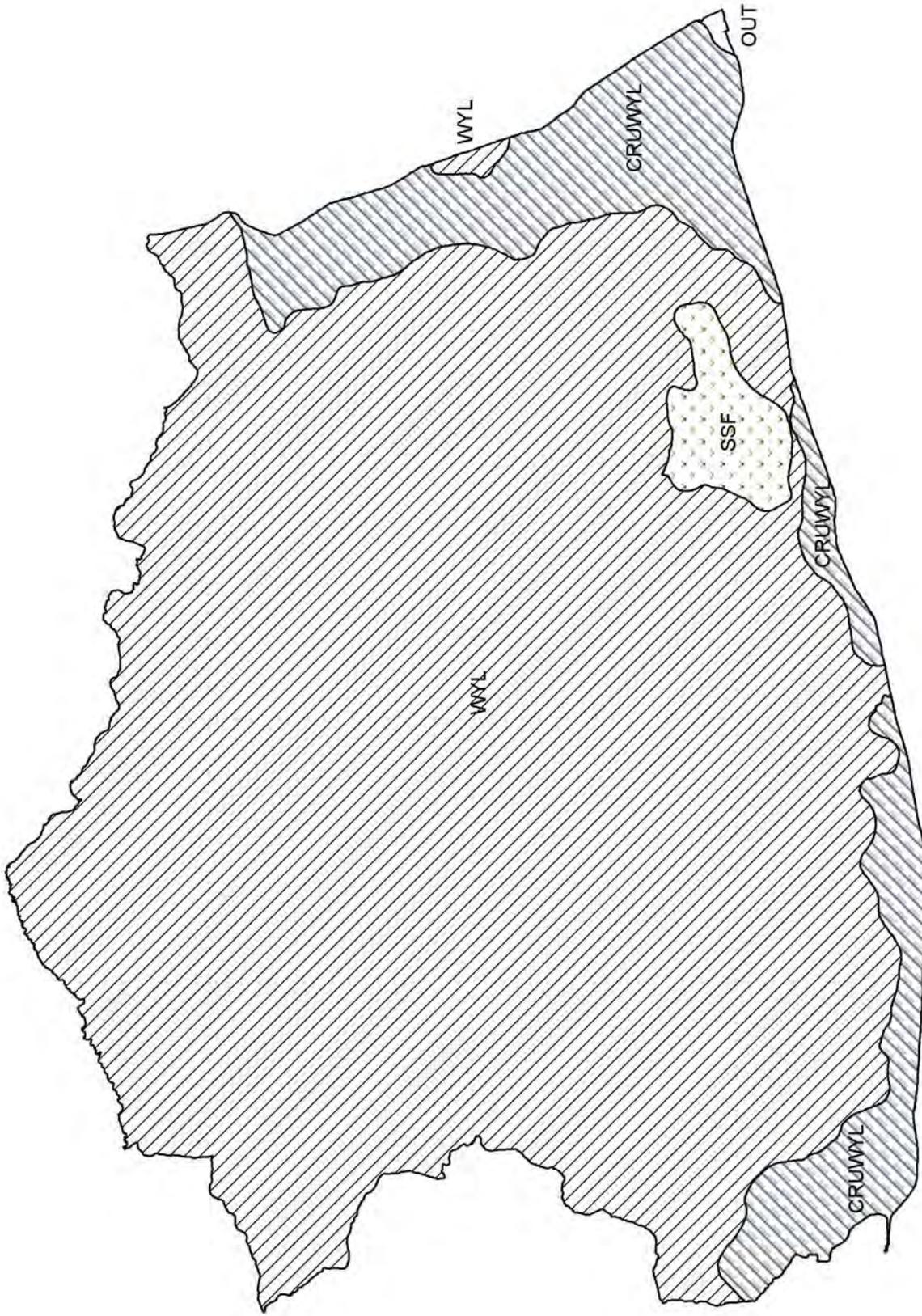
According to the spreadsheet model, the combination of heavy harvests, losses to EHD and extremely poor fawn production in 2012 and 2013 significantly reduced herd size, estimated

around 11,000. Improved fawn production in 2015 provided the first increase in herd size in three years.

With the population estimated to be 20 percent below objective and record poor harvest statistics, no doe harvest is necessary in 2016. However Type 6 licenses were listed for each of the three areas in the packet so minimal quotas of 25 Type 6 licenses are listed for each area. Quotas for Type 1 licenses are unchanged in all three areas. Type 1 licenses were reduced by 33 percent in Area 61 in 2015, and the effects of that reduction have yet to be seen in the buck supply for that area. If the buck:doe ratio for this area does not respond in 2016, further reduction in buck harvest may be necessary in this area.

With the projected harvest of roughly 205 bucks and 35 does and fawns, predicted herd size will decrease by about 6 percent to 11,900 pronghorn. The herd is unlikely to reach objective in two or three years unless precipitation continues to remain high, raising both fawn production and survival.

Opening dates are shifted by two days to stay on Saturday openers, with Area 61 opening with Area 62 and Areas 60 and 64 opening with most of the rest of the Lander Region. Closing dates are the same as in 2015.



PH615 - Red Desert
HA 60, 61, 64
Revised - 3/94

2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR630 - IRON SPRINGS

HUNT AREAS: 52, 56, 108

PREPARED BY: GREG HIATT

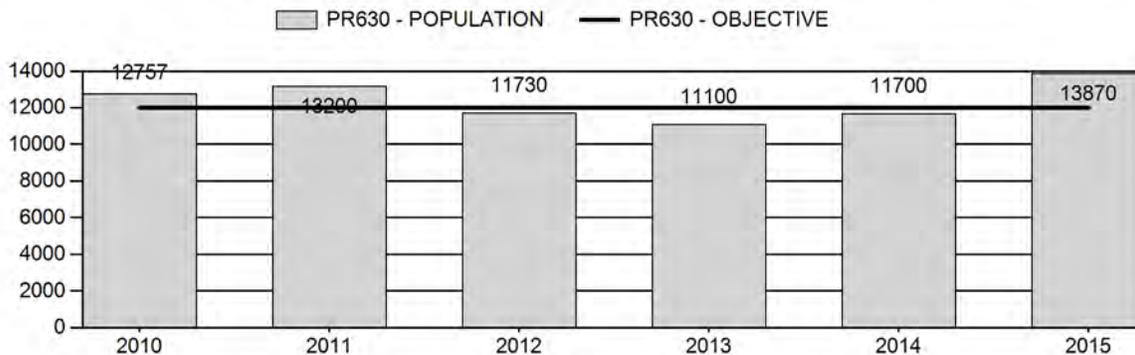
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	12,097	13,870	13,990
Harvest:	750	497	790
Hunters:	779	434	895
Hunter Success:	96%	115%	88 %
Active Licenses:	881	553	895
Active License Success:	85%	90%	88 %
Recreation Days:	2,652	1,728	2,650
Days Per Animal:	3.5	3.5	3.4
Males per 100 Females	45	52	
Juveniles per 100 Females	54	56	

Population Objective (± 20%) :	12000 (9600 - 14400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	16%
Number of years population has been + or - objective in recent trend:	1
Model Date:	2/27/2016

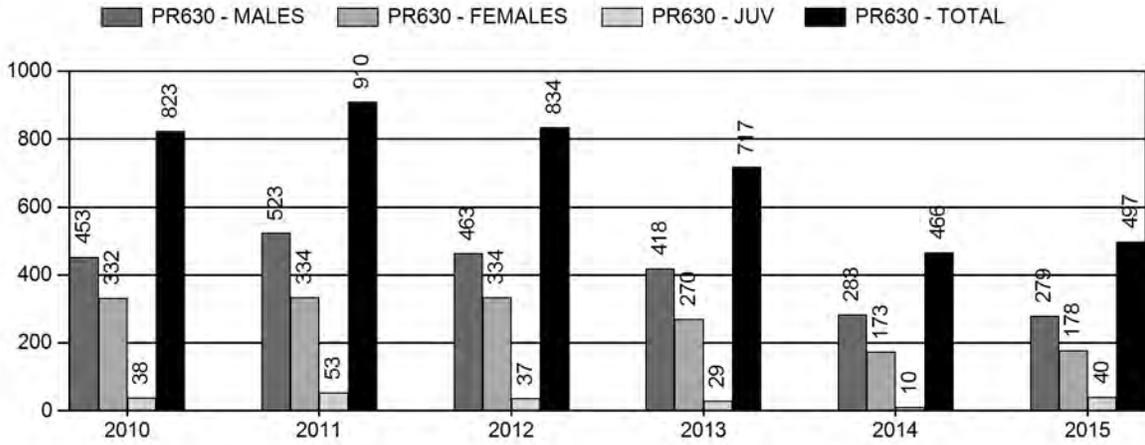
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	3.4%	4.7%
Males ≥ 1 year old:	9.6%	9.9%
Juveniles (< 1 year old):	0.7%	1.6%
Total:	4.2%	5.3%
Proposed change in post-season population:	+0.3%	+0.9%

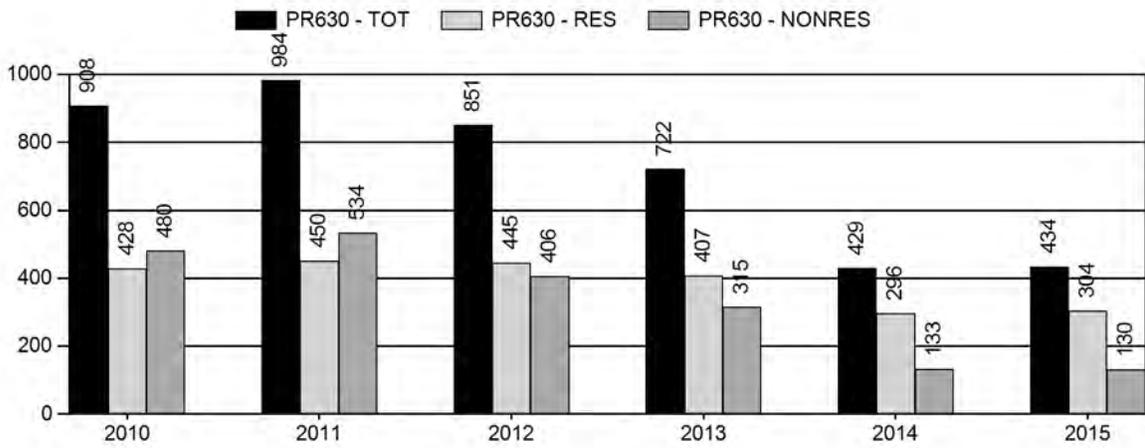
Population Size - Postseason



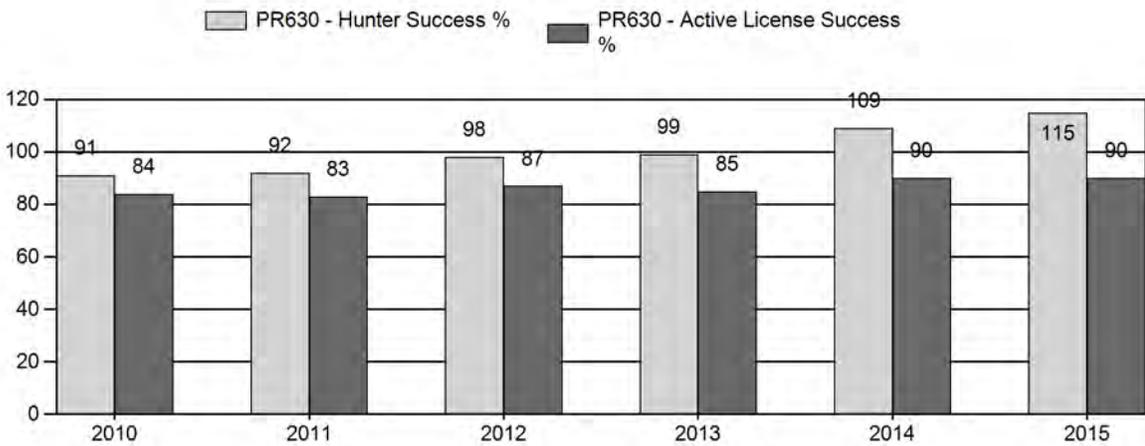
Harvest



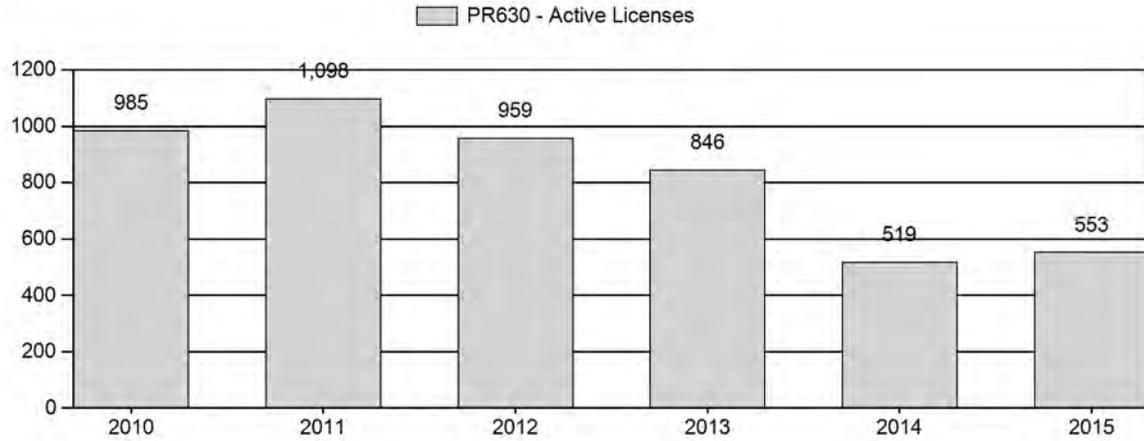
Number of Hunters



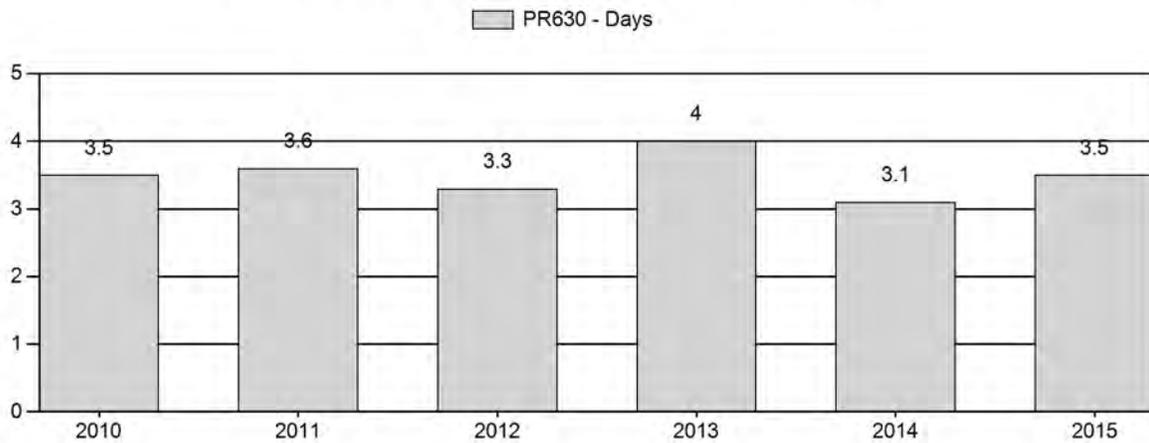
Harvest Success



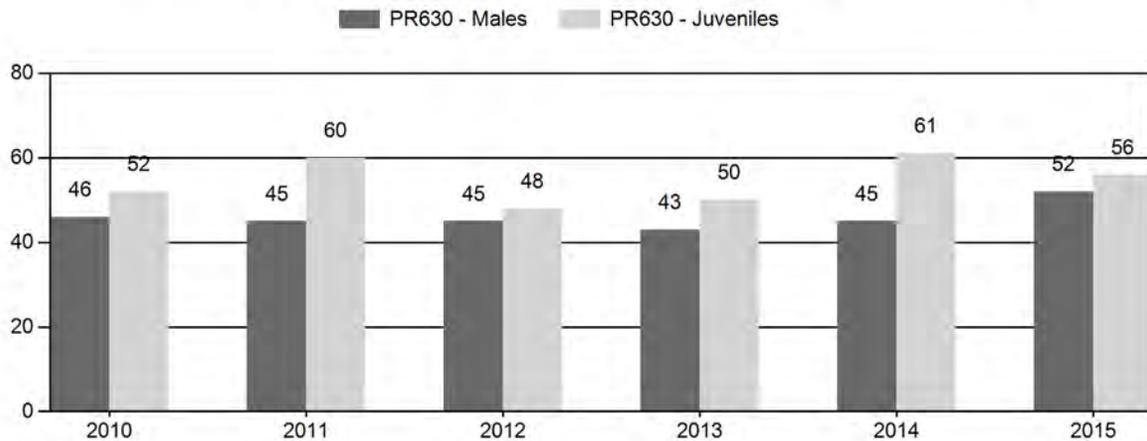
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR630 - IRON SPRINGS

Year	Pre 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
2010	13,663	159	710	869	23%	1,874	50%	968	26%	3,711	1,477	8	38	46	± 3	52	± 3	35
2011	14,200	150	576	726	22%	1,627	49%	984	29%	3,337	1,791	9	35	45	± 3	60	± 4	42
2012	12,640	212	604	816	23%	1,801	52%	863	25%	3,480	1,295	12	34	45	± 3	48	± 3	33
2013	11,900	131	514	645	22%	1,488	52%	746	26%	2,879	1,336	9	35	43	± 3	50	± 3	35
2014	12,200	209	472	681	22%	1,518	49%	928	30%	3,127	1,823	14	31	45	± 3	61	± 4	42
2015	14,400	194	525	719	25%	1,375	48%	775	27%	2,869	1,731	14	38	52	± 4	56	± 4	37

**2016 HUNTING SEASONS
IRON SPRINGS PRONGHORN HERD (PR630)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
52	1	Sep. 16	Oct. 31	150	Limited quota	Any antelope
	2	Sep. 16	Nov. 14	150	Limited quota	Any antelope valid south of North Spring Creek
	6	Sep. 16	Oct. 31	150	Limited quota	Doe or fawn
	7	Sep. 16	Nov. 14	150	Limited quota	Doe or fawn valid south of North Spring Creek
56	1	Sep. 20	Oct. 14	50	Limited quota	Any antelope
108	1	Sep. 20	Oct. 14	150	Limited quota	Any antelope
	6	Sep. 20	Oct. 14	100	Limited quota	Doe or fawn
	7	Sep. 20	Nov. 30	100	Limited quota	Doe or fawn valid south of the Bridger Pass Road (B.L.M. Road 3301), east of the Continental Divide and north of the Miller Hill Road (Carbon County Road 505W)
Archery						
52		Aug. 15	Sep. 15			Refer to Section 2 of this Chapter
56, 108		Aug. 15	Sep. 19			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
52	1	+50
	2	+50
	6	+75
	7	+50
56	1	0
108	1	+75
	6	+50
	7	+50

Herd Unit Total	1	+125
	2	+50
	6	+125
	7	+100

Management Evaluation

Current Postseason Population Management Objective: 12,000

Management Strategy: Recreation

2015 Postseason Population Estimate: ~13,800

2016 Proposed Postseason Population Estimate: ~14,000

Herd Unit Issues

The Iron Springs pronghorn herd is managed toward a post-hunt population size of 12,000 pronghorn, an objective last publicly reviewed in 2015. Population size is estimated using a spreadsheet model developed in 2012 and updated in 2016. The herd is in recreational management, with harvest quotas designed to maintain pre-hunt buck:doe ratios below 60:100.

Construction of the proposed Chokecherry and Sierra Madre wind farms, consisting of roughly 1,000 turbines and the associated road network, could have significant impacts on important habitats in large portions of Areas 56 and 108, as well as the north portion of Area 52. Construction of several large, trans-continental powerlines would cross important winter habitats at the north edge of Area 56.

Access remains an issue in this herd unit, particularly in the checkerboard in association with the proposed Chokecherry and Sierra Madre wind farms. The Walk-In program has opened access to large blocks of private land during some years, primarily in Area 52, which helped address concerns over large numbers of pronghorn residing on irrigated croplands during summer and fall.

The seasonal distribution map was last revised in March 1994 and no changes have been made since that review. Observations during winters since 1994 indicate consideration should be given to delineating crucial winter ranges south of Saratoga, southeast of Chokecherry Knob and near Fort Steele. Fences continue to pose barriers to pronghorn movements throughout much of the herd unit, increasing mortality during tough winters. Sheep-tight fences may also contribute to low fawn survival in pastures with limited water sources during dry summers.

Small acreages of crucial winter range have been lost to subdivision of deeded lands, primarily in the southern portion of the herd, and along Interstate Highway 80 in Area 56. Increased subdivision of these habitats, especially if these tracts are fenced, could seriously degrade the quality and utility of some winter ranges and migration routes. Development, partitioning, and fencing of these lands could have more deleterious effects on pronghorn migrations and habitat than some energy developments. Segregating land ownership among dozens of owners also deters recreational use of those divided lands and inter-mixed public lands.

Losses to EHD were confirmed in the South Ferris herd immediately north of Area 56 in late summer 2013 and the disease probably struck pronghorn in this herd as well. A mule deer fawn died of EHD at the southern tip of Antelope Area 108 so it is likely the disease spanned at least through the northern half of the Iron Springs herd unit.

Weather

Following severe drought conditions in 2012 and 2013, improved precipitation arrived in the latter half of 2014 and continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and improving fawn survival. Condition of pronghorn going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

This herd unit overlaps most of the western half of the Platte Valley Mule Deer herd, and habitats for pronghorn suffer the same low productivity due to overuse, decadent shrubs and drought. Treatments designed to improve habitat for mule deer through the Platte Valley Habitat Partnership are likely to improve habitats for pronghorn as well. Recent tebuthiuron treatments on top of Miller Hill in Area 108 and prescribed burns in Area 52 should improve summer ranges for pronghorn, at least in the short term.

Oil and gas drilling activity has tapered off in the herd unit because of low energy prices, but a successful shale oil well a few miles east of the herd unit may lead to increased interest here. Proposed strip mining of coal in Kindt Basin in Area 56 could damage winter habitats, but is unlikely to occur in the near future because of more competitive coal reserves elsewhere in the state and conflict with the Chokecherry wind farm. Increased interest in developing coalbed methane resources in southern Wyoming may lead to proposals to develop well fields to extract the methane from these coal seams.

Construction of the 1,000 turbine Chokecherry and Sierra Madre wind farms is predicted to begin next year. Planned revegetation of the massive road network necessary for this project is likely to improve summer forage for pronghorn, but will permanently remove browse in winter ranges and provide avenues for expansion of noxious weeds, as seen in gas fields to the west. Wind turbines have been shown to reduce soil moisture in their wind shadow and the large number of turbines in already arid habitats may remove the benefits gained from revegetation of roads and pads.

Field Data

Classification sample size decreased in 2015 and was the smallest sample in 12 years, 13 percent below the five-year average. While small, the sample still exceeded the statistically desired sample by more than 65 percent. Classification sample size increased slightly for Area 56 and declined for Areas 52 and 108.

Despite record precipitation in 2015, fawn production declined slightly to 56 fawns:100 does, near the five-year average. Surprisingly, fawn production was lowest in Area 108 at 41:100. Production improved in Area 56 to 45:100, the highest recorded for that area since 2005. Fawn production in Area 52 declined slightly to 66:100, near average for that area. Many of the does in Area 108 fawn at higher elevations, as do some in Area 52, and late spring storms may have increased fawn losses to hypothermia in these habitats while benefiting those in drier habitats like Area 56.

The buck:doe ratio improved slightly in 2015 to 52:100, the highest in nine years but still well within recreational management. Most of the increase was in adult bucks, and should help address concerns by hunters and outfitters about declining buck quality in this herd. This ratio was highest in Area 52, at 59 bucks:100 does and lowest in Area 108, at only 40:100. The yearling buck:doe ratio for this herd was unchanged at its highest level in seven years, a result of higher fawn production in 2014. Yearling buck:doe ratios improved in all three areas, but recruitment was again lowest in Area 56, at 7:100, less than half that recorded in Area 52. Adult buck:doe ratios improved in all three hunt areas, but were lowest in Area 108 at only 30:100, while the other two areas each had 42:100. If access continues to be denied after the wind project is constructed, buck:doe ratios will be expected to continue to rise in Area 56 and may exceed the maximum for recreational management. Overall, buck:doe ratios for this herd over the past nine years have been less than would be desired in areas with large blocks of public land.

Harvest Data

Overall hunter success remained at 90 percent in 2015, above the previous five-year average. The average number of days hunted for each pronghorn harvest increased, but was at the five-year average. Surprisingly, hunter success was highest in Area 56 where access was most difficult, but no doe/fawn licenses were issued in this area, which tend to have lower success. Success was highest for the Type 1 hunters in Area 52, who reported 100 percent success, and lowest for the second year in a row for the Type 6 licenses in Area 108, at only 80 percent. Hunters with the new Type 7 licenses for a limited portion of Area 108 fared well, with 94 percent success.

The average number of days of effort necessary to harvest an animal was highest for hunters with Type 7 licenses in the southern portion of Area 52, at 5.1 days. Again, Area 56 hunters expended the least amount of time for each animal harvested, at 2.5

Population

Prior to 2015, the spreadsheet model and a line-transect survey flown in spring of 2012 indicated this herd was roughly 17 percent below the 12,000 objective. A line-transect survey flown in June 2015, however, estimated there were approximately 16,850 pronghorn in the herd. Incorporating that estimate, along with the 2015 classification and harvest data, the current model now predicts this herd was about 15 percent above objective in 2015.

The Time-Specific Juvenile & Constant Adult Survival (TSJ/CA) spreadsheet model provided the best fit with observed buck:doe ratios for this herd and all four line-transect estimates. It behaved predictably when 2015 classification and harvest data were added and is considered a

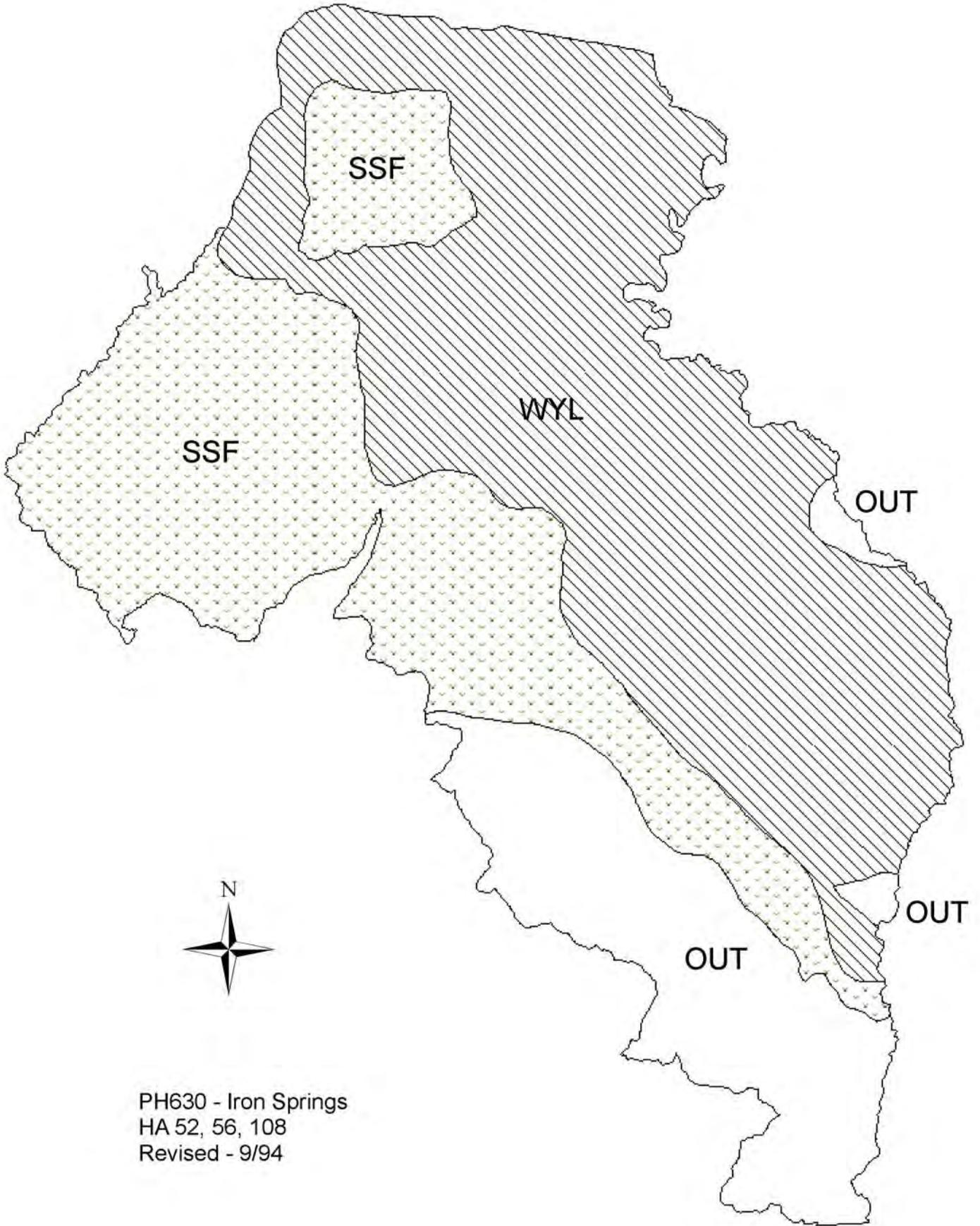
“Fair” model of the herd. Annual adult survival is predicted at 91 percent, a reasonable value. Juvenile survival rates fluctuated within the allowed range and did not hover at maximum or minimum values for most years. The CJ,CA and SCJ,SCA models each had slightly lower AIC values, but both models predicted herd sizes well below the confidence interval of the most recent line-transect estimate and well above a 1993 line-transect estimate. Both models generated roughly stable buck:doe estimates that did not track major dips and rises of observed values. Fawn production in 2015 was projected near the 5-year average. The model was run using a median juvenile survival in 2016.

Management Evaluation

With the population estimated to be 15 percent above objective, harvests need to be increased to keep the herd at objective level. Quotas for 2016 are increased by 60 percent in Area 52 and doubled for all three license types in Area 108. The quota for Area 56 is unchanged due to the greatly restricted access to most of that area.

If fawn production and survival is near predicted levels, the expected harvest of roughly 405 bucks and 385 does and fawns from the 2016 license quotas should maintain the herd near its current size.

Opening dates for licenses in Area 52 are the same as in the past three years coincide with seasons in neighboring Areas 50 and 51. As in the previous three years, the Type 2 and 7 licenses in the southern portion of this area are valid for an additional two weeks into November. The season in area 52 entirely overlaps local deer and elk general license seasons. Opening dates for areas 56 and 108 are the same as in the previous 17 years and coincide with neighboring areas 53 and 55 of the Baggs herd. Closing dates for Areas 56 and 108 are again extended to the end of October, except for the Type 7 licenses in Area 108, which extend to the end of November. Archery seasons use standardized opening dates and close the day before the regular season opens for each area.



PH630 - Iron Springs
HA 52, 56, 108
Revised - 9/94

2015 - JCR Evaluation Form

SPECIES: Pronghorn

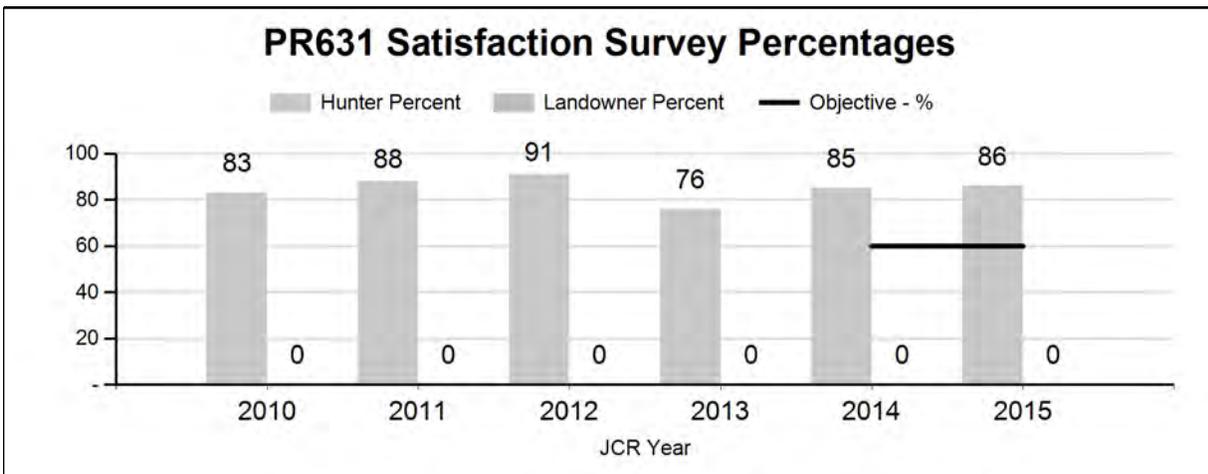
PERIOD: 6/1/2015 - 5/31/2016

HERD: PR631 - WIND RIVER

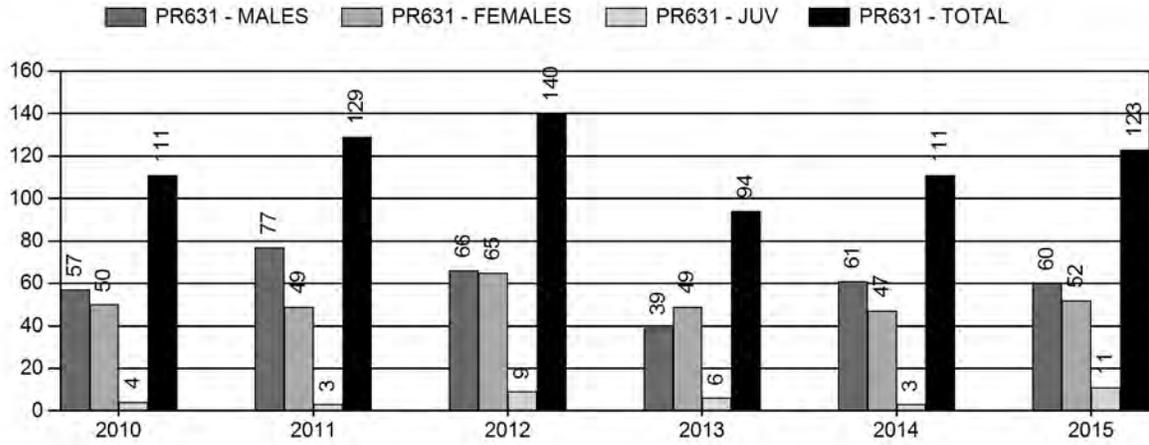
HUNT AREAS: 84

PREPARED BY: GREG ANDERSON

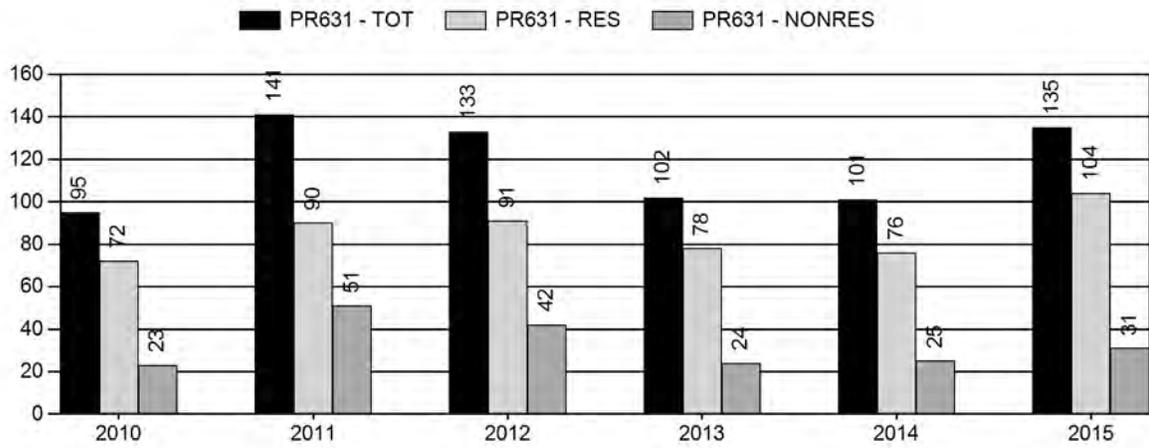
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	84%	86%	85%
Landowner Satisfaction Percent	0%	0%	0%
Harvest:	117	123	125
Hunters:	114	135	140
Hunter Success:	103%	91%	89%
Active Licenses:	144	158	150
Active License Success:	81%	78%	83%
Recreation Days:	610	816	800
Days Per Animal:	5.2	6.6	6.4
Males per 100 Females:	24	22	
Juveniles per 100 Females	43	24	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			N/A%
Number of years population has been + or - objective in recent trend:			1



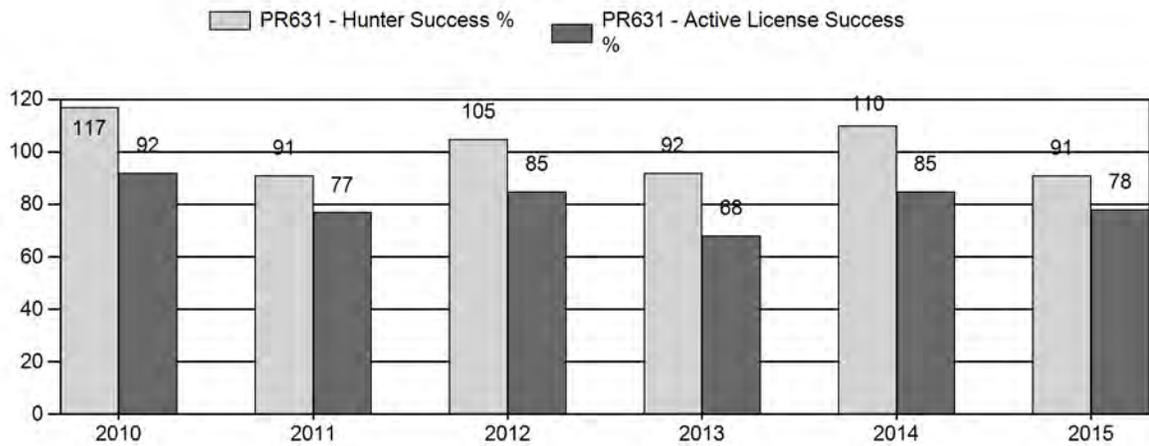
Harvest



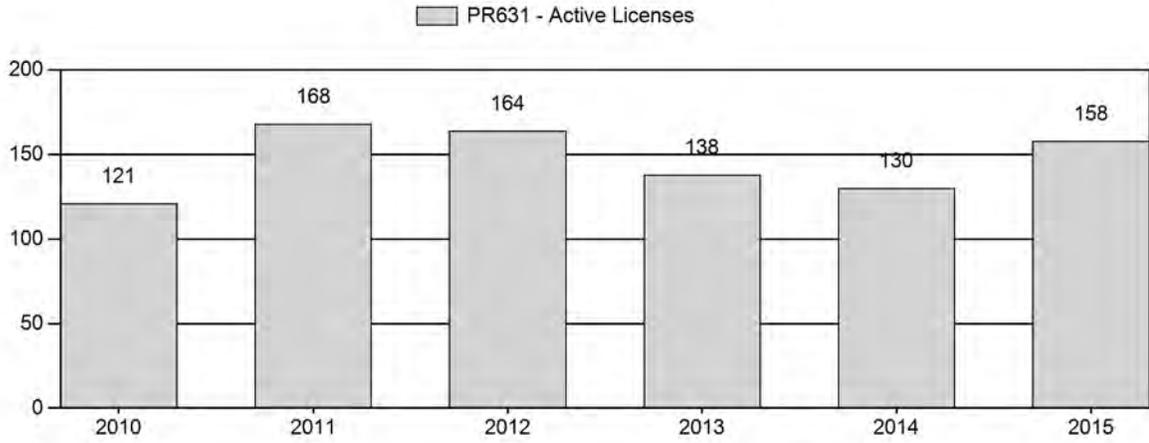
Number of Hunters



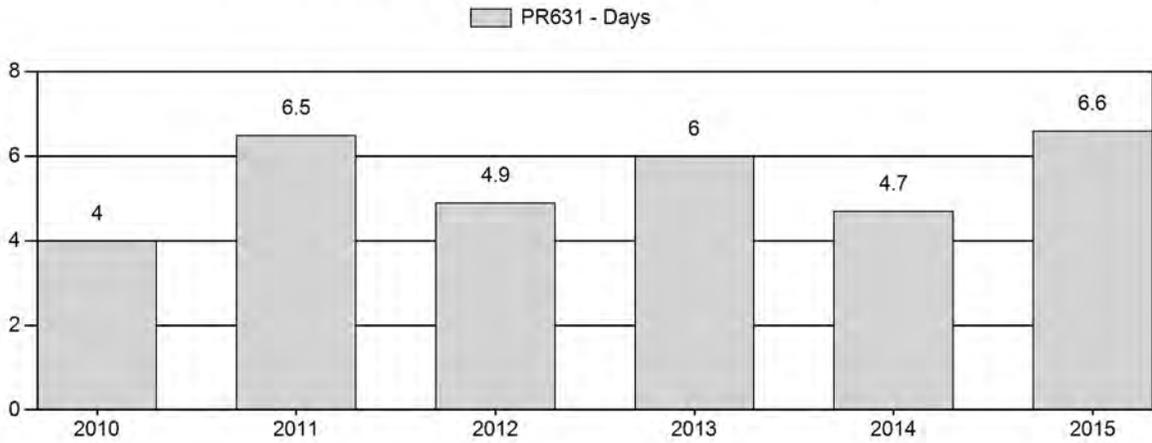
Harvest Success



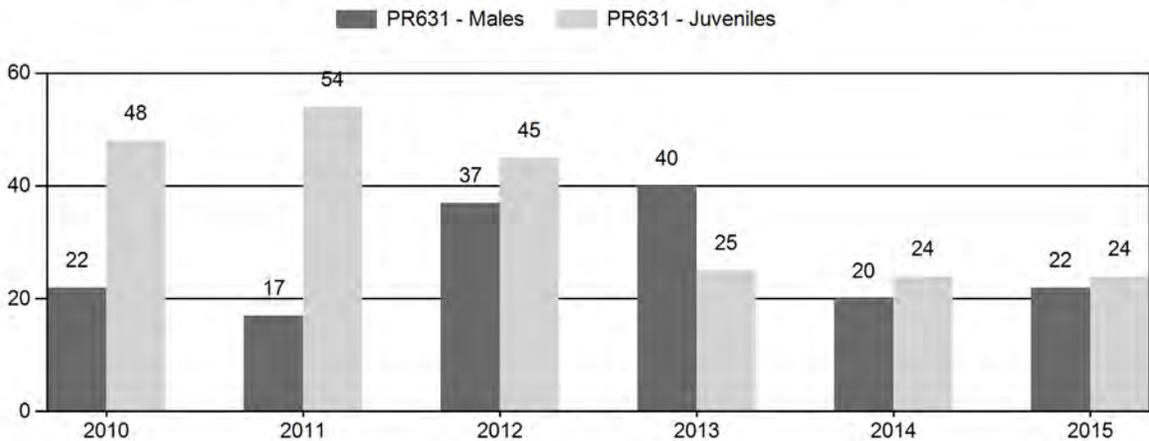
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR631 - WIND RIVER

Year	Pre 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
2010	923	0	0	79	13%	352	59%	169	28%	600	541	0	0	22	± 0	48	± 0	39
2011	0	4	17	21	10%	124	58%	67	32%	212	0	3	14	17	± 0	54	± 0	46
2012	0	7	29	36	20%	97	55%	44	25%	177	0	7	30	37	± 0	45	± 0	33
2013	0	7	14	21	24%	52	60%	13	15%	86	0	13	27	40	± 0	25	± 0	18
2014	0	7	15	22	14%	110	70%	26	16%	158	0	6	14	20	± 0	24	± 0	20
2015	0	6	21	27	15%	120	68%	29	16%	176	0	5	18	22	± 0	24	± 0	20

**2016 HUNTING SEASONS
WIND RIVER PRONGHORN (PR 631)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
84	1	Sep. 17	Oct. 22	100	Limited quota	Any antelope
	6	Sep. 17	Oct. 22	75	Limited quota	Doe or fawn
Archery		Aug. 15	Sep. 16			Refer to section 2

Hunt Area	Type	Quota change from 2015
Total		

Management Evaluation

Current Hunter Satisfaction Management Objective: Hunter Satisfaction 60%

Management Strategy: Recreational

2015 Hunter Satisfaction Estimate: 86%

Most Recent 3-year Running Average Hunter Satisfaction Estimate: 84%

Management Issues

The Wind River pronghorn management objective was reviewed and updated in 2014. The previous objective of 400 antelope had been in place since 1994. Due to a number of factors it was never possible to accurately estimate the antelope population in this herd. In response, the Department adopted an objective of maintaining 60% hunter satisfaction. Unlike other herd units with a satisfaction objective, the objective for this herd does not include a landowner satisfaction component for reasons outlined in the objective proposal. In conjunction with hunter satisfaction, this herd is managed for recreational opportunity.

Habitat/Weather

This pronghorn population occupies the upper Wind River basin west of the WRR. Much of the habitat throughout the herd unit is marginal or unsuitable. Pronghorn densities are highest on the east end of the herd unit where they occupy deer and elk winter range throughout the summer months. Some pronghorn winter on bare slopes in the mountain foothills, but many migrate east down the Wind River onto the WRR. Available habitat and climatic conditions seem to be the biggest factors limiting this population.

The past year was characterized by mild conditions and good vegetation growth throughout the herd unit. Vegetation transects monitored to determine the amount of forage available on elk winter range revealed herbaceous vegetation production was well above the 20-year average for

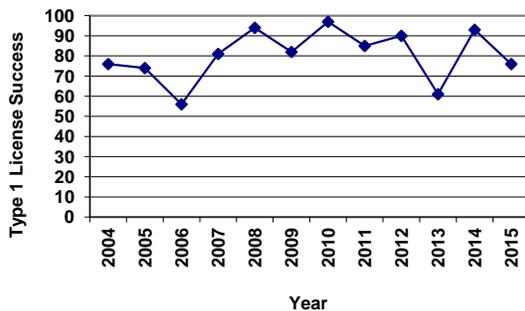
the area. No shrub data is collected in the herd unit, but the good growing conditions undoubtedly resulted in higher browse production than the previous droughty years. Given the good feed resource in 2015, antelope in the herd unit undoubtedly entered winter in good shape. Fall weather was mild followed by moderate winter conditions in December and January. Given mild to average winter conditions and excellent feed availability, antelope survival in 2015/16 is expected to be good.

Field/Harvest Data/Population

Classification samples have been collected from the ground and have been low over the past 5 years. Prior to that, classification data was collected aerially and sample sizes were much higher. In 2015 the classification sample was 176 antelope. Low classification samples are likely to remain the rule as long as ground classifications are conducted. Terrain, topography, and access to antelope summer range in the herd unit create difficulties. That said, the classification sample in 2015 yielded a remarkably low fawn/doe ratio of 24/100. This low ratio was quite surprising given the good climatic conditions mentioned previously. The buck/doe ratio was also extremely low at 23/100. Similar ratios were observed in 2014, but the sample size was even lower with only 158 antelope observed. Recent classification ratios should be viewed very skeptically given the low sample sizes.

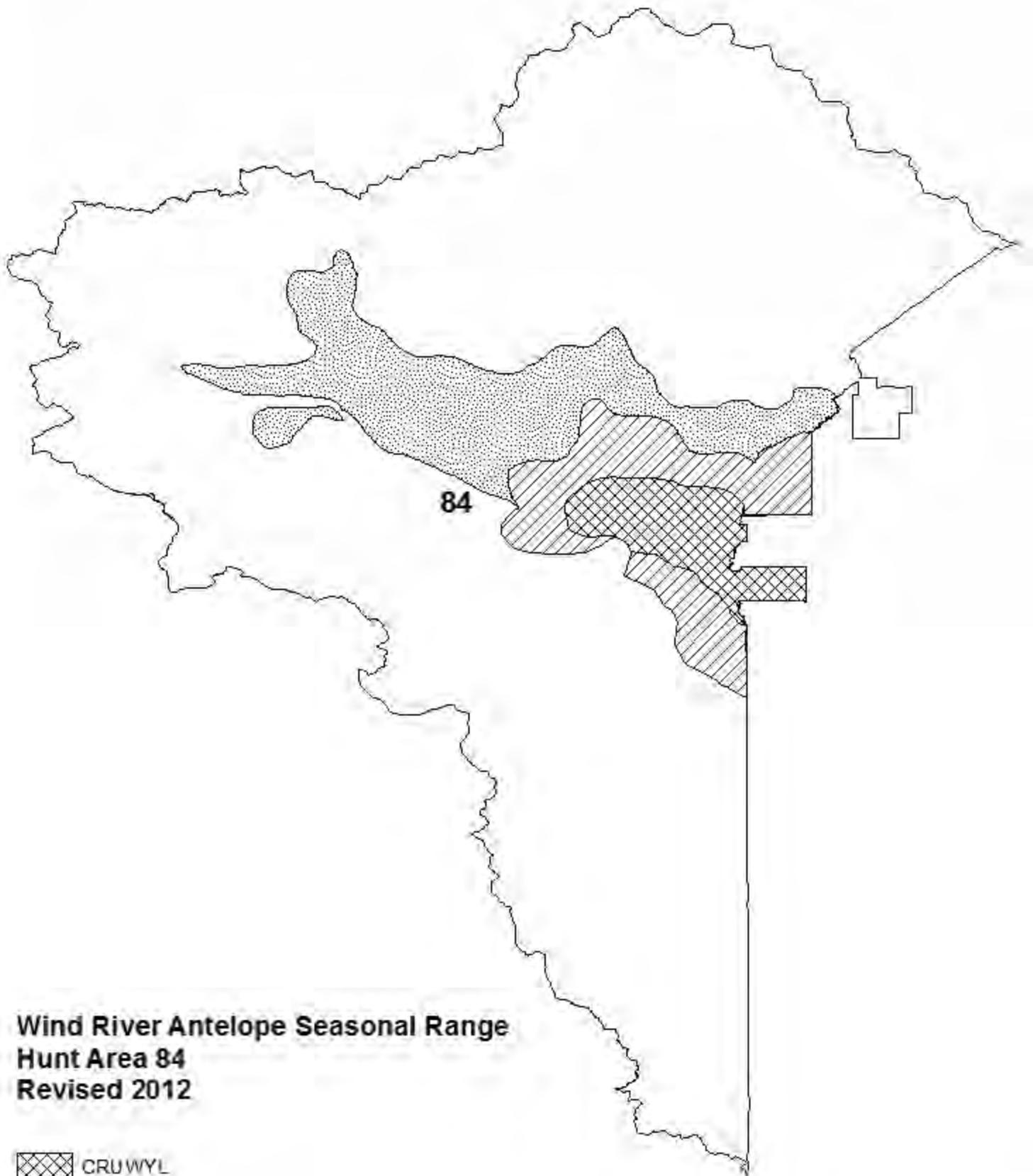
Type 1 license success was only 76% in 2015. This was a significant decline from the 2014 success rate of 93%. It was also well below average over the past 10 years (Fig. 1). The days/animal increased from 4.3 in 2014 to 7.8 for Type 1 licenses in 2015. Both of these statistics indicate hunters had a more difficult time harvesting an antelope in 2015. Despite harvest statistics indicating slightly tougher hunting in 2015, hunter satisfaction was 86% in 2015. This was nearly identical to the 5-year average of 84%.

Figure 1. Type 1 license success in the Wind River Antelope Herd



Management Summary

Given scarce demographic data it is difficult to determine trends in this herd unit. Anecdotally, based on public and personnel observations, it appears this population grew substantially from the middle to end of the past decade. Following a harsh winter in 2010 and extreme drought in 2012 and 2013 it seems the population declined somewhat, then increased again in 2014. Harvest statistics indicate hunters had a tougher time finding antelope in 2015 but hunter satisfaction remained unchanged. In concert, harvest statistics and hunter satisfaction data indicate the population was likely stable between 2014 and 2015. As such, no changes are proposed for the 2016 hunting season.



**Wind River Antelope Seasonal Range
Hunt Area 84
Revised 2012**

-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR632 - BEAVER RIM

HUNT AREAS: 65-69, 74, 106

PREPARED BY: STAN HARTER

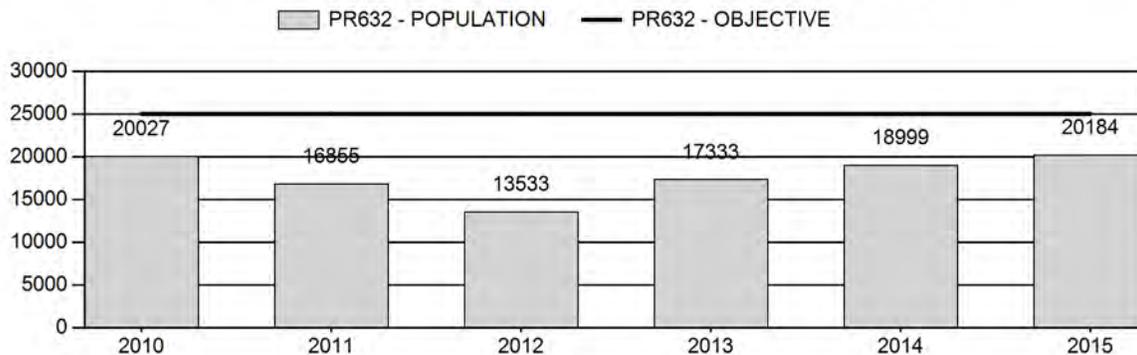
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	17,349	20,184	20,702
Harvest:	2,169	1,108	1,240
Hunters:	2,209	1,214	1,350
Hunter Success:	98%	91%	92%
Active Licenses:	2,488	1,327	1,425
Active License Success:	87%	83%	87%
Recreation Days:	7,126	4,014	4,300
Days Per Animal:	3.3	3.6	3.5
Males per 100 Females	54	55	
Juveniles per 100 Females	59	72	

Population Objective (\pm 20%) :	25000 (20000 - 30000)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-19.3%
Number of years population has been + or - objective in recent trend:	0
Model Date:	01/25/2016

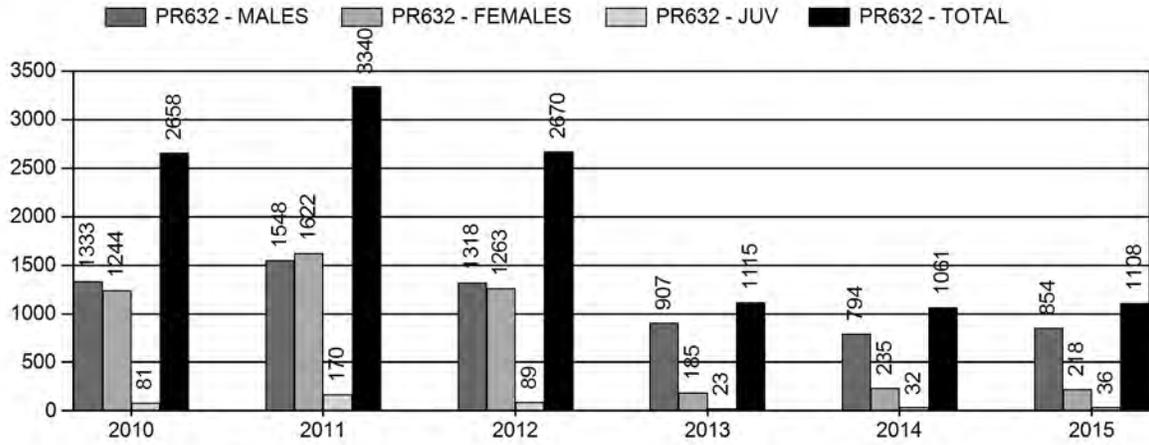
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	2.5%	2.2%
Males \geq 1 year old:	19.5%	22.2%
Juveniles (< 1 year old):	0.5%	0.6%
Total:	5.5%	6.0%
Proposed change in post-season population:	+6.2%	+2.6%

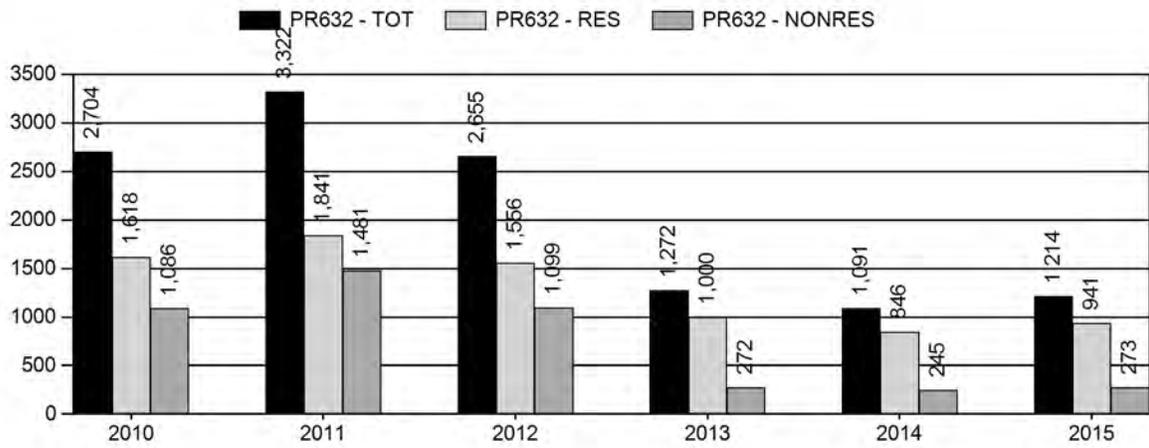
Population Size - Postseason



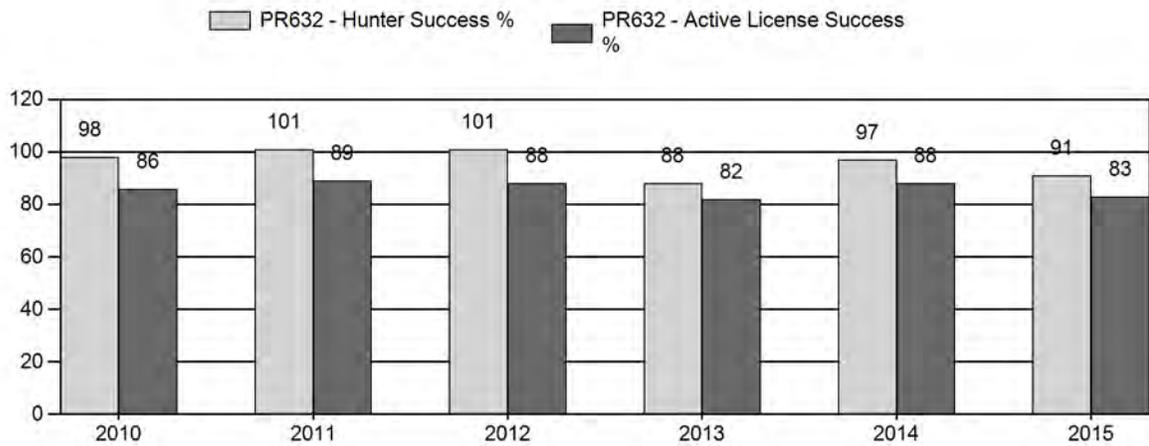
Harvest



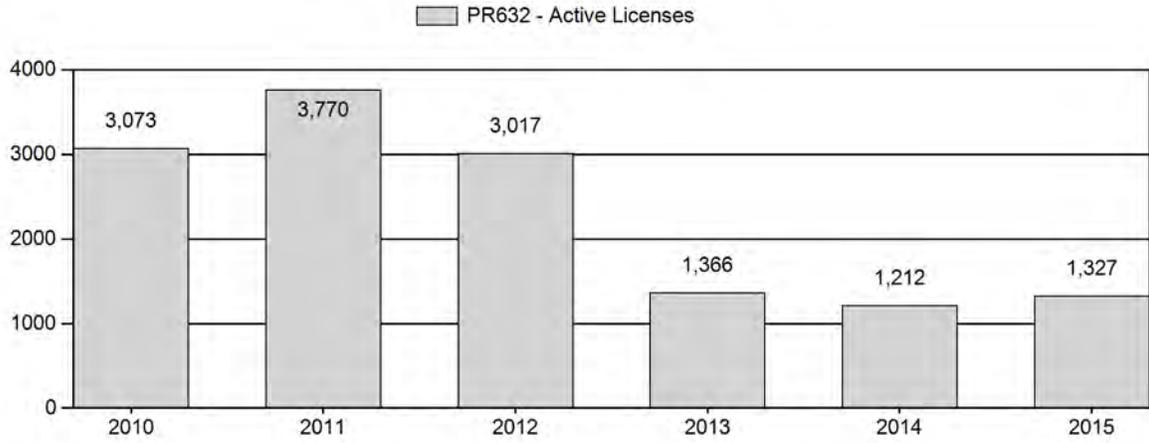
Number of Hunters



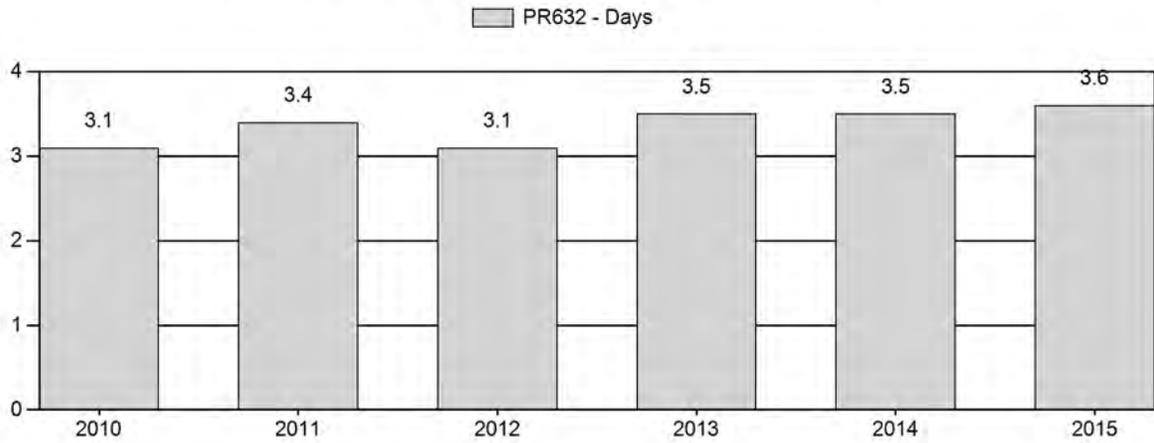
Harvest Success



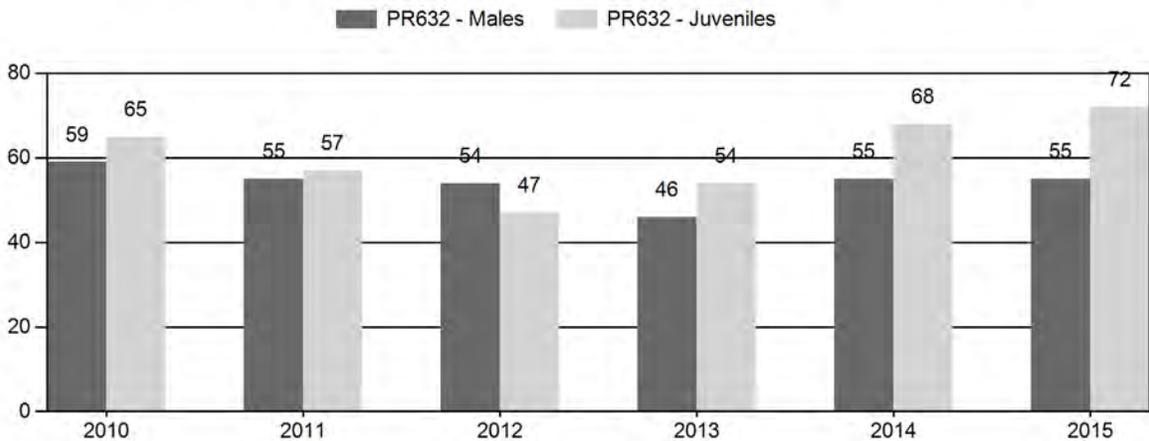
Active Licenses



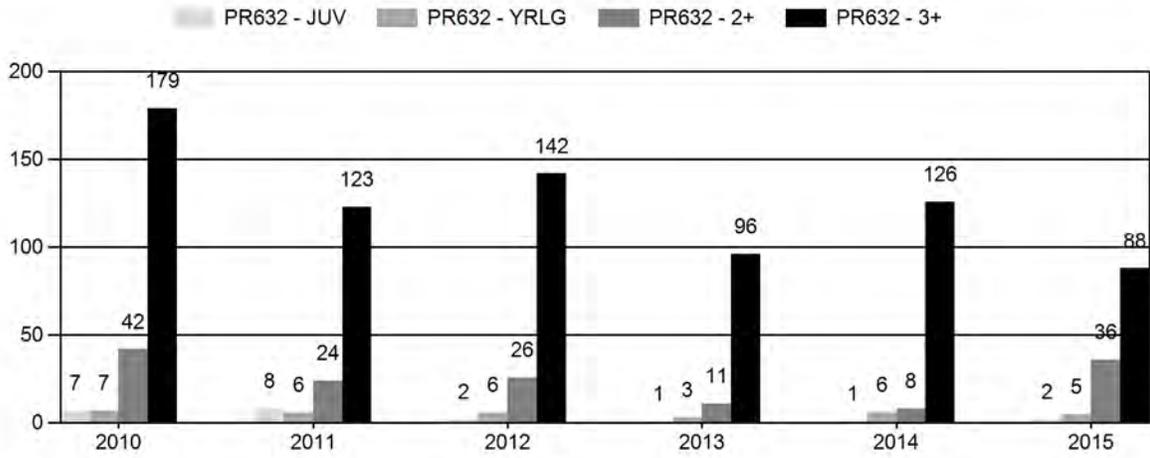
Days Per Animal Harvested



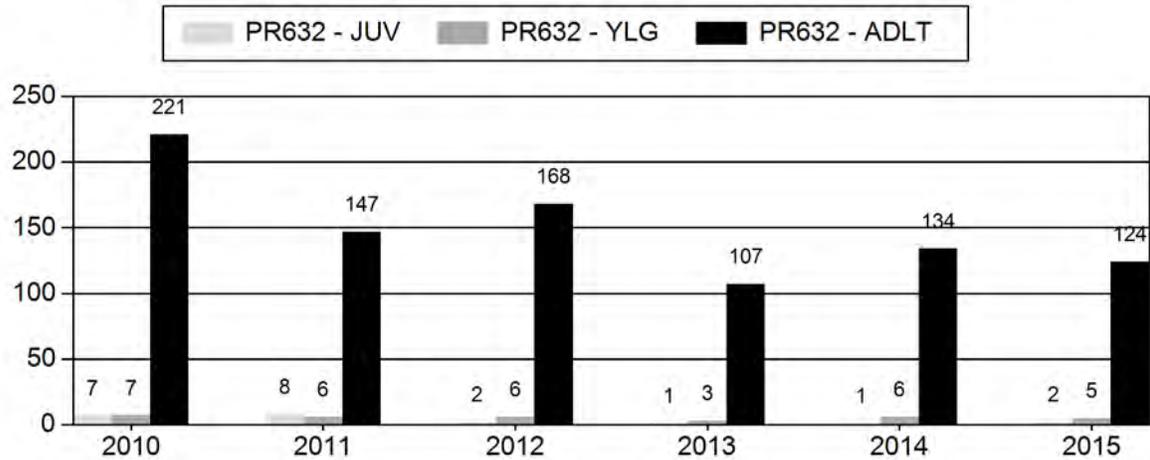
Preseason Animals per 100 Females



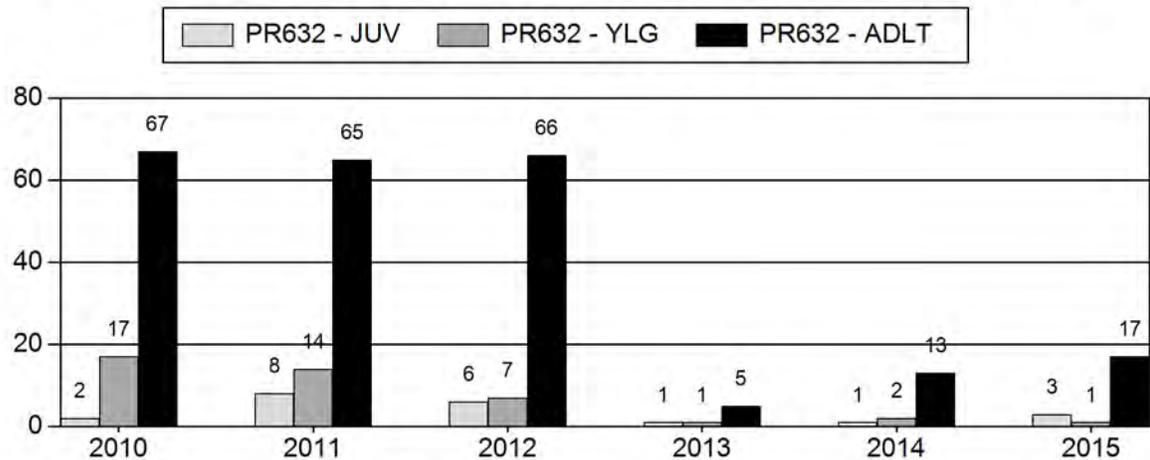
Age Structure of Field Checked Males



Age Structure Data (Field and Laboratory) - Male



Age Structure Data (Field and Laboratory) - Female



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR632 - BEAVER RIM

Year	Pre 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
2010	22,951	778	1,745	2,523	26%	4,278	45%	2,800	29%	9,601	2,381	18	41	59	± 2	65	± 2	41
2011	20,529	521	1,413	1,934	26%	3,544	47%	2,011	27%	7,489	1,893	15	40	55	± 2	57	± 2	37
2012	16,470	317	1,234	1,551	27%	2,867	50%	1,350	23%	5,768	1,766	11	43	54	± 2	47	± 2	31
2013	18,560	149	1,314	1,463	23%	3,199	50%	1,725	27%	6,387	1,608	5	41	46	± 2	54	± 2	37
2014	20,166	419	1,240	1,659	25%	3,003	45%	2,035	30%	6,697	2,408	14	41	55	± 2	68	± 3	44
2015	21,403	572	1,140	1,712	24%	3,087	44%	2,222	32%	7,021	2,279	19	37	55	± 2	72	± 3	46

**2016 HUNTING SEASONS
Beaver Rim Pronghorn Herd Unit (PR 632)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
65	1	Sept. 17	Oct. 22	75	Limited Quota	Any antelope
65	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn
65	7	Sept. 1	Oct. 31	75	Limited Quota	Doe or fawn valid north of the Little Popo Agie River
66	1	Sept. 17	Oct. 22	100	Limited Quota	Any antelope
66	6	Sept. 17	Oct. 22	75	Limited Quota	Doe or fawn
67	1	Sept. 17	Oct. 22	275	Limited Quota	Any antelope
67	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn
68	1	Sept. 17	Oct. 22	300	Limited Quota	Any antelope
68	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn
69	1	Sept. 15	Oct. 31	100	Limited Quota	Any antelope
69	6	Sept. 15	Oct. 31	25	Limited Quota	Doe or fawn
74	1	Sept. 17	Oct. 22	250	Limited Quota	Any antelope
74	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn
106	1	Sept. 17	Oct. 22	75	Limited Quota	Any antelope
106	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn

Archery

65-68, 74, 106	Aug. 15	Sept. 16	Refer to license type and limitations in Section 2
69	Aug. 15	Sept. 14	Refer to license type and limitations in Section 2

Hunt Area	License Type	Quota Change from 2015
68	1	+50
106	1	+25
Herd Unit Total	1	+75

MANAGEMENT EVALUATION

Current Post-season Population Management Objective: 25,000

Management Strategy: Special (60-70 bucks/100 does)

2015 Post-season Population Estimate: ~20,200

2016 Post-season Population Estimate: ~20,700

Herd Unit Issues

Habitats are relatively intact with localized energy development and agricultural developments scattered throughout the herd unit, and urban/rural residential development occurring primarily near Lander. This population fluctuated below objective in the 1990s, reached objective in the mid-2000s before declining

to a recent low in 2012 due to drought. The population has since increased with improved precipitation and resultant increased fawn survival. The management objective was reviewed in 2015, and the long-term post-season objective of 25,000 pronghorn was retained. The population reached about 20,200 pronghorn post-season 2015, 19% below objective.

Weather

Precipitation has improved substantially since fall 2013, after a period of intense drought. Precipitation from October 2013 through September 2014 was about average in the Beaver Rim herd unit. Winter 2014-15 had lower than average snowfall, yet precipitation from October 2014 through September 2015 was higher than the 30-year average due to April and May 2015 getting nearly double the average precipitation for those months in Lander and Jeffrey City. Precipitation was 140% above average in Lander and 80% above average in Jeffrey City for the first four months of 2016, with record breaking rain falling in the first week of May, which should lead to excellent summer forage conditions.

Habitat

Habitat conditions have greatly improved as a result of increased precipitation, and thus have led to improved pre-season fawn/doe ratios and should result in improved pronghorn survival over winter 2015-16, which has been fairly mild. Recently developed “Rapid Habitat Assessments” will be implemented as appropriate to develop a baseline from which to gauge overall habitat condition across the landscapes of the Beaver Rim pronghorn herd unit.

Field Data

Pre-season fawn/doe ratios have improved the past 3 years, reaching a long-term high of 72J/100F in 2015, 22% above the previous 5-year average. Buck/doe ratios remained at 55M/100F in 2015, with an increase in recruitment of yearling bucks to a pre-season ratio of 19YM/100F. However, the pre-season adult buck ratio declined to 37AM/100F, indicating harvest of adult bucks is outpacing replacement due to previous low yearling buck recruitment. Fawn/doe ratios varied by hunt area from 61J/100 to 81J/100F, while buck/doe ratios had higher variability between hunt areas, ranging from 37M/100F to 69M/100F. Conservative buck harvest is again recommended for 2016 to allow for replacement of adult bucks following low yearling buck/doe ratios in 2012 and 2013, and to move this herd toward the special management strategy range of 60-70 bucks/100 does.

Harvest Data

License quotas were increased slightly in 2015, compared to 2014 and led to nominal increase in total harvest. Yet, harvest statistics indicated hunters in some hunt areas still had difficulty finding antelope. Hunter success in 2015 dropped to 91% overall, along with active license success dropping from 88% to 83%. Type 1 (any antelope) hunter success ranged from 78% in hunt area 67 to 100% in hunt area 106. Doe/fawn hunters had success rates ranging from of 72% in hunt area 69 to 93% in hunt area 66. As a whole, it took 3.6 days of hunting for each animal harvested, an increase of only 0.1 day, but the highest since 1994. A few hunters expressed concerns about low pronghorn numbers, especially “quality” adult bucks, but less so than in recent years. Adjustments to the 2016 seasons were made considering these variables, combined with variations in classification data to best fit harvest to individual hunt areas, while moving toward the population objective and special management strategy range of 60-70 bucks per 100 does.

Population

A spreadsheet model was developed for this population in 2012. It has been updated utilizing 2015 pre-season classification and harvest data. The spreadsheet model (CJ/CA) works very well for Beaver Rim Pronghorn and tracks quite well with 7 line-transect (LT) estimates over the past 22 years. As such, we consider the model to be Good. The end-of-year estimates produced by the model run almost exactly through or very close to the LT estimates in 3 of 7 years, and through the confidence interval for 3 of the other 4 years (projected population is just below the last LT estimate's confidence interval in 2013). The next LT survey is scheduled for the end of bio-year 2016. The model also produces post-season population estimates which closely follow trends observed by field personnel and the public. The population was at or slightly below objective for 7 years (2004 – 10), but declined sharply in 2011 and 2012, due to poor fawn recruitment as a result of intense drought. However, much improved fawn/doe ratios in 2013 through 2015 indicate the population is recovering and moving toward the current objective, with 20,200 pronghorn post-season 2015.

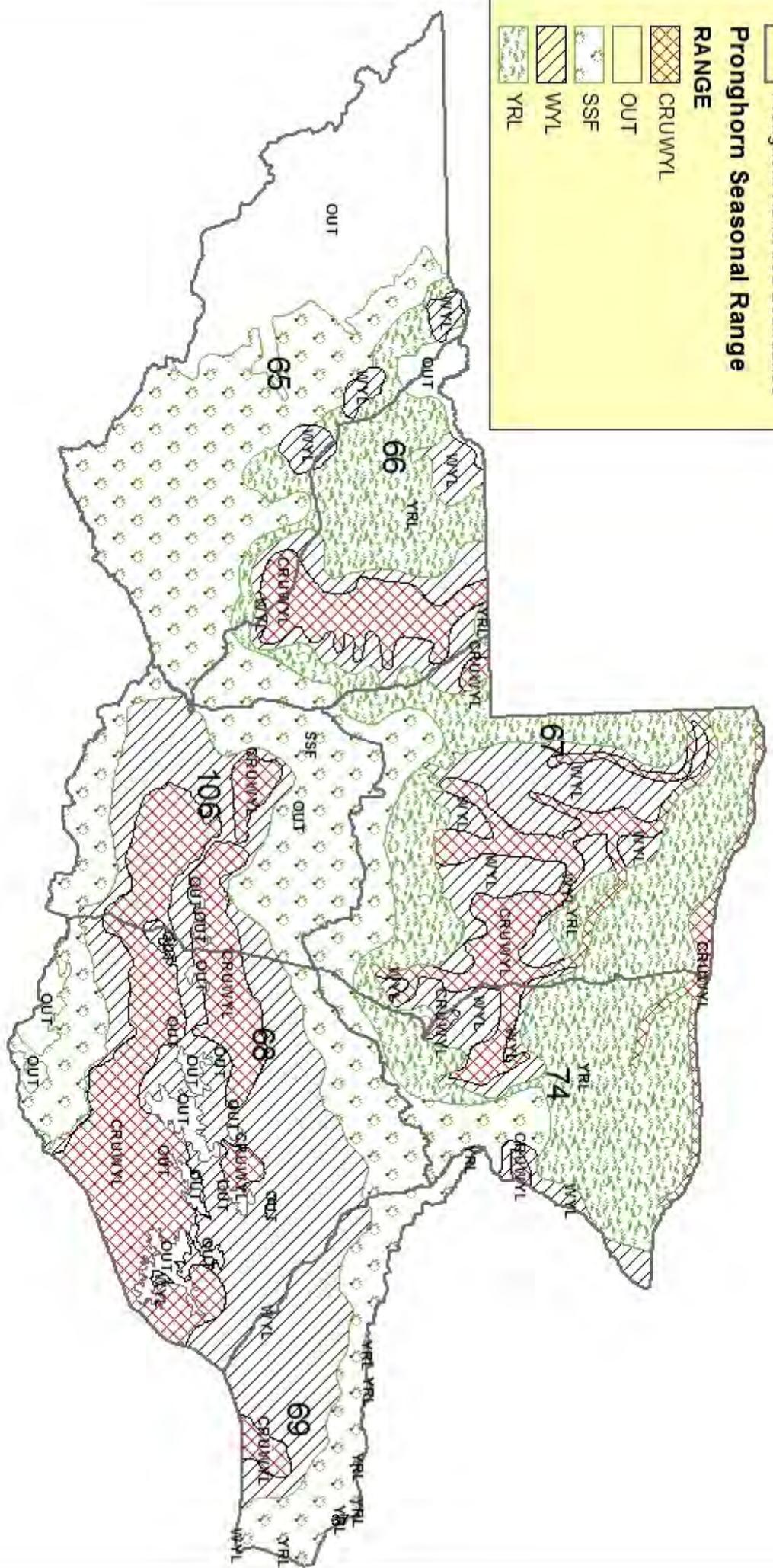
Management Summary

For 2016, doe/fawn license numbers are maintained to control localized private land damage situations. Increases in Type 1 licenses were implemented in two hunt areas, to provide additional hunting opportunity where buck/doe ratios are within the special management range. However, the overall buck/doe ratio of 55M/100F is about 8% below the minimum of 60M/100F needed for this population to meet the Department's Special Management criteria. The total number of Type 1 licenses for 2016 are intended to allow for improvement of buck/doe ratios toward that secondary objective. Current license quotas may be lower than some public expectations of increases in license allocation, as they are seeing more pronghorn. Yet, with the population 19.3% below objective and buck/doe ratios below special management criteria, we are maintaining conservative seasons to move toward those goals.

The seasons outlined should allow population improvement, if the weather patterns observed since fall 2013 continue and fawn production/survival improves. Doe/fawn licenses are part of the 2016 hunting season structure to address localized damage to private land hay crops. In 2015, the closing date of the Area 65 Type 7 doe/fawn season was extended to November 15 to provide increased opportunity, particularly for one landowner who was only allowing access after deer season ended on October 22. The same landowner has requested an earlier closing date in 2016, since he will not have the same deer hunting conflict this year. Therefore, the season dates for that license are Sept. 1 to October 31. A total of 1,175 any antelope and 300 doe/fawn licenses will be available for 2016, and should result in a harvest of about 1,240 animals. With average survival in combination with projected harvest, we predict the population will increase slightly to 20,700 pronghorn.

**Beaver Rim Pronghorn (PR632)
 HA 65, 66, 67, 68, 69, 74, 106
 Revised September 2011**

Pronghorn Hunt Area Boundaries
Pronghorn Seasonal Range
RANGE
 CRUWYL
 OUT
 SSF
 WYL
 YRL



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR634 - BADWATER

HUNT AREAS: 75

PREPARED BY: GREG
ANDERSON

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	4,029	4,451	4,015
Harvest:	580	416	670
Hunters:	599	409	600
Hunter Success:	97%	102%	112 %
Active Licenses:	652	450	725
Active License Success:	89%	92%	92 %
Recreation Days:	1,931	1,476	1,800
Days Per Animal:	3.3	3.5	2.7
Males per 100 Females	64	66	
Juveniles per 100 Females	52	88	

Population Objective (± 20%) : 3000 (2400 - 3600)

Management Strategy: Recreational

Percent population is above (+) or below (-) objective: 48%

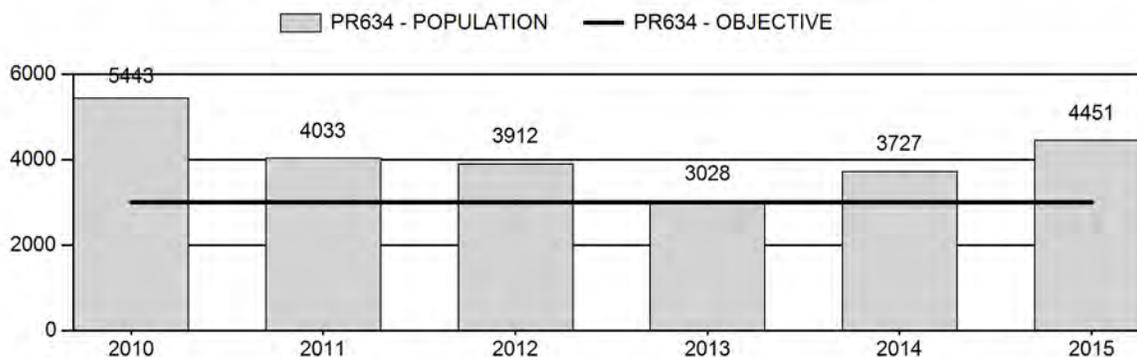
Number of years population has been + or - objective in recent trend: 10

Model Date: 1/26/2016

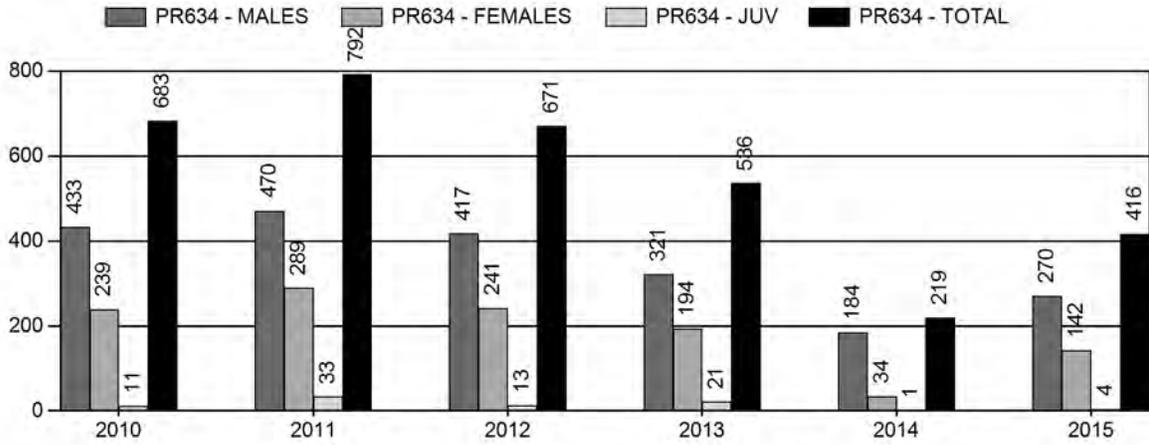
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	8%	12%
Males ≥ 1 year old:	40%	40%
Juveniles (< 1 year old):	1%	1%
Total:	12%	14%
Proposed change in post-season population:	-9%	-16%

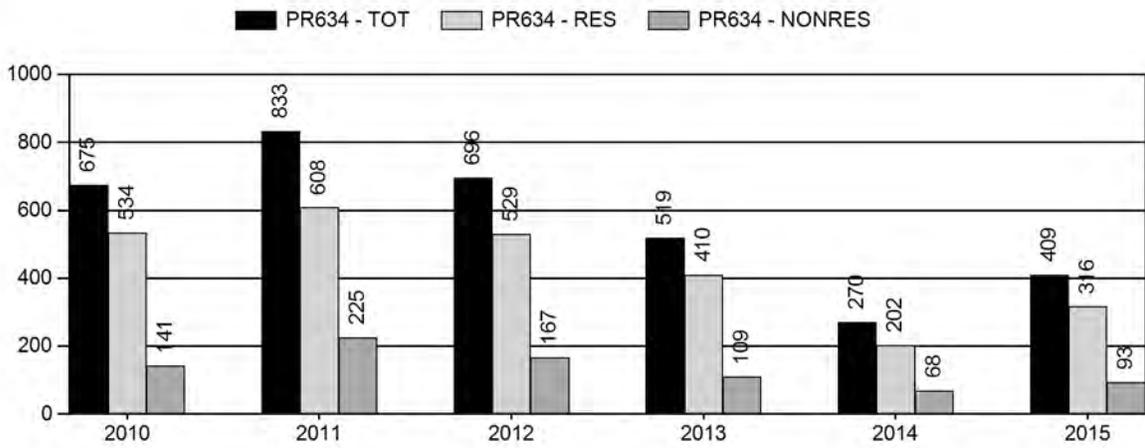
Population Size - Postseason



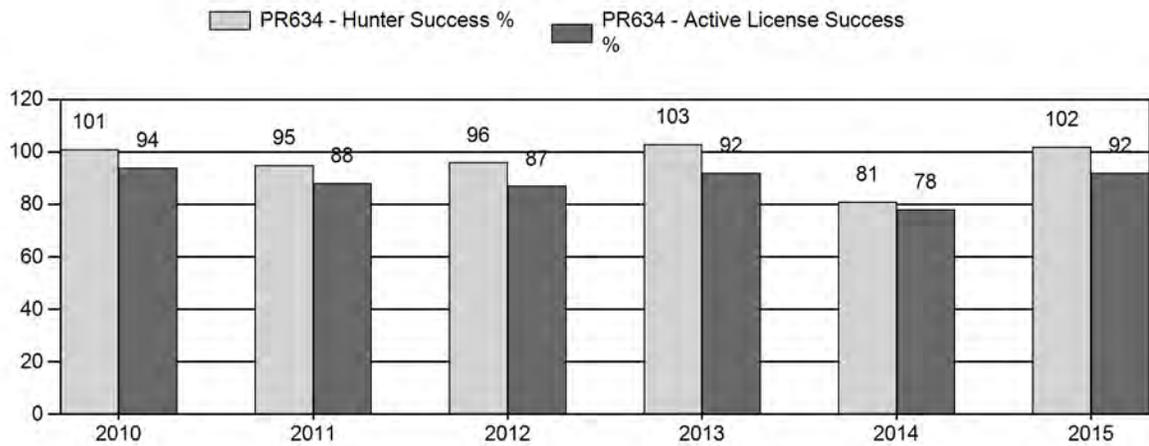
Harvest



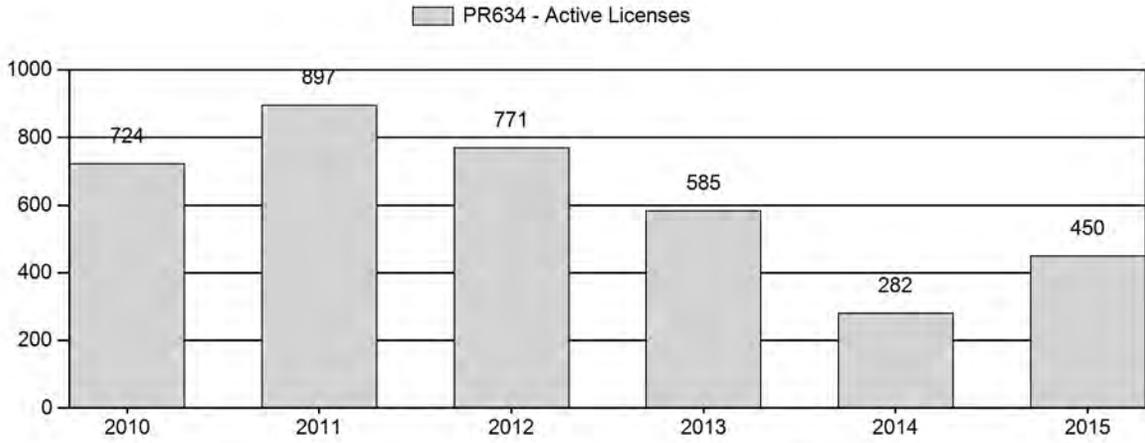
Number of Hunters



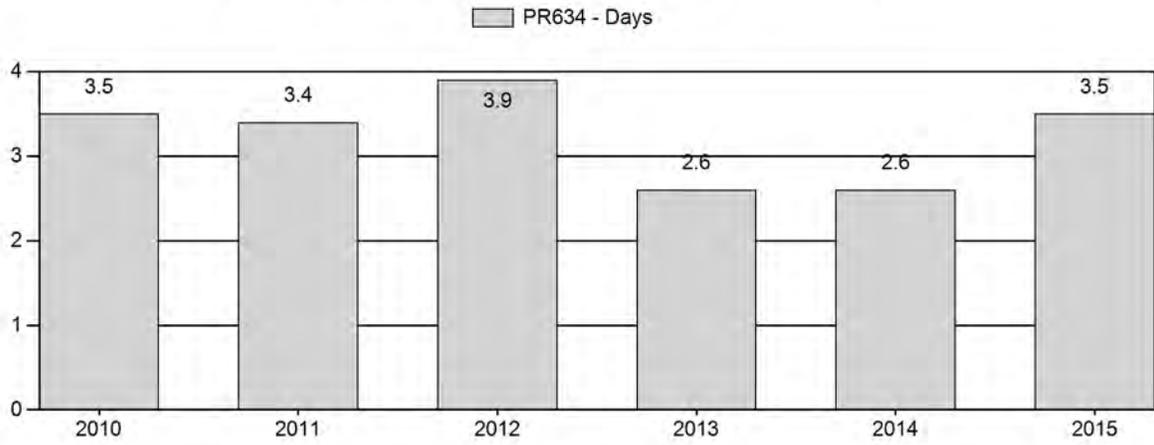
Harvest Success



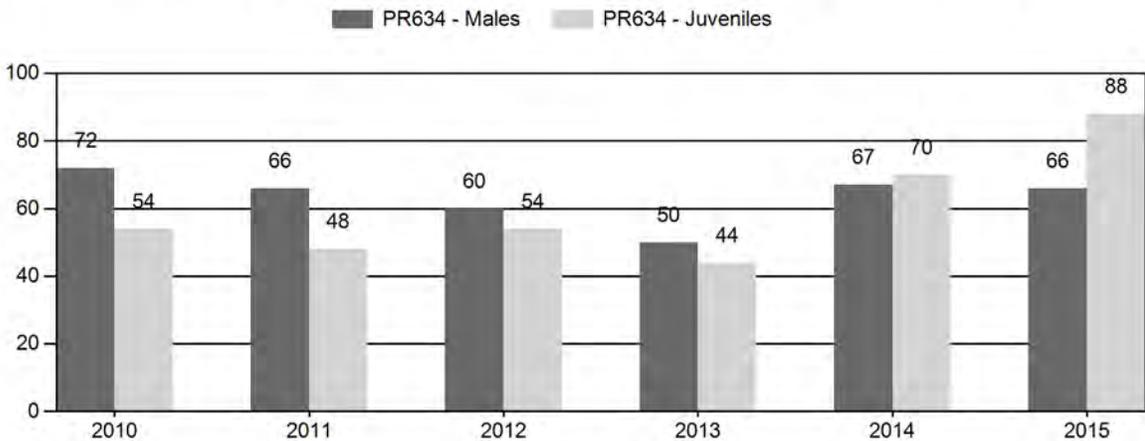
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR634 - BADWATER

Year	Pre 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
2010	6,195	191	425	616	32%	860	44%	464	24%	1,940	1,955	22	49	72	± 5	54	± 4	31
2011	4,904	113	468	581	31%	875	47%	421	22%	1,877	1,689	13	53	66	± 5	48	± 4	29
2012	4,650	83	296	379	28%	631	47%	339	25%	1,349	1,522	13	47	60	± 5	54	± 5	34
2013	3,617	58	268	326	26%	646	51%	285	23%	1,257	1,098	9	41	50	± 5	44	± 4	29
2014	3,968	87	142	229	28%	340	42%	237	29%	806	1,678	26	42	67	± 8	70	± 9	42
2015	4,909	149	115	264	26%	403	39%	354	35%	1,021	2,362	37	29	66	± 8	88	± 9	53

**2016 HUNTING SEASONS
BADWATER PRONGHORN (PR 634)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
75	1	Sep. 17	Oct. 22	450	Limited quota	Any antelope
	6	Sep. 17	Oct. 22	275	Limited quota	Doe or fawn
Archery		Aug. 15	Sep. 16			Refer to section 2

Hunt Area	Type	Quota change from 2015
75	1	+100
	6	+100
Total	1	+100
	6	+100

Management Evaluation

Current Postseason Population Management Objective: 3,000

Management Strategy: Recreational

2015 Postseason Population Estimate: ~4,400

2016 Proposed Postseason Population Estimate: ~4,000

Management Issues

The Badwater pronghorn herd is managed toward a post-season population size objective of 3,000. The population is estimated using a spreadsheet model developed in 2012 and updated in 2015. The herd is managed for recreational opportunity. The objective was last reviewed in 2014. During the 2014 review, it was noted the new spreadsheet model appeared to track the same population trend as the previous POP-II model. However, annual population estimates tended to be about 1,000 animals higher in the new spreadsheet model. Initial attempts to increase the objective to 4,000 to compensate for the apparent higher estimates produced by the spreadsheet model were met with resistance from landowners and the BLM. When noted that leaving the objective at 3,000 would in effect mean managing for fewer antelope than in the past, a number of landowners and representatives from the BLM felt that was appropriate given long-term drought and poor habitat conditions in the area.

This pronghorn population inhabits a heavily industrialized area in central Wyoming. Much of the herd unit has been designated as a special management area emphasizing oil and gas production in both the Casper and Lander BLM RMPs. The Lander BLM is currently analyzing a proposal to develop approximately 4,500 oil/gas wells in the central part of the herd unit. Given the commodities production emphasis in the area, it is likely a significant amount of pronghorn habitat will be lost or degraded over the next 20 years.

Habitat/Weather

This area has been impacted by extreme drought for much of the last decade. Virtually no vegetation grew throughout the herd unit in 2012 and 2013. In 2014 and 2015 weather conditions resulted in excellent herbaceous production throughout central Wyoming. Although no vegetation transects are monitored annually in this herd unit, observations suggested vegetation growth was quite good in 2015. Both deer and antelope in the area appeared to enter winter in excellent body condition. With ideal conditions in 2014 and 2015, this population grew over the past 2 years. Given average winter temperatures and precipitation, antelope winter survival is expected to be good in 2015.

Field Data

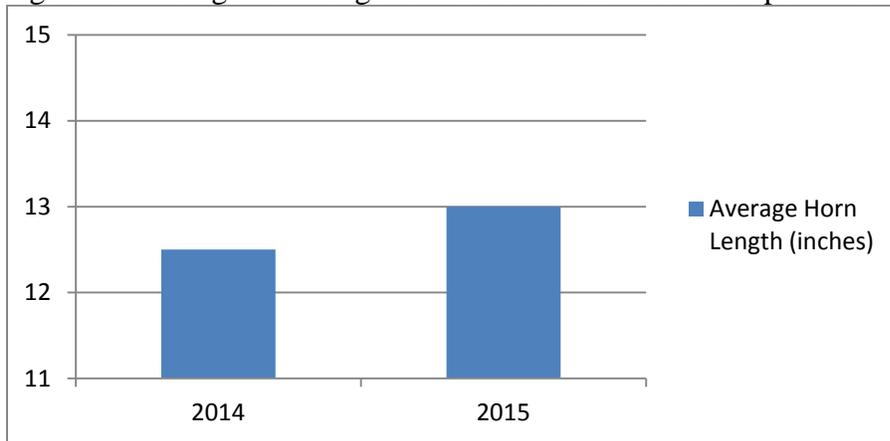
Numbers of antelope observed along specified ground classification routes had been declining steadily since 2010. In contrast, the antelope classification sample size increased from 806 in 2014 to 1,021 in 2015. Much of the classification sample increase was due to a greater number of fawns and yearling bucks. This is likely the result of good vegetation growth and weather conditions. The 2015 sample size of 1,021 antelope was 43% of the desired sample size. The sample yielded a fawn/doe ratio of 88/100. This was the highest fawn/doe ratio recorded in the last 20 years and is again testament to the good weather conditions throughout the herd unit in 2015. It should be noted the 2014 fawn/doe ratio was also quite high at 70/100. Although the buck/doe ratio of 66/100 was nearly the same as the 2014 ratio of 67/100, there was a dramatic increase in yearling bucks. The 2015 yearling buck/doe ratio was 37/100 and was also the highest recorded in the last 20 years. All of the classification data from the past 2 years indicate this population increased.

Harvest Data

As expected, with a high buck/doe ratio and an increasing population, Type 1 license success was high at 92%. This was significantly higher than the 2014 success rate of 77% but close to the 5-year average of 89%. Type 6 license success was also quite good at 93%. The days/animal statistic for Type 1 license holders was unremarkable in 2015 at 3.5. This was almost the same as the 5-year average of 3.3. Overall, harvest statistics indicate recreational hunting in 2015 was good.

In 2015 personnel collected horn length measurements on 16 male antelope. The average and median lengths were both 13 inches. The longest horn measurement of the year was 14 inches (Fig. 1). This was quite similar to 2014 when personnel collected 20 horn measurements and found an average length of 12.5 inches, a median length of 13 inches, and a maximum length of 15 inches.

Figure 1. Average horn length of field checked male antelope in Hunt Area 75.



Population

In 2012, a spreadsheet model was developed for this population. The model behaved predictably with the addition of 2013 and 2014 data but the addition of 2015 data changed model estimates dramatically. The model appears to track population trends reliably but the actual population estimate appears questionable. The model tracks significantly higher than 5 of 6 line-transect (LT) estimates. Recalibrating juvenile and adult survival rates in various versions of the model does nothing to bring the end-of-year estimate closer to these estimates. LT estimates for this population tend to have very high coefficients of variation attributable to low small samples sizes and variable densities across the herd unit. Due to the high standard errors associated with the line-transect estimates the population model deviance errors are very small. These numbers are calculated by dividing the difference of the model estimate and the LT estimate by the standard error of the LT estimate. A large standard error in the denominator of this calculation results in a small population deviance value even if the difference between the model estimate and LT estimate is quite large. Since the Solver function of these models is designed to minimize the population deviance, there is little need to account for already small deviances. The bottom line is Solver has little incentive to consider even large differences between model population estimates and LT estimates and therefore, the model essentially ignores the LT estimates.. Concurrently, differences in annual observed versus modeled buck/doe ratios are given undo consideration by Solver. This is not desirable in this case since recent classification sample sizes have been well below adequate. To deal with this problem, population deviances (the difference between model and LT estimates) are multiplied by a factor of 4 in the current model. This forces the model closer to the most recent LT estimate. A correction factor of 4 was chosen because it forces the end-of-year population to model close to the lower end of the confidence interval of a 2010 line transect estimate and at least the upper end of the confidence interval for a 2012 estimate. Without the correction factor, the model population is well above the confidence interval for the 2012 estimate. It should be noted, the overall population trend remains the same with or without the use of a correction factor.

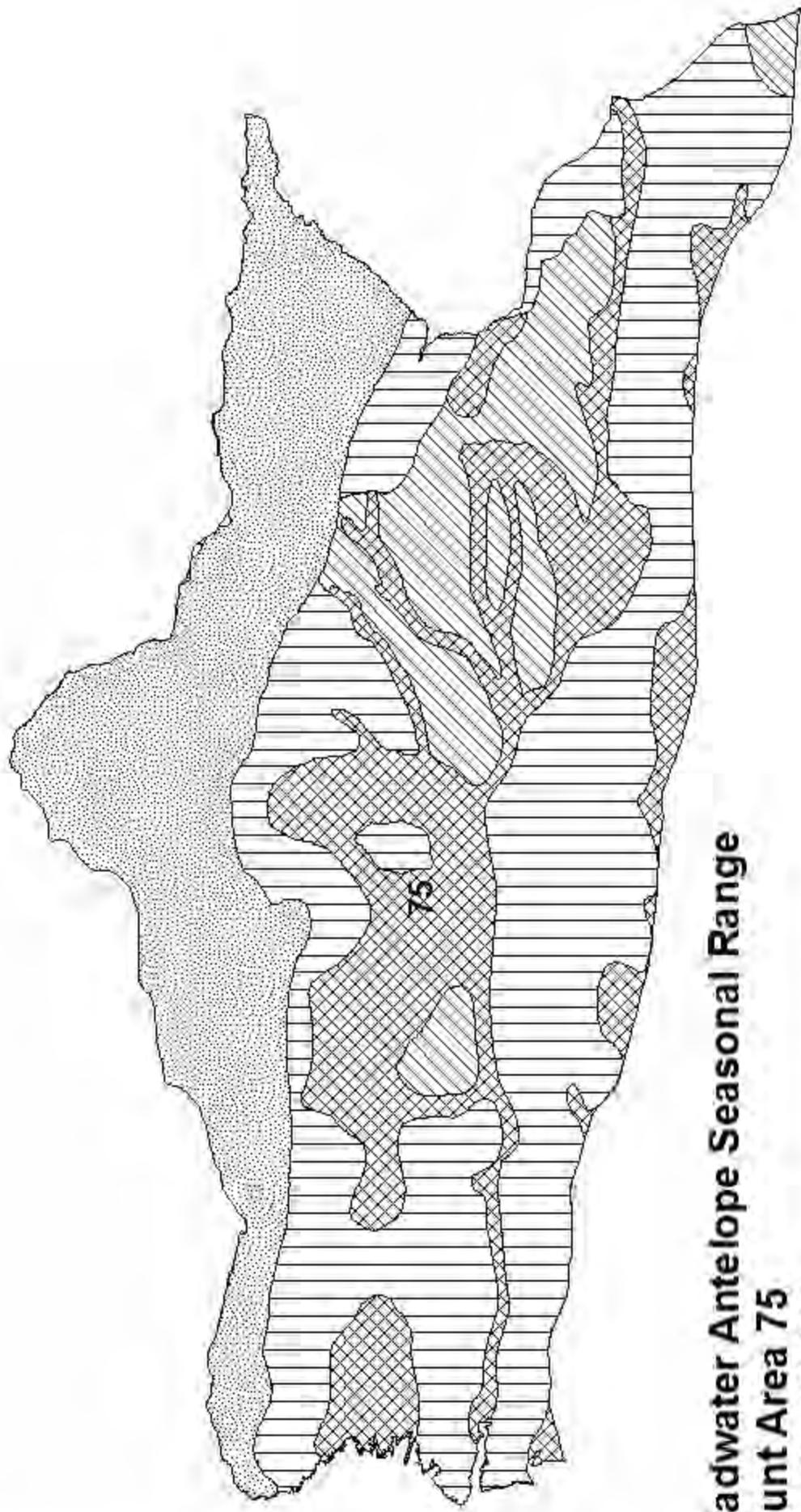
For 2015, the SCJ/SCA version of the model was selected to simulate the population. This was the same version of the model selected in 2014. The SCJ/SCA model had a higher AIC value than the CJ/CA model, but the CJ/CA version does not compensate for suspected, low survival

associated with severe drought in 2012 and 2013. The TSJ/CA had virtually the same AIC value and produced similar trends to the SCJ/SCA version. Given the same AIC and identical trends, the SCJ/SCA was deemed the best model to maintain consistency with previous years. Annual juvenile survival in the selected model is constrained to a maximum of 0.8. Without that constraint, the model consistently estimated juvenile survival higher than adult survival which is not biologically defensible. The SCJ/SCA model has 3 years with modified juvenile survival to account for extreme winter conditions in 2010 and extreme drought conditions in 2012 and 2013. Juvenile survival for these years is constrained to a maximum of 0.4.

This model version produces a population trend mirroring field personnel impressions. The model indicates the population declined significantly from 2007 through 2013. This is supported by the decreased classification samples collected along standard routes since 2010 as well as declining buck/doe ratios from 2010 through 2013. The population was predicted to be at objective using the 2014 model. Given favorable conditions throughout the herd unit and high recruitment in 2015 the model estimates from 2014 to 2015 increased substantially. Instead of being at objective as predicted in 2014, the 2015 population is now estimated to be 48% above objective. As mentioned previously, harvest statistics and classification data also indicate this population increased. Given good recruitment in 2015 and excellent survival from 2014 (as indicated by the high yearling buck/doe ratio), the modeled increase is plausible. Due to the lack of survival estimates, the model is considered a fair simulation.

Management Summary

Given the modeled population increase over the past year as well as the high buck/doe ratio, hunting opportunity in area 75 can be increased in 2015. Type 1 licenses will be increased by 100 to 450 to allow more recreational opportunity. Type 6 licenses will be increased to 100 to manage the population toward objective. Given average recruitment, the population is predicted to decline by approximately 10% to 4,000 and be within 33% of objective.



**Badwater Antelope Seasonal Range
Hunt Area 75
Revised 2012**

-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL

2015 - JCR Evaluation Form

SPECIES: Pronghorn

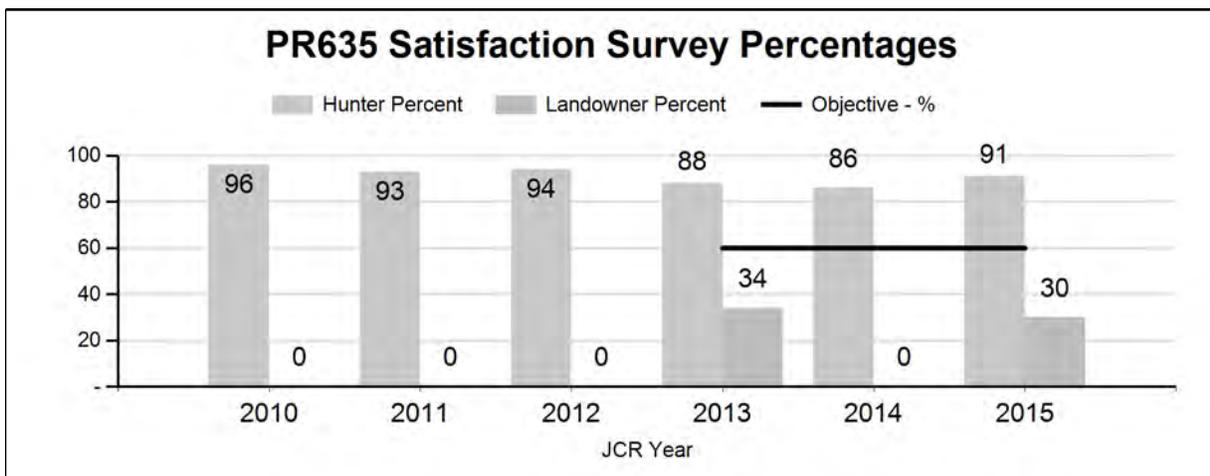
PERIOD: 6/1/2015 - 5/31/2016

HERD: PR635 - PROJECT

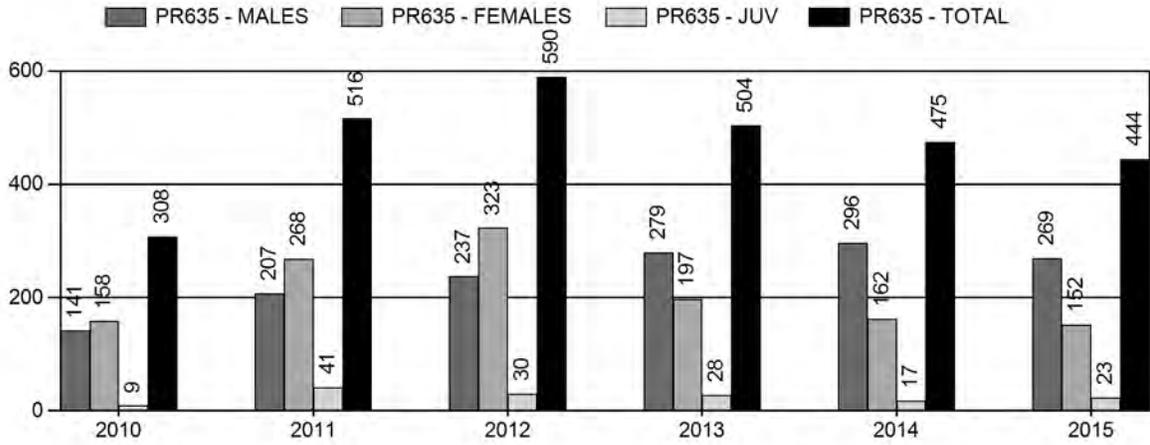
HUNT AREAS: 97, 117

PREPARED BY: GREG ANDERSON

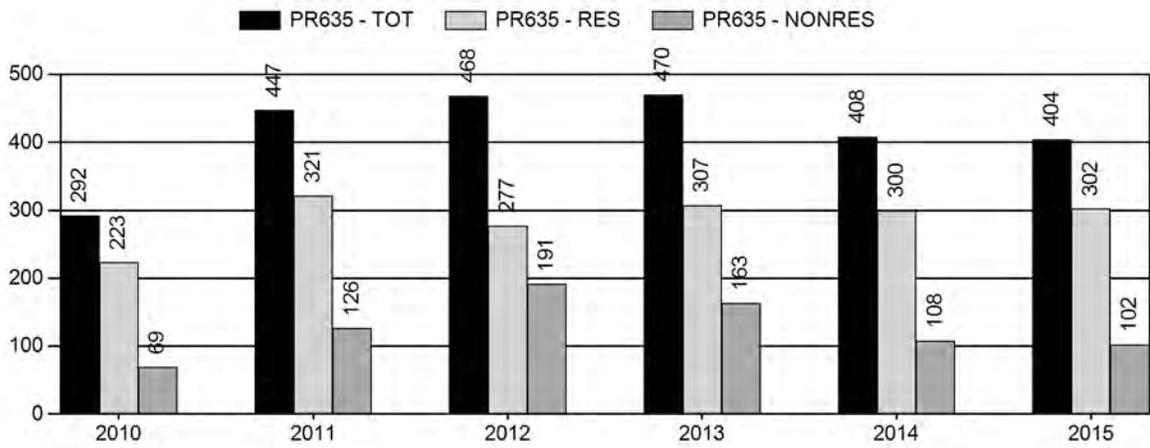
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	91%	91%	90%
Landowner Satisfaction Percent	40%	30%	40%
Harvest:	479	444	430
Hunters:	417	404	395
Hunter Success:	115%	110%	109%
Active Licenses:	533	494	500
Active License Success:	90%	90%	86%
Recreation Days:	1,494	1,765	1,600
Days Per Animal:	3.1	4.0	3.7
Males per 100 Females:	71	38	
Juveniles per 100 Females	59	73	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			0%
Number of years population has been + or - objective in recent trend:			1



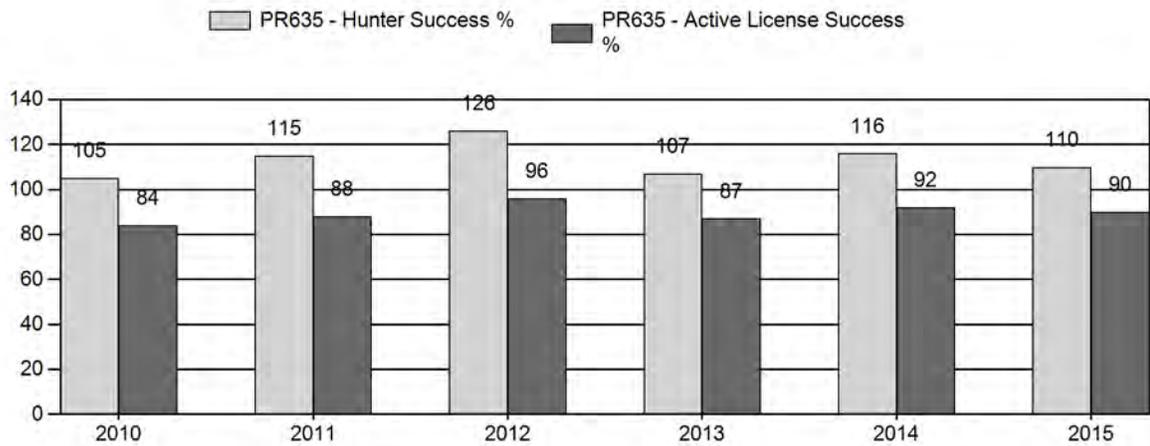
Harvest



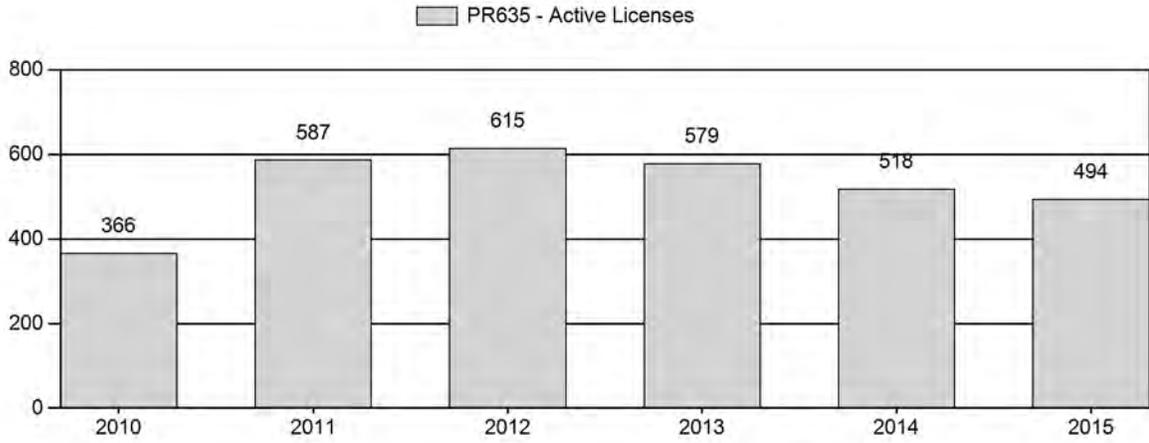
Number of Hunters



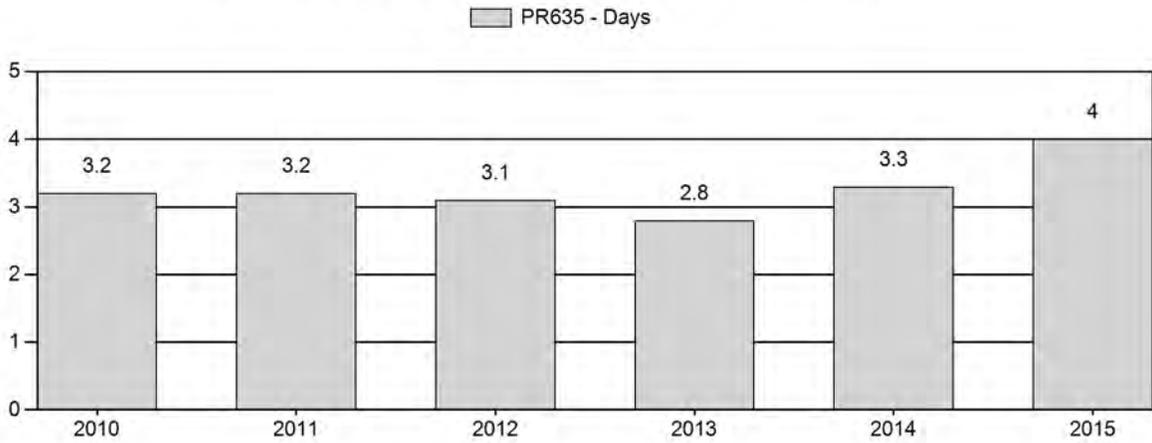
Harvest Success



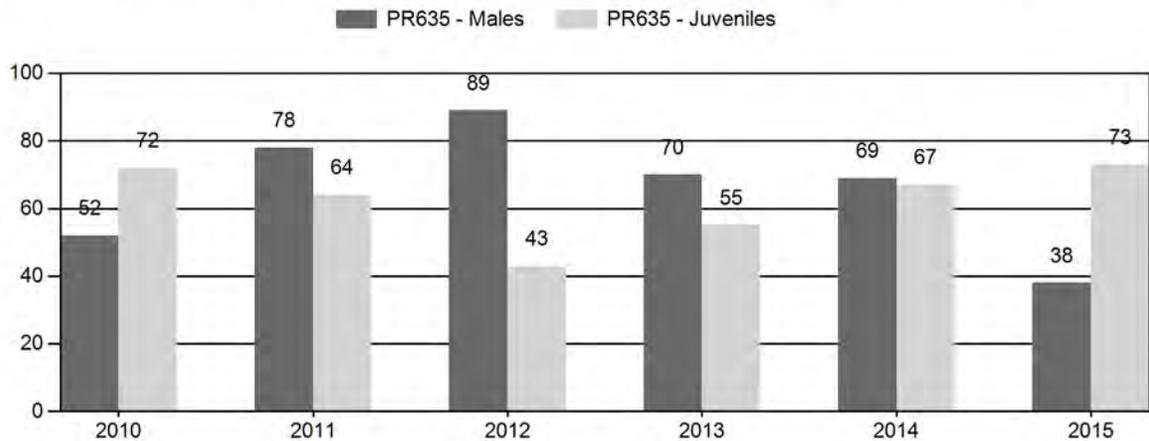
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR635 - PROJECT

Year	Pre 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
2010	634	0	0	118	23%	226	45%	163	32%	507	524	0	0	52	± 0	72	± 0	47
2011	0	45	89	134	32%	171	41%	109	26%	414	0	26	52	78	± 0	64	± 0	36
2012	0	67	112	179	38%	202	43%	86	18%	467	0	33	55	89	± 0	43	± 0	23
2013	0	28	125	153	31%	219	45%	120	24%	492	0	13	57	70	± 0	55	± 0	32
2014	0	21	62	83	29%	120	42%	80	28%	283	0	18	52	69	± 0	67	± 0	39
2015	0	26	45	71	18%	188	47%	137	35%	396	0	14	24	38	± 0	73	± 0	53

**2016 SEASONS
PROJECT PRONGHORN (PR 635)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
97, 117	1	Sep. 17	Oct. 22	300	Limited quota	Any antelope
	2	Aug. 15	Oct. 22	25	Limited quota	Any antelope valid in Area 97 south of U.S. Highway 26 and in all of Area 117
	6	Sep. 17	Oct. 22	150	Limited quota	Doe or fawn
	7	Aug. 15	Oct. 22	50	Limited quota	Doe or fawn valid in Area 97 south of U.S. Highway 26 and in all of Area 117
Archery		Aug. 15	Sep. 16			Refer to section 2

Hunt Area	Type	Quota change from 2015
97, 117	2	-25
	7	-25
Total	2	-25
	7	-25

Management Evaluation

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

Management Strategy: Recreational

2015 Hunter Satisfaction Estimate: 91%

2015 Landowner Satisfaction Estimate: 30%

Most Recent 3-year Running Average Hunter Satisfaction Estimate: 89%

Most Recent 3-year Running Average Landowner Satisfaction Estimate: unknown

Management Issues

In 2013 the Department conducted an objective review for the Project pronghorn herd unit. Previously the herd had a population objective of 400 pronghorn. The population objective was impractical because personnel were unable to collect adequate demographic data due to extensive interchange with the neighboring Wind River Reservation (WRR). Following an internal review, a public meeting and contact with numerous landowners the objective was changed in 2013 to manage for 60% hunter and 60% landowner satisfaction. Hunter satisfaction is taken directly from the harvest survey while landowner satisfaction in 2013 was determined by mailing a survey to 98 landowners in the herd unit. From the 98 surveys, the Department received 46 responses. Of those, 21 landowners provided e-mail addresses and indicated they wished to receive the survey in future years. In 2014, 21 surveys were e-mailed to landowners and the Department received 4 responses. One of the respondents requested to no longer receive the survey. In 2015 personnel contacted landowners in person or by phone to determine satisfaction with the antelope season. Although some landowners in the herd unit feel there are too many antelope, several of them commented they did not wish to see license numbers increase.

Habitat/Weather

This herd occupies a heavily agricultural area in central Wyoming as well as lands interspersed with the WRR. Land ownership patterns and extensive border with the WRR make it cost prohibitive to collect adequate demographic data in the herd unit. The highest densities of pronghorn are found along the northern portion of hunt area 97 and commonly move between the herd unit and the WRR. During periods of drought, this herd has typically been impacted less than surrounding populations due to the abundance of feed associated with agricultural operations. In 2015, weather conditions were conducive to good vegetative production throughout the herd unit including upland, native range. As such, antelope were well dispersed throughout the area. Fall observations and field checks indicate antelope in the herd unit entered winter in excellent body condition.

Field/Harvest Data/Population

The fawn/doe ratio in hunt area 97 was 73/100 in 2015. This was nearly the same as the 5-year average of 65/100 but above recruitment levels over the past 2 years. The buck/doe ratio declined significantly from 69/100 in 2014 to 38/100 in 2015. The buck/doe ratio averaged 76/100 over the past 4 years which is well above the 50/100 threshold for recreational management. It appears Type 1 license numbers over the past several years did result in a buck/doe ratio decline in 2015. It should be noted there appears to be an uneven distribution of bucks throughout area 97 where most of the harvest occurs. Publicly accessible areas throughout the herd unit tend to have significantly fewer bucks than private land areas. The dramatic decline in the buck/doe ratio in 2015 bears note, but Type 1 license success remained good at 91% and hunter satisfaction remained high. These factors indicate recreational hunting remains good in the herd unit.

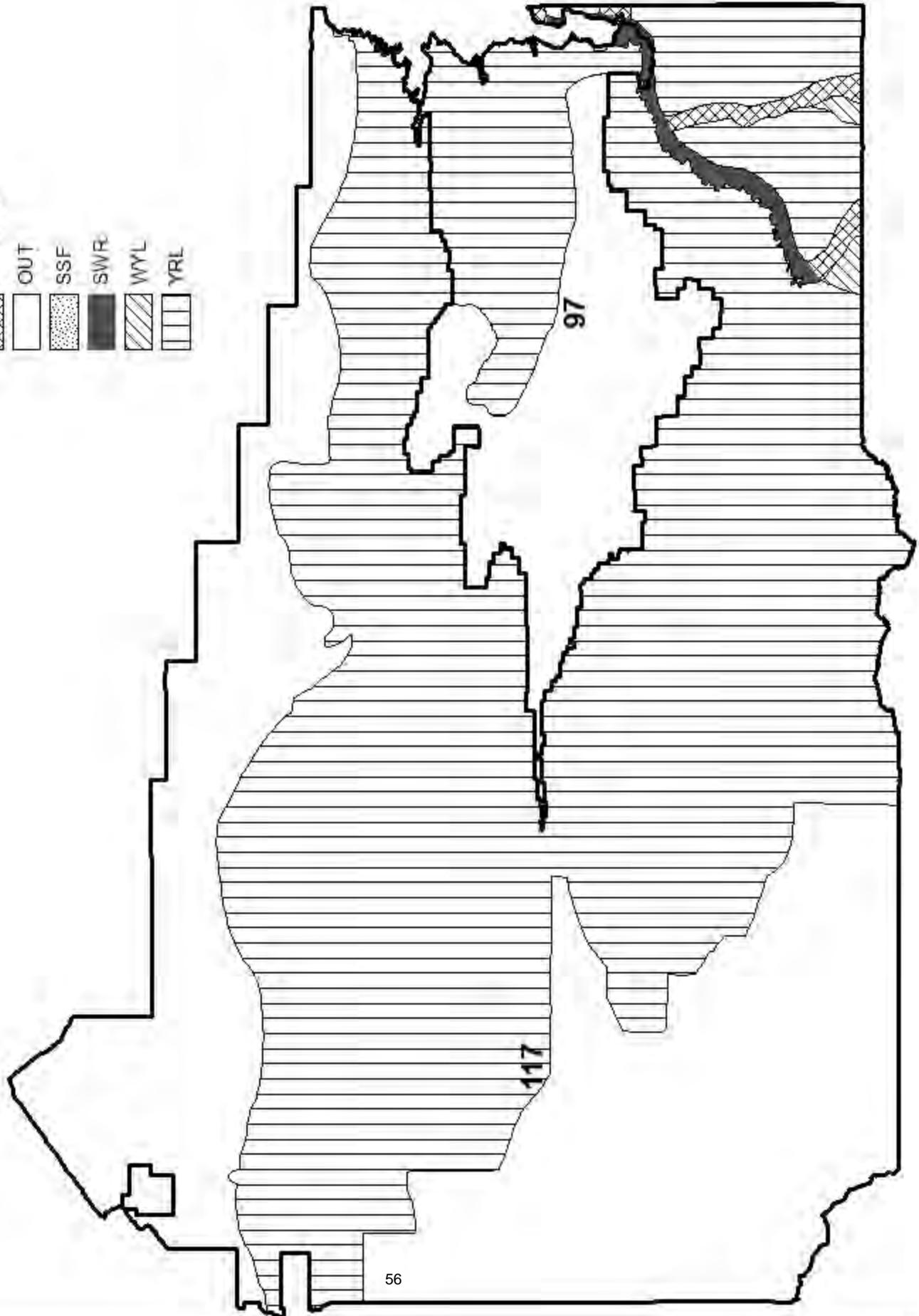
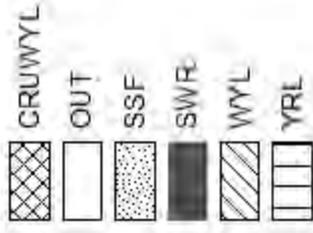
The population is considered to be at objective in 2015. Hunter satisfaction (satisfied or very satisfied) increased slightly between 2014 and 2015 from 86% to 91%. This represents a high rate of satisfaction and in combination with a 91% Type 1 success rate indicates hunt quality was good. This was the third year the landowner satisfaction survey was conducted so long term

comparisons are not possible. Out of 10 responses to the landowner survey, 6 landowners felt antelope numbers were above desired levels. It should be noted that 3 of the 6 also commented they did not want additional hunters and felt the number of licenses issued in 2014 was satisfactory. As in past years, it seemed landowners were fairly ambivalent regarding the survey.

Management Summary

Given the high level of hunter satisfaction and no indication of landowner dissatisfaction, 2016 management will remain mostly unchanged from 2015. The exception being a slight reduction in Type 2 and Type 7 licenses in response to decreased damage concerns in the areas targeted for harvest with these 2 license types. With average survival for the year, the population is expected to remain unchanged in 2016.

**Project Antelope Seasonal Range
Hunt Areas 97, 117
Revised 2012**



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR636 - NORTH FERRIS

HUNT AREAS: 63

PREPARED BY: GREG HIATT

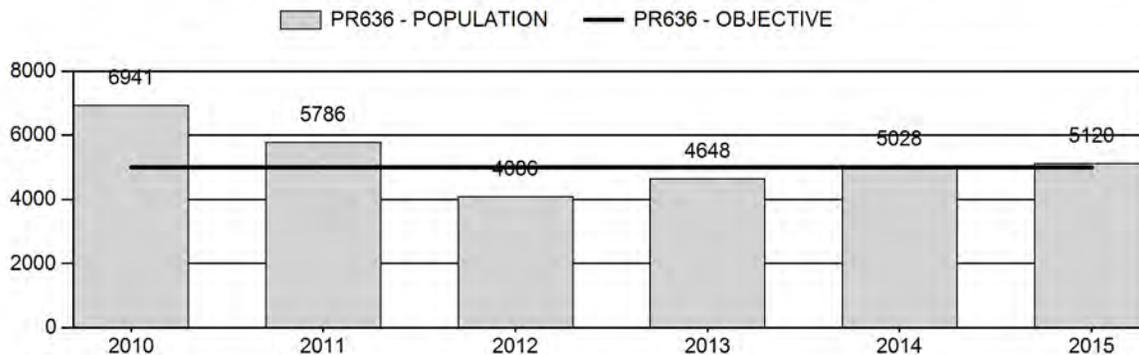
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	5,298	5,120	4,800
Harvest:	549	269	260
Hunters:	594	305	320
Hunter Success:	92%	88%	81 %
Active Licenses:	641	319	320
Active License Success:	86%	84%	81 %
Recreation Days:	1,832	1,181	960
Days Per Animal:	3.3	4.4	3.7
Males per 100 Females	64	53	
Juveniles per 100 Females	48	80	

Population Objective (± 20%) :	5000 (4000 - 6000)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	2%
Number of years population has been + or - objective in recent trend:	2
Model Date:	2/27/2016

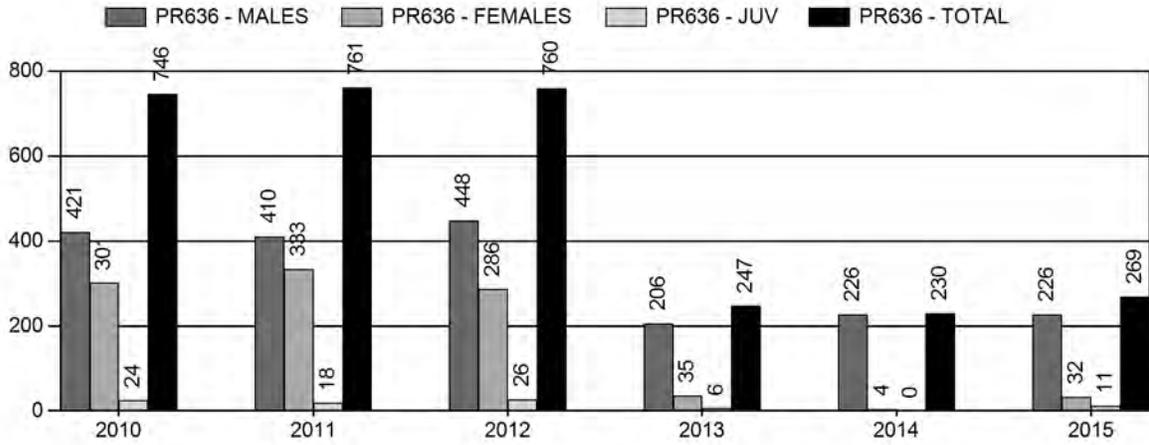
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.8%	1.4%
Males ≥ 1 year old:	18.2%	16.6%
Juveniles (< 1 year old):	0.4%	0.4%
Total:	5.2%	5.1%
Proposed change in post-season population:	-5.4%	-6.3%

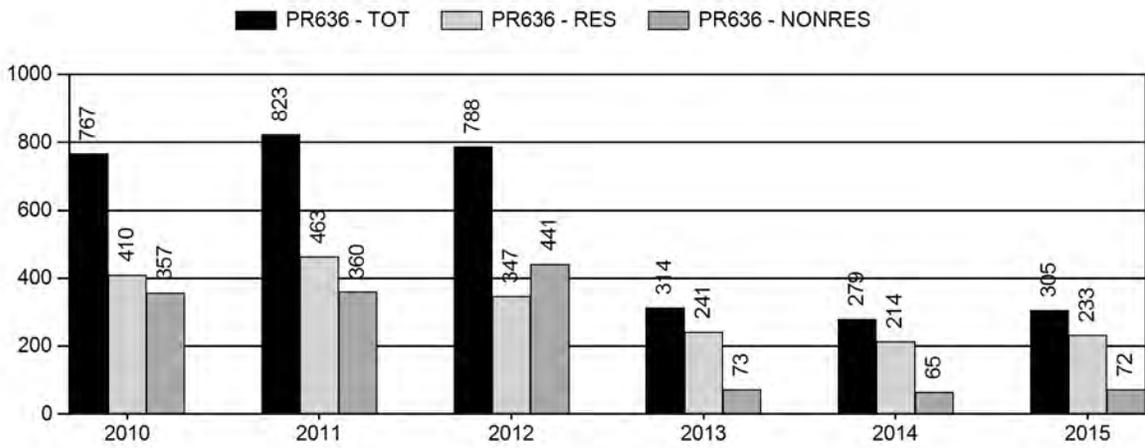
Population Size - Postseason



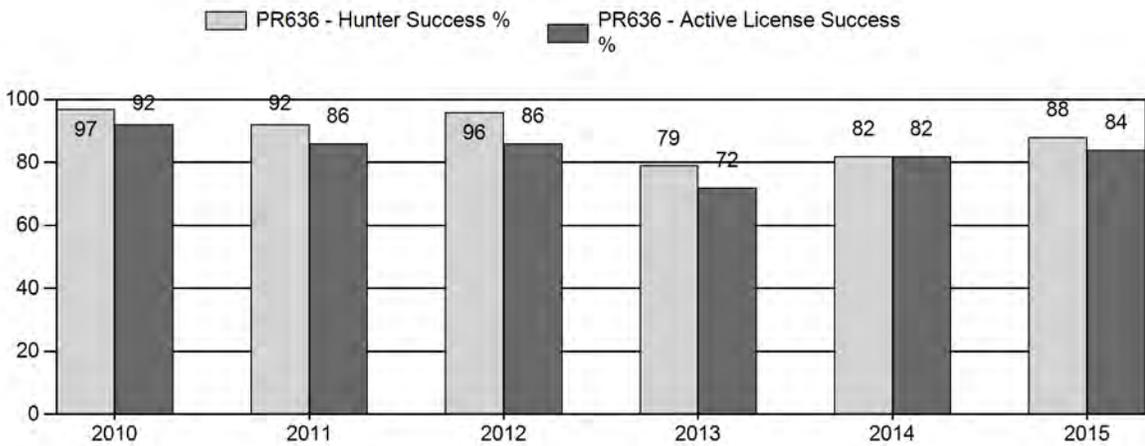
Harvest



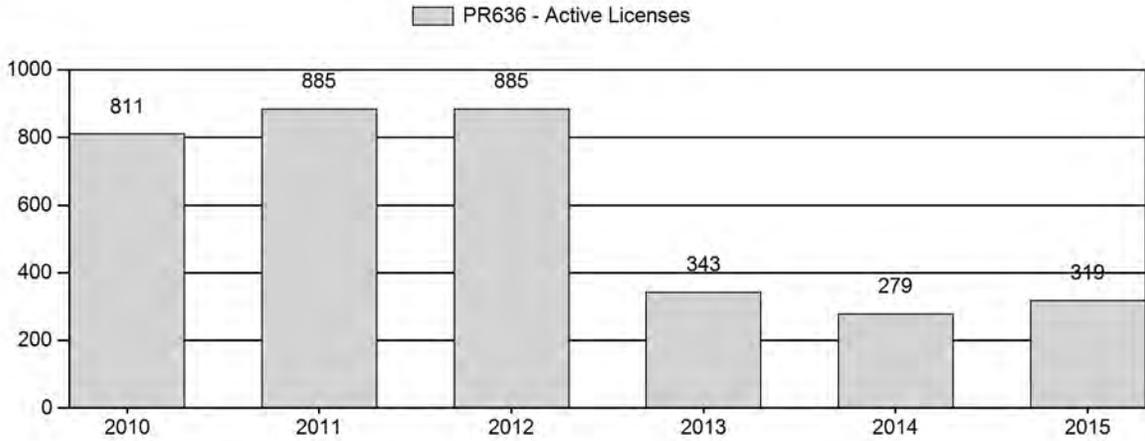
Number of Hunters



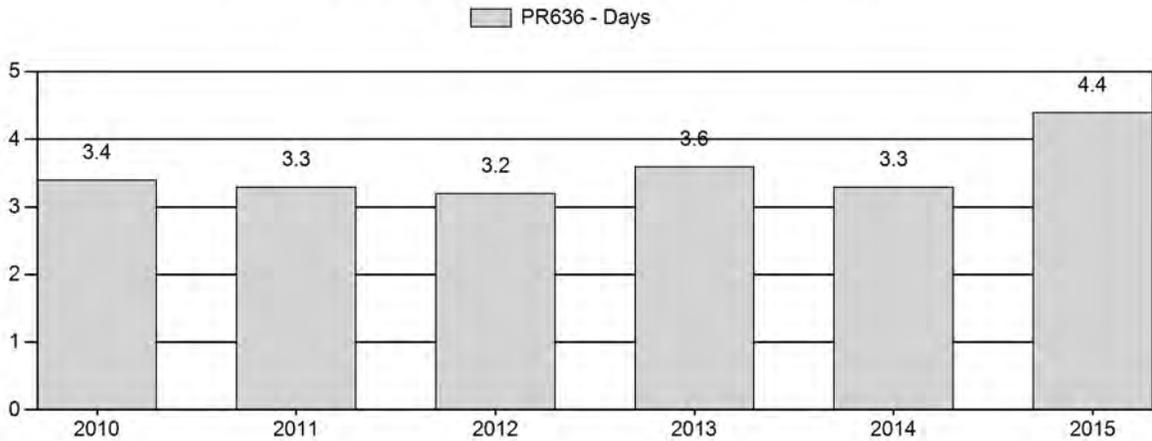
Harvest Success



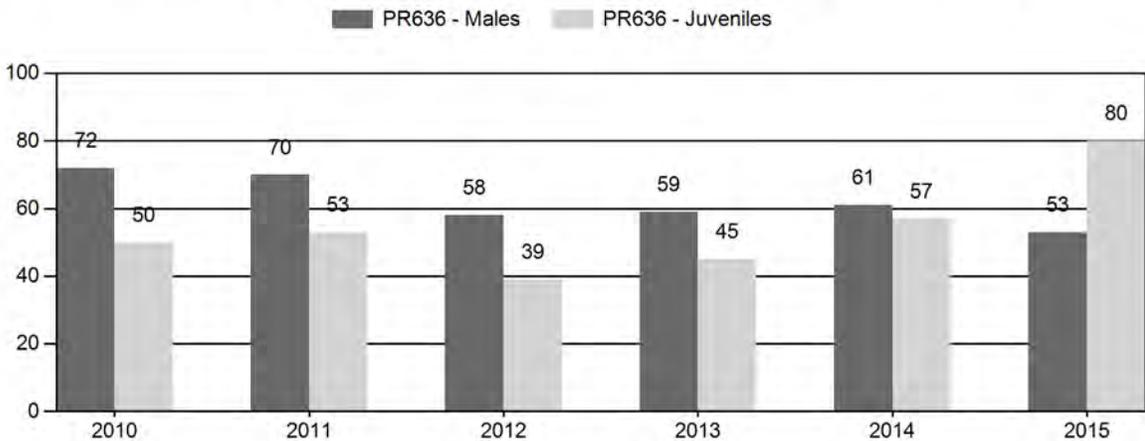
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR636 - NORTH FERRIS

Year	Pre 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
2010	7,762	99	274	373	32%	519	45%	257	22%	1,149	2,145	19	53	72	± 7	50	± 6	29
2011	6,623	72	288	360	31%	516	45%	275	24%	1,151	1,914	14	56	70	± 7	53	± 6	31
2012	4,914	55	253	308	29%	534	51%	208	20%	1,050	1,330	10	47	58	± 6	39	± 5	25
2013	4,920	57	216	273	29%	459	49%	205	22%	937	1,460	12	47	59	± 7	45	± 6	28
2014	5,281	72	143	215	28%	350	46%	201	26%	766	1,611	21	41	61	± 8	57	± 8	36
2015	5,420	118	273	391	23%	736	43%	587	34%	1,714	2,173	16	37	53	± 5	80	± 6	52

**2016 HUNTING SEASONS
NORTH FERRIS PRONGHORN HERD (PR636)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations	
		Opens	Closes				
63	1	Sep. 17	Oct. 31	100	Limited quota	Any antelope	
	2	Sep. 17	Oct. 31	200	Limited quota	Any antelope valid east of the Buzzard Road (Natrona County Road 410 – Carbon County Road 497)	
	6	Sep. 17	Oct. 31	25	Limited quota	Doe or fawn	
	7	Sep. 17	Oct. 31	25	Limited quota	Doe or fawn valid east of the Buzzard Road (Natrona County Road 410 – Carbon County Road 497)	
	Archery						
	63		Aug. 15	Sep. 16			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
63	1	0
	2	0
	6	0
	7	0
Herd Unit Total	1	0
	2	0
	6	0
	7	0

Management Evaluation

Current Postseason Population Management Objective: 5,000

Management Strategy: Recreation

2015 Postseason Population Estimate: ~5,100

2016 Proposed Postseason Population Estimate: ~4,800

Herd Unit Issues

The North Ferris pronghorn herd is managed toward a post-hunt population of 5,000, an objective last reviewed in 2014. Population size is estimated using a spreadsheet model

developed in 2012 and updated in 2016. The herd is in recreational management, with harvest quotas designed to maintain pre-hunt buck:doe ratios below 60:100.

Historically, access has not been an issue in this herd unit which is mostly public lands, but access to some large blocks of private land has become more difficult in recent years and may affect management ability to attain adequate harvests in the future. Potential for economic wind power exists within the herd unit, but appears unlikely when other resource issues such as T&E species and sage-grouse Core Area are considered. Many miles of sheep-tight fences still stand in the herd unit, impeding pronghorn movements.

Weather

Improved precipitation which arrived in the latter half of 2014, following severe drought conditions in 2012 and 2013, continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth, improving fawn survival. Condition of pronghorn going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation. Herbaceous production measured on the Morgan Creek WHMA in the Seminoe Mountains at the southern extreme of the herd unit was unusually high. Two shrub transects have been established within this herd unit, primarily to monitor mule deer winter forage. One of these, on the Morgan Creek WHMA, was burned in the 2012 fires and the second was not read in 2015. New owners of the Pathfinder Ranch, which encompasses the north-central portion of this herd, have expressed interest in looking for opportunities for improving habitat conditions for wildlife, possibly as mitigation for wind power projects in other parts of the state. Shrub treatment on winter ranges, adjustments of grazing use, and modification of sheep-tight fences would benefit pronghorn in this herd unit.

Field Data

Classification sample size increased in 2015, more than double the 2014 sample, and was the largest sample since 2009. Sample size was still less than statistically desired. These data are collected from the ground along routes that have had only minor changes over the past two decades. Higher densities of pronghorn were again found in the eastern half of the area near Pathfinder Reservoir and along irrigated hayfields on the Buzzard and Sand Creek Ranches. Fawn production improved to 81:100, the highest in 32 years, and was well above the long-term average for this herd.

Following exceptionally high recruitment of yearlings in 2005, buck:doe ratios exceeded the 60:100 maximum criterion for recreational management in this herd. Buck harvests were increased, often double or triple historic levels, and surplus bucks were successfully harvested with the buck:doe ratio returning to acceptable levels by 2012. Much of the decline was in the

supply of adult bucks, with that ratio dropping to its lowest level in ten years in 2015. As expected, hunter complaints about poor quality of bucks increased and hunter satisfaction declined as the adult buck:doe ratio declined. Yearling recruitment was high again in 2014, producing a slight increase in the buck:doe ratio to 61:100, but this surplus was removed by 2015.

Harvest Data

Overall hunter success improved slightly, from 82 percent to 84 percent, but the average effort required to harvest a pronghorn from this herd rose to 4.4 days, the highest since 2002. Surprisingly, hunters with the Type 2 and Type 7 licenses, restricted to the eastern portion of the herd unit, enjoyed higher success than those with Type 1 or Type 6 licenses, who had the entire hunt area available and were free to hunt the eastern portion if they chose to do so. Hunters with the Type 6 doe/fawn licenses valid for the entire area required a record high average of 8.8 days to make a harvest.

Population

This herd was below objective size for most of the decade following the 1992-93 winter, a consequence of low fawn production and poor recruitment. High fawn production followed by an unusually mild winter in 2004 provided the first significant growth in herd size.

Population estimates suggested this herd was well above objective size by 2006 and harvests were increased accordingly. The current spreadsheet model predicts the increased harvests successfully reduced the herd to objective size by 2011, and below objective in 2012. This model, however, aligns near the maximum limit of the confidence interval on the most recent line-transect survey and may be over-estimating current herd size. Hunter comments and harvest statistics suggest there has been a greater decline in herd size than predicted by the model.

The Time-Specific Juvenile & Constant Adult Survival (TSJ,CA) spreadsheet model provided the best fit with observed buck:doe ratios for this herd, particularly for the most recent eight years. The model behaved well when 2015 classification and harvest data were added and falls within the confidence intervals of all 3 line-transect estimates. Annual adult survival was predicted at 82 percent, a level slightly lower than in models for some nearby pronghorn herds. Juvenile survival rates fluctuated within the allowed range but frequently settled at maximum or minimum allowed values, exceeding adult survival rates in some years. This is difficult to accept biologically, and as a result the model is only considered to be a “Fair” representation of the herd. The CJ,CA and SCJ,SCA models each had lower AIC values, but both models predicted herd sizes greatly exceeding past trend counts, without following count trends, and generated roughly stable buck:doe estimates that did not follow dips and rises in observed values. Estimated buck:doe ratios of these two models approximated observed values in only five or six of the past 20 years.

Due to the excellent condition of animals going into this winter and improved browse conditions following the record moisture, fawn production in 2016 was projected to be near the 5-year average despite the harsh periods in the 2015-16 winter. The model was run using a median juvenile survival in 2016.

Losses to EHD were documented in pronghorn herds south and west of North Ferris in 2013, and reports of carcasses in Area 63 suggests the disease was present here as well. Effects of significant losses in late summer and early fall 2014 may not yet affect estimates in the model and it may be over-estimating herd size.

Management Summary

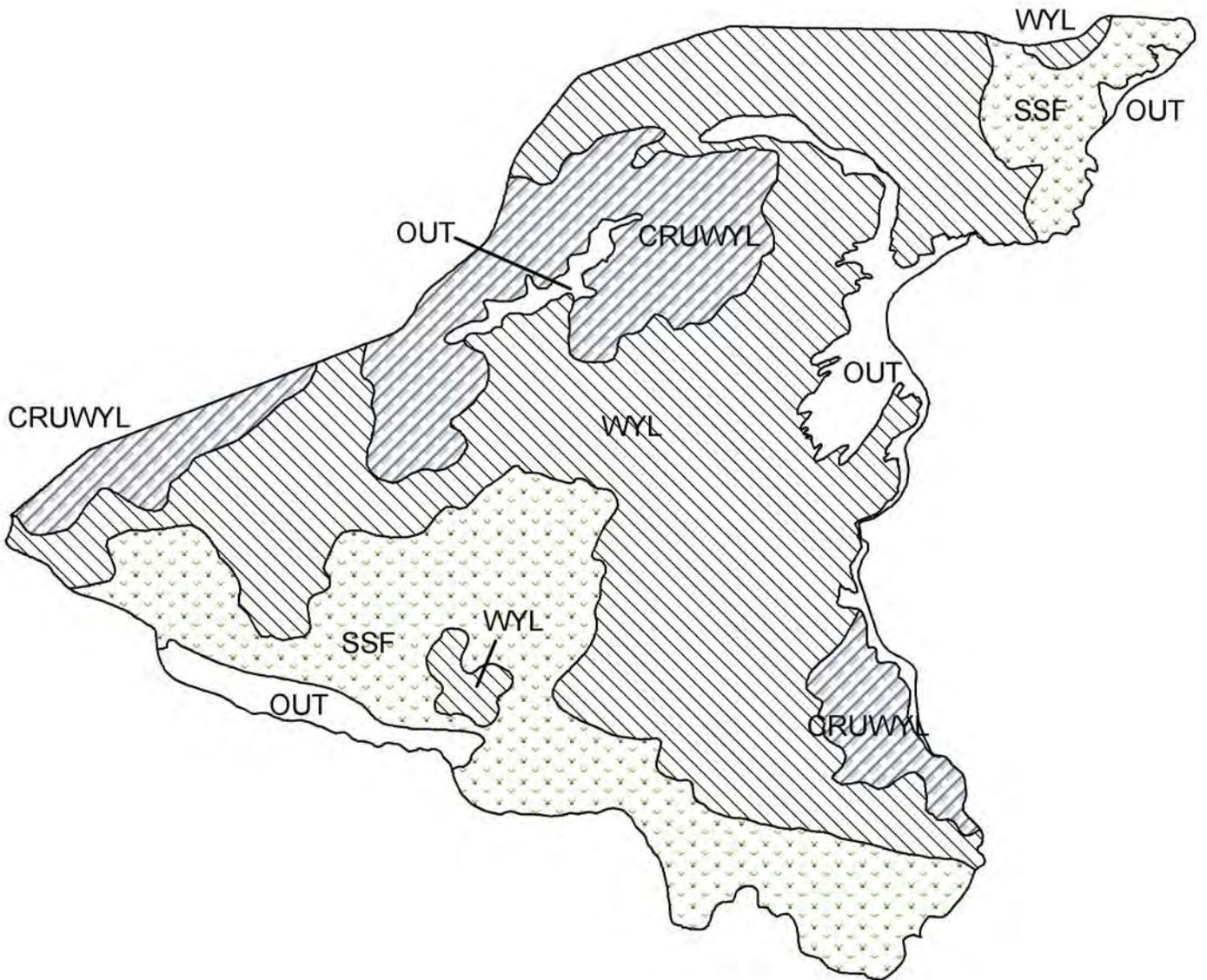
With improvement in fawn production and the herd estimated to be near objective size, doe harvest needs to be maintained to prevent any significant increase in herd size. As in three of the past four years, Type 2 and Type 7 licenses are issued to direct hunting pressure to the eastern portion of the herd unit where pronghorn densities are higher and most private lands are found. With average fawn production in 2016, the model predicts a harvest similar to that of 2015 will maintain the herd within acceptable range of the 5,000 pronghorn herd objective.

The expected harvest of roughly 220 bucks and 40 does and fawns from the 2016 license quotas should provide a slight decrease (~6 percent) in herd size, projected to be ~4,800 at post-hunt 2016. With the herd so close to objective, if either winter survival or fawn production exceeds expectations in 2016, harvests will probably need to be further increased in future years.

Opening date is shifted one day to remain on the third Saturday of September, synchronizing with Area 68 to the north and other areas in the Lander Region. Closing date is the same as in the previous four years and extends to the closing of the local deer season. Archery season uses a standardized opening date and closes the day before the opening of the regular season.



PH636 - North Ferris
HA 63
Revised - 8/95



2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR637 - SOUTH FERRIS

HUNT AREAS: 62

PREPARED BY: GREG HIATT

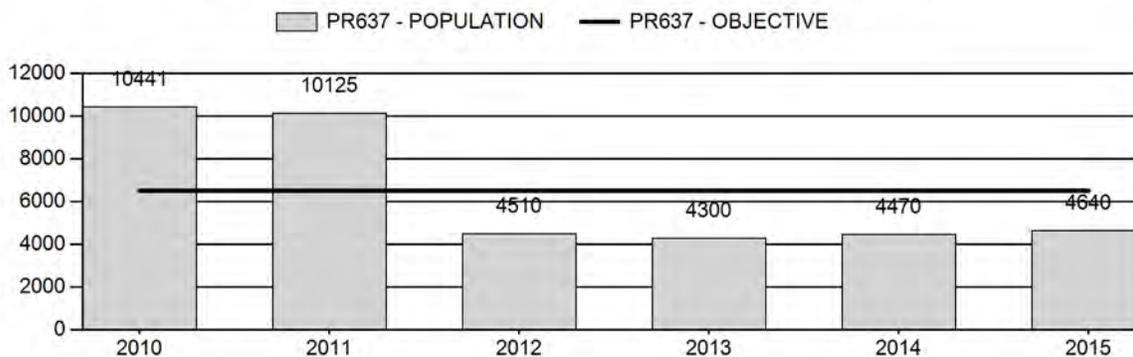
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	6,769	4,640	4,630
Harvest:	186	137	125
Hunters:	209	144	150
Hunter Success:	89%	95%	83 %
Active Licenses:	224	154	150
Active License Success:	83%	89%	83 %
Recreation Days:	674	487	470
Days Per Animal:	3.6	3.6	3.8
Males per 100 Females	61	53	
Juveniles per 100 Females	42	67	

Population Objective ($\pm 20\%$) :	6500 (5200 - 7800)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-28.6%
Number of years population has been + or - objective in recent trend:	4
Model Date:	2/27/2016

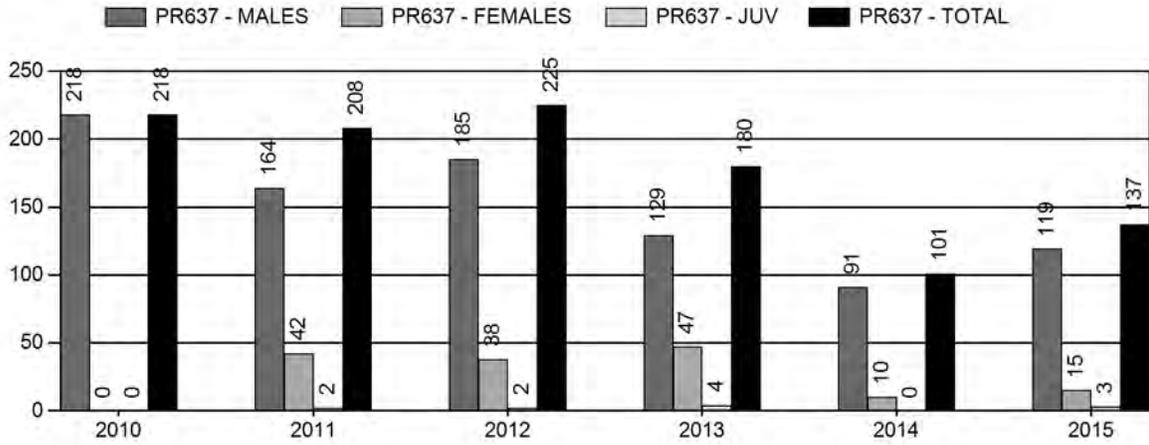
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.7%	0.7%
Males ≥ 1 year old:	7.6%	8.0%
Juveniles (< 1 year old):	0%	0%
Total:	2.3%	2.6%
Proposed change in post-season population:	+0.2%	-0.2%

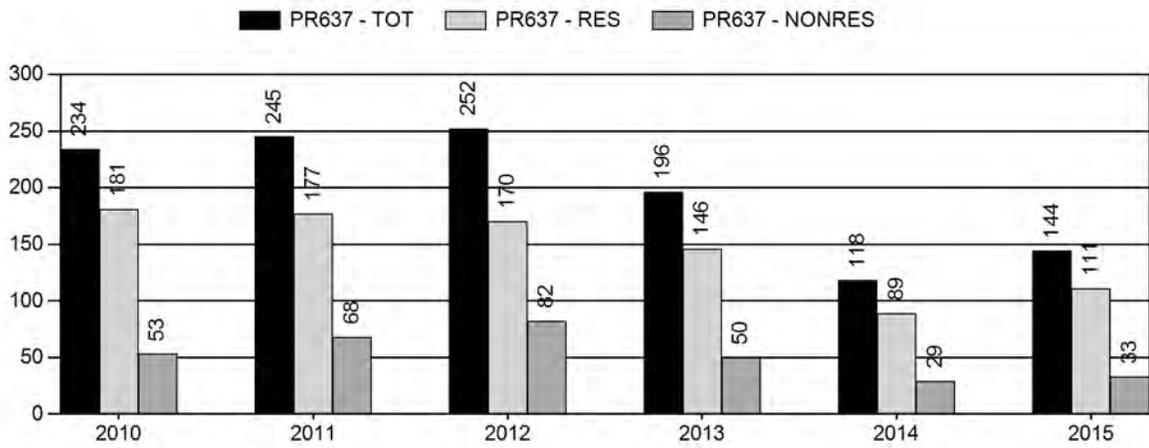
Population Size - Postseason



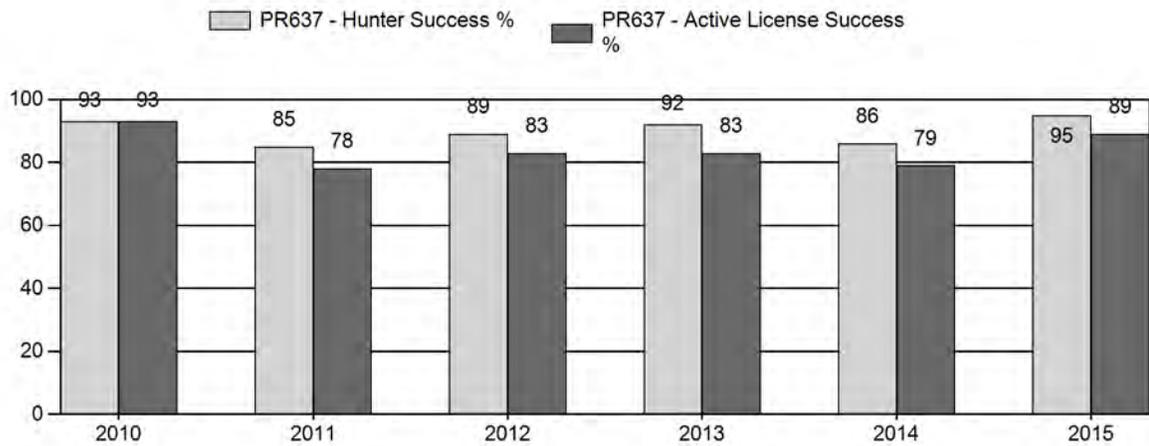
Harvest



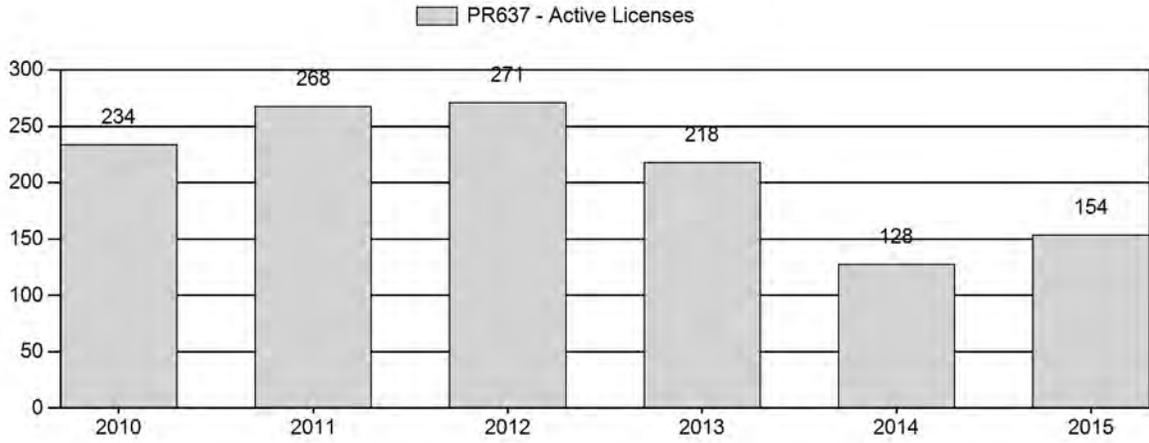
Number of Hunters



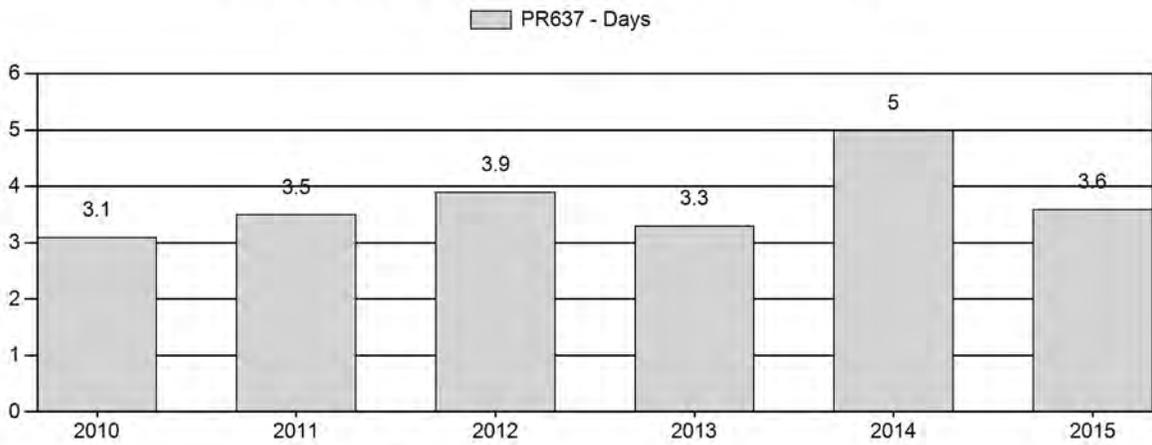
Harvest Success



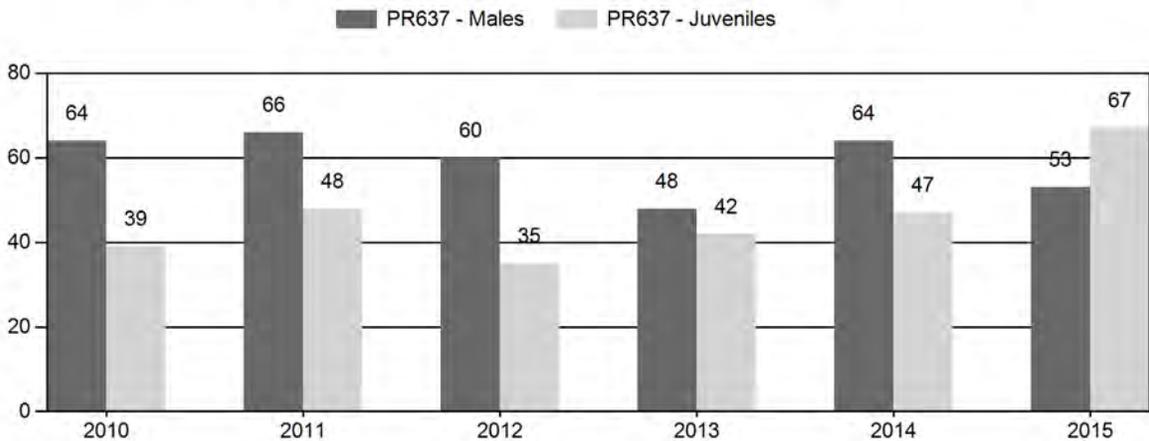
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR637 - SOUTH FERRIS

Year	Pre 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
2010	10,681	209	578	787	31%	1,234	49%	481	19%	2,502	1,652	17	47	64	± 4	39	± 3	24
2011	10,350	144	477	621	31%	943	47%	451	22%	2,015	1,776	15	51	66	± 5	48	± 4	29
2012	4,760	47	452	499	31%	827	51%	293	18%	1,619	1,502	6	55	60	± 5	35	± 3	22
2013	4,500	53	312	365	25%	766	53%	319	22%	1,450	1,145	7	41	48	± 4	42	± 4	28
2014	4,580	82	354	436	30%	686	47%	324	22%	1,446	1,638	12	52	64	± 5	47	± 4	29
2015	4,790	89	261	350	24%	661	45%	443	30%	1,454	1,711	13	39	53	± 5	67	± 6	44

**2016 HUNTING SEASONS
SOUTH FERRIS PRONGHORN HERD (PR637)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
62	1	Sep. 10	Oct. 31	40	Limited quota	Any antelope valid east of the Continental Divide and north of Wise Dugout Draw)
	2	Sep. 10	Oct. 31	100	Limited quota	
	7	Aug. 15	Oct. 31	25	Limited quota	
Archery 62		Aug. 15	Sep. 9			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
62	1	0
	2	0
	7	0
Herd Unit Total	1	0
	2	0
	7	0

Management Evaluation

Current Postseason Population Management Objective: 6,500

Management Strategy: Recreation

2015 Postseason Population Estimate: ~4,600

2016 Proposed Postseason Population Estimate: ~4,600

Herd Unit Issues

The South Ferris pronghorn herd is managed toward a post-hunt population size of 6,500 pronghorn, an objective last publicly reviewed in 2014. Population size is estimated using a spreadsheet model developed in 2015 and updated in 2016. The herd is in recreational management, with harvest quotas designed to maintain pre-hunt buck:doe ratios below 60:100.

Hunter access to much of the eastern half of the herd has been severely limited by private landowners since the mid-1990s and has resulted in buck:doe ratios and pronghorn densities greatly skewed between the western and eastern portions.

Fawn crops have only ranged from 28 to 55:100 over the past 14 years, averaging ~40:100. In addition to limited access to much of the herd, poor production and recruitment has reduced harvest levels the herd can support.

The large Peterson Ranch in the south-central portion of the herd has changed hands twice in recent years, and it is not known how the newest owners will handle hunter access. They have already decided to not renew the large Walk-In area along US287.

Losses to EHD were documented in this herd in 2013. By the number of reported and observed carcasses, losses appeared to be greatest along the west shore of Seminole Reservoir, but spanned down to Rawlins and up towards Lamont. No similar mortalities were found in 2014 or 2015, but the presence of the disease should remain a concern whenever drought conditions arise.

Weather

Improved precipitation which arrived in the latter half of 2014, following severe drought conditions in 2012 and 2013, continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and improving fawn survival. Condition of pronghorn going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation. Herbaceous production measured on the Morgan Creek WHMA in the Seminole Mountains immediately north of the herd unit was unusually high. Only one shrub transect has been established near this herd unit, on the Morgan Creek WHMA. This transect used to monitor bitterbrush growth and utilization in the Seminole Mountains was burned in the 2012 fires.

Owners of the Pathfinder Ranch, which encompasses the north-central portion of this herd, have expressed interest in looking for opportunities for improving habitat conditions for wildlife, possibly as mitigation for wind power projects in other parts of the state. Treatment of browse on winter ranges, adjustments of grazing use, and modification of sheep-tight fences would benefit pronghorn in this herd unit.

Field Data

Classification sample size in 2015 was essentially the same as in 2013 and 2014, the smallest samples since 1979, and failed to meet the desired statistical precision. These data have been collected on standard routes for more than 20 years for most of the herd unit. Fawn production improved to 67:100, the highest since 1987 and more than 50 percent above the 5-year average. Fawn production was significantly lower in the western portion of the herd at 52:100, compared to 80:100 in the east.

The buck:doe ratio declined from 64:100 in 2014 to 53:100 in 2015. As is typical, this ratio was significantly higher in the eastern portion of the herd unit, where access is strictly limited. The eastern ratio dropped from 100:100 in 2014 to 68:100 in 2015. All of the decrease was in the adult buck:doe ratio, which fell from 80:100 in 2014 to 47:100 in 2015, while the yearling buck ratio remained essentially stable at 21:100, compared to 19:100 in 2014. The Type 2 licenses introduced in 2012 to address the disparity between buck densities between the two portions of the area have apparently been moderately successful.

Buck:doe ratios in the western portion of the herd also declined, at 5:100 for yearling bucks compared to 7:100 in 2014 and 2013, and 30:100 for adult bucks compared to 33:100 in both 2013 and 2014. Buck:doe ratios for this herd have exceeded the 60:100 maximum criterion for recreational management in four of the past eight years, but always due to high ratios in the east half of the herd which is largely unavailable to most hunters. Buck:doe ratios in the western portion only averaged 40:100 over the past five years, generating complaints of poor buck numbers and quality by hunters. Buck:doe ratios in the eastern portion, however, averaged 79:100 over those five years, nearly twice as high.

Harvest Data

The difference in supply of bucks between the two portions of the herd unit is also apparent in harvest statistics. Success for hunters with Type 1 licenses dropped to only 78 percent, while those hunting the eastern portion with Type 2 licenses enjoyed 93 percent success. Those hunters limited to the eastern portion of the herd unit only expended an average of 2.3 days to harvest an animal, while the Type 1 hunters expended an average of 7.8 days for each pronghorn harvested.

Type 7 doe/fawn licenses were introduced in this area in 2013 to address complaints about high concentrations of pronghorn on irrigated fields along Muddy Creek. Nineteen does were harvested the first year, only 10 were removed in 2014, and 18 does and fawns were taken in 2015. Pronghorn use of the irrigated fields appears to have lessened, but it is not known if that is due to harvest, hunter activity or more forage opportunities on native ranges due to increased precipitation in 2014 and 2015.

Population

Efforts to develop a reasonable spreadsheet model for this herd in 2012 and 2013 failed, a failure attributed to the highly skewed buck:doe ratios between the eastern and western portions of the herd unit. Population estimates in 2013 were obtained using two separate spreadsheet models, one each for the east and west portions of the herd unit. While effective, these separate models could not be anchored to defensible line-transect estimates of herd size. The addition of the 2014 and 2015 classification and harvest data allowed for a reasonable unified model which incorporates line-transect estimates, despite the highly skewed buck:doe ratios within portions of the herd.

A line transect survey in spring of 2013 estimated only 4,600 pronghorn in this herd, and found a noticeable disparity in pronghorn densities between the east and west portions. The population estimate was less than half that of a similar survey three years earlier, and standard spreadsheet models were apparently unable to accommodate that steep of a decline in herd size. The current model, however, incorporates one year of variable adult survival in the Time-Specific Juvenile &

Constant Adult Survival (TSJ,CA) model, for the severe 2011-12 winter and losses to EHD, and provides better alignment with line transect estimates.

While costing a degree of freedom, the resultant model has a reasonable AICc value, aligns closely with all three line-transect estimates, has a reasonable track compared to historic trend counts, and aligns well with most observed buck:doe ratios. Adult mortality for the majority of years in the model is estimated at a reasonable 87 percent, while adult survival in 2011 drops to 40 percent. This also appears reasonable, given the losses noted that year and the severe decline in line transect estimates. However, juvenile survival rates exceeded adult survival rates in some years of the model. This is difficult to accept biologically, and as a result the model is only considered to be a “Fair” representation of the herd.

The CJ,CA model had a similar AICc value, but did not track observed buck:doe ratios, aligned with only the two older line transect estimates, and predicted unrealistic counting success for early trend counts and equally unrealistic poor counting success for later trend counts. The SCJ,SCA model had the lowest AICc value, but only aligned with two of three line transect estimates, fit poorly with historic trend counts, observed buck:doe ratios and required four years of variable survival rates instead of one.

The new TSJ,CA model predicts the herd was about 29 percent below objective in 2015. Fawn production in 2016 was projected to be near the 5-year average. Assuming a mid-range fawn survival of 60 percent, the model predicts the herd will essentially be stable in 2016.

Management Summary

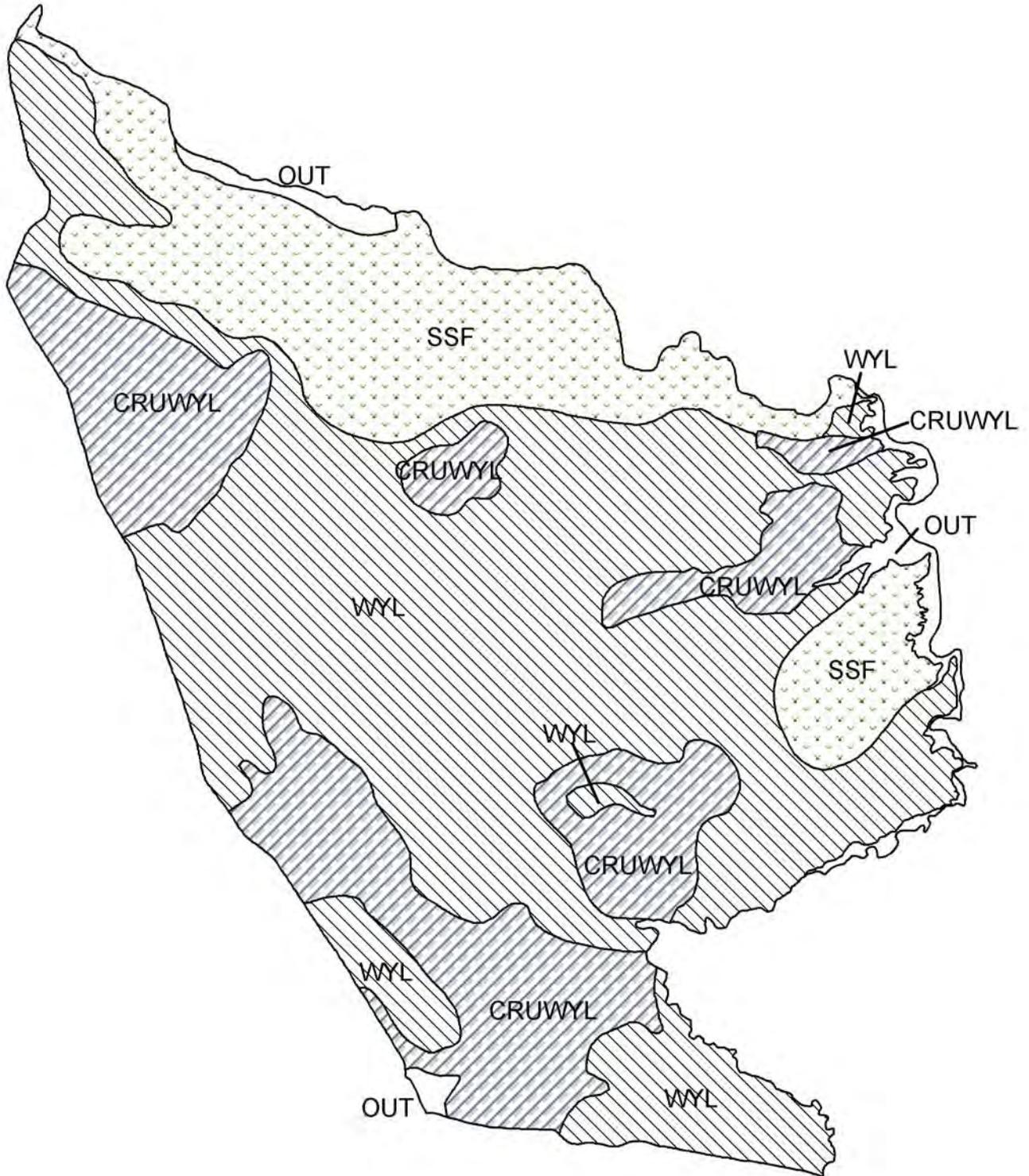
With the population well below objective, harvests need to remain conservative to allow the herd to recover and no changes were made for license quotas in 2016. The exceptionally high buck:doe ratio in the eastern portion of the herd indicates there is still a surplus of bucks that can be harvested in that portion. While no doe harvest is needed for the herd as a whole, the Type 7 doe/fawn licenses on private lands along Muddy Creek were retained to address high numbers of pronghorn on irrigated croplands in the northwestern corner of the herd. Most of these lands are enrolled in the Department’s Walk-In program, so access to these private lands should not be a concern.

The expected harvest of roughly 110 bucks and 15 does and fawns from the proposed license quotas should maintain herd size near the 2015 level of approximately 4,600 pronghorn.

Opening date falls on the traditional day of the week and synchronizes with neighboring Area 61. The closing date is the same as in the previous four years and extends to the closing of the local deer season. A standardized opening date is used for the archery season, which closes the day before the opening of the regular season.



PH637 - South Ferris
HA 62
Revised - 8/95



2015 - JCR Evaluation Form

SPECIES: Mule Deer
 HERD: MD642 - DUBOIS
 HUNT AREAS: 128, 148

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

 PREPARED BY: GREG
 ANDERSON

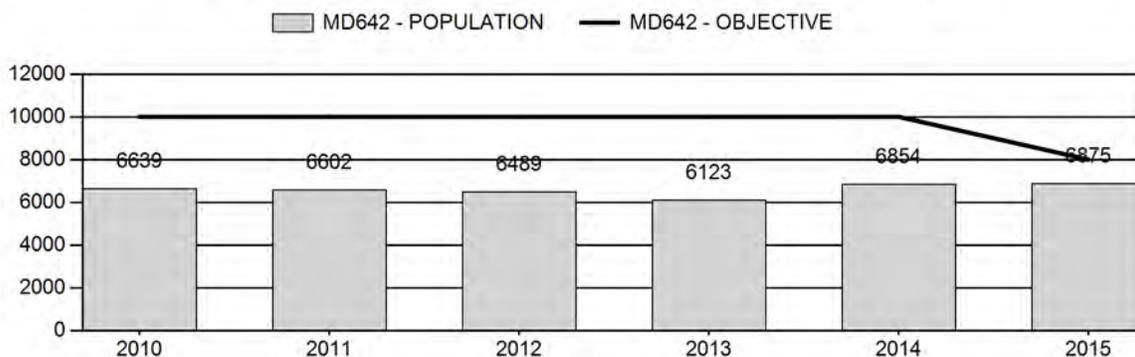
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	6,541	6,875	6,629
Harvest:	458	383	385
Hunters:	1,159	1,166	1,175
Hunter Success:	40%	33%	33 %
Active Licenses:	1,212	1,171	1,180
Active License Success:	38%	33%	33 %
Recreation Days:	6,777	6,660	6,500
Days Per Animal:	14.8	17.4	16.9
Males per 100 Females	28	30	
Juveniles per 100 Females	61	66	

Population Objective (± 20%) :	8000 (6400 - 9600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-14.1%
Number of years population has been + or - objective in recent trend:	0
Model Date:	2/18/2016

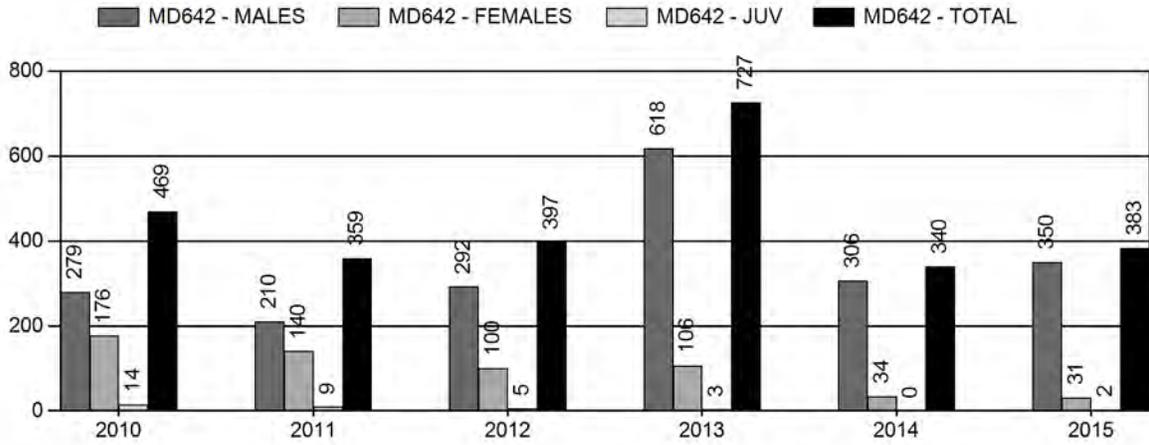
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1%	1%
Males ≥ 1 year old:	27%	28%
Juveniles (< 1 year old):	0%	0%
Total:	5%	5%
Proposed change in post-season population:	+0%	-4%

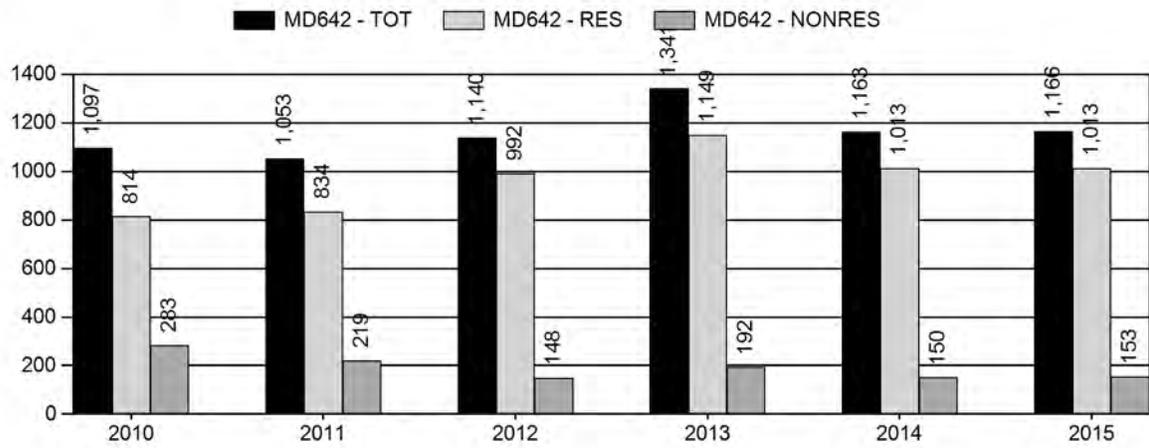
Population Size - Postseason



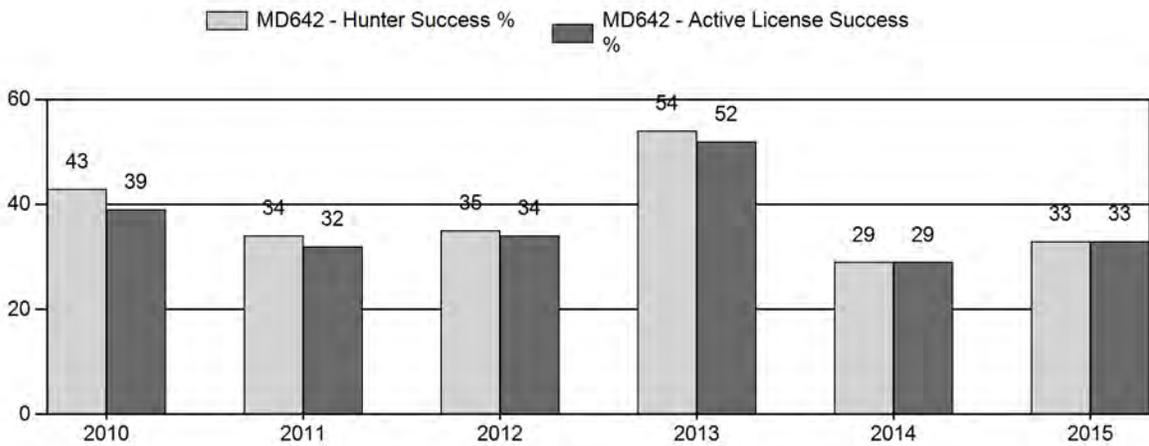
Harvest



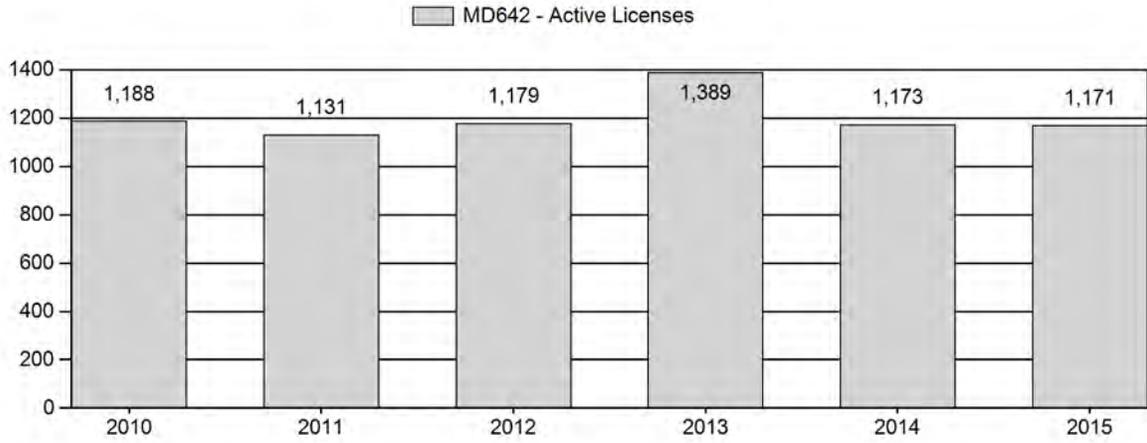
Number of Hunters



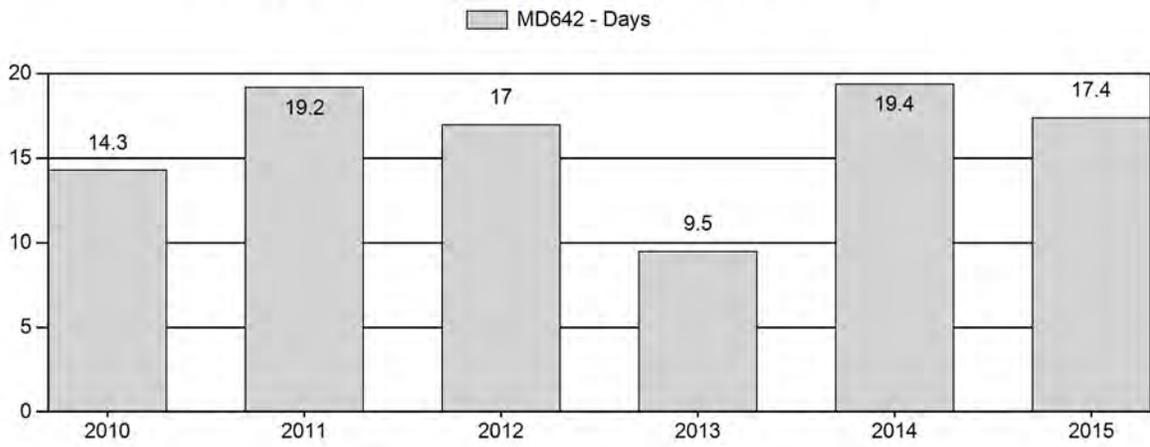
Harvest Success



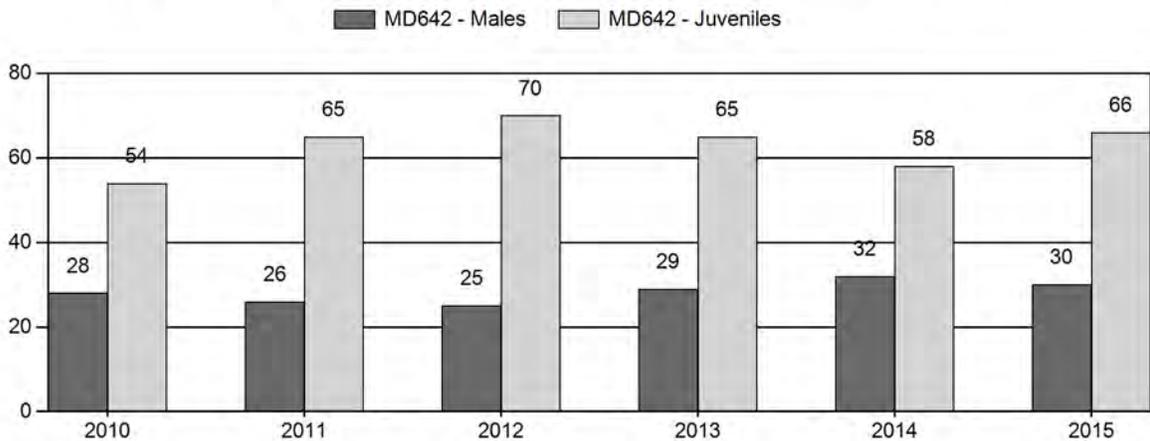
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD642 - DUBOIS

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	2+ CIs 1	2+ CIs 2	2+ CIs 3	2+ UnCIs	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	6,639	61	0	0	0	128	189	15%	683	55%	370	30%	1,242	876	9	19	28	± 3	54	± 4	42
2011	6,602	36	0	0	0	52	88	14%	340	52%	221	34%	649	1,073	11	15	26	± 4	65	± 7	52
2012	6,489	26	0	0	0	78	104	13%	415	51%	291	36%	810	1,232	6	19	25	± 3	70	± 6	56
2013	6,123	73	0	0	0	102	175	15%	605	51%	395	34%	1,175	1,117	12	17	29	± 3	65	± 5	51
2014	6,854	66	0	0	0	110	176	17%	555	53%	320	30%	1,051	980	12	20	32	± 3	58	± 5	44
2015	6,875	69	0	0	0	120	189	15%	628	51%	415	34%	1,232	1,172	11	19	30	± 3	66	± 5	51

**2016 HUNTING SEASONS
DUBOIS MULE DEER (MD 642)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
128		Oct. 1	Oct. 15		General	Antlered mule deer or any white-tailed deer
	1	Nov. 1	Nov. 20	50	Limited quota	Any deer
	3	Nov. 1	Nov. 20	50	Limited quota	Any white-tailed deer
	7	Nov. 1	Nov. 20	25	Limited quota	Doe or fawn valid on private land
148		Sep. 15	Oct. 25		General	Antlered deer
Archery						
128		Sep. 1	Sep. 30			
148		Sep. 1	Sep. 14			

Non Resident Region E Quota: 600

Hunt Area	Type	Quota change from 2015
Total		

Management Evaluation

Current Postseason Population Management Objective: 8,000

Management Strategy: Recreational

2015 Postseason Population Estimate: ~6,900

2016 Proposed Postseason Population Estimate: ~6,600

Management Issues

The Dubois mule deer herd had a revised population objective of 8,000 adopted in 2015. The previous objective of 10,000 had been in place since 1994. Over the 20 years the previous objective had been in place the population was never close to 10,000. Additionally, when the historical population did grow above 8,000 deer damage concerns in the area began to increase dramatically. The new objective is considered a better management target. The herd also has a recreational management strategy.

Deer in this herd unit winter in hunt area 128. It is known many of the deer migrate out of the herd unit in late spring and do not return until early winter. Migration routes and the extent of summer range are unknown. To help define deer movements better a migration/movement study will begin in 2016. It is expected 15 does will be collared in March, 2016 and tracked over

several years to help determine migration routes, summer, and transition range used by deer in the herd unit. Much of the winter range utilized by deer overlaps elk and bighorn sheep winter range and remains relatively untouched by development.

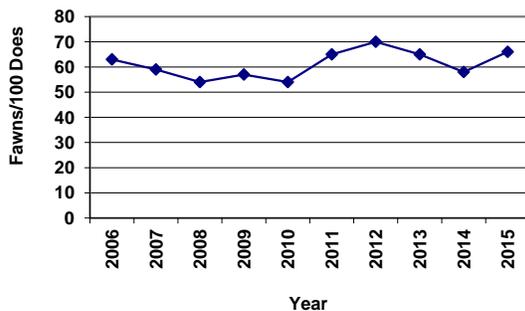
Habitat/Weather

The past year was characterized by mild conditions and good vegetation growth throughout the herd unit. Vegetation transects monitored to determine the amount of forage available on elk winter range revealed herbaceous vegetation production each of the last 2 years was well above the 20-year average for the area. No shrub data is collected in the herd unit, but the good growing conditions undoubtedly resulted in high browse production. Given the good feed resource in 2015, mule deer in the herd unit undoubtedly entered winter in good shape. Fall weather was mild followed by average snow and temperatures in December and January. After January, temperatures moderated and snow cover receded. Given mild to average winter conditions and excellent feed availability, mule deer survival in 2015 is expected to be good.

Field/Harvest Data/Population

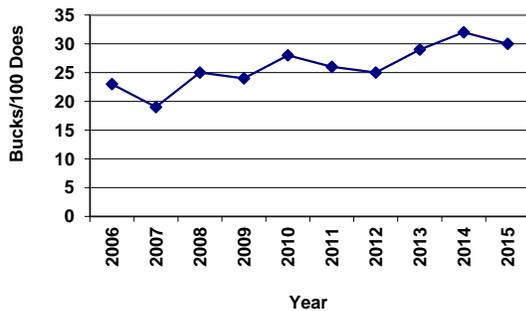
In 2015, personnel classified 1,232 mule deer. The sample exceeded the desired sample size for calculating accurate confidence intervals around age/sex ratios. Annual classification samples generally meet or exceed desired sample sizes in this herd unit. The 2015 classification sample yielded a fawn/doe ratio of 66/100. This was higher than the 2014 ratio of 58/100 but well within the historical recruitment range typically recorded in this herd unit. Despite annual fluctuations, there are no long term recruitment trends evident in this population and fawn production has been remarkably stable for many years (Fig. 1).

Figure 1. Ten year recruitment history for the Dubois mule deer herd.



Although the buck/doe ratio has also been fairly stable long term in the herd unit, there was a noticeable increase over the last several years (Fig. 2). The 2015 ratio of 30/100 was slightly lower than the 2014 ratio of 32/100 but still above the long term average for the herd unit. It is likely above average survival associated with favorable environmental conditions over the last several years resulted in increased buck numbers. It should be noted two management actions were taken in 2012 to facilitate an increase in buck numbers and quality. The general, October season was reduced 7 days that year to curtail pressure on bucks migrating into the herd unit in the second half of October. Also, Type 1 licenses were reduced by 50% to decrease pressure on bucks in November. It is possible these two actions have benefitted buck numbers. If the buck/doe ratio remains above 30/100 there is opportunity to add 7 days back onto the end of the general, October season in the future to provide increased recreational opportunity.

Figure 2. Ten year buck/doe ratio in the Dubois mule deer herd.



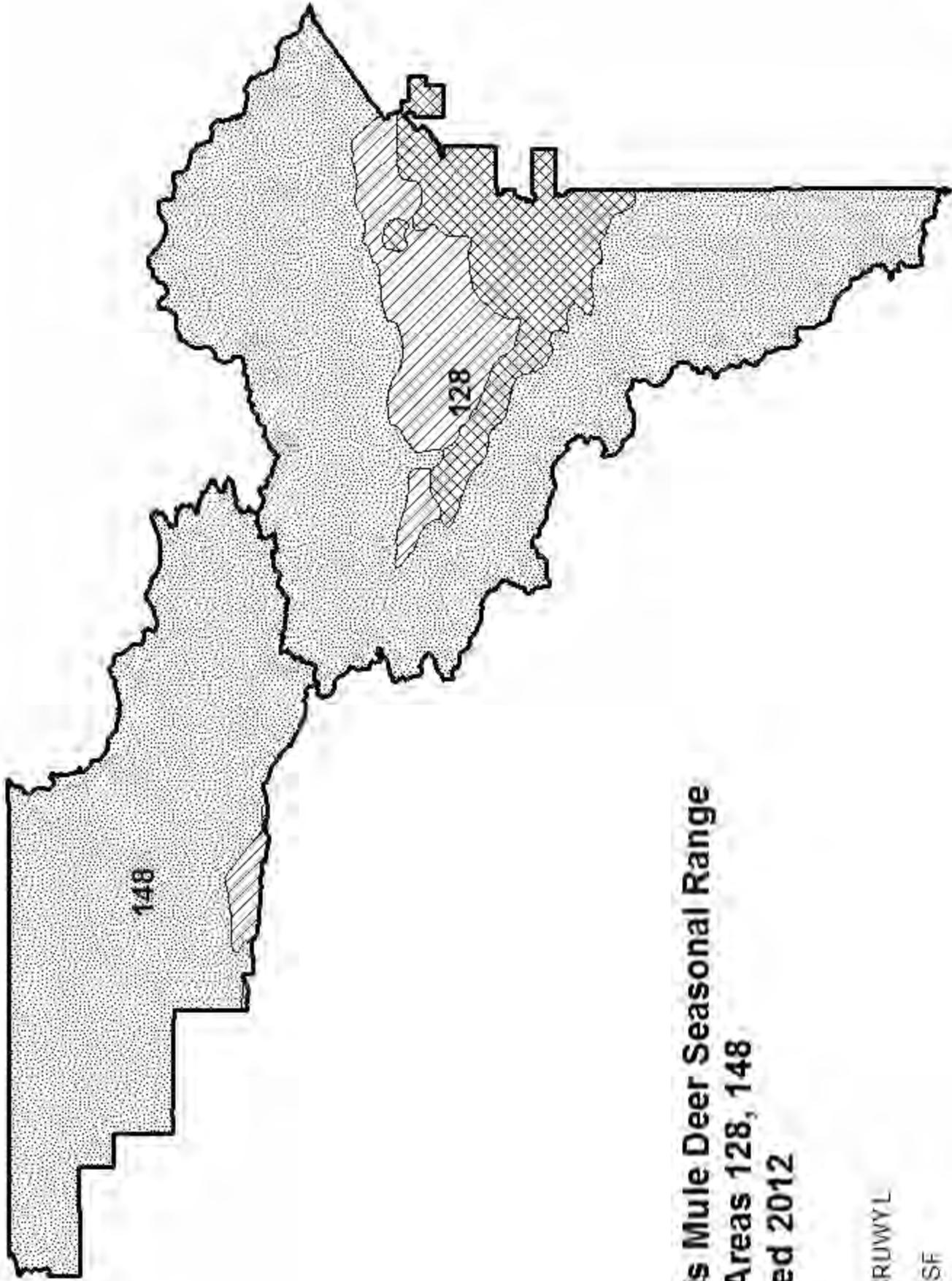
Hunter success during the general, October season tends to be low and is related to the fact many deer are not in the herd unit during that period. Deer typically migrate into the herd unit in late October and are present for the limited quota season in November. Due to the extensive immigration, success rates for November license holders are usually quite high.

In 2015 general license hunters had a 27% success rate in hunt area 128 which was slightly higher than the 24% success in 2014. The 2015 success rate was almost identical to the 5-year average of 28%. The days/animal for general license hunters was 20.9 in 2015 compared to 24.2 in 2014 and the 5-year average of 24.8. Both the success rate and days/animal statistic are well within the typical range of variation for hunt area 128 and are unremarkable. Overall, harvest statistics from the last several years do not indicate any major demographic changes in the population.

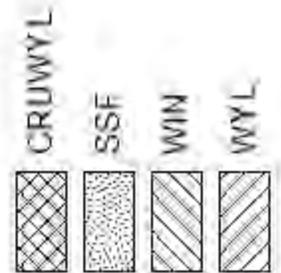
A new spreadsheet model was developed for the population in 2012. The model did not exhibit any erratic behavior with the addition of data in 2015. Each year of the model's use, the TSJ/CA version of the model was selected to track the population. The model AIC value was essentially the same as the other 2 comparative models but the fit was much better. Also the other 2 models produce estimates nearly 2 times as high as the TSJ/CA or other historical models for the herd. The selected model simulates a population over the past 20 years fluctuating between 6,000 and 8,000 deer. More recently, the model indicates the population declined from 2006 through 2012. Since 2012, the population has been stable. The 2015 population estimate is 6,900 and 86% of objective. The model is considered fair given adequate age/sex ratio data but lacking survival estimates.

Management Summary

The 2016 hunting season is designed to maintain recreational opportunity at the same level as the 2015 season. With no season changes proposed, 2016 harvest is expected to be very similar to 2015 harvest. Given average winter conditions and recruitment, the population is expected to relatively stable at 6,600 deer in 2016.



**Dubois Mule Deer Seasonal Range
Hunt Areas 128, 148
Revised 2012**



2015 - JCR Evaluation Form

SPECIES: Mule Deer

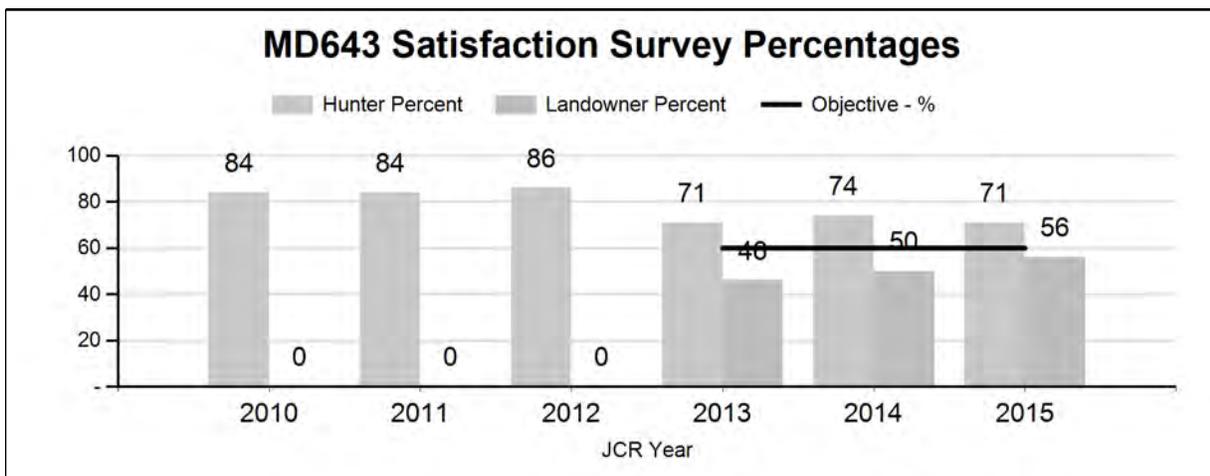
PERIOD: 6/1/2015 - 5/31/2016

HERD: MD643 - PROJECT

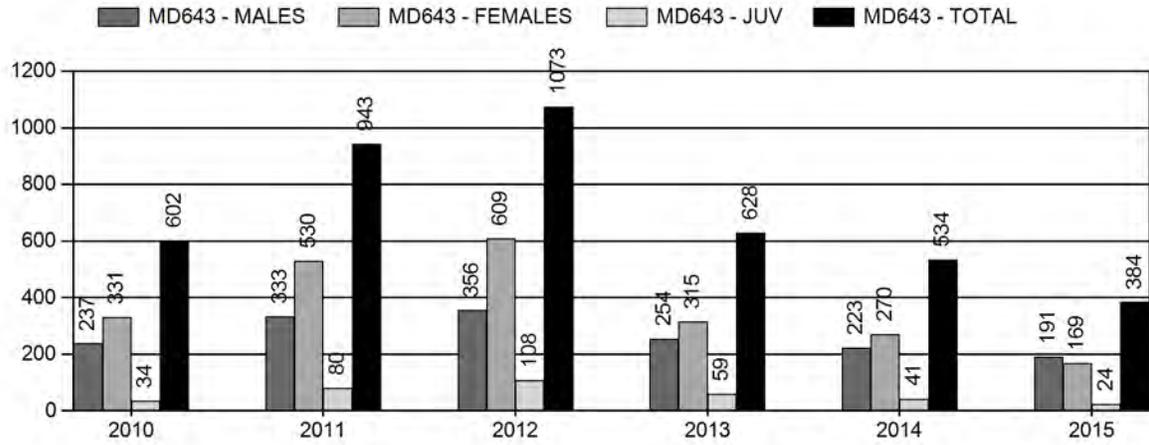
HUNT AREAS: 157, 170-171

PREPARED BY: GREG ANDERSON

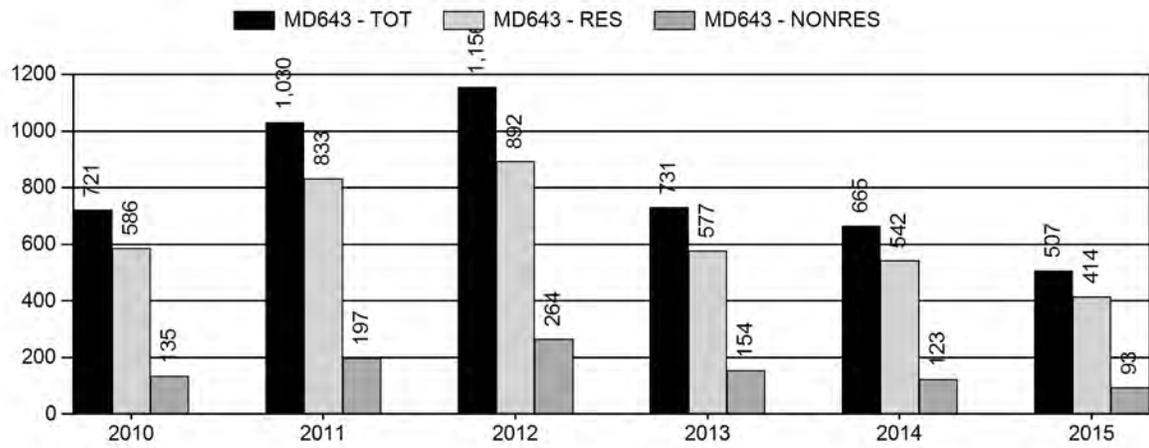
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	80%	71%	75%
Landowner Satisfaction Percent	46%	56%	60%
Harvest:	756	384	400
Hunters:	861	507	525
Hunter Success:	88%	76%	76%
Active Licenses:	998	611	675
Active License Success:	76%	63%	59%
Recreation Days:	3,832	2,208	2,400
Days Per Animal:	5.1	5.8	6
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			4%
Number of years population has been + or - objective in recent trend:			0



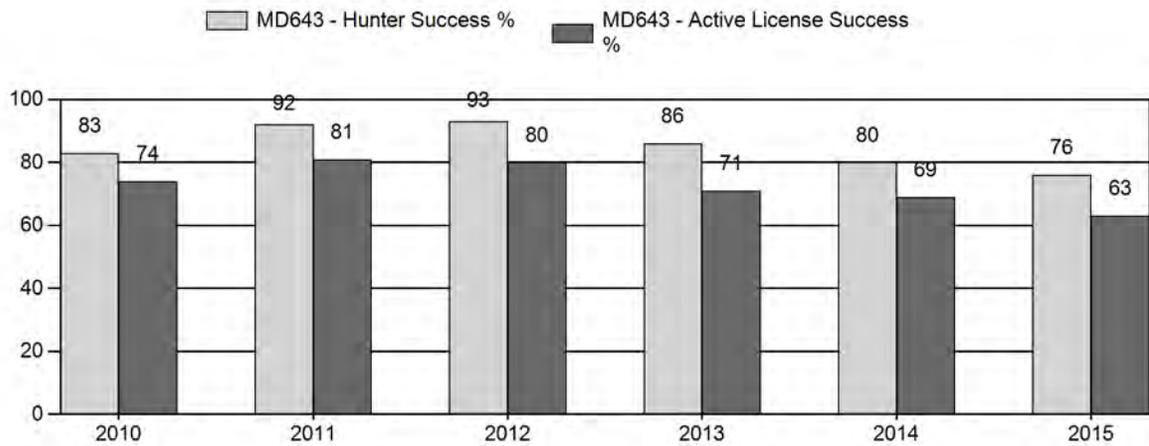
Harvest



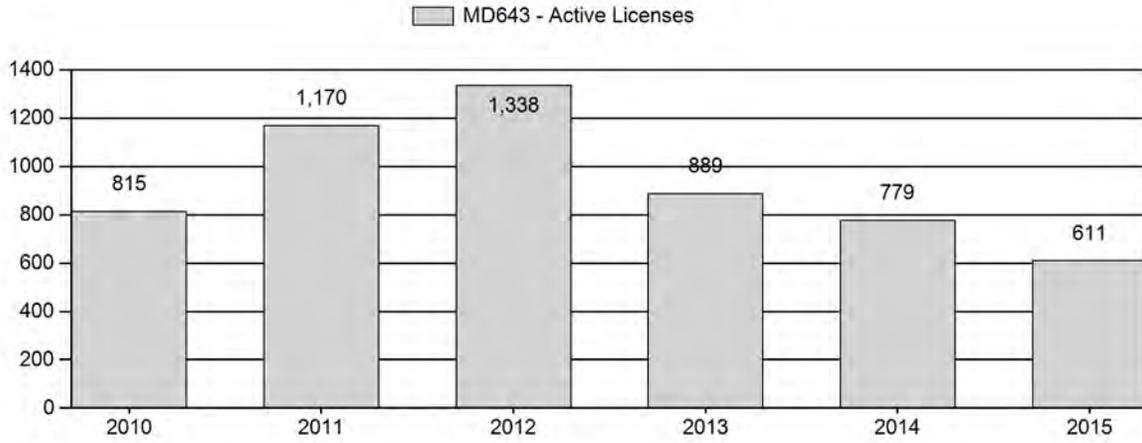
Number of Hunters



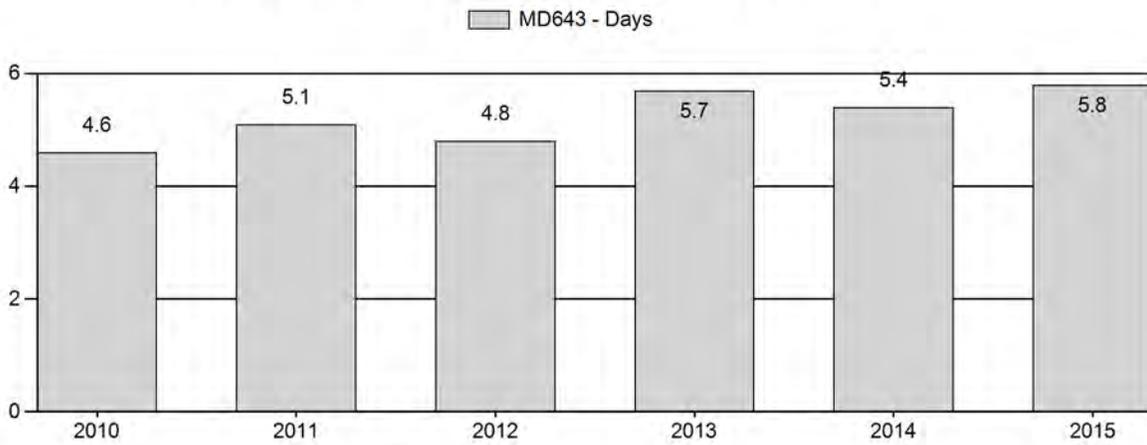
Harvest Success



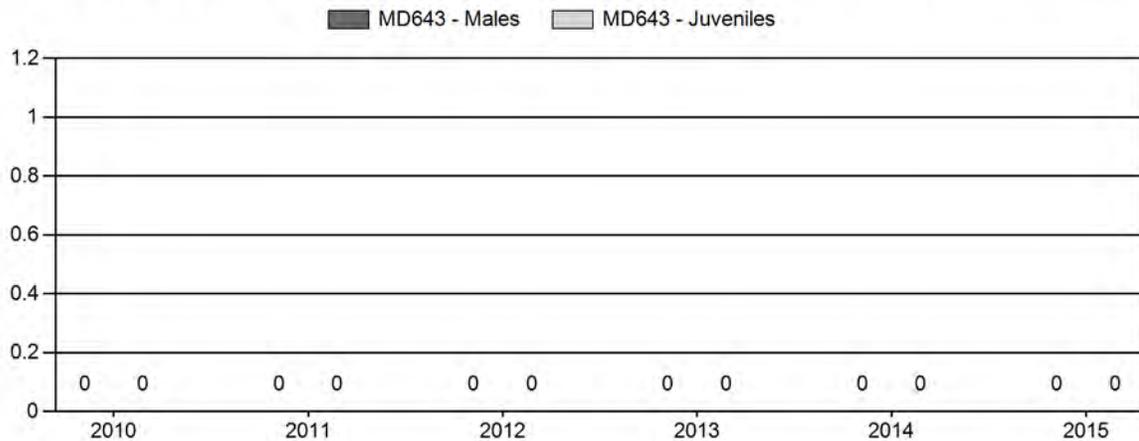
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



**2016 HUNTING SEASONS
PROJECT MULE DEER (MD 643)**

Hunt Area	Type	Season Dates		Quota	Licenses	Limitations
		Opens	Closes			
157, 170	1	Oct. 1	Oct. 31	250	Limited quota	Any deer
	3	Nov. 1	Nov. 30	100	Limited quota	Any white-tailed deer
	6	Oct. 1	Nov. 10	250	Limited quota	Doe or fawn
	8	Oct. 1	Oct. 31	75	Limited quota	Doe or fawn white-tailed deer
	8	Nov. 1	Nov. 30			Doe or fawn white-tailed deer valid on private land
171		Oct. 1	Oct. 31		General	Any deer
	3	Nov. 1	Nov. 30	75	Limited quota	Any white-tailed deer
	6	Oct. 1	Nov. 30	250	Limited quota	Doe or fawn
Archery 157, 170		Sep. 1	Sep. 30			
171		Sep. 1	Sep. 30			

Hunt Area	Type	Quota change from 2015
157, 170	3	+25
Total		+25

Management Evaluation

Current hunter/landowner satisfaction management objective: Hunter/Landowner Satisfaction 60%

Management Strategy: Recreational

2015 Hunter satisfaction estimate: 71%

2015 Landowner satisfaction estimate: 56%

Most recent 3-Year running average hunter satisfaction estimate: 72%

Most recent 3-Year running average landowner satisfaction estimate: 51%

Management Issues

In 2013 the Department conducted an objective review for the Project mule deer herd unit. Previously the herd had a population objective of 500 mule deer. The population objective was impractical because personnel were unable to collect adequate demographic data due to extensive interchange with the neighboring Wind River Reservation (WRR). Following an internal review, a public meeting and contact with numerous landowners the objective was changed in 2013 to manage for 60% hunter and 60% landowner satisfaction. Hunter satisfaction is taken directly from the harvest survey while landowner satisfaction in 2013 was determined by mailing a survey to 98 landowners in the herd unit. In 2014, landowners were polled via an e-mail survey in an attempt to increase response rate. The e-mail survey was ineffective, so in 2015 personnel began making personal contacts and phone calls to assess landowner opinions on deer numbers.

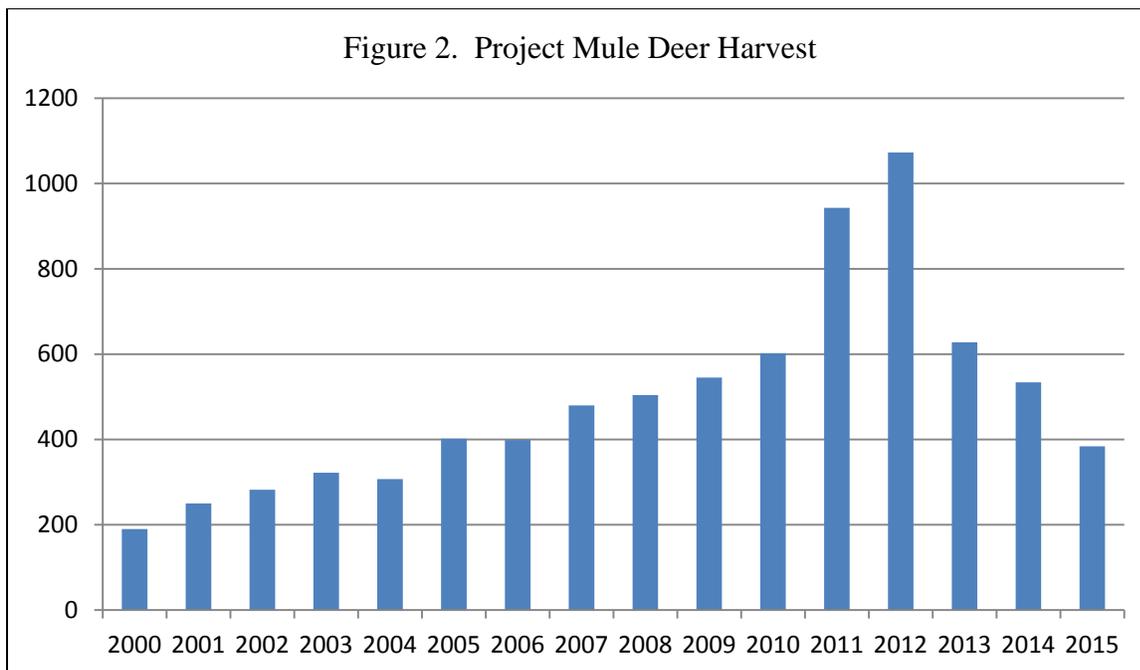
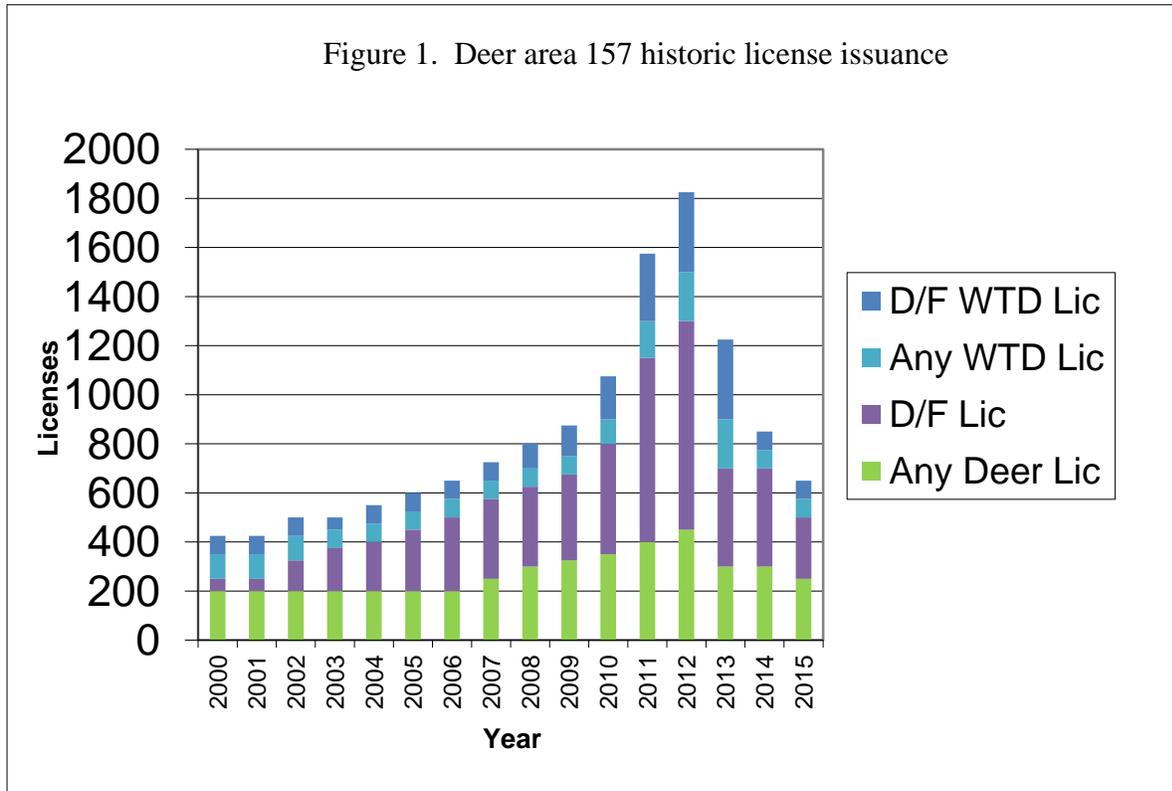
Habitat/Weather

This herd occupies a heavily agricultural area in central Wyoming as well as lands interspersed with the WRR. Land ownership patterns and extensive border with the WRR make it cost prohibitive to collect adequate demographic data in the herd unit. Deer densities are highest along the drainages throughout the herd unit, in particular the Wind River. As this is one of the main boundaries with the WRR, interchange is quite high. During periods of drought, this herd has typically been impacted less than surrounding populations due to the abundance of feed associated with agricultural operations. In 2015, weather conditions were conducive to good vegetative production throughout the herd unit including upland, native range. As such, mule deer were well dispersed throughout the area. Fall observations and field checks indicate mule deer in the herd unit entered winter in excellent body condition.

Field/Harvest Data/Population

Classification data have never been collected in this herd unit due to access issues throughout much of the herd unit. Personnel observations as well as numerous comments from landowners throughout the herd unit indicate this population grew significantly from the mid-2000's through 2012. In response to perceived growth and increased damage claims, harvest pressure increased steadily from 2000 through 2012. In 2012, an historic high number of licenses were issued in hunt area 157 where the majority of harvest in the herd unit occurs (Fig. 1). That year, over 1,000 mule deer were harvested in the herd unit. In 2013 harvest pressure was reduced, but harvest was still the third highest on record over the past 20 years at over 600 mule deer. The hunt season remained unchanged between 2013 and 2014. In response to a perception of continued decline in deer numbers, license numbers were decreased in 2015 and numbers of

were closer to the historical average for this area. The result was a decrease in mule deer harvest bringing the 2015 harvest closer to the historical average for the herd (Fig. 2).



Following the years of high harvest from 2010 through 2014, the mule deer population appears to have declined significantly. While no demographic data is available for the population, harvest statistics in 2015 indicate hunters had a harder time harvesting deer. Type 1 license success was 76% in 2015 and was well below the 5-year average of 88%. In addition, the days/harvest increased from 5.4 in 2014 to 5.8 in 2015 and was above the 5-year average of 5.1.

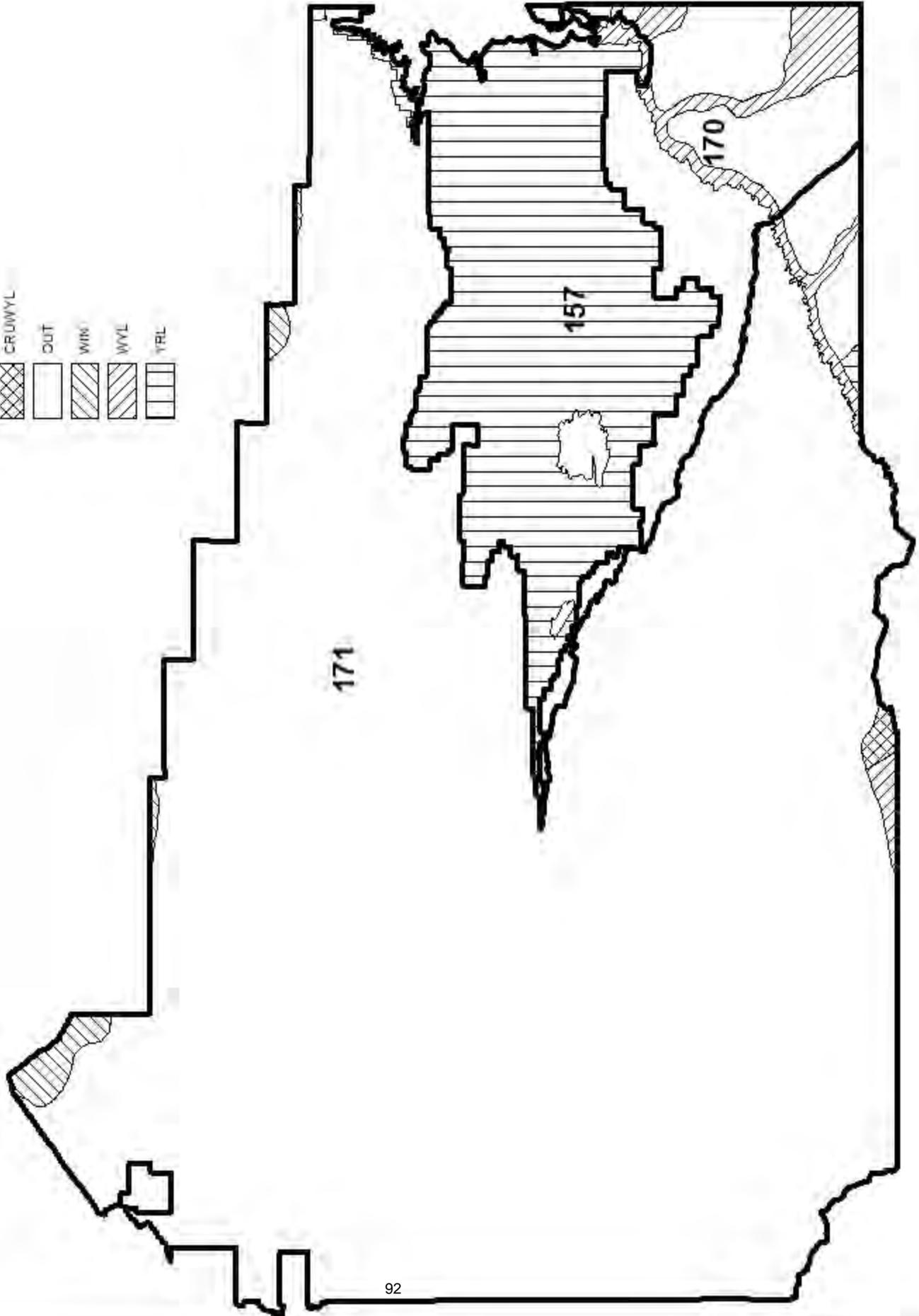
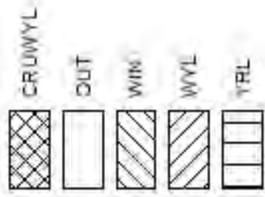
Hunter satisfaction was 71% in 2015. This was a slight decrease from 74% in 2014, but essentially the same as the 3-year average of 72%. Prior to 2013 hunter satisfaction was closer to 85%. Comments from hunters in the field indicated they were seeing fewer deer than in previous years and generally less satisfied with the deer population. This is not surprising as more recent seasons were designed to reduce the deer population significantly. This was the third year the landowner satisfaction survey was conducted so long term comparisons are not possible. That said, it appears landowners are somewhat ambivalent about the survey. Response rates to the satisfaction survey in 2013 and 2014 were anemic. In an attempt to generate more interest in the survey, personnel began contacting landowners in person and by phone in 2015. Landowner satisfaction was 56% in 2015. Although it was below the desired level of 60% it should be noted landowner satisfaction increased each of the past 3 years and comments regarding high deer numbers decreased. All information, including harvest statistics, hunter satisfaction, and landowner satisfaction indicate this mule deer population declined over the past several years.

While mule deer numbers declined in response to high harvest over the past several years, anecdotal information suggests both the mule deer and the white-tailed deer populations in the area were also significantly impacted by an EHD outbreak in 2013. White-tailed deer licenses were subsequently reduced for the 2014 season and remained at the lower level for the 2015 season (Fig. 1). Casual observations suggest white-tailed deer numbers began increasing in 2015. The original, 2016 season proposal did not include any changes to white-tailed deer license quotas. However, following a complaint by a landowner/hunter with property in Hunt Area 170 regarding increased white-tailed deer numbers personnel decided to propose an additional 25 Type 3 licenses for the 2016 season.

Management Summary

Perceptions of hunters, landowners, and Department personnel are that liberal seasons from 2010 through 2014 effectively reduced the deer population in this herd unit. Despite a significant reduction in the mule deer population, some landowners would like to see even fewer deer. Given 71% of hunters and 56% of landowners are satisfied with deer numbers, the population is considered close to objective. Since the population is considered close to objective and hunter satisfaction has trended downward over the past 6 years while landowner satisfaction has trended upward in the past 3 years, hunting seasons will remain unchanged in 2016 with the exception of an additional 25 Type 3 licenses.

**Project Mule Deer Seasonal Range
Hunt Areas 157, 170, 171
Revised 2012**



2015 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD644 - SOUTH WIND RIVER

HUNT AREAS: 92, 94, 160

PREPARED BY: STAN HARTER

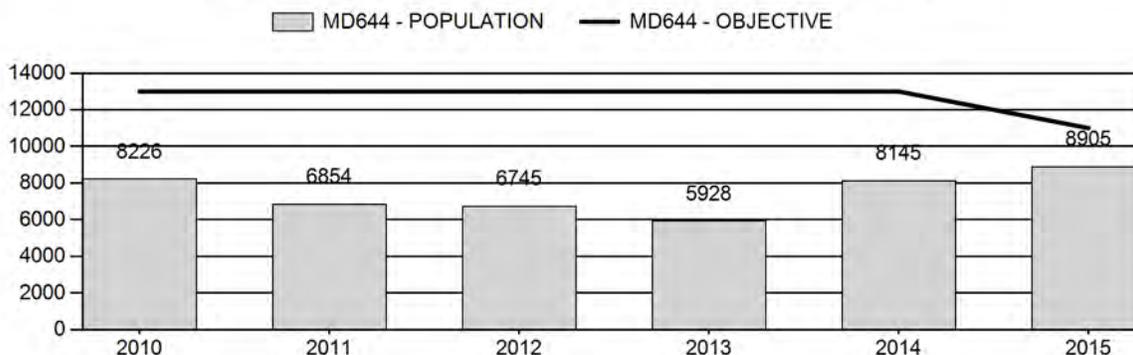
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	7,180	8,905	9,324
Harvest:	581	716	740
Hunters:	1,446	1,452	1,500
Hunter Success:	40%	49%	49 %
Active Licenses:	1,521	1,471	1,500
Active License Success:	38%	49%	49 %
Recreation Days:	6,230	6,224	6,400
Days Per Animal:	10.7	8.7	8.6
Males per 100 Females	25	34	
Juveniles per 100 Females	75	88	

Population Objective (± 20%) :	11000 (8800 - 13200)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-19.0%
Number of years population has been + or - objective in recent trend:	3
Model Date:	02/18/2016

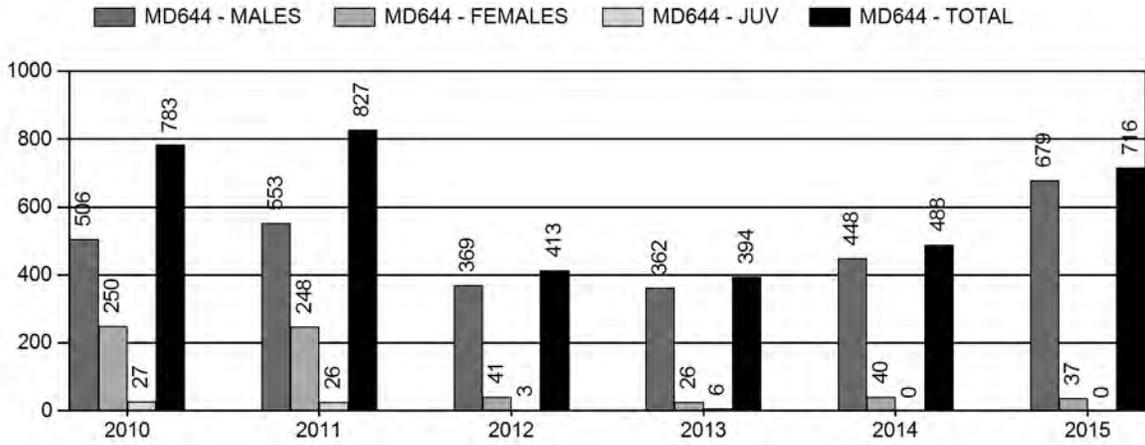
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.0%	1.0%
Males ≥ 1 year old:	37.4%	35.2%
Juveniles (< 1 year old):	0.0%	0.0%
Total:	7.4%	7.3%
Proposed change in post-season population:	+9.3%	+4.7%

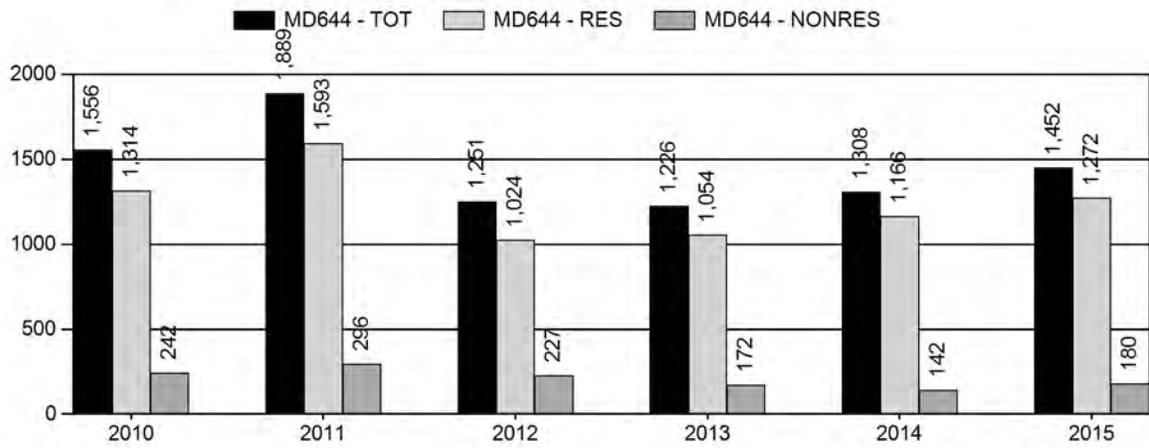
Population Size - Postseason



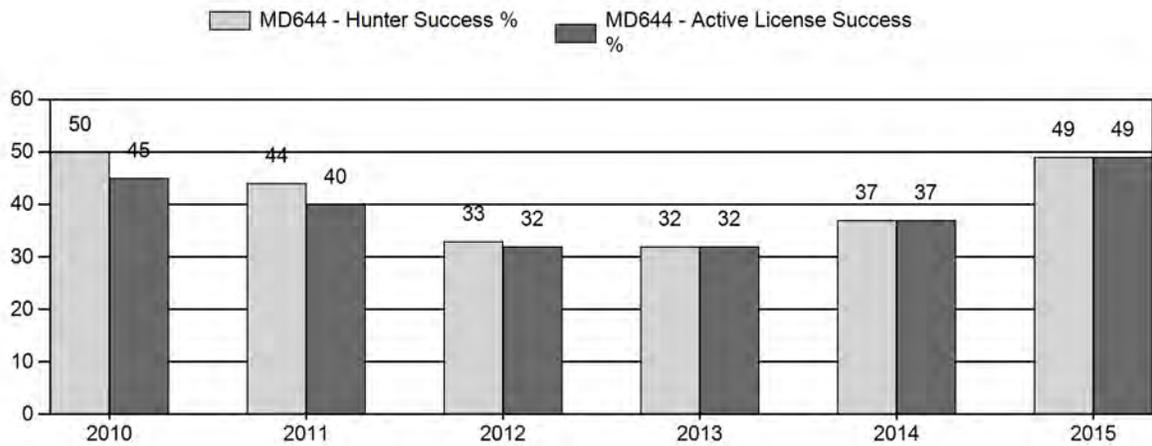
Harvest



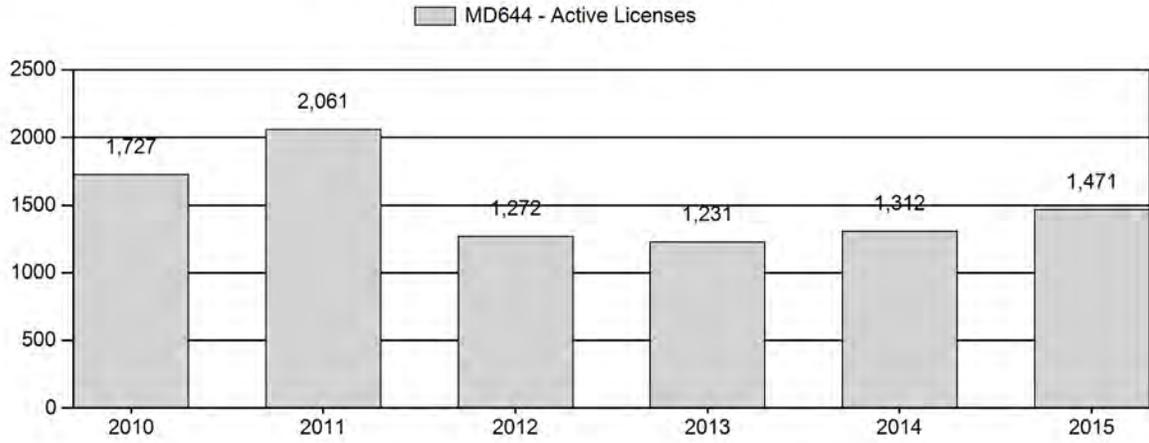
Number of Hunters



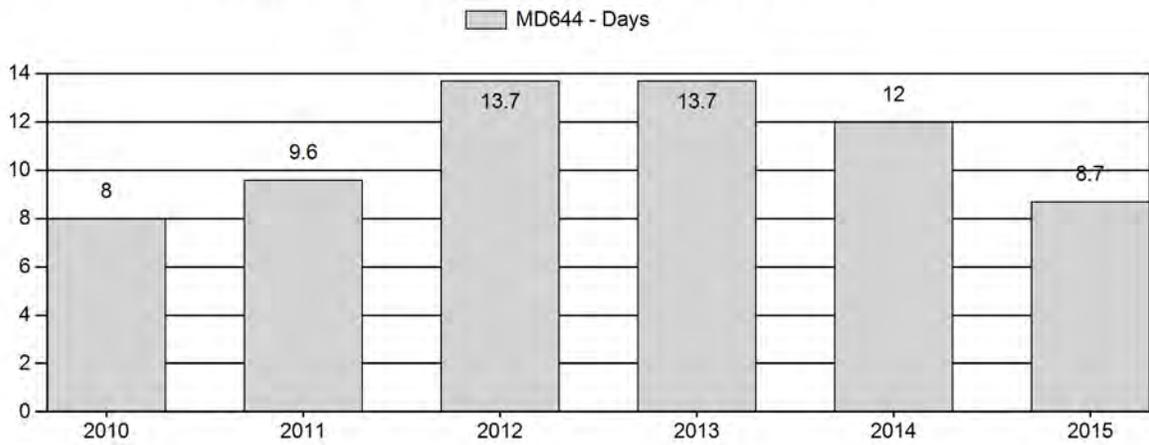
Harvest Success



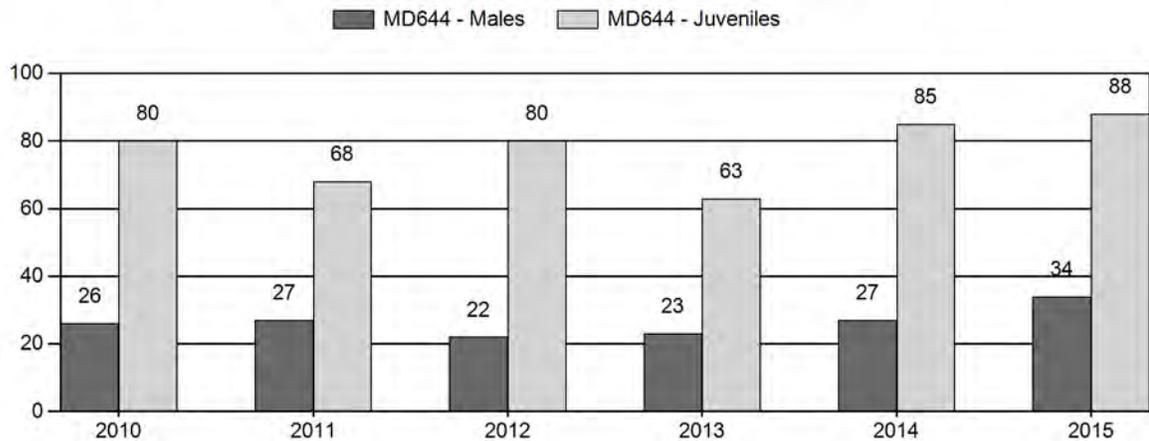
Active Licenses



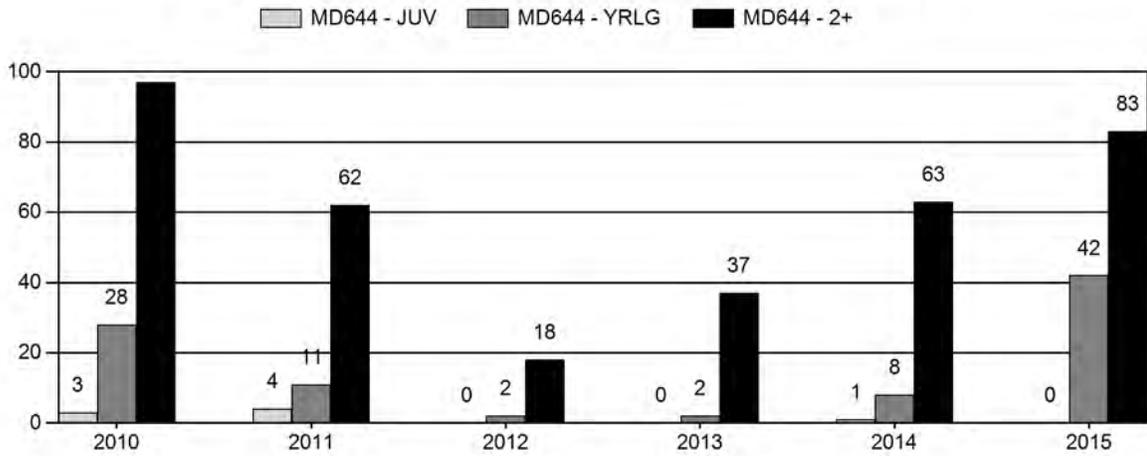
Days per Animal Harvested



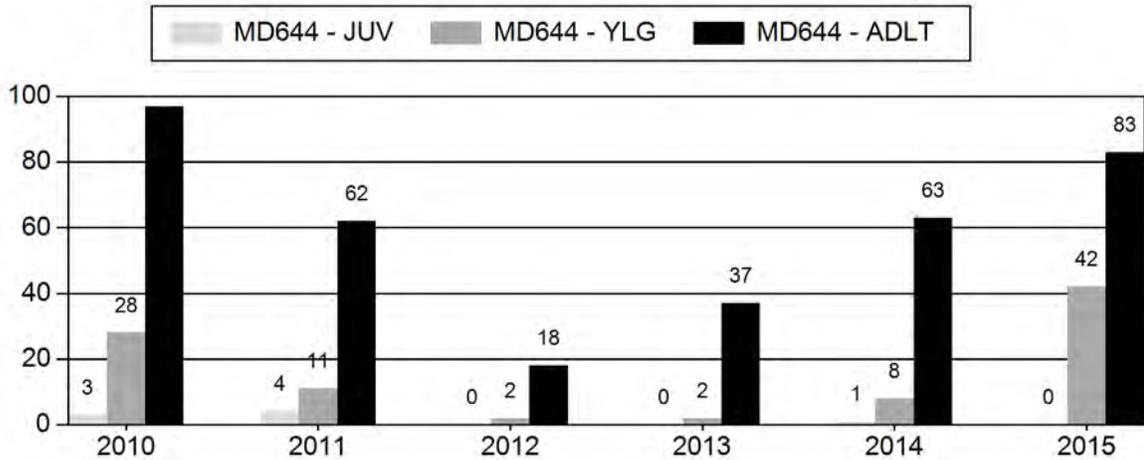
Postseason Animals per 100 Females



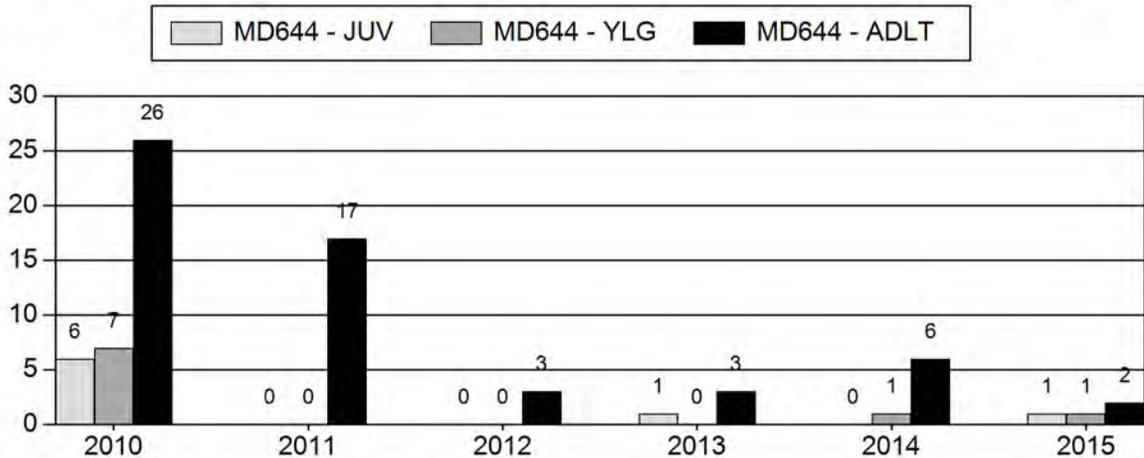
Age Structure of Field Checked Males



Age Structure Data (Field and Laboratory) - Male



Age Structure Data (Field and Laboratory) - Female



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD644 - SOUTH WIND RIVER

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot		Males to 100 Females			Young to			
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Cls	Obj	YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	8,226	198	0	0	0	191	389	12%	1,512	49%	1,214	39%	3,115	1,695	13	13	26	± 1	80	± 3	64
2011	6,854	154	0	0	0	199	353	14%	1,319	51%	892	35%	2,564	1,277	12	15	27	± 2	68	± 3	53
2012	6,745	102	106	40	3	0	251	11%	1,129	49%	908	40%	2,288	1,543	9	13	22	± 2	80	± 4	66
2013	5,928	146	161	53	6	0	366	12%	1,581	54%	1,003	34%	2,950	1,036	9	14	23	± 1	63	± 2	52
2014	8,145	144	132	42	5	0	323	13%	1,184	47%	1,009	40%	2,516	1,761	12	15	27	± 2	85	± 4	67
2015	8,905	304	206	57	4	0	571	15%	1,664	45%	1,457	39%	3,692	1,905	18	16	34	± 2	88	± 3	65

2016 HUNTING SEASONS
South Wind River Mule Deer Herd Unit (MD 644)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
92		Oct. 1	Oct. 23		General Youth License	Any deer
92		Oct. 15	Oct. 23		General	Antlered mule deer or any white-tailed deer
92, 94, 160	3	Oct. 1	Nov. 30	50	Limited Quota	Any white-tailed deer
92, 94, 160	8	Oct. 1	Nov. 30	100	Limited Quota	Doe or fawn white-tailed deer
94		Oct. 1	Oct. 23		General Youth License	Any deer
94		Oct. 15	Oct. 23		General	Antlered mule deer or any white-tailed deer
160		Oct. 1	Oct. 23		General Youth License	Any deer
160		Oct. 15	Oct. 23		General	Antlered mule deer or any white-tailed deer
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

Region E Non-Resident Quota: 600

Hunt Area	License Type	Quota Change from 2015
160	6	-25
Herd Unit Total	6	-25

MANAGEMENT EVALUATION

Current Post-Season Population Management Objective: 11,000

Management Strategy: Recreation (20-29 bucks/100 does)

2015 Post-season Population Estimate: ~8,900

2016 Post-season Population Estimate: ~9,300

Herd Unit Issues

The management objective was reviewed in 2015, and the long-term post-season objective of 13,000 mule deer was reduced to 11,000. The secondary objective of Recreational Management Strategy (20-29 bucks/100 does) will continue. Population growth occurred from 2002 to 2009, but declined from 2010 to 2013, due to poor fawn recruitment as a result of intense drought. However, fawn/doe ratios have significantly improved the last two years, demonstrating the population seems capable of recovery with improved habitat conditions which follow increased precipitation. The 2015 post-season population reached about 8,900 mule deer, 19% below objective.

Weather

Precipitation

Precipitation information is generated from the PRISM (Parameter-elevation Relationships on Independent Slopes Model) dataset developed by Oregon State University. For the South Wind River Herd Unit, precipitation values based on 9 weather stations located throughout the herd unit. Precipitation from October 2014 through September 2015 was higher than the 30-year average (Table 1). Precipitation levels during the low-elevation growing season (April-June 2015) and at higher elevation SSF seasonal ranges (May- July 2015) were also notably higher than the 30-year averages. The majority of the precipitation came during the growing season (April-July) and was followed by a mild, dry fall. Precipitation in Lander was 140% above average for the first four months of 2016, with record breaking rain falling in the first week of May, which should lead to excellent summer forage conditions.

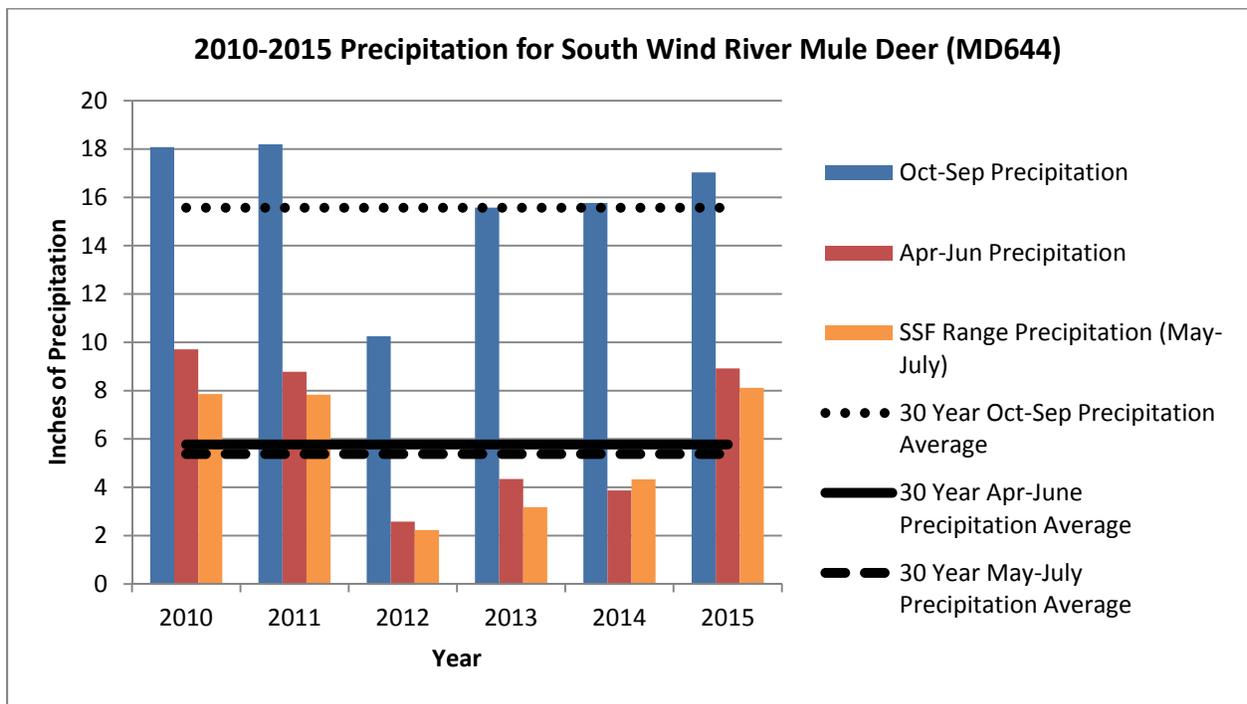


Table 1. Precipitation values for South Wind River Mule Deer (MD644) from 2010 – 2015.

Winter Conditions

Winter 2015-2016 has been relatively mild with temperatures averaging 25.74°, which is considered normal for the November-February time period in the Lander Area. A mild fall ended in late November with the highest snowfall event so far this winter coming over Thanksgiving weekend. A total of 37” of snowfall was recorded in Lander from November 2015-February 2016, and was 16.2” (or 30%) below the 30-year average. The limited snowfall, while indicating relatively mild winter conditions for wildlife, is of some concern for vegetation production in the coming growing season. Snow water equivalents for the South Pass, Deer Park, and Townsend Creek SnoTel sites recorded February 1st, 2016 were 69%, 79%, and 75% of average for those respective sites.

Habitat

As noted above, precipitation was well above average during the spring/early summer of 2015. Abundant growing season precipitation should have provided ample forage across the herd unit for mule deer does in early parturition. This, in turn, likely contributed to the high fawn/doe ratio observed in the South Wind River Herd Unit (88 fawns/100 does).

Field Data

Good flying conditions allowed us to survey winter ranges thoroughly using a Bell 206B Jet Ranger helicopter in mid-November 2015, but limited snow cover increased the difficulty of detection of some mule deer. Even so, we observed 3,692 mule deer, the second highest sample ever. Rut appeared to be at maximum peak, leading to a 2015 post-season total buck/doe ratio of 34M/100F. This was highest buck/doe ratio observed in 35 years and 48% above the average since 1994. This was not expected following removal of three (3) point antler restrictions (APRs) in the 2015 hunting season and resultant increased buck harvest. The increased buck/doe ratio was likely due to high buck detection during rut along with elevated fawn survival and yearling buck recruitment (18YM/100F) succeeding a 35% increase in the fawn/doe ratio in 2014. The fawn/doe ratio rose to 88J/100F in 2015, resulting from improved forage conditions due to increased precipitation the last two years.

Antler width class data have been collected during post-season classification surveys the past 4 years, with the number of bucks in each width class shown in Figure 1. In 2015, over 89% of the mule deer bucks classified in the South Wind River Herd Unit were either yearlings or had Class 1 antler widths (adult bucks ≤ 19 " wide), indicating a shortage of older age-class bucks despite reduced harvest levels experienced with APRs in the 3 previous hunting seasons. In essence, APRs were forcing harvest on older age class bucks, while replacement levels were quite low due to low fawn survival/yearling recruitment.

The inaugural South Wind River mule deer sightability survey was completed in February 2015. A total of 6,640 mule deer were observed, with analysis details provided in the population section to follow.

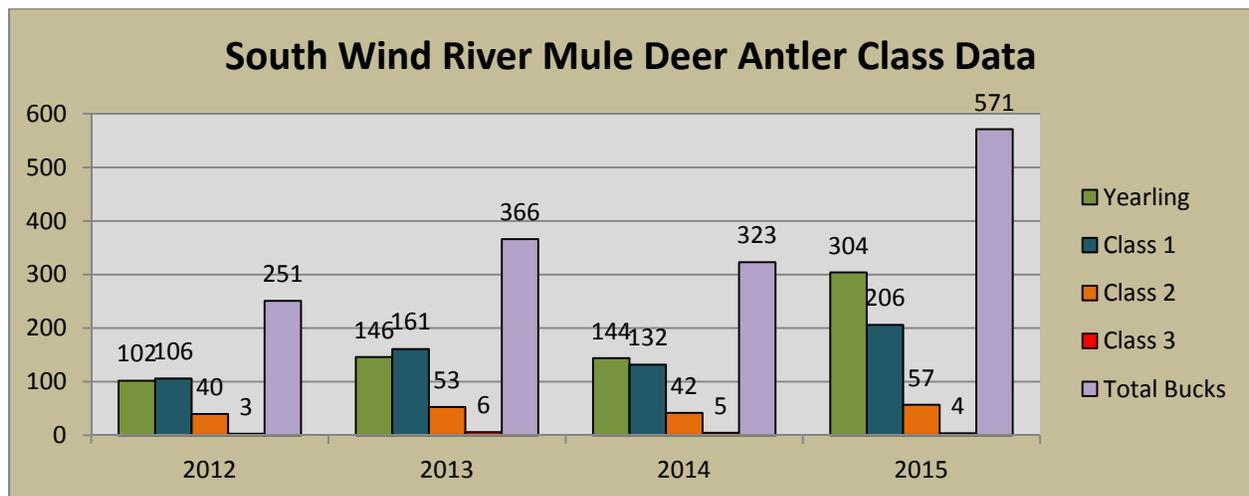


Figure 1. Antler class data (number of bucks in sample) from classification surveys in the South Wind River Mule Deer Herd Unit, 2012 – 2015.

Harvest Data

Weather during fall 2015 was quite moderate in the South Wind River Herd Unit. Mostly dry conditions allowed mule deer and hunters to be dispersed across the herd unit, a possible factor contributing to fewer crowding complaints than expected after lifting APRs. Hunters reported improved numbers of mule deer overall, but with low numbers adult bucks. Removal of APRs did lead to higher buck harvest, greater success, and reduction of hunter effort per harvest. The number of general license hunters jumped 16% compared with the average number of hunters during the APR years (2012 – 2014), and total buck harvest increased 52% above that of 2014. Of all mule deer bucks checked in the field and at check stations, 34% were yearlings and 45% were Class 1 bucks, leading to a reduction in focus on older age bucks for which APRs had targeted for 3 years. Hunter success was up to 49%, compared with an average of 34% during the latest APR seasons. The “days per animal harvested” statistics for general licenses, as an indicator of hunter effort, dropped to 8.7 days/animal in 2015. Doe/fawn mule deer hunting in response to damage issues in Hunt Areas 160 and youth and archery hunters allowed to hunt for “Any” deer, resulted in minimal harvest of 37 does and 0 fawns.

Antler width class data have been collected since 2012 during field checks and at check stations. This coincides with the 3 years of 3-point APRs in place for the South Wind River Herd Unit. Antler widths have not improved over the last 4 years, and the proportion of Class 1 bucks harvested has increased compared with Class 2 and Class 3 bucks (Figure 2). This mimics the trend in antler width classes observed in post-season classification surveys outlined in the previous section.

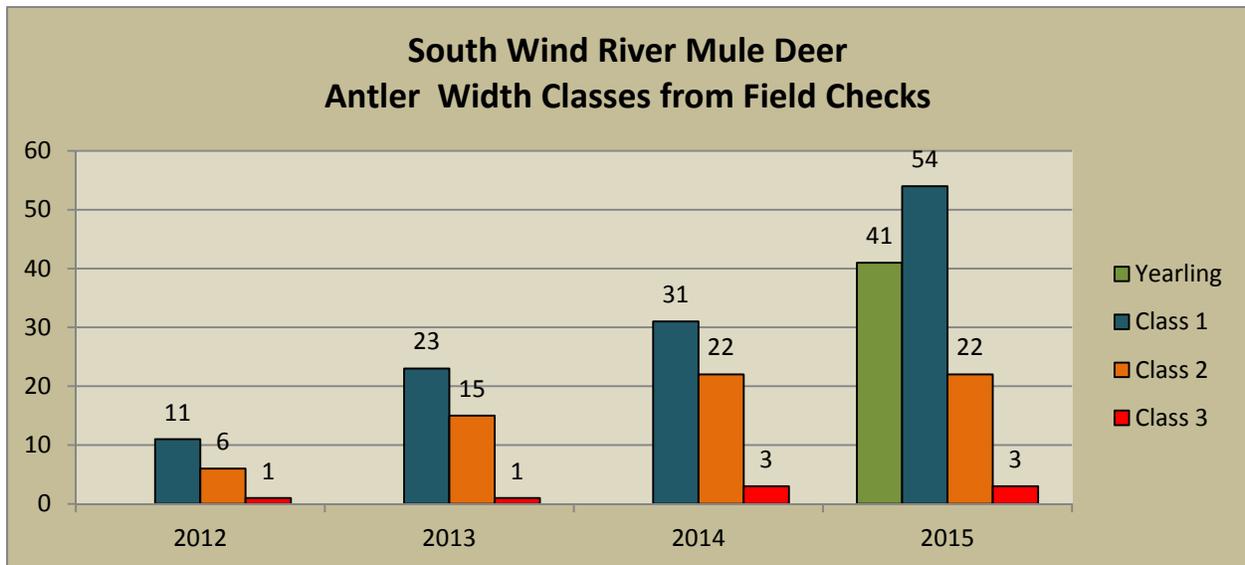


Figure 2. Antler width classes as measured during field checks and at check stations, 2012 – 2015.

Population

A spreadsheet model developed for this population in 2012 has been updated, utilizing 2015 post-season classification and harvest data. The TSJ, CA model was selected as the best fit model, with the lowest Relative AICc value and producing population estimates aligned with trends observed in buck harvest, fawn recruitment, and buck/doe ratios. It also matches professional perceptions of field personnel and public opinion about mule deer population trends.

In addition to traditional classification and harvest data, the model now anchors to a population estimate derived from the sightability survey completed for this herd unit in February 2015. This survey utilized actual mule deer counts, along with snow and vegetation cover variables to provide a correction factor for each cluster of mule deer, thereby estimating the number of deer missed in the survey. The sightability model provided a total estimate of mule deer and the standard error for the estimate. In the inaugural survey, we observed 6,640 mule deer, with a model estimate of 8,517 (± 208). Utilizing traditional classification and harvest data, along with this post-season estimate, the spreadsheet model produces a post-season 2015 estimate of 8,905 mule deer. This spreadsheet model (TSJ, CA) is anchored to the sightability estimate and though lacking actual survival metrics is considered GOOD.

Management Summary

Past management included implementation of antler point restrictions (4-point in 2004 and 2005 and 3-point in 2012-14), in response to declines in buck/doe ratios and population trends, and perceived increases in hunter numbers. Expectedly, both APR types resulted in lower hunter numbers and reduction of overall buck harvest. The 4-point APR implemented in 2004 and 2005 coincided with improved buck/doe ratios as a result of improved fawn survival/yearling buck recruitment with favorable weather patterns and improved, albeit short-term, habitat conditions. The recent 3-point APR seasons did not lead to dramatic improvements in buck/doe ratios, largely due to drought concurrent with the first 2 years of APRs. However, buck/doe ratios did improve substantially in 2015, following improvements in fawn survival/yearling recruitment and increased buck detection during peak of rut, with the total buck/doe ratio of 34M/100F surpassing upper end of the Recreational Management range.

This herd unit is part of the Lander/Green Mountain Mule Deer Initiative, complete with a public “Working Group”. Short-term recommendations for the South Wind River Mule Deer Herd Unit were presented to the Department in December 2014. Long-term recommendations followed, with final recommendations presented to the Department in August 2015. These recommendations were comprehensive in nature, incorporating the following prioritized management issues: 1) Research and Monitoring, 2) Adaptive Management, 3) Hunting Season Structure, 4) Habitat Management, 5) Education and Public Outreach, 6) All Terrain Vehicles (ATVs), 7) Predator Management, and 8) Wildlife Law Enforcement and WGFD Field Presence.

The recommended limited quota season structure will not be implemented in 2016. Some of the Working Group’s long-term hunting season recommendations are consistent with our management direction and will be implemented for the 2016 seasons.

Youth hunters with General Licenses will continue to have added opportunity with their season opening on October 1 valid for any deer to promote youth hunter retention and recruitment.

We are not continuing the General License “any white-tailed deer” opening date of October 1 due to potential of extra hunter crowding issues associated with adult hunters hunting in areas where white-tailed deer are scarce or non-existent. This also may have contributed to illegal mule deer take according to the “date of harvest” information received via harvest surveys. Instead, specific hunts for white-tailed deer are again being offered with longer seasons running from October 1 through November, with 50 Type 3 (Any white-tailed deer) and 100 Type 8 (Doe

or fawn white-tailed deer) licenses valid in Hunt Areas 92, 94, and 160 collectively. White-tailed deer numbers have increased following the 2013 EHD die-off, but apparently not to the same level as yet. With most white-tailed deer hunting opportunities occurring on privately owned lands, these seasons should apply harvest pressure on white-tailed deer in appropriate locations to increase harvest, as well as reduce the potential for overwhelming landowners with access requests.

In response to substantial improvement in buck/doe ratios above the upper end of the “Recreational Management” range, we are adding a day to the end of the General License seasons to allow 2 full weekends of hunting, also in response to past public input. All General License seasons will end on Sunday, October 23, instead of the traditional closing date of October 22.

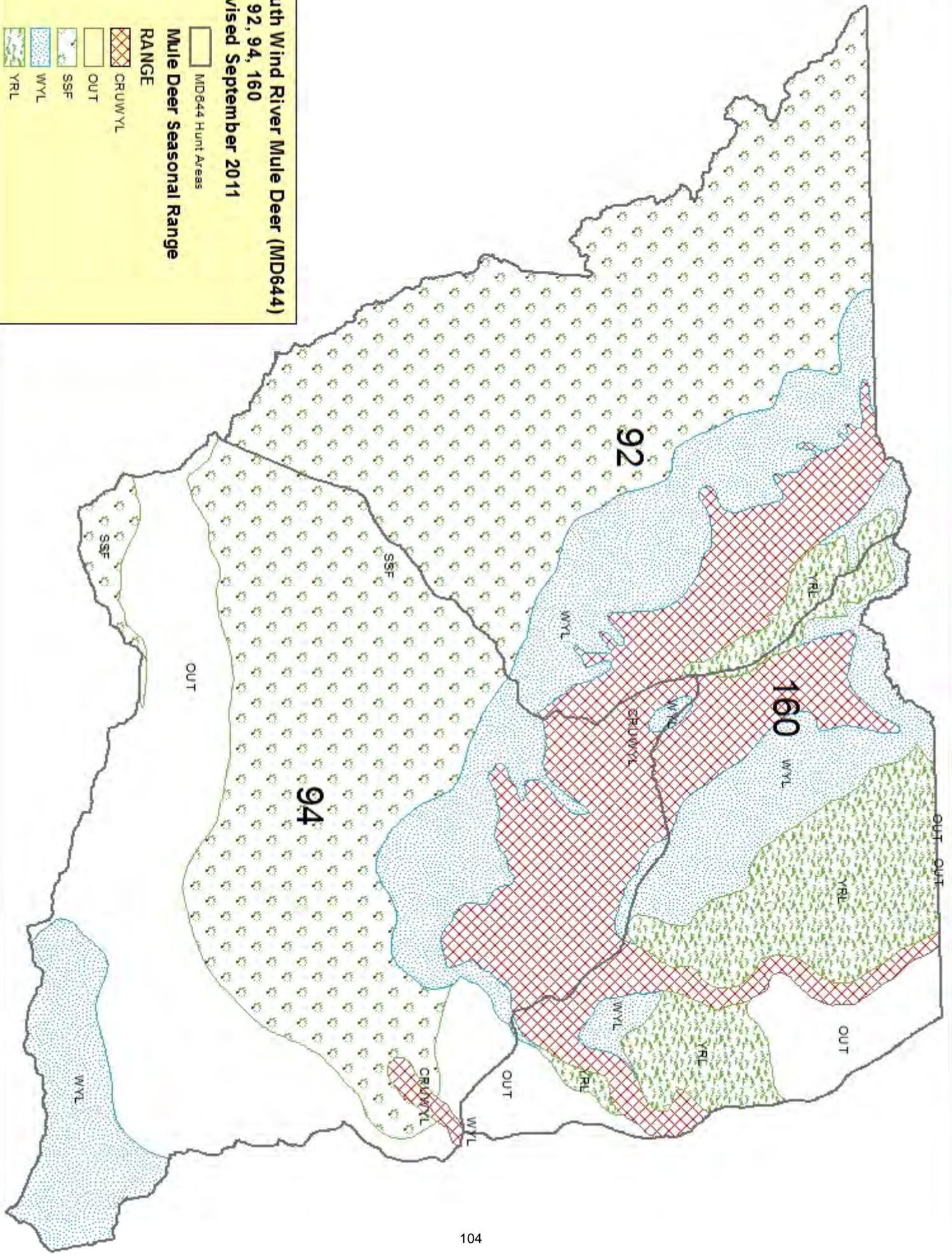
The 2016 seasons include removal of Hunt Area 160 Type 6 doe/fawn licenses previously issued to minimize damage on private lands in Lyons Valley. Landowners there have reported fewer problems with mule deer damage and indicate less need for those licenses. With Youth General License hunters being allowed to harvest “any deer”, we will work with landowners to provide opportunities to youth hunters in 2016 should the need arise to address any unforeseen damage issues.

Additionally, the Department and our partners will begin implementation of many of the Working Group’s recommendations for research, habitat, and other categories, beginning with capture and collaring of 20 mule deer in the South Wind River herd unit in March 2016 to monitor migration and movement and continuation of habitat improvement projects including South Pass aspen regeneration and Red Canyon cheatgrass control.

The 2016 season structure should result in a harvest of approximately 740 mule deer, including 700 bucks, along with 40 does. This should allow population growth to about 9,300 mule deer, moving the herd toward objective.

South Wind River Mule Deer (MDD644)
HA 92, 94, 160
Revised September 2011

-  MDD644 Hunt Areas
- Mule Deer Seasonal Range**
- RANGE**
-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL



2015 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD646 - SWEETWATER

HUNT AREAS: 96-97

PREPARED BY: STAN HARTER

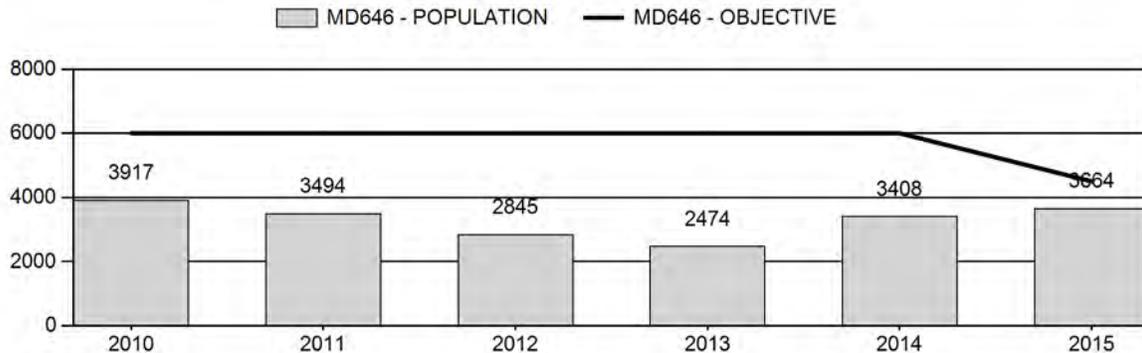
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	3,228	3,664	3,925
Harvest:	480	543	425
Hunters:	1,055	978	900
Hunter Success:	45%	56%	47 %
Active Licenses:	1,106	978	900
Active License Success:	43%	56%	47 %
Recreation Days:	4,261	3,267	3,000
Days Per Animal:	8.9	6.0	7.1
Males per 100 Females	22	21	
Juveniles per 100 Females	77	90	

Population Objective (± 20%) :	4500 (3600 - 5400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-18.6%
Number of years population has been + or - objective in recent trend:	3
Model Date:	02/19/2016

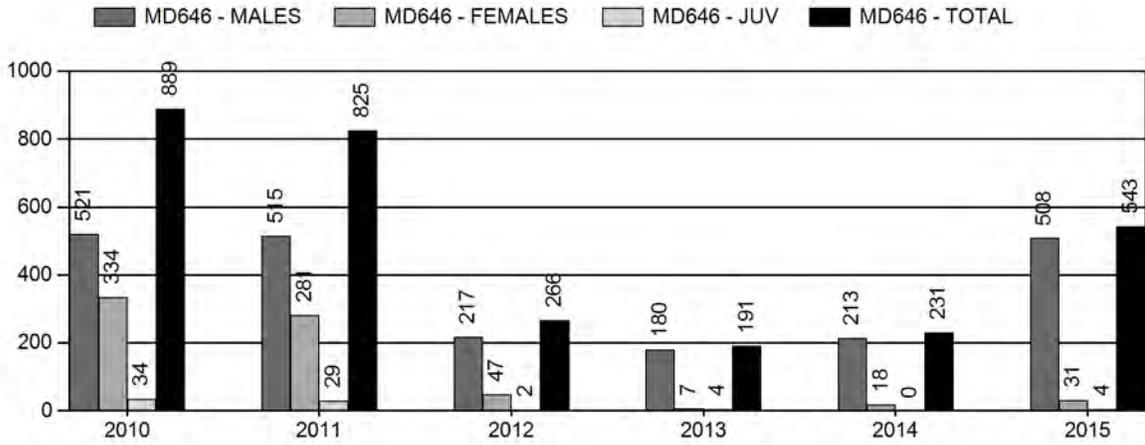
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.9%	1.4%
Males ≥ 1 year old:	62.0%	51.0%
Juveniles (< 1 year old):	0%	0%
Total:	12.7%	9.7%
Proposed change in post-season population:	+13.3%	+7.1%

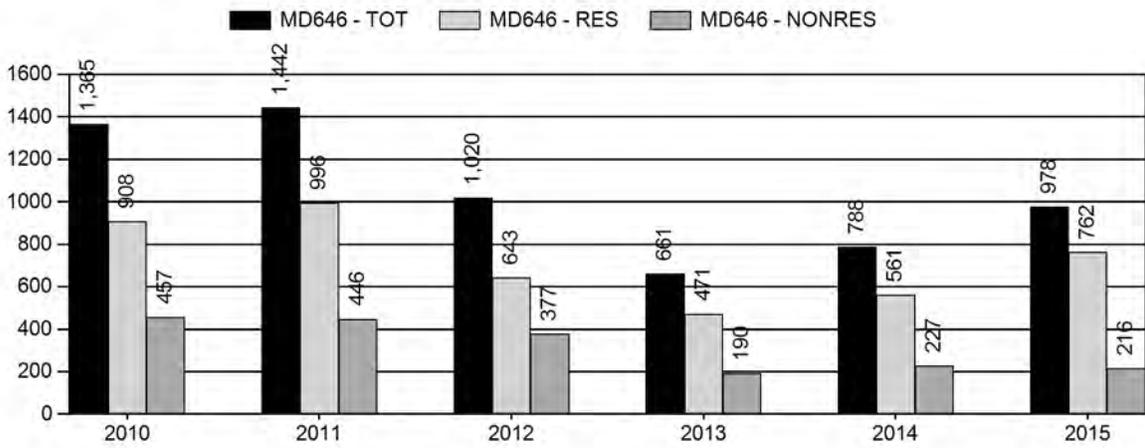
Population Size - Postseason



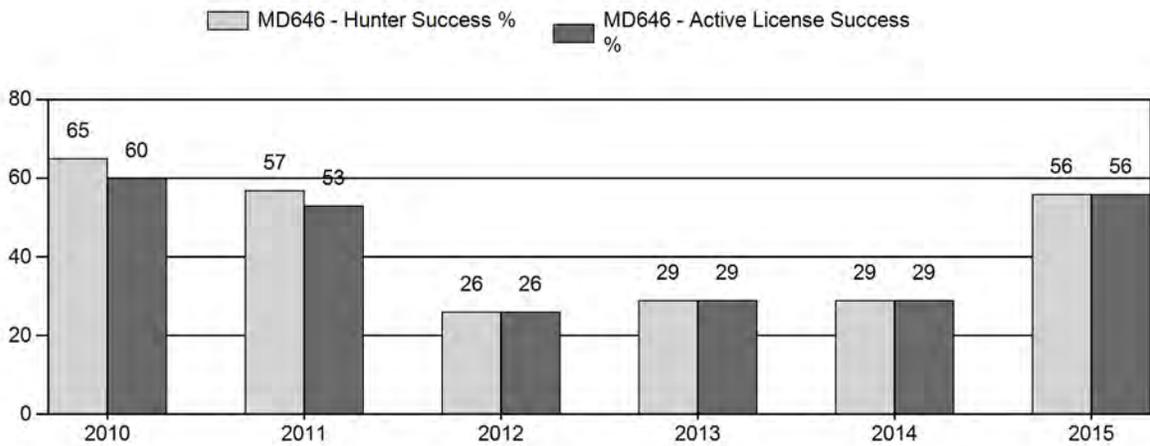
Harvest



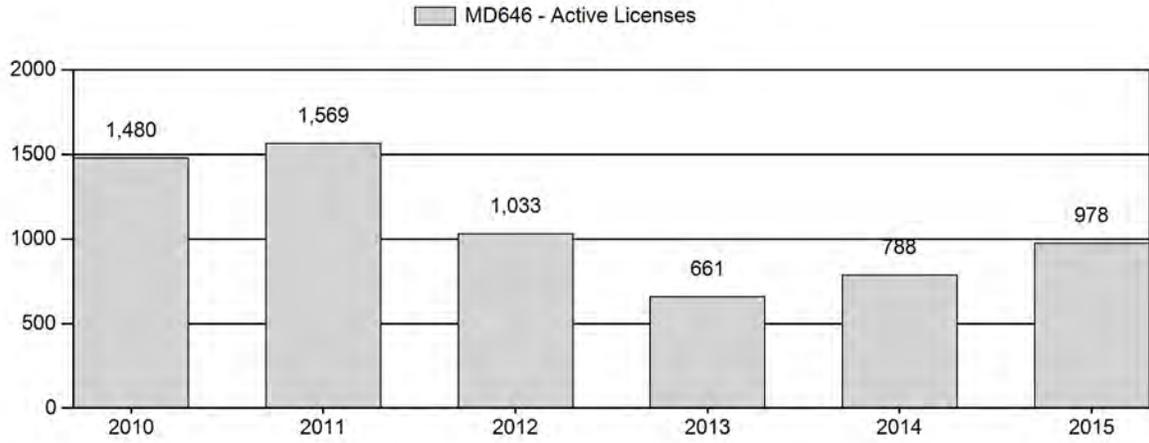
Number of Hunters



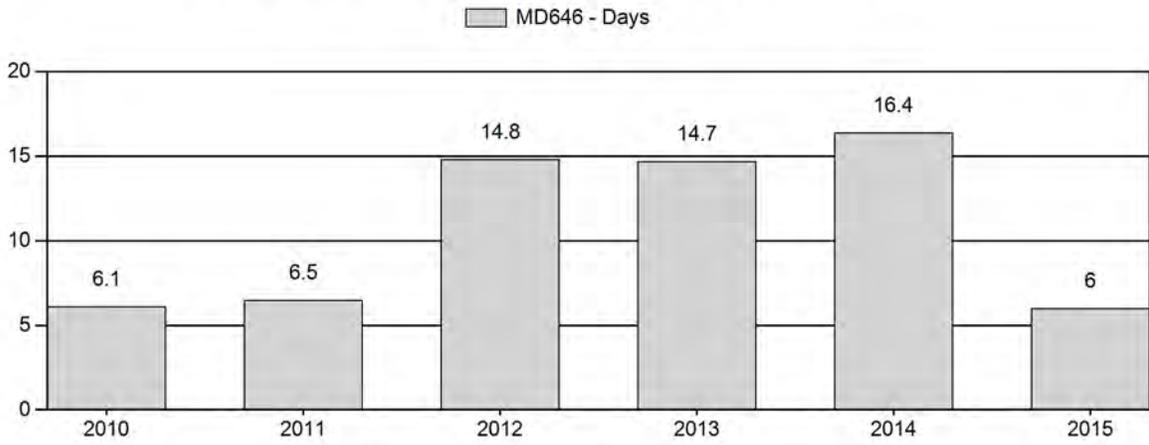
Harvest Success



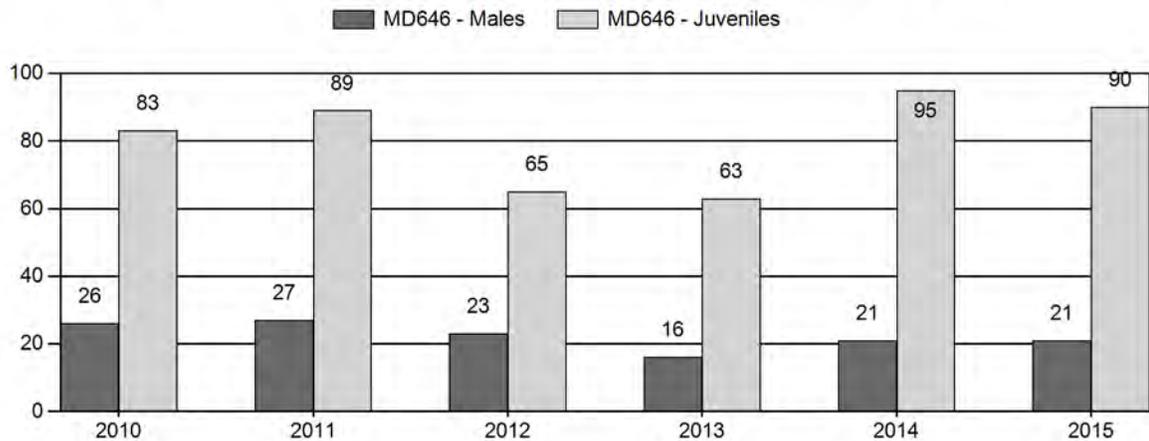
Active Licenses



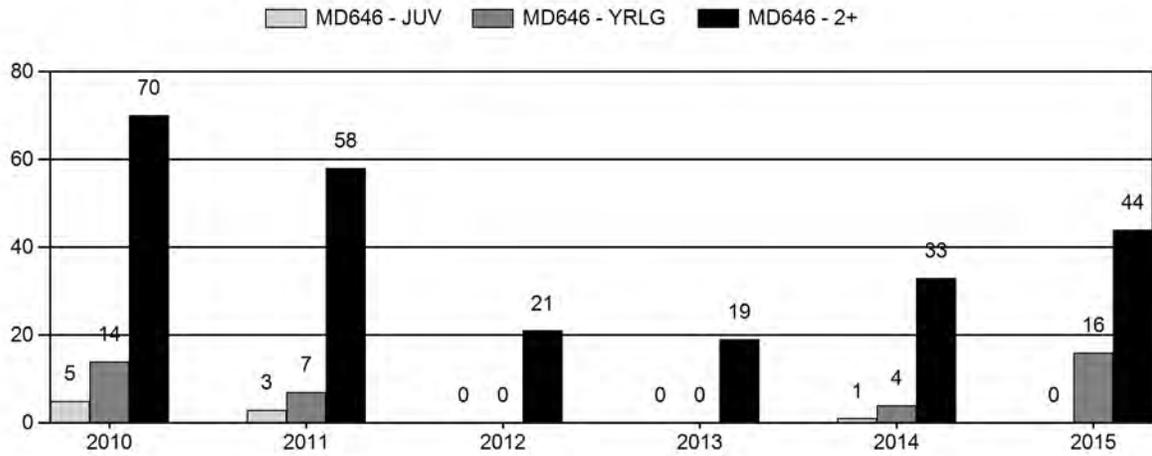
Days per Animal Harvested



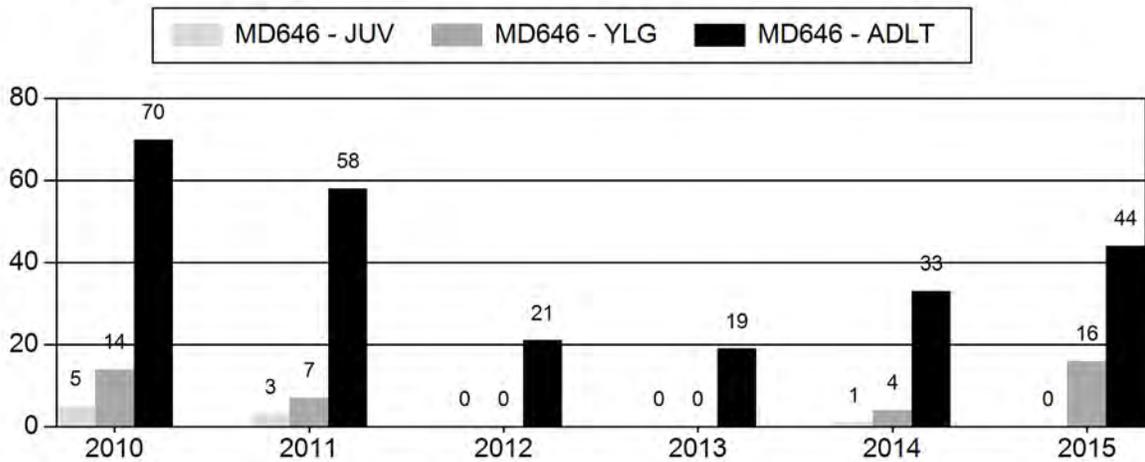
Postseason Animals per 100 Females



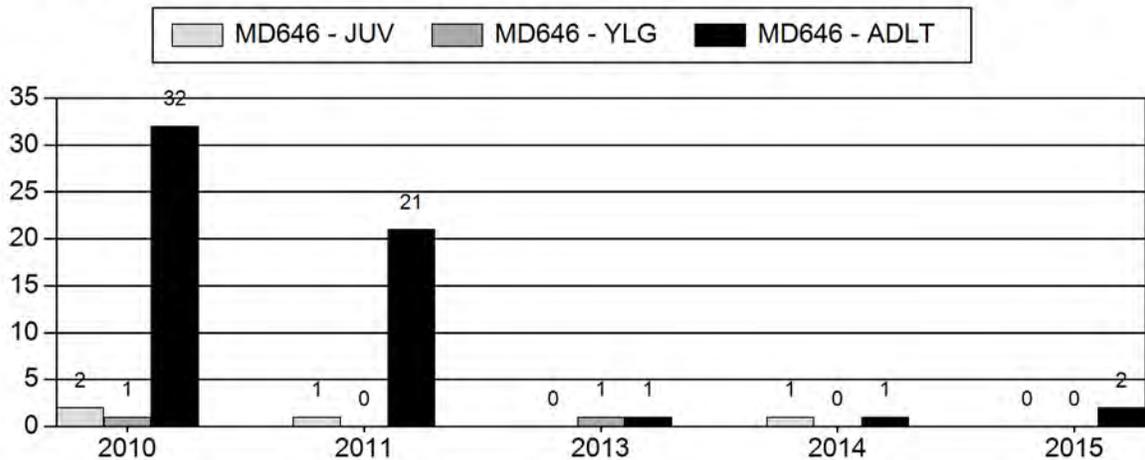
Age Structure of Field Checked Males



Age Structure Data (Field and Laboratory) - Male



Age Structure Data (Field and Laboratory) - Female



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD646 - SWEETWATER

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females			Young to			
		Ylg	2+ CIs 1	2+ CIs 2	2+ CIs 3	2+ UnCIs	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	3,917	72	0	0	0	82	154	12%	598	48%	494	40%	1,246	1,549	12	14	26	± 2	83	± 5	66
2011	3,494	49	0	0	0	101	150	13%	547	46%	486	41%	1,183	1,616	9	18	27	± 3	89	± 6	70
2012	2,845	48	36	18	4	0	106	12%	462	53%	302	35%	870	996	10	13	23	± 3	65	± 5	53
2013	2,474	67	42	18	1	0	128	9%	813	56%	514	35%	1,455	813	8	8	16	± 1	63	± 3	55
2014	3,408	52	32	11	1	0	96	10%	451	46%	429	44%	976	1,281	12	10	21	± 3	95	± 7	78
2015	3,664	92	42	14	1	0	149	10%	719	48%	644	43%	1,512	1,456	13	8	21	± 2	90	± 5	74

2016 HUNTING SEASONS
Sweetwater Mule Deer Herd Unit (MD 646)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
96		Oct. 15	Oct. 21		General	Antlered mule deer or any white-tailed deer
96		Oct. 15	Oct.23		General Youth License	Any Deer
97		Oct. 15	Oct. 21		General	Antlered mule deer or any white-tailed deer
97		Oct. 15	Oct.23		General Youth License	Any Deer
97	3	Oct. 15	Nov. 30	25	Limited Quota	Any white-tailed deer
97	8	Oct. 15	Nov. 30	25	Limited Quota	Doe or fawn white-tailed deer
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

Region E Non-Resident Quota: 600

MANAGEMENT EVALUATION

Current Post-Season Population Management Objective: 4,500

Management Strategy: Recreation (20-29 bucks/100 does)

2015 Post-season Population Estimate: ~3,700

2016 Post-season Population Estimate: ~3,900

Herd Unit Issues

The management objective was reviewed in 2015, and the long-term post-season objective of 6,000 mule deer was reduced to 4,500. The secondary objective of Recreational Management Strategy (20-29 bucks/100 does) will continue. Population growth occurred from 2002 to 2009, but declined from 2010 to 2013, due to poor fawn survival/recruitment as a result of intense drought. However, fawn/doe ratios have significantly improved the last two years, demonstrating the population seems capable of recovery with improved habitat conditions which follow increased precipitation. The 2015 post-season population reached nearly 3,700 mule deer, 19% below objective.

Weather

Precipitation

Precipitation information is generated from the PRISM (Parameter-elevation Relationships on Independent Slopes Model) dataset developed by Oregon State University. For the Sweetwater Herd Unit, precipitation information is based on 1 weather station located near Jeffrey City, WY. Precipitation from October 2014 through September 2015 was higher than the 30-year average (Table 1). Precipitation levels during the low-elevation growing season (April-June 2015) and at higher elevation SSF ranges (May- July 2015) were also notably higher than the 30-year averages. The majority of the precipitation came during the growing season (April-July) and was followed by a mild, dry fall. Precipitation in Jeffrey City was 80% above average for the first four months of 2016, with another 2.42 inches of rain falling in the first week of May, and should lead to excellent summer forage conditions.

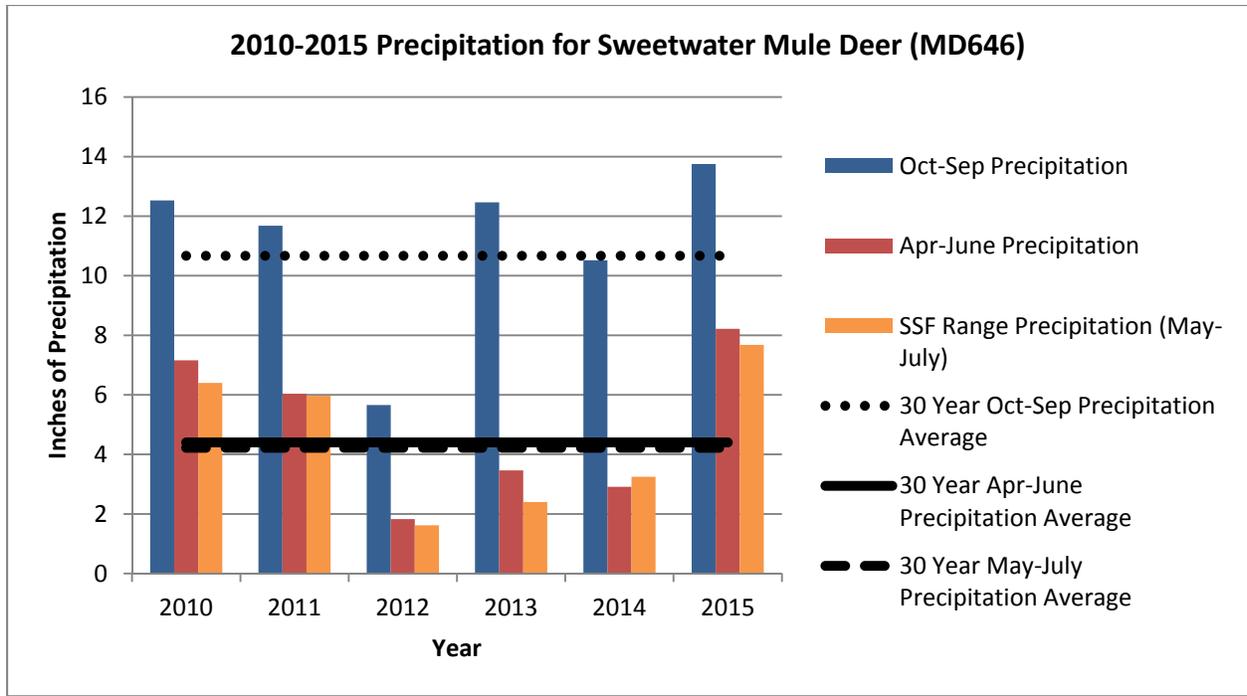


Table 1. Precipitation values for Sweetwater Mule Deer (MD644) from 2010 – 2015.

Winter Conditions

Winter 2015-2016 has been relatively mild with temperatures averaging 22.67°, which is considered normal for the November-February time period in the Jeffrey City Area. A total of 22.1” of snowfall has been recorded in Jeffrey City from November 2015-February 2016. This is 6.1” below the 30-year average. The limited snowfall, while indicating relatively mild winter conditions for wildlife, is of some concern for vegetation production in the coming growing season.

Habitat

Precipitation was well above average during the spring/early summer of 2015. Abundant growing season precipitation (April-June) provided ample forage across the herd unit for mule deer does in early parturition. This, in turn, likely contributed to the higher fawn/doe ratio observed in the Sweetwater Herd Unit (90 fawns/100 does).

Field Data

Classification flights were conducted in late-November 2015, with winter ranges surveyed using a Bell 206B Jet Ranger helicopter. New snow fell over Thanksgiving, providing improved detection of mule deer, leading to the 3rd highest classification sample ever collected of 1,512 mule deer. The 2015 post-season fawn/doe ratio dropped slightly to 90J/100F, still the second highest in over 20 years, probably due to a high number of yearling does which have yet to begin producing fawns. Yearling bucks improved from 12YM/100F in 2014 to 13YM/100F in 2015, in spite of removal of antler restrictions (APRs) for the 2015 hunting season, thus removing protection for yearling bucks. Increased buck harvest, combined with completion of classifications slightly post-rut, led to fewer observations of bucks than expected. Antler width class data have been collected (Figure 1) during classification surveys the past 4 years. In 2015,

nearly 90% of the mule deer bucks classified in the Sweetwater Herd Unit were either yearlings or have Class 1 antler widths (adult bucks $\leq 18''$ wide), indicating a shortage of older age-class bucks despite reduced harvest levels experienced with APRs in 3 previous hunting seasons. In essence, APRs were forcing harvest on older age class bucks, while replacement levels were quite low due to low fawn survival/yearling recruitment.

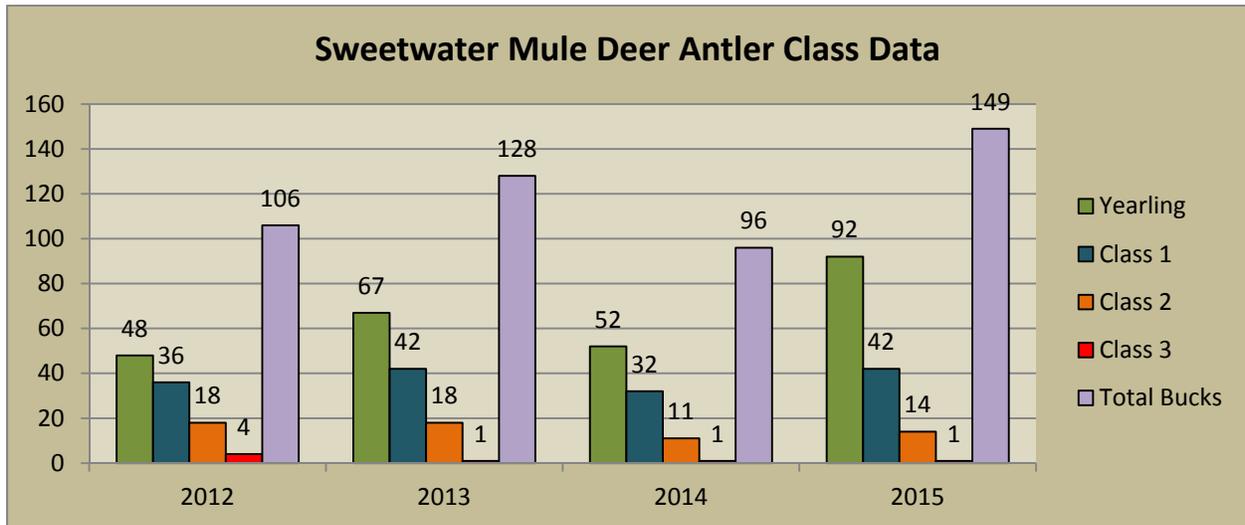


Figure 1. Antler class data from classification surveys in the Sweetwater Mule Deer Herd Unit, 2012 – 2015.

Harvest Data

Weather during fall 2015 was quite moderate in the Sweetwater Herd Unit. Mostly dry conditions allowed mule deer and hunters to be dispersed across the herd unit a possible factor contributing to fewer crowding complaints than expected after lifting APRs. Hunters reported improved numbers of mule deer overall, but with low numbers of adult bucks. Removal of APRs led to much higher buck harvest, greater success, and reduction of hunter effort per harvest. The number of general license hunters increased 24% compared with the average number of hunters during the APR years (2012 – 2014), and total buck harvest increased 138% compared with buck harvest in 2014. The total harvest of 508 mule deer bucks equates to taking 62% of the pre-season bucks from this population, which is unlikely to be sustainable. With a reduction in the adult buck/doe ratio to 8AM/100F and a slight increase of yearling buck/doe ratio to 13YM/100F, the total ratio remained constant, but we are concerned about continued harvest at such a high level. Hunter success was up to 56%, compared with an average of 28% during the latest APR seasons. The “days per animal harvested” statistics for general licenses, as an indicator of hunter effort, dropped by more than 10 days to 6.0 days/animal in 2015. Antlerless mule deer harvest as allowed by youth and archery hunters, resulted in minimal take of 31 does and 4 fawns.

Antler width class data have been collected since 2012 during field checks and at check stations. This coincides with the 3 years of 3-point APRs in place for the Sweetwater Herd Unit. Antler widths have not improved over the last 4 years, and the proportion of Class 1 bucks harvested has increased compared with Class 2 and Class 3 bucks (Figure 2). This follows the general trend in antler width classes observed in post-season classification surveys outlined in the previous section.

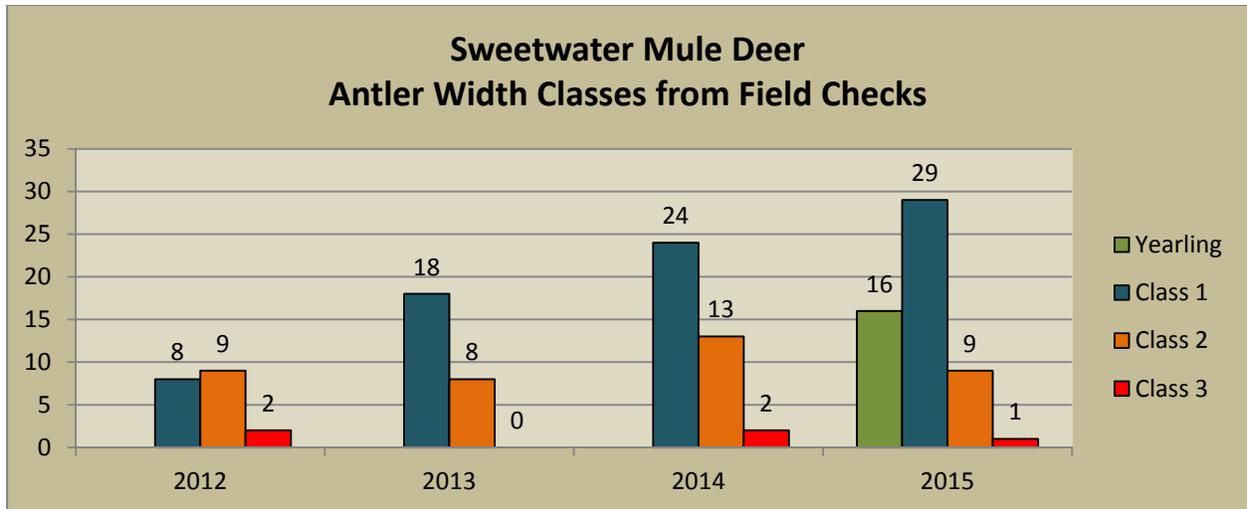


Figure 2. Antler class data as measured during field checks and at check stations, 2012 –2015.

Population

A spreadsheet model developed for this population in 2012 has been updated, utilizing 2015 post-season classification and harvest data. The TSJ, CA model was selected as the best fit model and produces population estimates aligned with trends observed in buck harvest, fawn recruitment, and buck/doe ratios. It also matches professional perceptions of field personnel and public opinion about mule deer population trends. While this model does not produce the lowest Relative AICc value, it provides believable trends and population estimates, whereas both the CJ/CA and SCJ/CA models do not. Utilizing traditional classification and harvest data, along with this post-season estimate, the spreadsheet model (TSJ, CA) produces a post-season 2015 estimate of 3,662 mule deer, and because actual survival estimates are lacking, is considered Fair.

Management Summary

Past management included implementation of antler point restrictions (4-point in 2004 and 2005 and 3-point in 2012-14), in response to declines in buck/doe ratios and population trends, and perceived increases in hunter numbers. Expectedly, both APR types resulted in lower hunter numbers and reduction of overall buck harvest. The 4-point APR implemented in 2004 and 2005 coincided with improved buck/doe ratios as a result of improved fawn survival/yearling buck recruitment with favorable weather patterns and improved, albeit short-term, habitat conditions. The recent 3-point APR seasons did not lead to dramatic improvements in buck/doe ratios, largely due to drought concurrent with the first 2 years of APRs. However, buck/doe ratios did improve substantially in 2015, following improvements in fawn survival/yearling recruitment. But the total buck/doe ratio of 21M/100F remains at the low end of the Recreational Management range.

This herd unit is part of the Lander/Green Mountain Mule Deer Initiative, complete with a public “Working Group”. Short-term recommendations for the Sweetwater Mule Deer Herd Unit were presented to the Department in December 2014. Long-term recommendations followed, with final recommendations presented to the Department in August 2015. These recommendations were comprehensive in nature, incorporating the following prioritized management issues: 1) Research and Monitoring, 2) Adaptive Management, 3) Hunting Season Structure, 4) Habitat

Management, 5) Education and Public Outreach, 6) All Terrain Vehicles (ATVs), 7) Predator Management, and 8) Wildlife Law Enforcement and WGFD Field Presence.

The recommended limited quota season structure will not be implemented in 2016. Some of the Working Group's long-term hunting season recommendations are consistent with our management direction and will be implemented for the 2016 seasons.

Youth hunters with General Licenses will have 2 days of additional opportunity following the "regular" season with their licenses valid through October 23 for any deer, to promote youth hunter retention and recruitment.

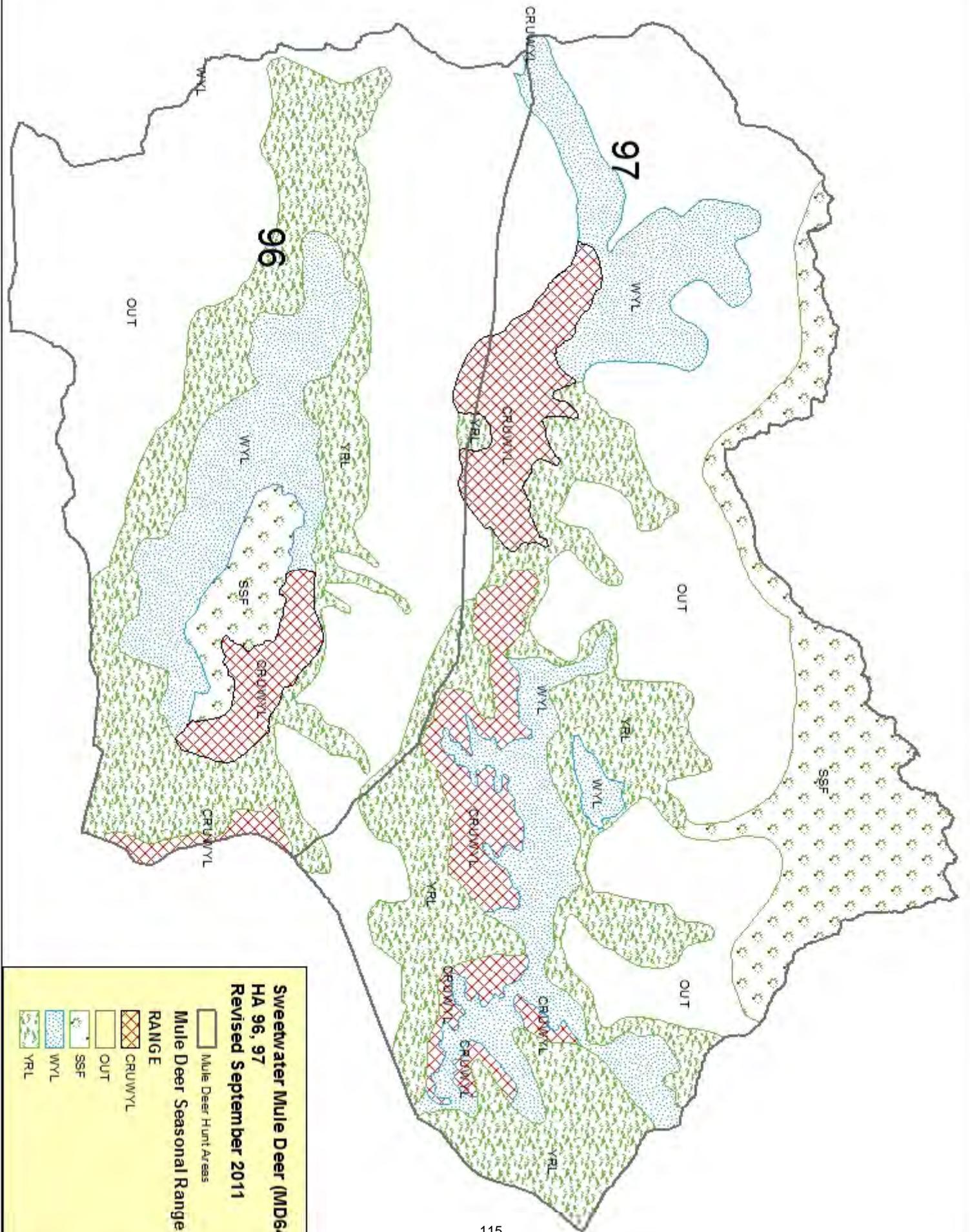
In response to concern about low buck/doe ratios, we are shortening the General License season by 1 day. All General License seasons will end on Friday, October 21, instead of the traditional closing date of October 22. This will allow for youth hunting opportunity as described above.

Specific hunts for white-tailed deer are again being offered with longer seasons running from October 15 through November, with 25 Type 3 (Any white-tailed deer) and 25 Type 8 (Doe or fawn white-tailed deer) licenses valid in Hunt Area 97. White-tailed deer numbers have increased following the 2013 EHD die-off, but apparently not to the same level as yet. With most white-tailed deer hunting opportunities occurring on privately owned lands, these seasons should apply harvest pressure on white-tailed deer in appropriate locations to increase harvest.

Past hunting seasons in the Sweetwater mule deer herd have experienced elevated numbers of non-resident hunters, particularly in Hunt Area 96. The 2015 harvest survey indicated non-residents made up 22% of the total number of hunters in the Sweetwater herd unit. As such, there is no need to adjust the non-resident Region E general license quota in 2016 to further reduce the percentage of non-residents hunting in the Sweetwater herd unit.

Additionally, the Department and our partners will begin implementation of many of the Working Group's recommendations for research, habitat, and other categories, beginning with an aspen regeneration/riparian restoration project on private and BLM lands on the north side of Green Mountain. In addition, the Department is participating in development phase communications regarding a research project being proposed to study impacts of free-ranging horses on wildlife and livestock in the Green Mountain area.

The 2016 season structure should result in a harvest of approximately 400 buck mule deer and about 25 does and fawns. With anticipated fawn survival, this should allow for slight population growth to just over 3,900 mule deer after the 2016 hunting season, moving toward objective.



2015 - JCR Evaluation Form

SPECIES: Mule Deer
 HERD: MD647 - FERRIS
 HUNT AREAS: 87

PERIOD: 6/1/2015 - 5/31/2016
 PREPARED BY: GREG HIATT

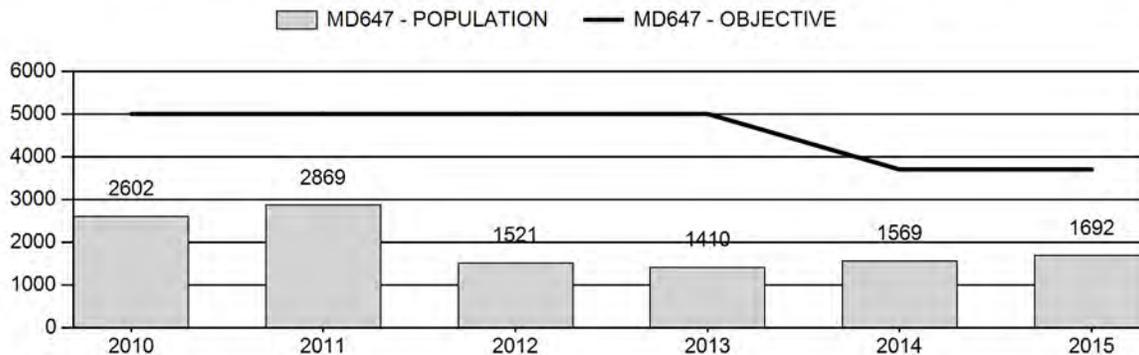
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	1,994	1,692	1,768
Harvest:	70	38	55
Hunters:	89	48	70
Hunter Success:	79%	79%	79 %
Active Licenses:	89	48	70
Active License Success:	79%	79%	79 %
Recreation Days:	446	196	320
Days Per Animal:	6.4	5.2	5.8
Males per 100 Females	38	44	
Juveniles per 100 Females	49	67	

Population Objective (± 20%) : 3700 (2960 - 4440)
 Management Strategy: Special
 Percent population is above (+) or below (-) objective: -54.3%
 Number of years population has been + or - objective in recent trend: 8
 Model Date: 2/27/2016

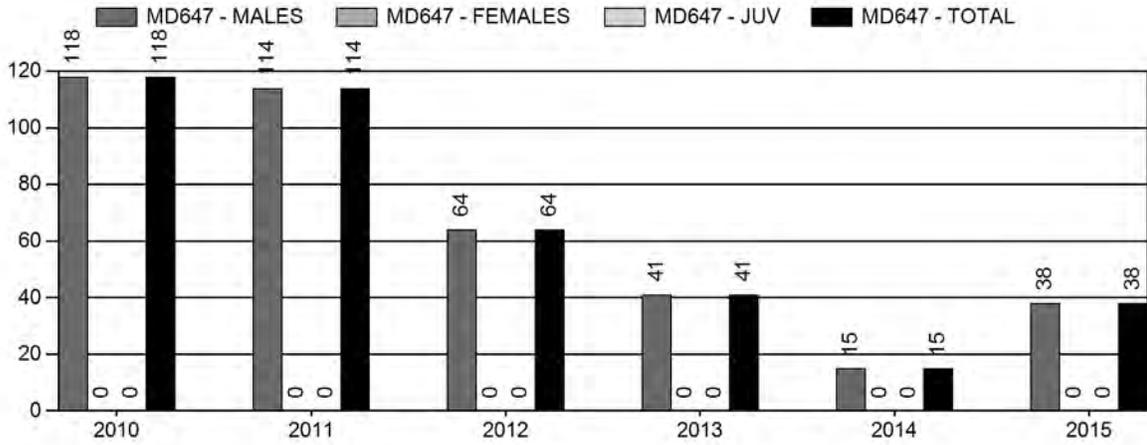
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	8.8%	11.1%
Juveniles (< 1 year old):	0%	0%
Total:	2.1%	3.0%
Proposed change in post-season population:	+1.1%	+4.5%

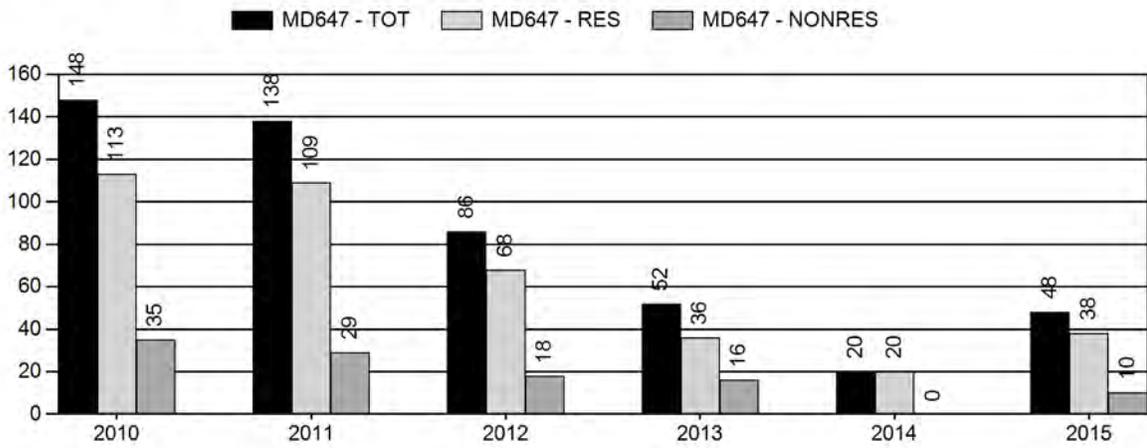
Population Size - Postseason



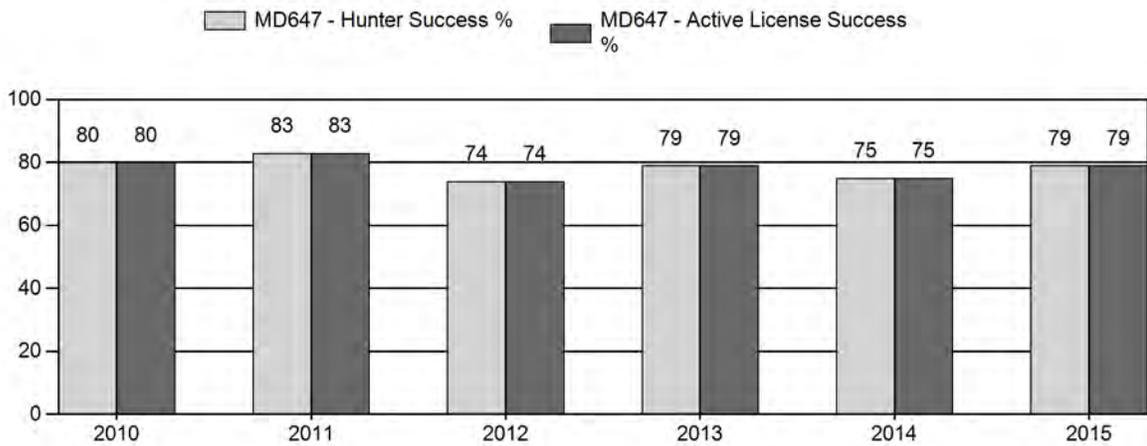
Harvest



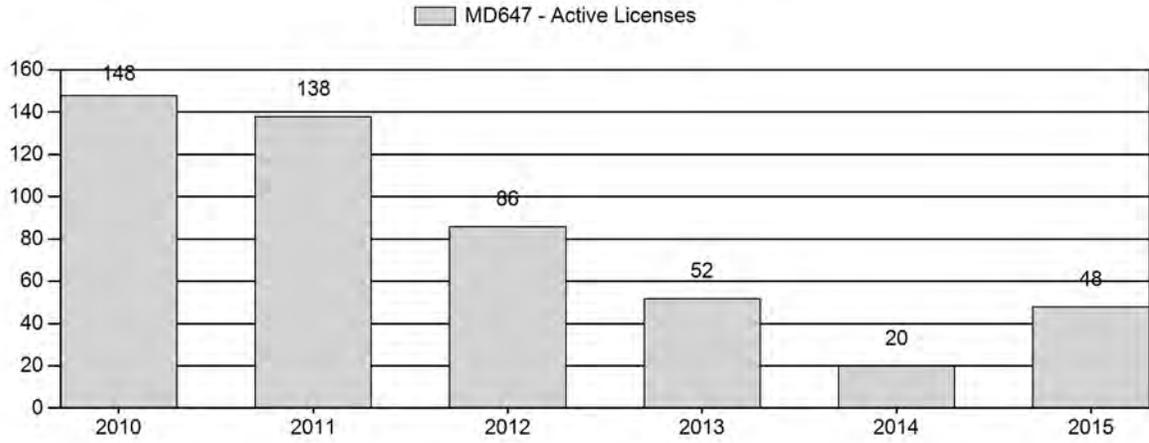
Number of Hunters



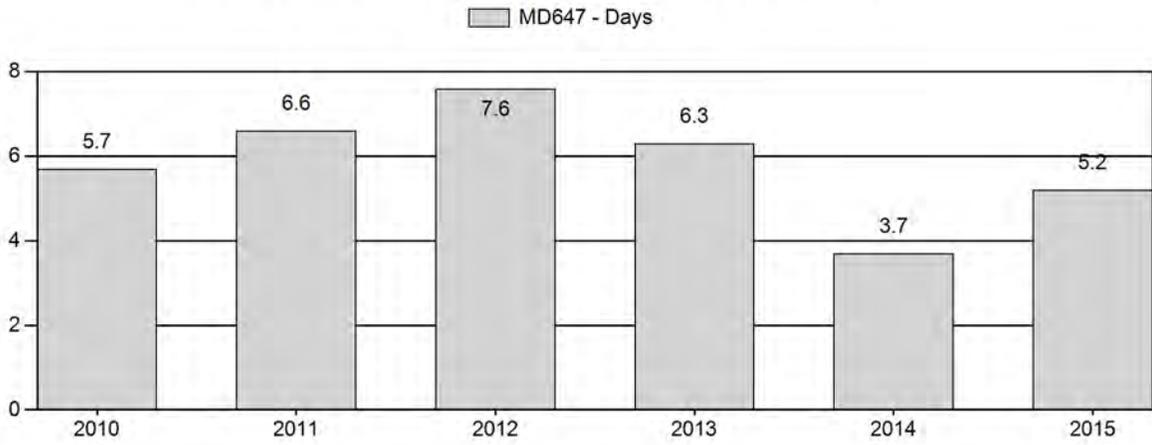
Harvest Success



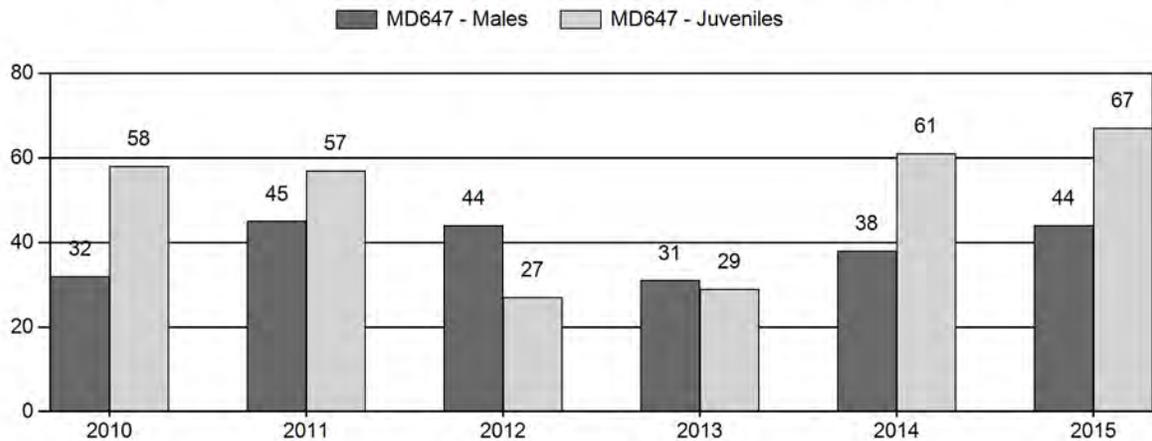
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD647 - FERRIS

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	2,602	51	0	0	0	71	122	17%	381	53%	222	31%	725	771	13	19	32	± 4	58	± 5	44
2011	2,869	50	0	0	0	111	161	22%	356	49%	204	28%	721	790	14	31	45	± 5	57	± 6	39
2012	1,521	0	0	0	0	0	125	26%	281	58%	75	16%	481	528	0	0	44	± 5	27	± 4	18
2013	1,410	14	0	0	0	58	72	20%	230	62%	66	18%	368	347	6	25	31	± 5	29	± 4	22
2014	1,569	42	0	0	0	105	147	19%	386	50%	234	31%	767	695	11	27	38	± 3	61	± 5	44
2015	1,692	65	105	72	25	0	267	21%	610	47%	411	32%	1,288	827	11	33	44	± 2	67	± 3	47

**2016 HUNTING SEASONS
FERRIS MULE DEER HERD (MD647)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
87	1	Oct. 15	Oct. 31	75	Limited quota	Antlered mule deer or any white-tailed deer
Archery 87		Sep. 1	Sep. 30			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
87	1	+25
Herd Unit Total	1	+25

Management Evaluation

Current Postseason Population Management Objective: 3,700

Management Strategy: Special

2015 Postseason Population Estimate: ~1,700

2016 Proposed Postseason Population Estimate: ~1,800

Herd Unit Issues

The management objective for the Ferris Mule Deer Herd Unit is a post-season population size objective of 3,700 deer. The current management strategy is special management, with buck:doe ratios allowed to exceed 29:100. The objective and management strategy were last publicly reviewed in 2014.

The 2015 post-season population estimate was about 1,700 deer with the population climbing slowly upward from a low of about 1,400 deer in 2013. The herd was last near objective size in 2007, with the previous peak being prior to the 1992-93 winter. Restricted hunting access to major blocks of private and checkerboarded lands has concentrated hunting pressure on the remaining portions of the area, making it difficult to manage buck numbers and quality in the accessible portions of the herd.

Weather

Severe drought in 2012 and 2013 was followed with improved precipitation in the latter half of 2014 which continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and the highest fawn crop since 2009, at 67 fawns:100 does.

Condition of mule deer going into the 2015-16 winter was good, and perhaps the best in generations. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

Lack of fire has resulted in decadent shrub stands encroached by conifer in large portions of this herd unit. Prolonged, severe drought has reduced the quantity and quality of forage for mule deer. Two browse transects have been established in this herd unit, but one was burned by fire in 2012 and the other was not read in 2015.

Over the past several years the Rawlins BLM has implemented prescribed burns in the Seminole and Ferris Mountains, partly to address conifer encroachment while also rejuvenating decadent mountain mahogany and bitterbrush stands. In the summer of 2012, two large wildfires in the Seminole Mountains and the eastern Ferris Mountains burned thousands of acres, including crucial mule deer winter habitat as well as year round habitats. These prescribed burns should benefit mule deer productivity with the return of young vigorous shrub complexes, but benefits from the wildfires will be longer term.

The Seminole Fire burned over 3,800 acres in the Seminole Mountains including areas within Morgan Creek WHMA. As in previous years following the fires, the Rawlins BLM again coordinated and funded aerial application of Plateau® in 2015 to mitigate cheatgrass spread on BLM and WGFD managed areas within the fire perimeter. The wildfire enveloped several previously planned prescribed burns, although not with the desired prescriptions.

Plans for additional prescribed fires in the Seminole Mountains, particularly on the Morgan Creek WHMA, have been accelerated to take advantage of the secure fire breaks provided by the 2012 wildfire.

Field Data

Despite conservative seasons, deer numbers slowly declined over the past two decades due to several severe winters and persistent drought conditions. Poor habitat conditions on most seasonal ranges have prevented the rapid population response seen after similar weather events in previous decades. Fawn:doe ratios have remained exceptionally low in most recent years, preventing recovery of the population, but improved to 61:100 in 2014 and 67:100 in 2015. Sample size increased by 68 percent in 2015, the largest sample since 2003, without changing the winter ranges covered or the number of helicopter survey hours.

The buck:doe ratio increased again to 44:100 in 2015, comparable to ratios recorded in 2011 and 2012. All of the increase was in the adult age class, from 27:100 in 2014 to 33:100 in 2015, with yearling ratios remaining stable at 11:100. Hunter access is greatly restricted to large portions of this herd, yielding segments of the population that are essentially unhunted. Rapid fluctuations in buck:doe ratios early in the previous decade are suspected to have been caused by changes in how observers surveyed between hunted and unhunted segments of the herd. Classification surveys the past nine years have attempted to uniformly cover all winter ranges, yielding more representative ratios. While ratios may no longer be as skewed, a significant proportion of the

bucks in the sample still come from areas with limited or no public access. Only 9 percent of the bucks in the sample were Class 3, compared to 7 percent in 2014. Roughly 64 percent were yearlings or Class 1.

Harvest Data

Hunter success improved slightly, from 75 percent to 79 percent and was near the five-year average, despite the increase in license quota. Hunter effort increased, but was still the second lowest average recorded in the past ten years. Both statistics suggest the number of bucks available for harvest has increased. With the high demand for licenses in this herd, hunters appear to be more selective about the quality of bucks they are willing to harvest. Only 38 deer were harvested, the second smallest harvest from this herd in over forty years, including several years with 4-point or better antler point restrictions.

Population

The Time-Specific Juvenile & Constant Adult Survival (TSJ/CA) spreadsheet model provided the best fit with observed buck:doe ratios for this herd. The model behaved predictably when 2015 classification and harvest data were added. Best fit was attained by altering the model to allow adult survival rates to fluctuate independently in 2007 and 2011, two years with severe winters. In addition, the initial population was limited to at least twice the classification sample for that year. The resulting model is considered “fair” and matched well with observed buck:doe ratios and predicted annual adult survival at 87 percent, a reasonable level. It also tracks more closely with classification sample sizes. AICc value for the model was slightly improved over the simpler SCJ,SCA model and vastly improved over the CJ,CA model. This model, which mimics changes in adult survival during severe winters, predicts population sizes roughly 15 percent lower than the simpler TSJ/CA model without the fluctuating adult survival rates during the 2007 and 2011 winters.

Fawn production in 2016 was projected at a 5-year average. The model predicts a slight increase in herd size, but also predicts an increase in the buck:doe ratios. As with many mule deer herds, herd growth appears to be limited by fawn production and survival. If improved precipitation seen in 2014 and 2015 continues, the large acreages of treated habitat may improve fawn production and survival and provide for more significant herd growth in the future.

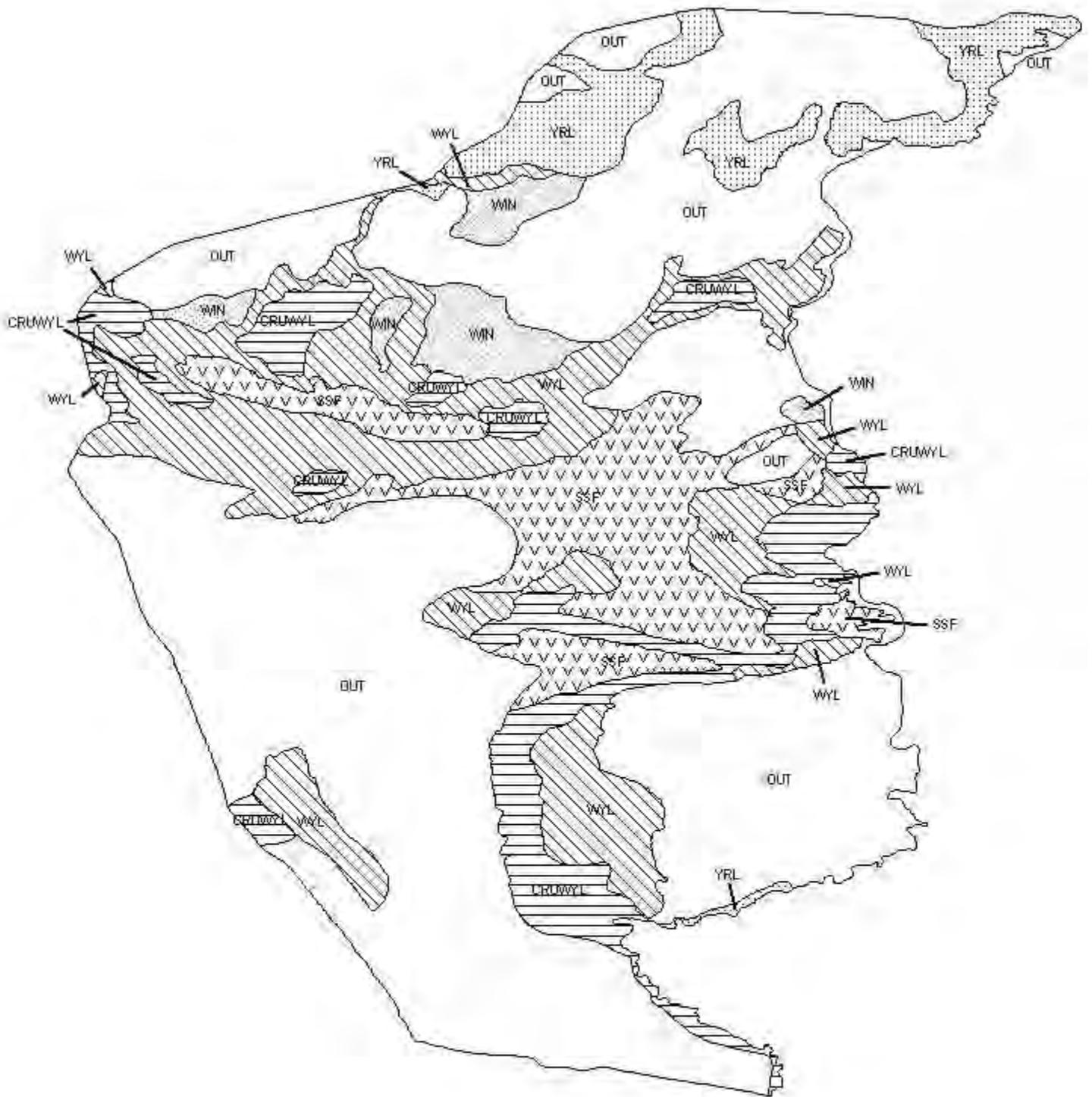
Management Summary

With the low numbers of permits allowed in this herd, hunters have come to expect better opportunities to see and harvest larger bucks than available in neighboring general license, more productive herds. High demand for these licenses is attributed as much to an expectation of high buck quality as it is for a less crowded hunting experience. To take advantage of the improved buck:doe ratio and apparent increase in deer numbers, the license quota is increased by 25 licenses in 2016.

Expected harvest would be roughly 55 buck deer. As in the previous 20 years, these licenses are valid only for antlered mule deer during the regular season. As in 2015, hunters will also be

allowed to harvest any white-tailed deer. The quota is 50 percent greater than available in 2015. With the herd so far below objective, no doe harvest is warranted and no doe/fawn licenses are available. Youth hunters and archers in the special archery season will still be able to harvest antlerless deer.

Opening date is traditional, coincides with hunts in neighboring areas in Regions D and E, and is consistent with the application booklets. Closing date is the same as in the previous 16 years. Archery season dates are standard and the same as used in previous years.



Mule Deer (MD647) - Ferris
 HA 87
 Revised - 3/91



2015 - JCR Evaluation Form

SPECIES: Mule Deer

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

HERD: MD648 - BEAVER RIM

HUNT AREAS: 90

PREPARED BY: GREG
ANDERSON

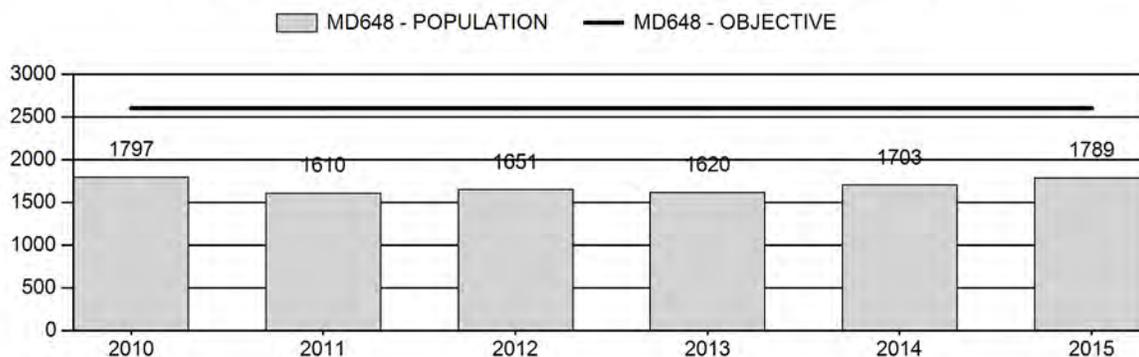
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	1,676	1,789	1,750
Harvest:	76	37	35
Hunters:	97	44	45
Hunter Success:	78%	84%	78 %
Active Licenses:	97	44	45
Active License Success:	78%	84%	78 %
Recreation Days:	604	327	325
Days Per Animal:	7.9	8.8	9.3
Males per 100 Females	33	49	
Juveniles per 100 Females	47	56	

Population Objective (± 20%) :	2600 (2080 - 3120)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-31.2%
Number of years population has been + or - objective in recent trend:	10
Model Date:	2/19/2016

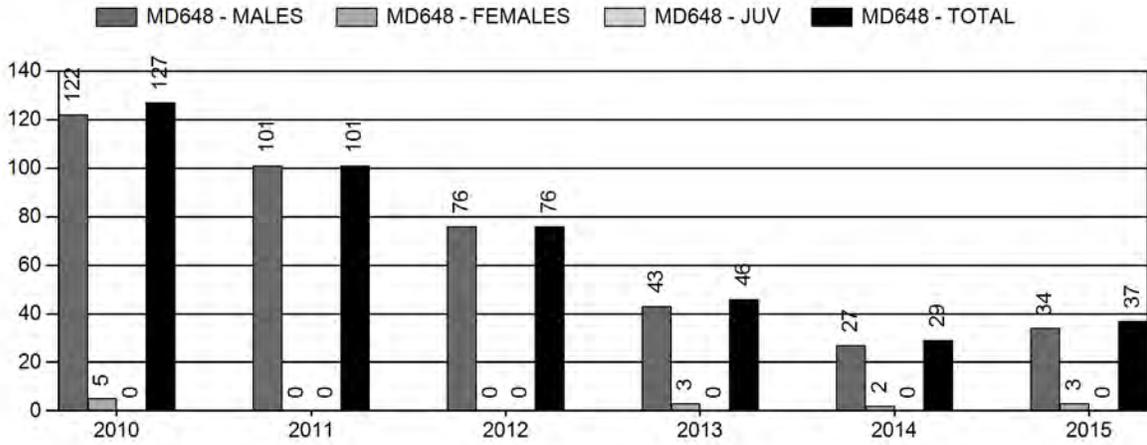
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	9%	9%
Juveniles (< 1 year old):	0%	0%
Total:	2%	2%
Proposed change in post-season population:	+0%	-2%

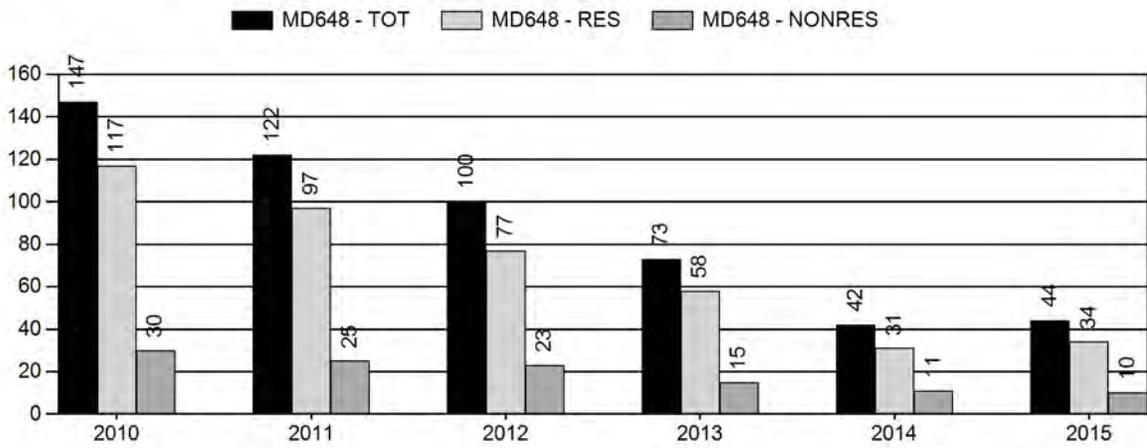
Population Size - Postseason



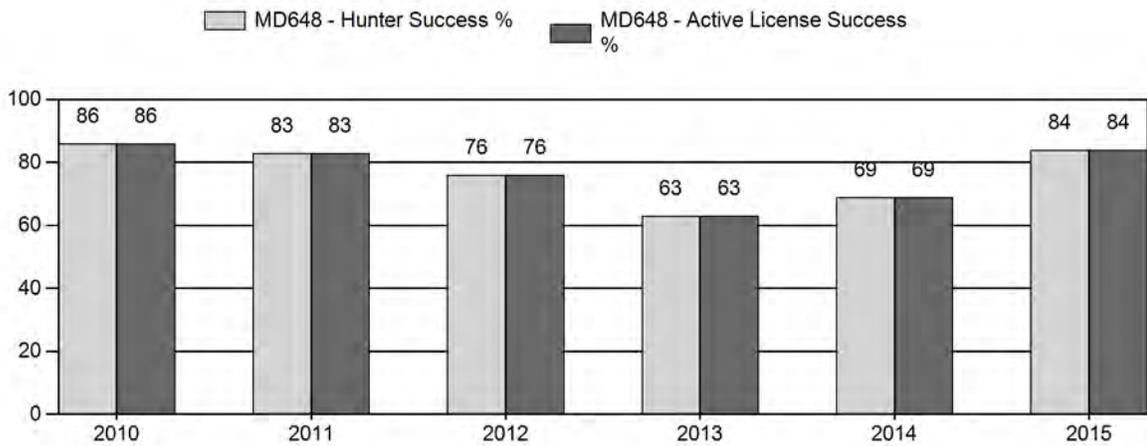
Harvest



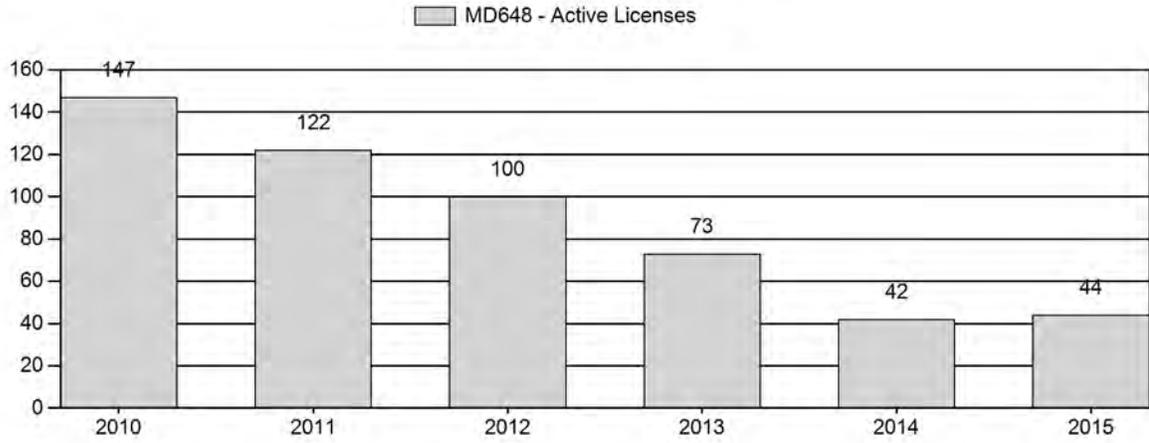
Number of Hunters



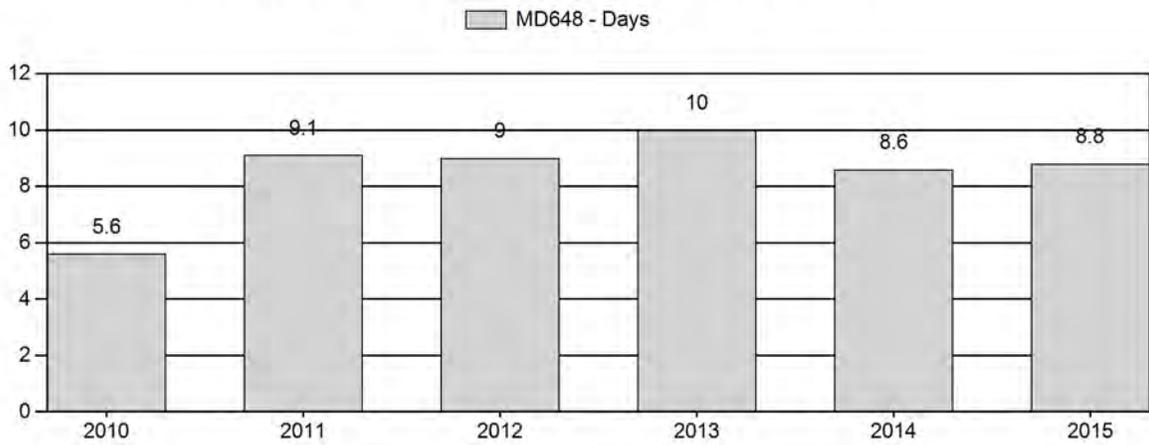
Harvest Success



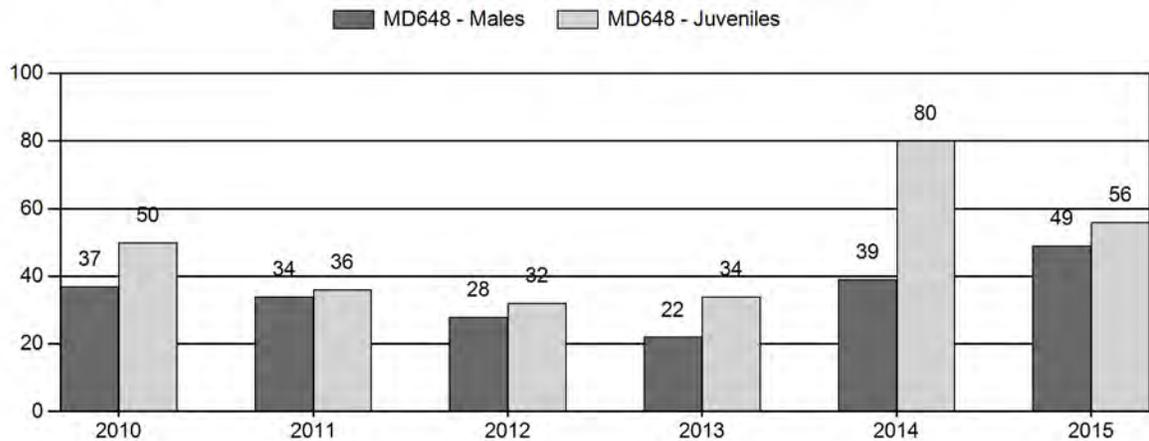
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD648 - BEAVER RIM

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females			Young to			
		Ylg	2+ CIs 1	2+ CIs 2	2+ CIs 3	2+ UnCIs	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	1,797	13	0	0	0	35	48	20%	129	54%	64	27%	241	582	10	27	37	± 8	50	± 9	36
2011	1,610	10	0	0	0	31	41	20%	119	59%	43	21%	203	389	8	26	34	± 7	36	± 8	27
2012	1,651	4	0	0	0	29	33	17%	120	62%	39	20%	192	362	3	24	28	± 7	32	± 7	25
2013	1,620	3	0	0	0	17	20	14%	90	64%	31	22%	141	362	3	19	22	± 7	34	± 9	28
2014	1,703	17	0	0	0	27	44	18%	114	46%	91	37%	249	936	15	24	39	± 8	80	± 13	58
2015	1,789	12	0	0	0	26	38	24%	77	49%	43	27%	158	710	16	34	49	± 12	56	± 13	37

**2016 HUNTING SEASONS
BEAVER RIM MULE DEER (MD 648)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
Opens	Closes					
90	1	Oct. 1	Oct. 31	50	Limited quota	Any deer
Archery		Aug. 15	Sep. 30			

Hunt Area	Type	Quota change from 2015
Total		

Management Evaluation

Current Postseason Population Management Objective: 2,600

Management Strategy: Special

2015 Postseason Population Estimate: ~1,800

2016 Proposed Postseason Population Estimate: ~1,800

Management Issues

The Beaver Rim mule deer herd has a post-season population objective of 2,600 and has a special management designation. The population objective has been in place since 1994. Most recently, the objective was reviewed at a series of public meetings and by the Commission in 2015 and remained unchanged.

The landscape in this herd unit has remained relatively undisturbed compared to neighboring herd units. That said vegetation throughout much of the area has been in poor condition for a number of years due to drought. In particular, the mid-2000's, 2012, and 2013 were extremely dry. No vegetation data is collected in the herd unit, but casual observation indicated new growth was almost non-existent in both 2012 and 2013. In contrast, vegetation growth in 2014 and 2015 appeared to be well above average. It is believed recent drought conditions resulted in a substantial population decline from 2010 through 2013. Casual observations suggest the population increased over the past 2 years.

Habitat/Weather

This population was once significantly larger than it currently is. The population declined dramatically in the early 1990's following a catastrophic winter die-off. Deer numbers then languished for over a decade. The population showed signs of a slow, steady increase from 2000 through 2010. A harsh winter in 2010 followed by extreme drought in 2012 and 2013 resulted in a population decline through 2013. While no vegetation data is collected in the herd unit, casual

observations suggest vegetation production in 2014 and 2015 was outstanding. Most of the areas in central Wyoming saw excellent herbaceous as well as browse production in 2015. Above average feed availability combined with a mild fall contributed to deer entering winter in excellent body condition.

Field/Harvest Data/Population

Due to low deer densities in the herd unit, classification sample sizes have generally been far below desired levels for the population. That said, deer seen during classification surveys declined consistently from 2010 through 2013 concurrent with a perceived population decline. In 2015 personnel classified 158 mule deer. The sample size was less than 1/4 of the desired number for accurately calculating confidence intervals around age/sex ratios. Low classification samples have been the norm for well over a decade in this herd. As such, all age/sex ratio data should be viewed with caution. The small classification sample in 2015 yielded a fawn/doe ratio of 56/100. This is well above the 5-year average of 46/100. While the ratio is suspect due to the low sample size, it is likely this population had good recruitment in 2015 associated with favorable weather and feed conditions. Other game populations in the vicinity also saw improved recruitment in 2015. Concurrent with a higher than average fawn/doe ratio, the 2015 buck/doe ratio of 49/100 was also higher than the 5-year average of 32/100. Good fawn recruitment as well as an increasing buck/doe ratio in 2014 and 2015 both indicate growth in this population.

Similar to classification data, both harvest success and the days/animal statistic indicate hunt quality and likely the population declined from 2010 to 2013 (Figs. 1 and 2). During this time period, hunter success declined and the days/animal increased. Most notably, Type 1 license success was 63% and 69% in 2013 and 2014 respectively and are the lowest in the past 10 years (Fig. 1). Harvest success did increase each of the last 2 years and was 84% in 2015. This was above the 10 year average of 77% and indicative of population growth over the past 2 years. At the same time, the days/animal decreased to 8.8 in 2015. This was greater than the 10-year average of 7.5, but lower than the values from 2010 through 2013.

Figure 1. Type 1 license success in deer area 90.

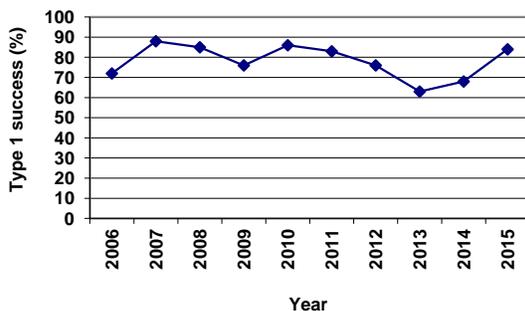
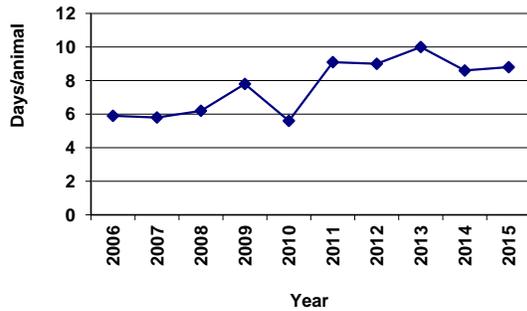


Figure 2. Type 1 license days/animal statistic

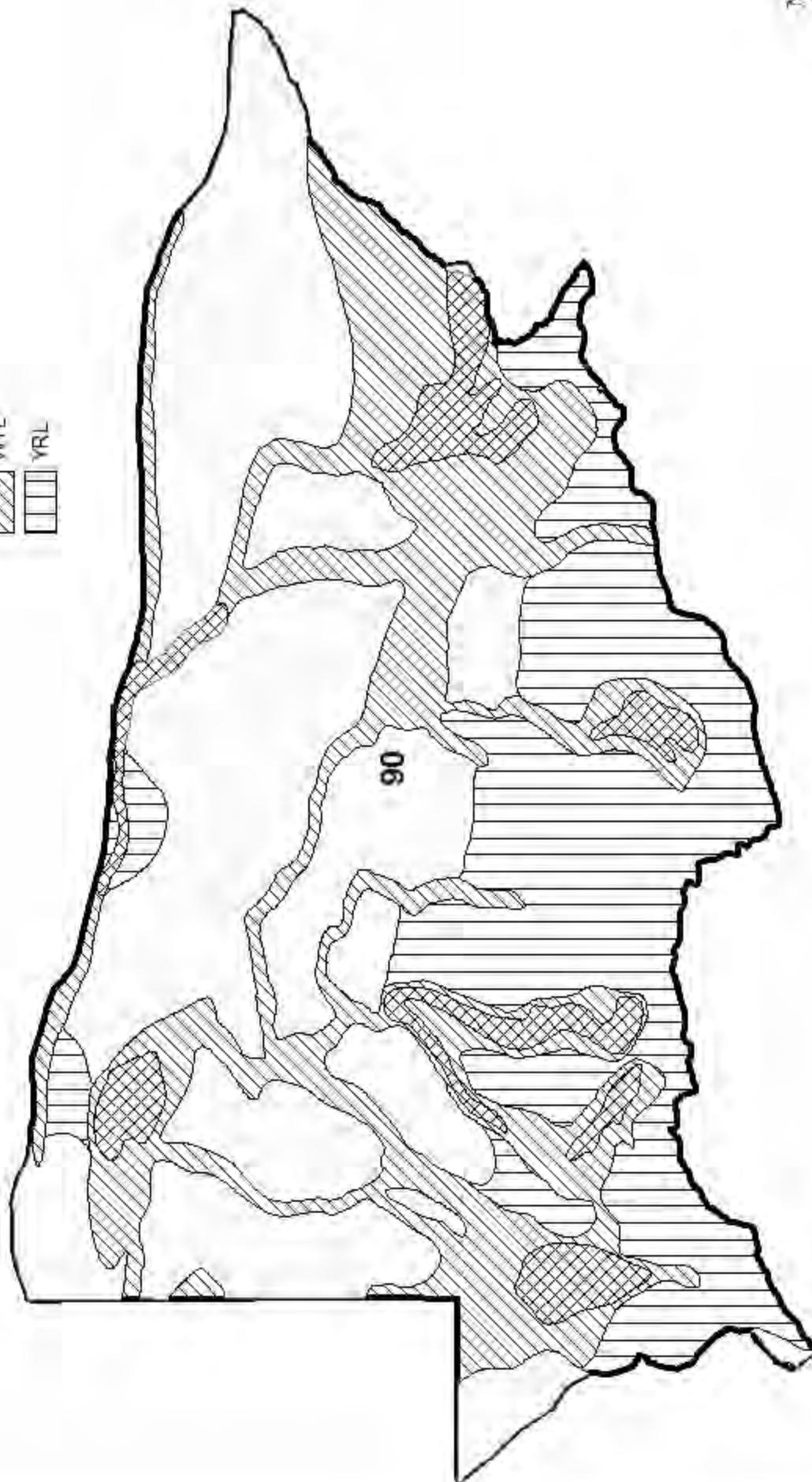
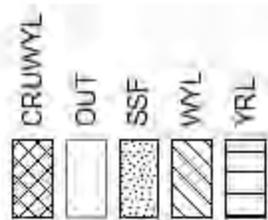


A spreadsheet model was developed for this population in 2012. The addition of 2013 and 2014 data did not dramatically change the estimates produced by the model. The CA/CJ version models a population increase annually for the past 20 years and fails to track the most recent, notable decline from 2010 through 2013. The SCJ/SCA model appeared to provide the best fit in both 2013 and 2014, however, with the addition of data in 2015, the model inexplicably produced an estimate 53% higher than what was previously modeled for 2015. Over the past 3 years, both the SCJ/SCA and TSJ/CA models produced similar trends and population estimates, both indicating the 2010 to 2013 population decline and subsequent small increase in 2014. While the TSJ/CA model only changed slightly with the addition of 2015 data, the SCJ/SCA model changed dramatically and began producing biologically indefensible results. As such, the TSJ/CA model was selected in 2015. This model produced similar results to previous years' models and maintains the same trends noted in the past. The model does indicate a population increase in both 2014 and 2015 which is also indicated by harvest statistics and casual observation. While the model has a higher AIC value than the SCJ/SCA model, it does have a much better fit to the data. The model produces an estimate of around 1800 deer in 2015. Given average reproduction and survival, the population is not expected to change in 2016. This model is considered poor quality due to the fact age/sex ratio data are based on very small samples and the data are completely missing several years.

Management Summary

All factors indicate this population declined significantly from 2010 through 2013. Although the model indicates growth in 2014 and 2015, the population is still well below objective and some other factors indicate hunting remains poor compared to most of the previous decade. Given average winter conditions, it is expected this population will remain unchanged in 2016 at 1,800 deer. No changes are proposed for the 2016 hunt season. With the same number of licenses and some population growth, hunt quality should be a bit better in 2016.

**Beaver Rim Mule Deer Seasonal Range
Hunt Area 90
Revised 2012**



2015 - JCR Evaluation Form

SPECIES: Mule Deer

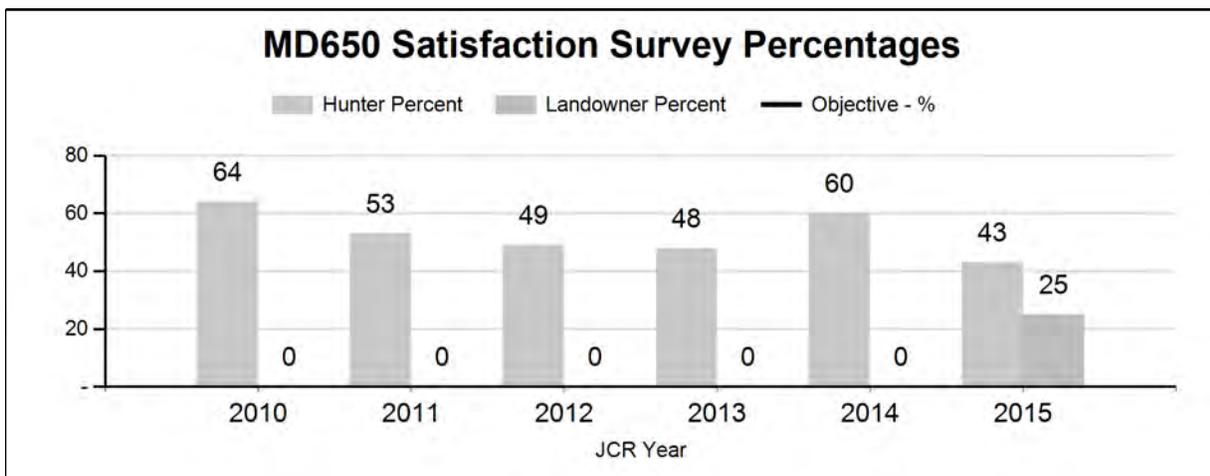
PERIOD: 6/1/2015 - 5/31/2016

HERD: MD650 - CHAIN LAKES

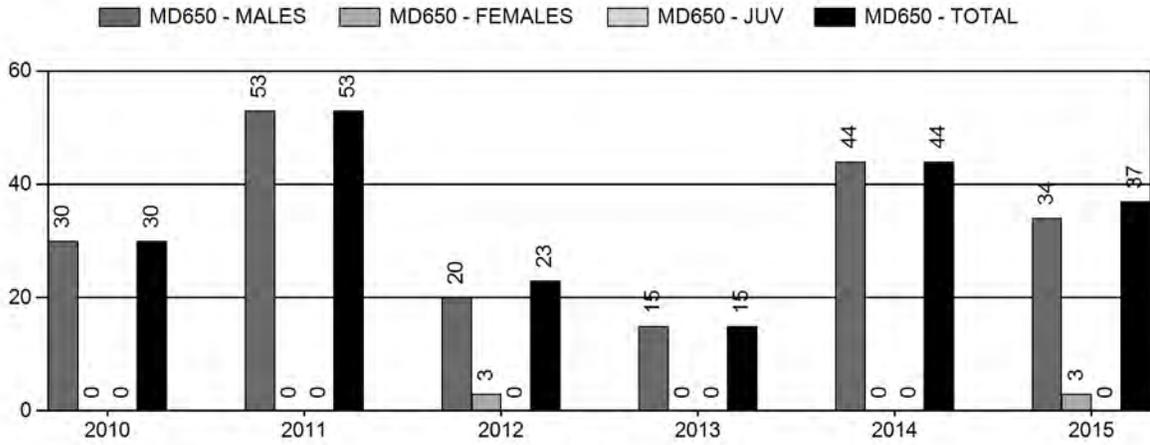
HUNT AREAS: 98

PREPARED BY: GREG HIATT

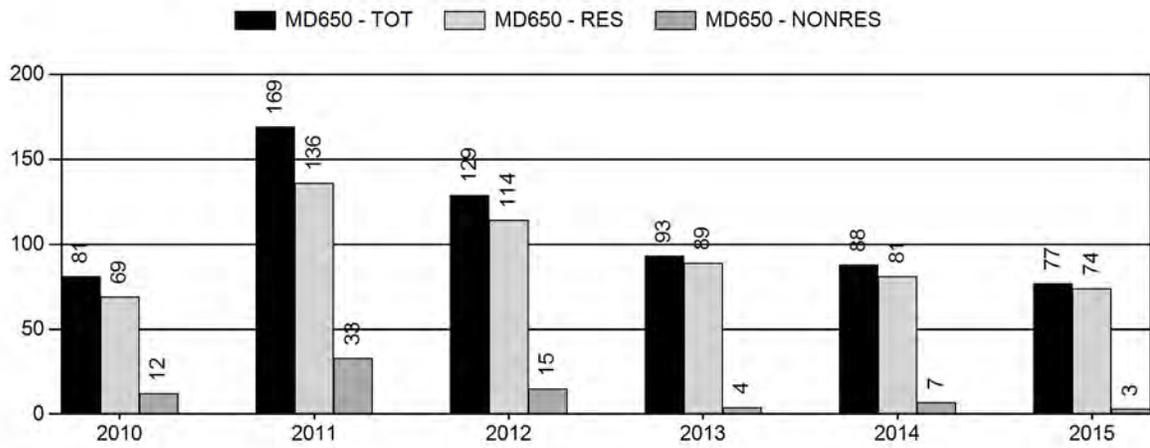
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	54%	54%	50%
Landowner Satisfaction Percent	0%	0%	25%
Harvest:	33	37	35
Hunters:	112	77	0
Hunter Success:	29%	48%	0 %
Active Licenses:	112	77	100
Active License Success:	29%	48%	35 %
Recreation Days:	448	262	500
Days Per Animal:	13.6	7.1	14.3
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			-26%
Number of years population has been + or - objective in recent trend:			4



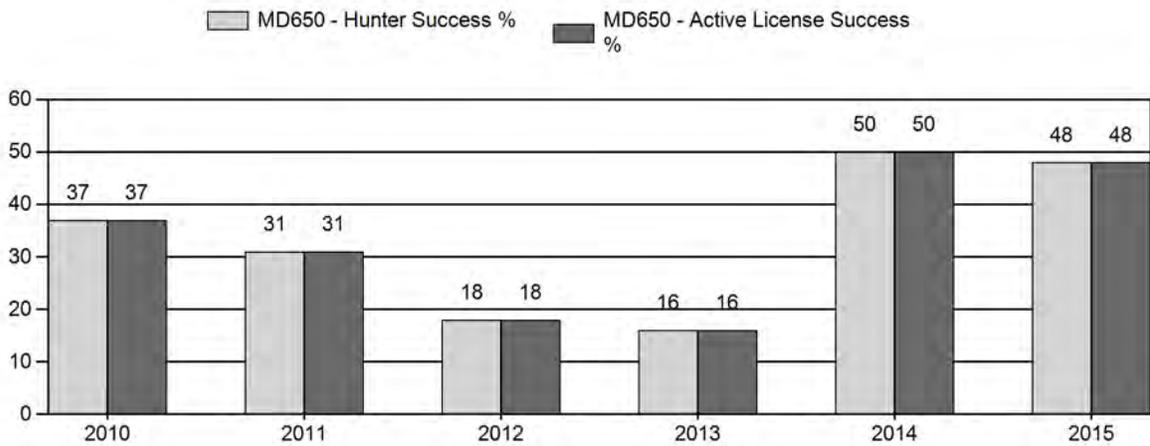
Harvest



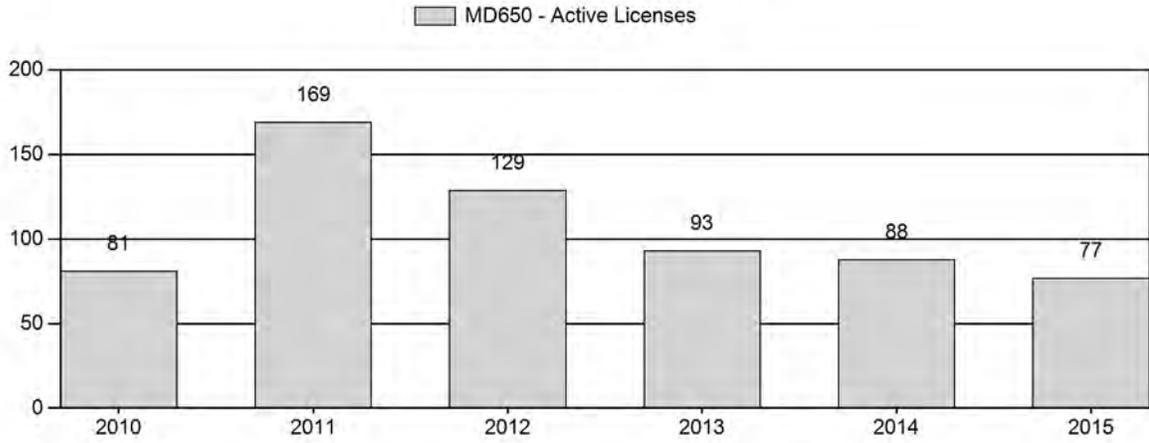
Number of Hunters



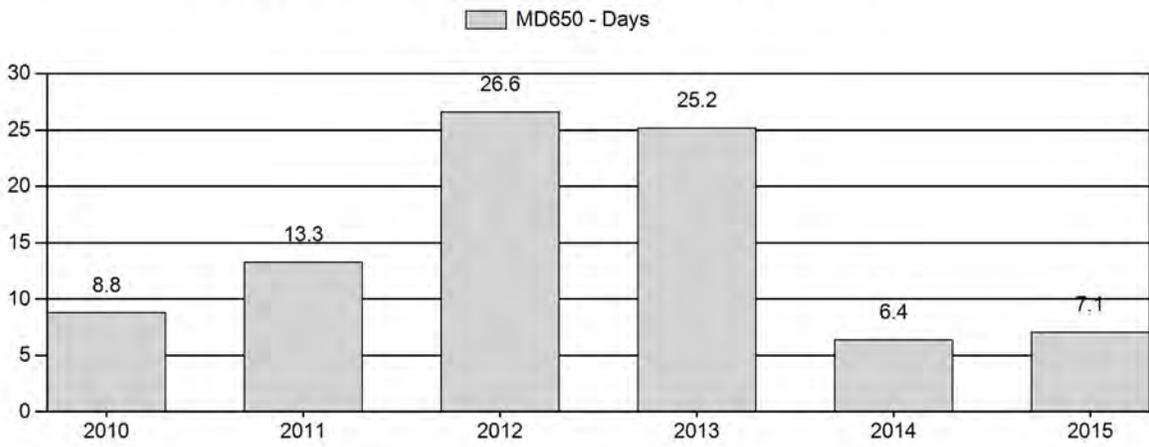
Harvest Success



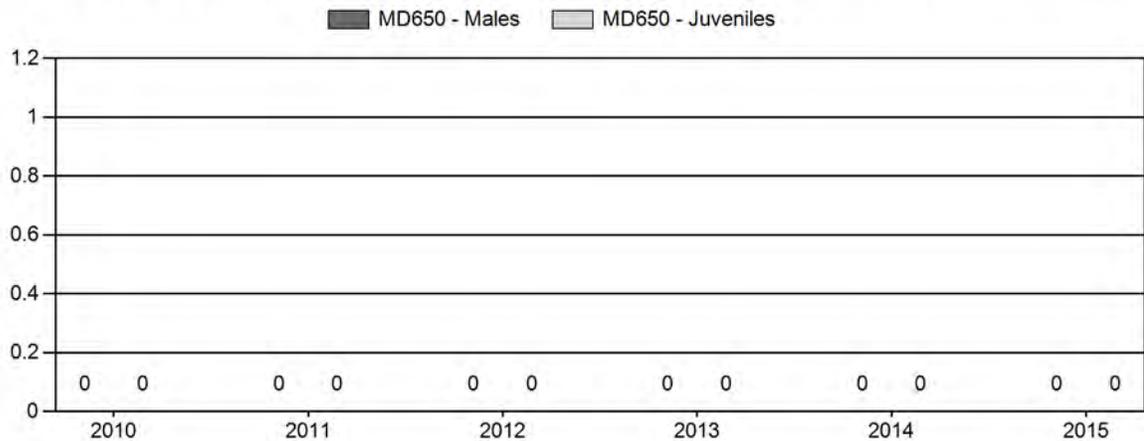
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Mule Deer Herd MD650 - CHAIN LAKES

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	490	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2011	410	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2012	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2013	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2014	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2015	0	0	0	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0

**2016 HUNTING SEASONS
CHAIN LAKES MULE DEER HERD (MD650)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
98		Oct. 15	Oct. 21		General	Antlered mule deer or any white-tailed deer, archery or muzzleloading firearms only
Archery 98		Sep. 1	Sep. 30			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
98	Gen	Shorten by 1 day.
Herd Unit Total		Shorten by 1 day.

Management Evaluation

Current Hunter/Landowner Satisfaction Management Objective: 60% hunter/landowner satisfaction; 35% hunter success

Management Strategy: Recreational

2015 Hunter Satisfaction Estimate: 43.5%

2015 Landowner Satisfaction Estimate: 25%

Most Recent 3-year Running Average Hunter Satisfaction Estimate: 50.5%

Most Recent 3-year Running Average Landowner Satisfaction Estimate: N/A

Herd Unit Issues

Historically, the management objective for the Chain Lakes Mule Deer Herd Unit was a post-season population size objective of 500 deer, but dispersal of these deer in small bands across hundreds of square miles of sagebrush makes both aerial and ground classifications prohibitively expensive. Without reliable estimates of herd ratios, herd size could not be modeled and objectives based on population size could not be quantitatively evaluated. A hunter/landowner satisfaction objective was adopted following public review in 2015.

Hunters and Department personnel have expressed concern that improved range, accuracy and faster reloading times of modern in-line muzzle-loading firearms may increase hunter success, rather than increases in numbers of deer. If true, a redefinition of legal weapons allowed in this season may be necessary in the future to prevent excessive harvests from these vulnerable small bands of deer.

Weather

Following severe drought conditions in 2012 and 2013, precipitation improved in the latter half of 2014 and continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and presumably improving fawn survival. Condition of mule deer going into the 2015-16 winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

Only one shrub transect has been established in this herd unit, on the Chain Lakes WHMA, but was not read in 2015. Shrub production presumably improved with the increased moisture and many sagebrush plants that had appeared dead from drought in 2013 produced small but viable sprouts of green growth. While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation.

Field Data

All classification samples for this herd have been statistically inadequate and no posthunt classification data were collected again this year. Increased moisture improved fawn production in neighboring herds and fawn production in this desert herd is presumed to have improved as well. Despite increased fawn production, the herd is still expected to be below objective size due to losses during 2011-13.

Harvest Data

General license seasons with weapons restrictions allowed this herd to recover from severe losses in the past and that strategy is continued in 2016. These combined muzzleloader and archery seasons, used for the past 33 years, have been popular with both resident and nonresident hunters, but hunter numbers declined for the fourth year to 77 in 2015, presumably because of low deer numbers, poor success seen in 2012 and 2013, and improved deer hunting in some neighboring general license areas. Total number of hunters was less than half those reported in 2011.

Hunter success was essentially unchanged in 2015 at 48 percent, compared to 50 percent in 2014, despite the removal of the 3-point antler restriction. Three antlerless deer were reported in the 2015 harvest, presumably by archers in the special archery season or youth hunters in the regular season who were allowed to harvest any deer. The average number of days hunted for each harvested deer rose slightly to 7 days, less than a third the effort required in 2012 and 2013. These data suggest deer numbers have increased in this herd, as reported in neighboring herds with more population data available.

Population

This herd consists of small bands of deer residing yearlong in pockets of suitable habitat in the eastern Red Desert. No reliable population estimate is available for this herd, nor is one likely under current manpower and budget constraints. A simplistic population model was developed

that supported the reported harvests, but its accuracy could not be evaluated because of the absence of classification data and limited harvest field check samples. Instead, population trends are monitored through harvest data and classification ratios of neighboring herds.

With the adoption of a hunter/landowner satisfaction objective for this herd, major landowners were personally queried on their satisfaction with deer numbers in 2015. Only one of four who responded was satisfied, the others still wishing to see more mule deer.

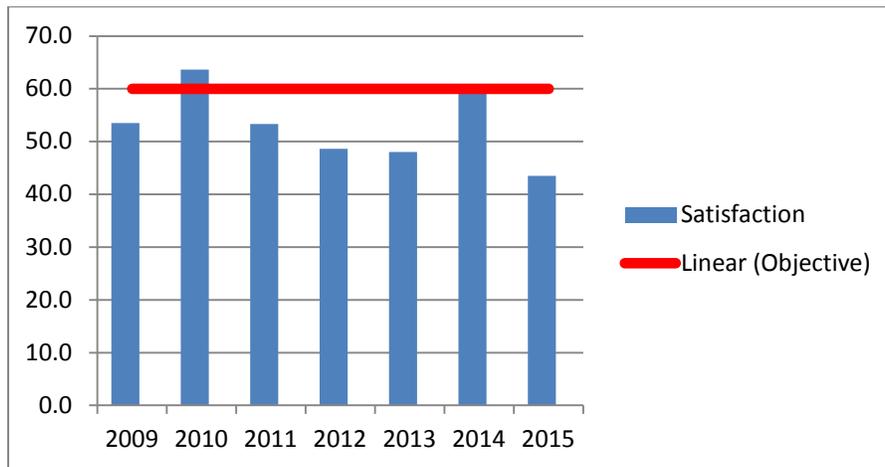


Figure 1. Hunter satisfaction for the Chain Lakes Mule deer Herd.

Hunter satisfaction declined beginning in 2011 and with the exception of one rebound in 2014 (Figure 1.), hunters have been mostly dissatisfied with the number of deer they see in this herd for the past five years. With both landowners and hunters mostly not satisfied with current deer numbers in this herd, harvests should remain conservative.

A secondary objective of 35 percent hunter success was also adopted for this herd in 2015. As shown in Figure 2, the 2015 season attained that objective.

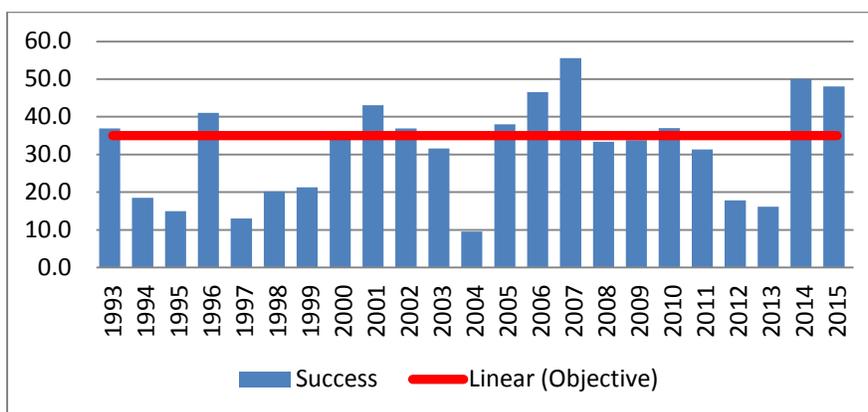
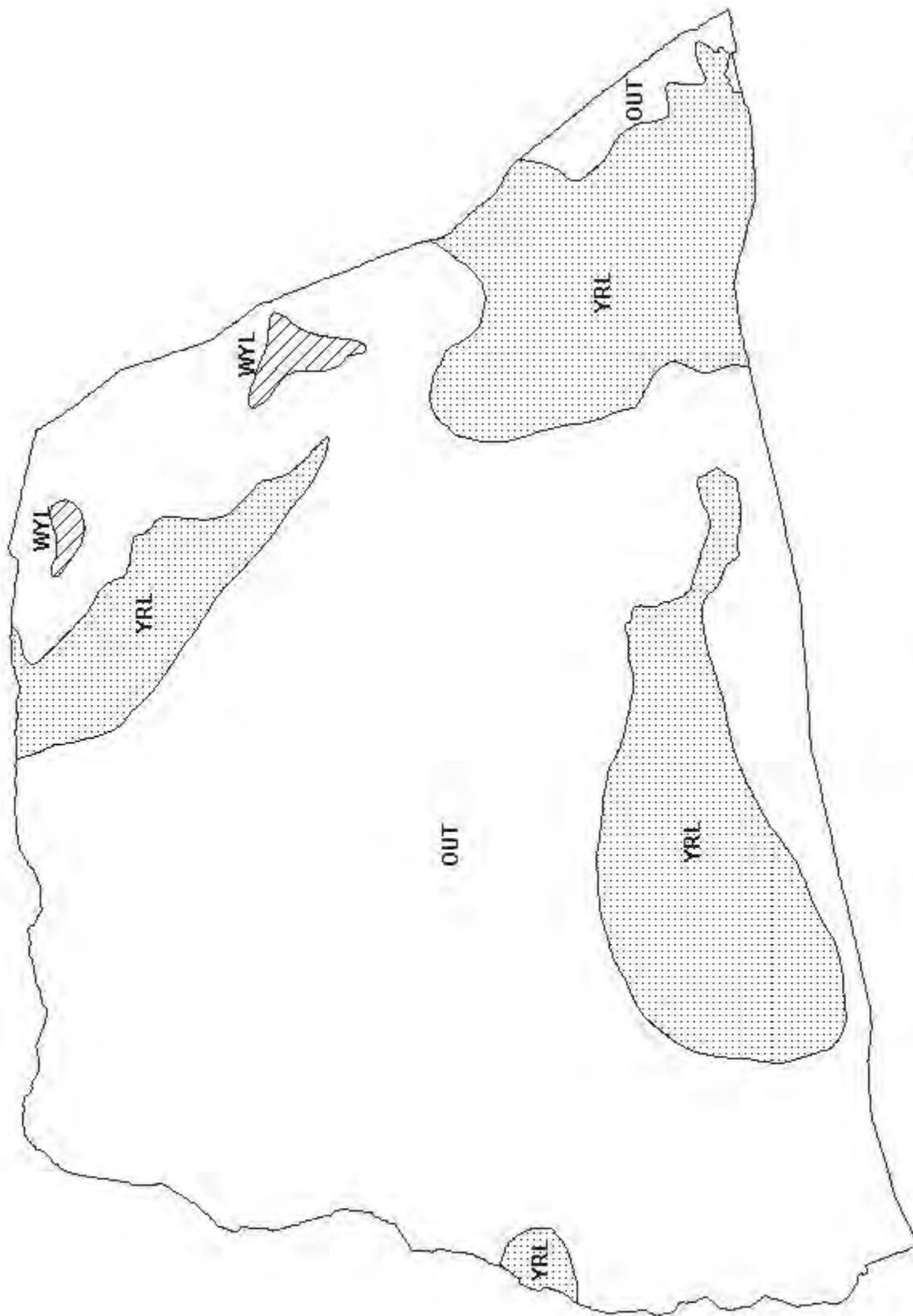


Figure 2. Hunter success for the Chain Lakes Mule deer Herd.

Management Evaluation

Deer in this desert herd unit have few options for finding green forage during dry conditions, with no high elevation habitats available. Body condition of deer entering the 2015-16 winter is expected to have improved because of record precipitation. Survival through the 2015-16 winter is expected to be near average.

Expected harvest from the 2016 season would be about 35 antlered deer by roughly 100 hunters. The opening date is the same used in the past 20 years and opens simultaneously with neighboring areas in Region E. The closing date is shortened by one day to align with general license hunts in neighboring areas in Region E, avoid a second weekend of harvest, and prevent overlap with the local elk season. As in 20 of the previous 21 years, most hunters during the regular season would be restricted to harvesting only antlered deer. With neighboring general license areas to the north and south dropping 3-point antler point restrictions, there is no longer need for a similar restriction in Area 98. Opportunities for archery hunting will again be available during the October season in addition to the special archery season in September. Archers will be allowed to harvest any deer during September to follow the statewide standard special archery season.



Mule Deer (MD650) - Chain Lakes
HA 98
Revised - 3/94

2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL635 - WIGGINS FORK

HUNT AREAS: 67-69, 127

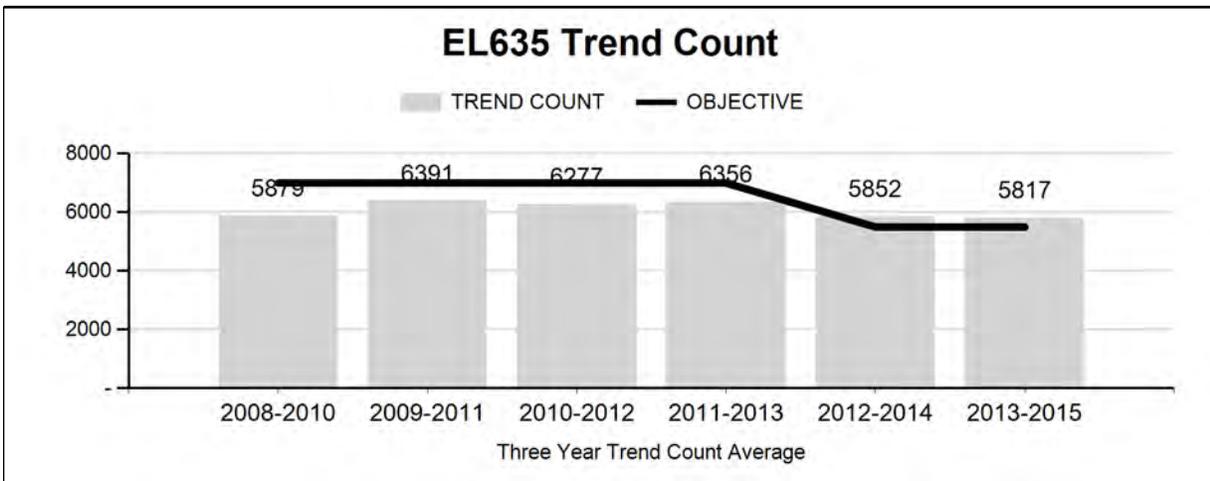
PREPARED BY: GREG ANDERSON

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	6,124	5,663	5,800
Harvest:	1,040	911	925
Hunters:	2,469	2,679	2,700
Hunter Success:	42%	34%	34%
Active Licenses:	2,548	2,761	2,775
Active License Success	41%	33%	33%
Recreation Days:	16,533	18,865	17,500
Days Per Animal:	15.9	20.7	18.9
Males per 100 Females:	12	10	
Juveniles per 100 Females	26	26	

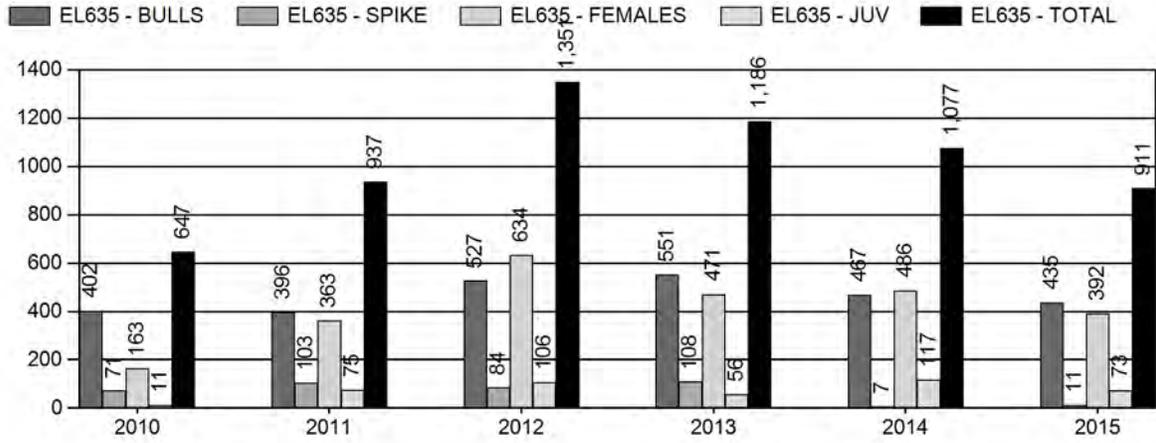
Trend Based Objective (± 20%) 5,500 (4400 - 6600)
 Management Strategy: Recreational
 Percent population is above (+) or (-) objective: 3%
 Number of years population has been + or - objective in recent trend: 2

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

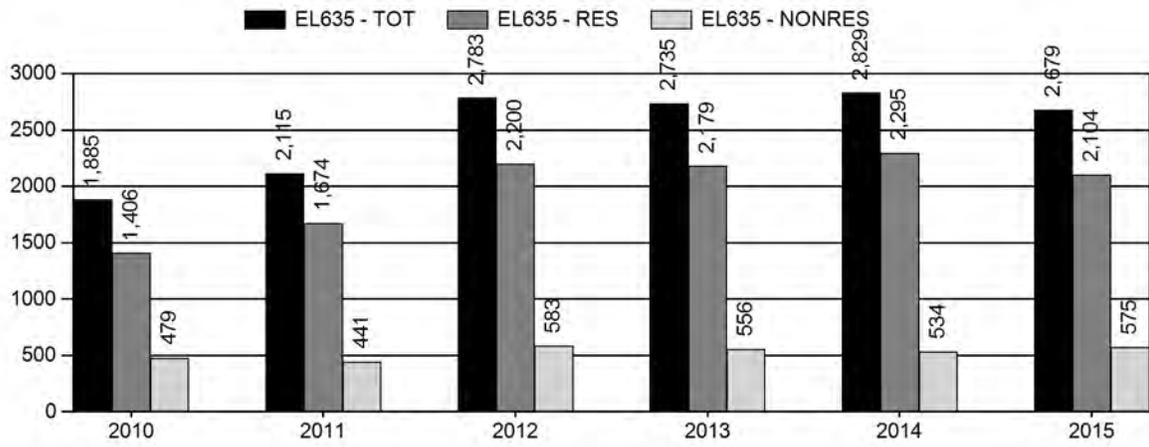
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



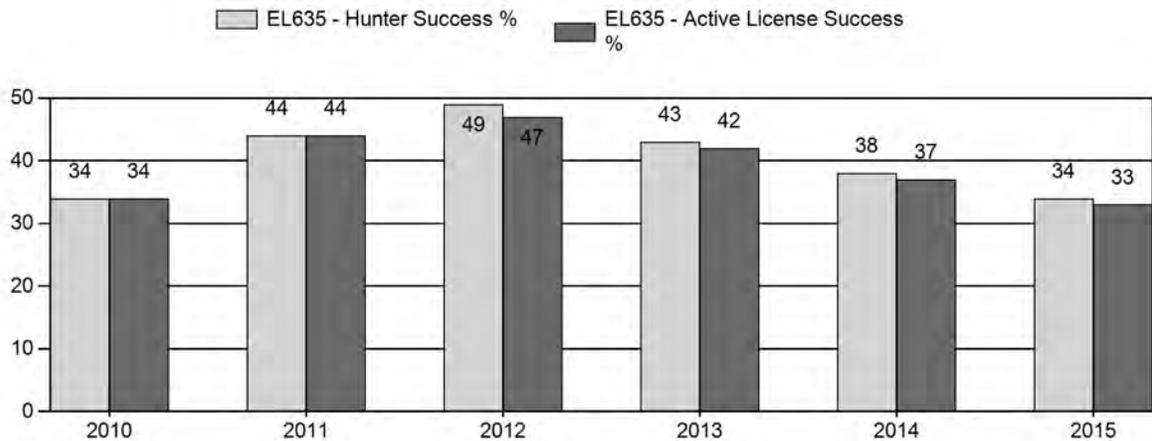
Harvest



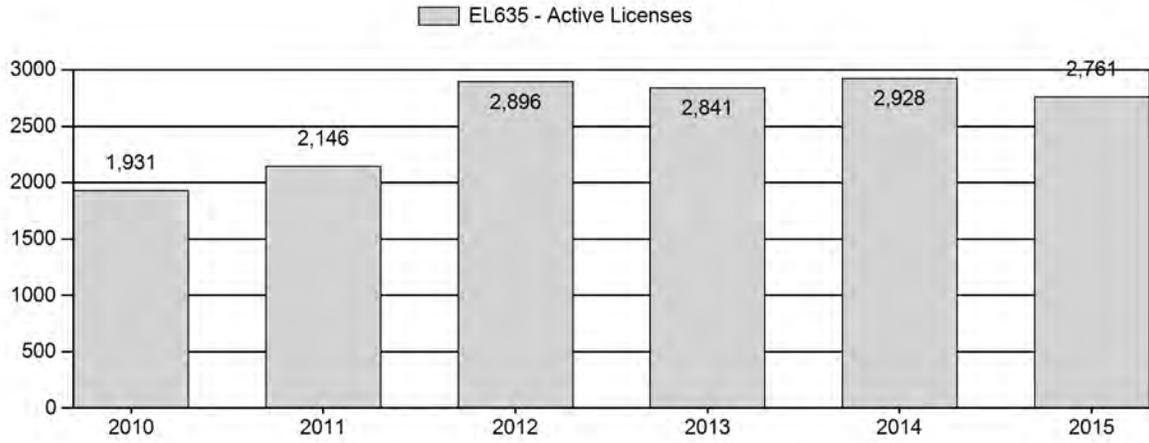
Number of Hunters



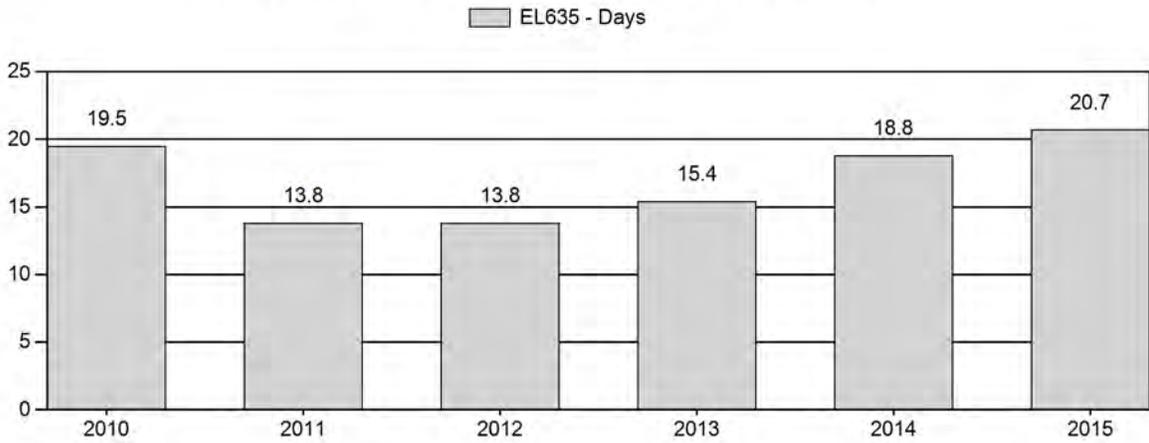
Harvest Success



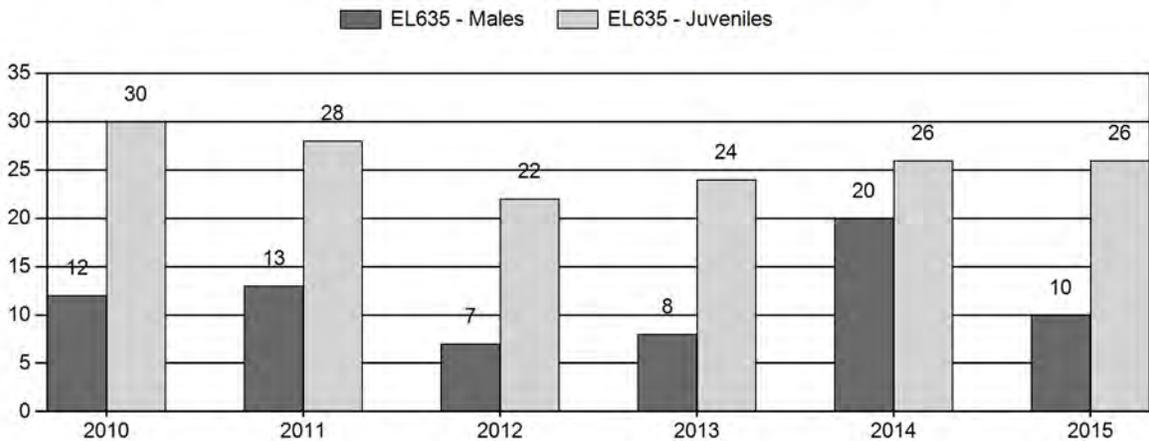
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Elk Herd EL635 - WIGGINS FORK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	7,777	276	114	390	8%	3,388	71%	1,019	21%	4,797	346	8	3	12	± 0	30	± 1	27
2011	9,083	202	28	230	9%	1,802	71%	498	20%	2,530	321	11	2	13	± 1	28	± 2	25
2012	0	138	22	160	6%	2,143	77%	463	17%	2,766	0	6	1	7	± 0	22	± 0	20
2013	0	135	23	158	6%	1,881	76%	451	18%	2,490	0	7	1	8	± 0	24	± 0	22
2014	0	304	256	560	14%	2,817	69%	720	18%	4,097	0	11	9	20	± 0	26	± 0	21
2015	0	120	166	286	8%	2,741	73%	705	19%	3,732	0	4	6	10	± 0	26	± 0	23

**2016 HUNTING SEASONS
WIGGINS FORK ELK (EL 635)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
67		Oct. 1	Oct. 31		General	Antlered elk, spikes excluded
	4	Nov. 1	Dec. 15	200	Limited quota	Antlerless elk
	6	Nov. 15	Dec. 15	400	Limited quota	Cow or calf valid west of the Wiggins Fork and west of the East Fork downstream from the confluence with the Wiggins Fork
67, 68, 69	9	Sep. 1	Sep. 30	125	Limited quota	Any elk, archery only
68		Oct. 1	Oct. 31		General	Antlered elk, spikes excluded
	6	Nov. 1	Nov. 30	200	Limited quota	Cow or calf
69		Oct. 1	Oct. 31		General	Any elk
	6	Oct. 1	Nov. 30	100	Limited quota	Cow or calf
127		Oct. 1	Oct. 31		General	Any elk
		Nov. 1	Dec. 31		General	Antlerless elk
Archery 67, 68, 69		Sep. 15	Sep. 30			Valid in the entire area(s)
127		Sep. 1	Sep. 30			Valid in the entire area(s)

Hunt Area	Type	Quota change from 2015
Total		

Management Evaluation

Current mid-winter trend count management objective: 5,500

Management strategy: Recreational

2016 trend count: 5,663

Most recent 3-Year running average trend count: 5,817

Management Issues

The Wiggins Fork elk herd is managed based on a winter trend count. The trend count management objective has been in place since 2002. The original, 2002, objective sought to maintain 6,000 to 7,000 wintering elk in the herd. The number of elk was determined by multiplying an annual trend count by a constant sightability factor to calculate a population estimate. Over time, the extra step of calculating an estimate confused the public. In response, the objective was reviewed in 2014 and the Department decided to base a new objective on actual trend count numbers eliminating the use of a sightability factor and population estimate. The new objective set in 2014 is to maintain a mid-winter count of 5,500 elk in the herd unit with a recreational management strategy. Annual trend counts are conducted each January to assess the population.

The Wiggins Fork elk herd occupies the upper Wind River drainage west of the Wind River Reservation (WRR). There is good documentation elk wintering in the herd unit migrate into a number of other northwest Wyoming elk herd units in the summer and early fall. Given the amount of interchange with neighboring herd units, the number of elk present can vary significantly throughout the hunting season. Seasons structured to reduce the elk population generally need to include antlerless elk harvest after mid-November to allow elk to migrate into the herd unit from neighboring areas.

Habitat/Weather

Herbaceous vegetation production was quite high throughout the herd unit in both 2014 and 2015. Following 2 years of extreme drought, vegetation production increased significantly in 2014 and remained quite good in 2015. In 2015 production averaged 639 lbs/acre across monitoring sites on elk winter range. This was an increase over 576 lbs/acre in 2014 and 65% greater than the 5-year average of 387 lbs/acre. Although no vegetation monitoring is conducted at high elevation summer range, it appeared vegetation growth was outstanding on summer and transitional ranges as well. Fall weather was warm and dry through much of the hunting season.

The combination of abundant feed and mild, fall weather resulted in elk entering winter in excellent body condition. Snowfall in December forced elk onto low elevation winter ranges. Moderate snow cover through January allowed elk to occupy typical, mid-elevation winter range throughout the winter range complex in the herd unit. After January, temperatures moderated and snow receded.

Field/Harvest Data/Population

Trend counts to estimate the wintering population are conducted each January. Trend count numbers declined from 1997 through 2003. From 2004 through 2007, the population appeared to stabilize. Winter count numbers fluctuated year-to-year but did not indicate any consistent population trends. In 2008, personnel counted a significantly higher number of elk (5,504). This was the highest count since 1998. In 2009 and 2010, personnel again counted a significantly greater number of elk; 6,110 and 6,023 respectively (Fig. 1). In 2011 the trend count increased significantly again to 7,039. Following a liberal season in 2012, the trend count declined to 5,768. The count increased again in 2013 by 500 elk to 6,260 followed by a decline to 5,528 in 2014 (Fig. 1). The 2015 count of 5,663 was nearly identical to the 2014 count. Overall, the herd has been fairly stable over the past 5 years and is at objective.

The trend count objective includes sub-objectives for 3 areas in the herd unit. The sub-objectives were set to recognize reasonably well-defined, spatially segregated elk groups wintering in the area. The sub-groups include the East Fork, Dunoir/Spring Mountain, and South Dubois groups. While there is a significant amount of interchange, elk from the three groups tend to segregate themselves on winter range and utilize different spring/fall migration routes. Since elk in the three sub-groups are subjected to different demographic influences, sub-objectives were set for each of the three groups (Table 1). One of the sub-groups (East Fork) has been below objective for the past decade. However, the 2015 count for this group was the highest in over 15 years. Given the 2015 count, this herd segment is at the prescribed objective. The other two of the sub-groups (Dunoir/Spring Mtn and South Dubois) have been above objective for the past 7 years. The South Dubois segment has consistently been above objective for the past decade. Liberal seasons on an annual basis provide the opportunity for significantly greater harvest in this herd segment but lack of hunter desire to harvest cow elk in this rugged area precludes greater harvest. Despite the lack of necessary harvest, the population in this segment has remained fairly stable over the past 5 years. The trend count for this area did decrease in 2015, but it should be noted personnel were unable to fly some of the area due to strong winds during the trend count period. With the lower count in 2015, this herd segment is now at objective. Elk numbers in the Dunoir/Spring Mtn herd segment decreased slightly from 2014 to 2015. The number of elk in this segment did decline over the last several years in response to the liberal cow harvest.

Between 2006 and 2009, recruitment in this herd unit was well below historic levels (Fig. 2). Despite low recruitment between 2006 and 2009, the number of elk counted still increased. In 2010 and 2011 recruitment increased significantly and likely contributed to some of the trend count increase. Since 2012, recruitment increased annually and the calf/cow ratio was 26/100 in 2015. This was the same as in 2014 and also the same as the 5-year average.

Figure 1. Wiggins Fork Elk trend count

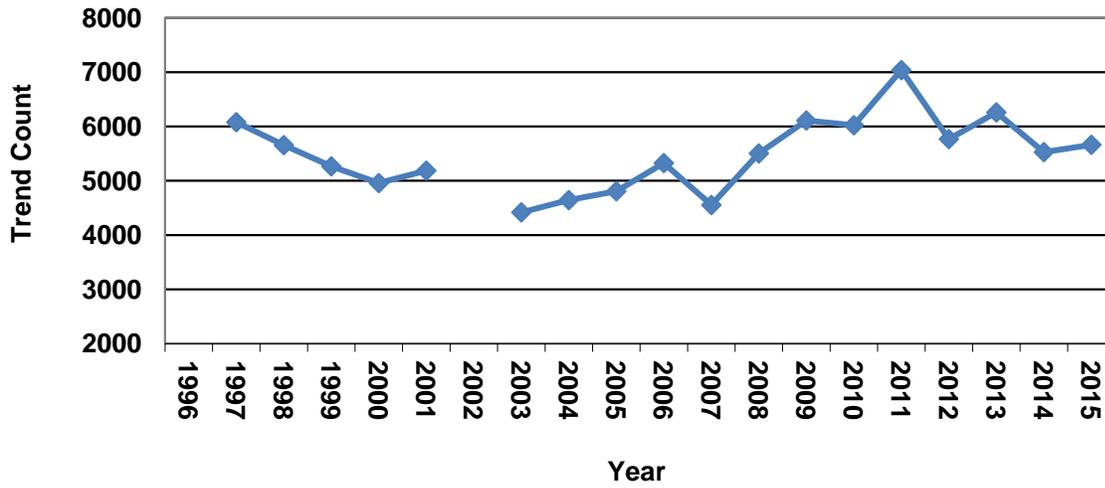
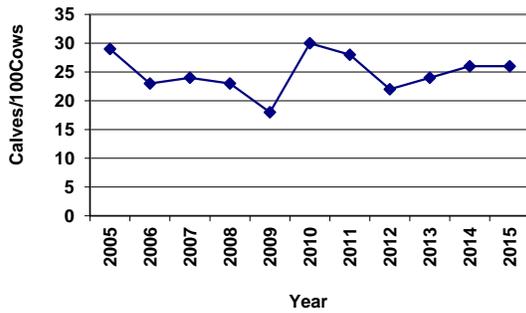


Table 1. Trend count numbers from sub-groups in the Wiggins Fork Elk Herd Unit.

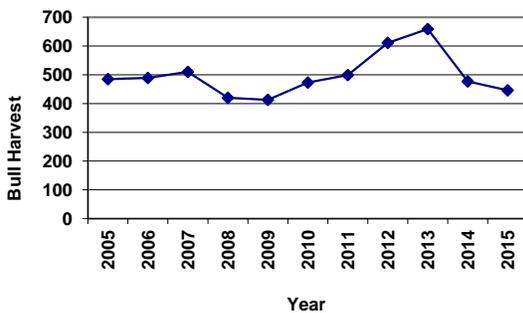
Year	East Fork	Dunoir/Spring Mountain	South Dubois	Wiggins Fork Herd Unit	
	Objective: 2,200 Count	Objective: 2,200 Count	Objective: 1,100 Count	Objective: 5,500 Count	3 Year Average
1998	2154	2457	1046	5657	
1999	2180	2109	977	5266	
2000	1883	2014	1061	4958	5294
2001	2100	1818	1269	5187	5137
2002	nc	nc	nc	nc	5073
2003	1857	1666	895	4418	4803
2004	1832	1601	1211	4644	4531
2005	1669	1807	1331	4807	4623
2006	1623	2297	1406	5326	4926
2007	1478	1634	1441	4553	4895
2008	1294	2620	1590	5504	5128
2009	1457	3186	1467	6110	5389
2010	1930	2704	1389	6023	5879
2011	1765	3680	1594	7039	6391
2012	1834	2580	1354	5768	6277
2013	1713	3022	1525	6260	6356
2014	1620	2551	1357	5528	5852
2015	2118	2497	1048	5663	5817

Figure 2. Ten year recruitment history in the Wiggins Fork Elk Herd.



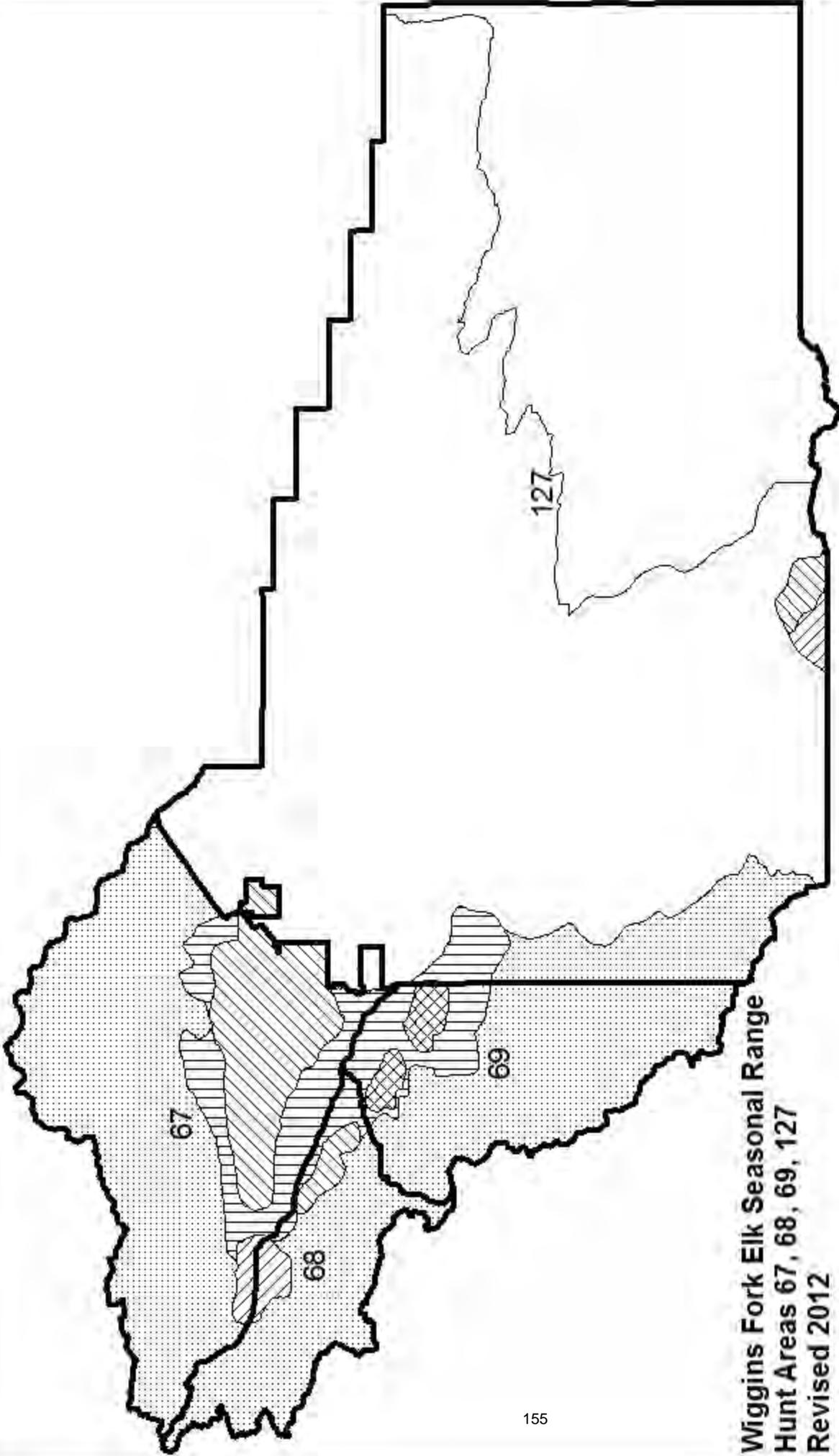
Unfortunately, bull/cow ratio data for this herd are very unreliable. Classification surveys have typically been conducted on the ground throughout the DAU. Since mature bulls generally winter in timber at the fringes of the winter ranges, the number of bulls seen is quite low and mature bull/cow ratios for the herd are not considered accurate. In 2014 and 2015 personnel used aerial trend count video to classify elk. This methodology did yield a significant increase in the mature bull/cow ratio both years. That said the mature bull/cow ratio is still artificially low due to poor sightability. Regardless of the mature bull/cow ratio, bull harvest has not declined over the past 10 years (Fig. 3). Antlered elk harvest in both 2012 and 2013 was unusually high for the herd unit. The high bull harvest in 2013 is not indicative of any demographic changes in the population. Instead, the high harvest can be directly linked to environmental conditions. Heavy snows in late September forced elk (including bulls) onto winter range where they were extremely vulnerable to harvest throughout the general, October season. Likewise, the bull harvest in 2014 and 2015 is certainly more closely tied to more typical hunting conditions throughout the fall. Thus, the precipitous decline in bull harvest from 2013 to 2014 should not be linked to demographic changes.

Figure 3. Antlered elk harvest in the Wiggins Fork Elk Herd.



Management Summary

The 2015 trend count indicates the Wiggins Fork elk population is at objective. The population appears to have been stable over the past 4 years. Since the population is at objective and stable, the number of antlerless elk licenses in the herd unit will remain unchanged in 2016.



**Wiggins Fork Elk Seasonal Range
Hunt Areas 67, 68, 69, 127
Revised 2012**

-  CRUWIN
-  CRUWYL
-  OUT
-  SSF
-  WIN
-  WYL

2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL637 - SOUTH WIND RIVER

HUNT AREAS: 25, 27-28, 99

PREPARED BY: STAN HARTER

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	2,676	2,621	2,600
Harvest:	639	714	750
Hunters:	2,101	2,263	2,000
Hunter Success:	30%	32%	38%
Active Licenses:	2,176	2,300	2,000
Active License Success	29%	31%	38%
Recreation Days:	16,014	17,480	17,000
Days Per Animal:	25.1	24.5	22.7
Males per 100 Females:	27	28	
Juveniles per 100 Females	31	30	

Trend Based Objective (± 20%) 2,600 (2080 - 3120)

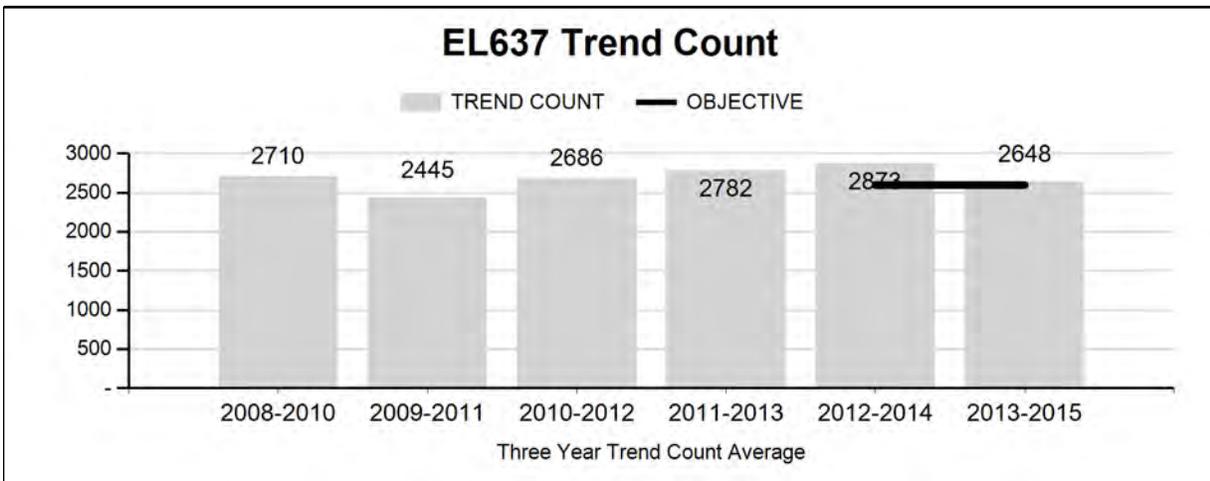
Management Strategy: Recreational

Percent population is above (+) or (-) objective: 1%

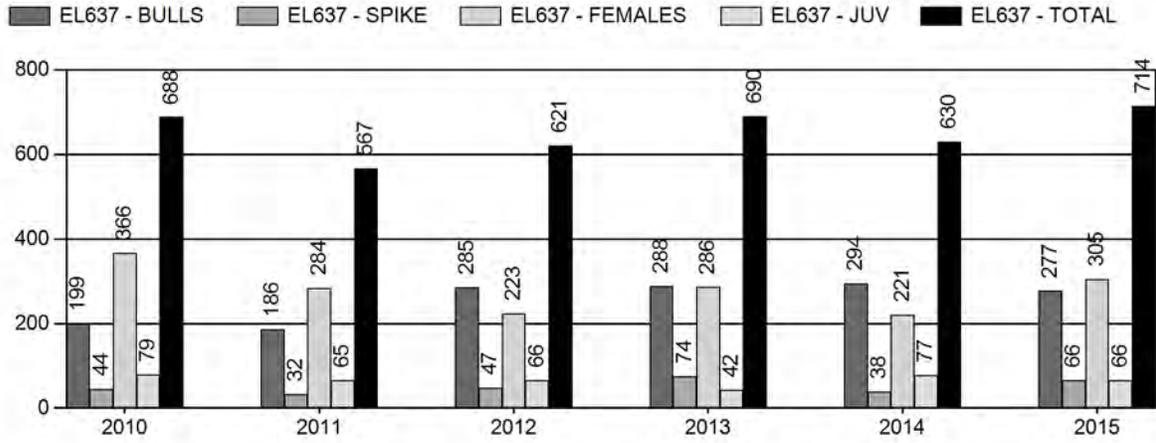
Number of years population has been + or - objective in recent trend: 1

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

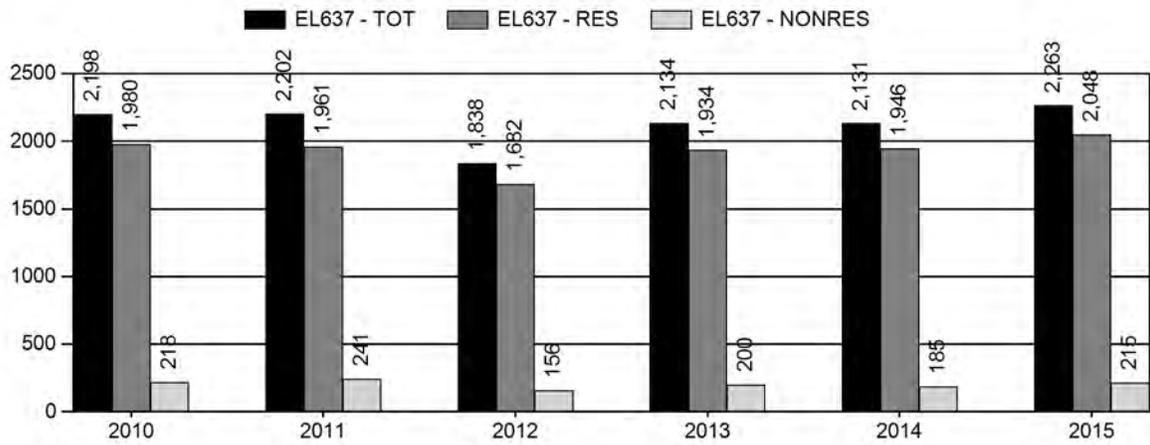
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



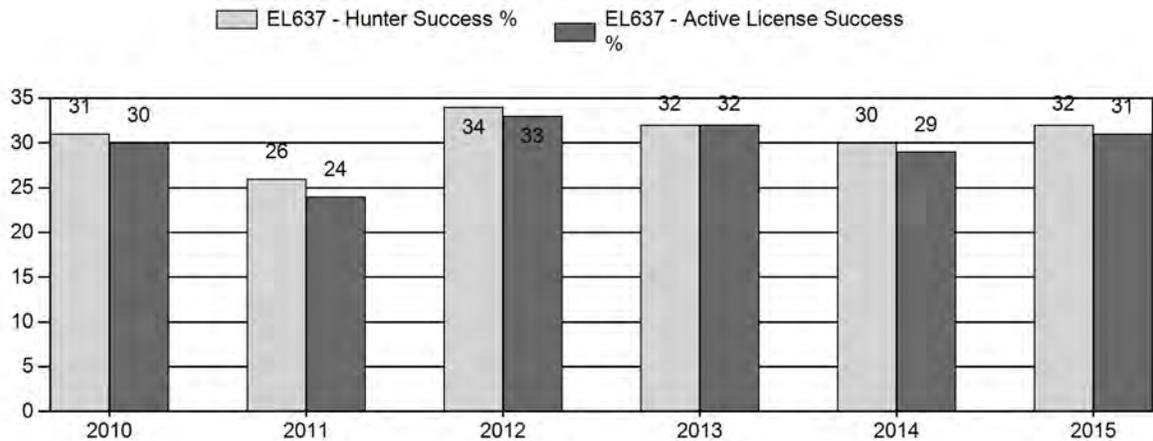
Harvest



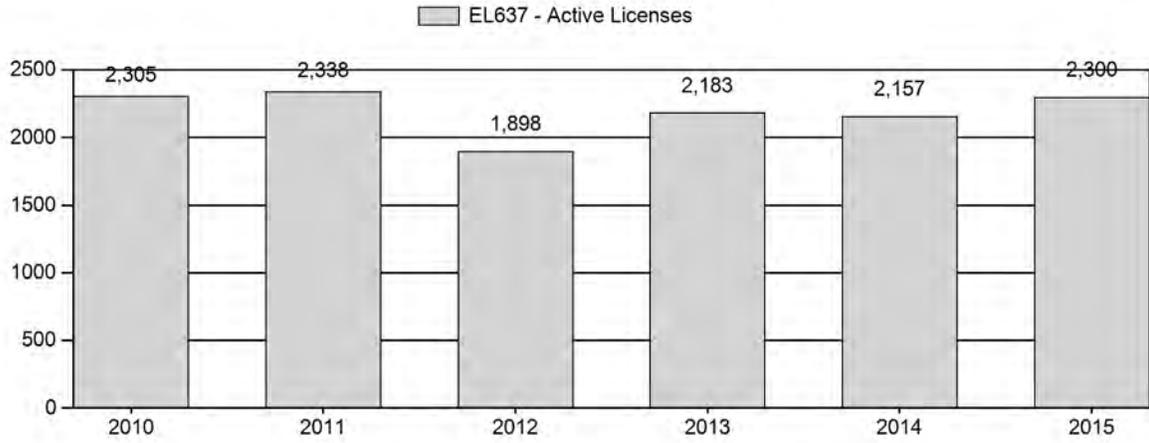
Number of Hunters



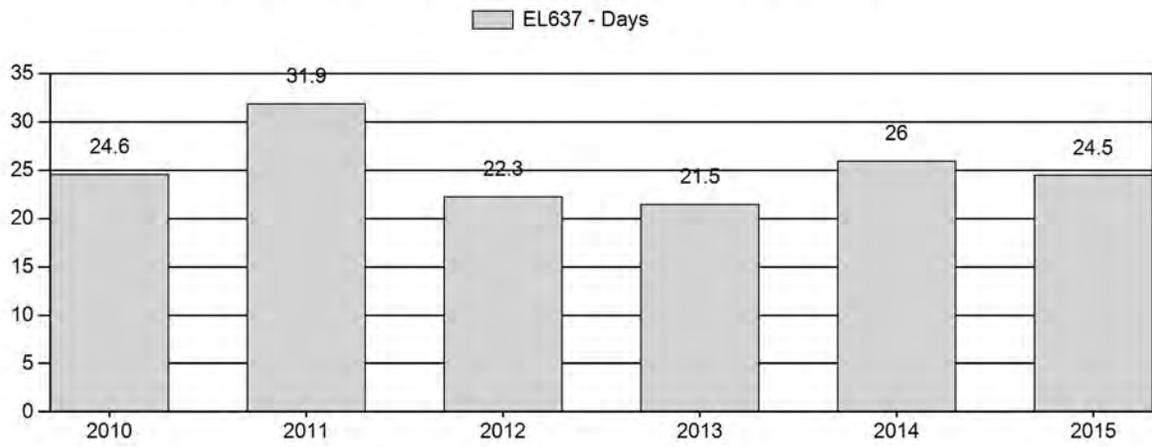
Harvest Success



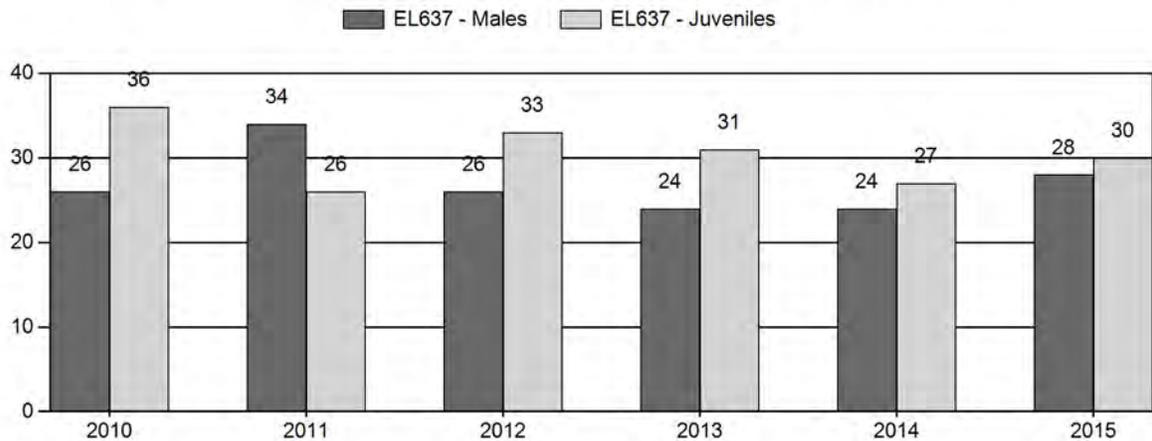
Active Licenses



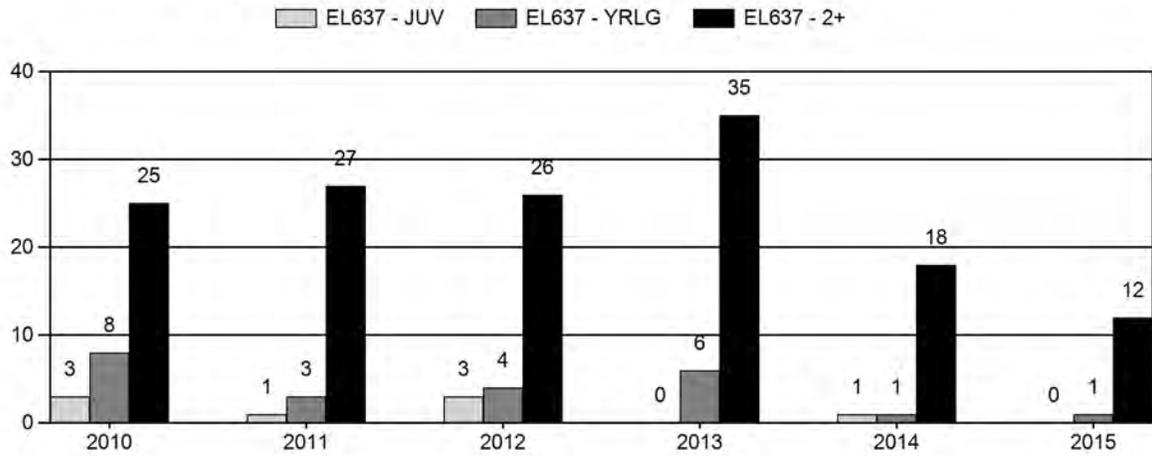
Days per Animal Harvested



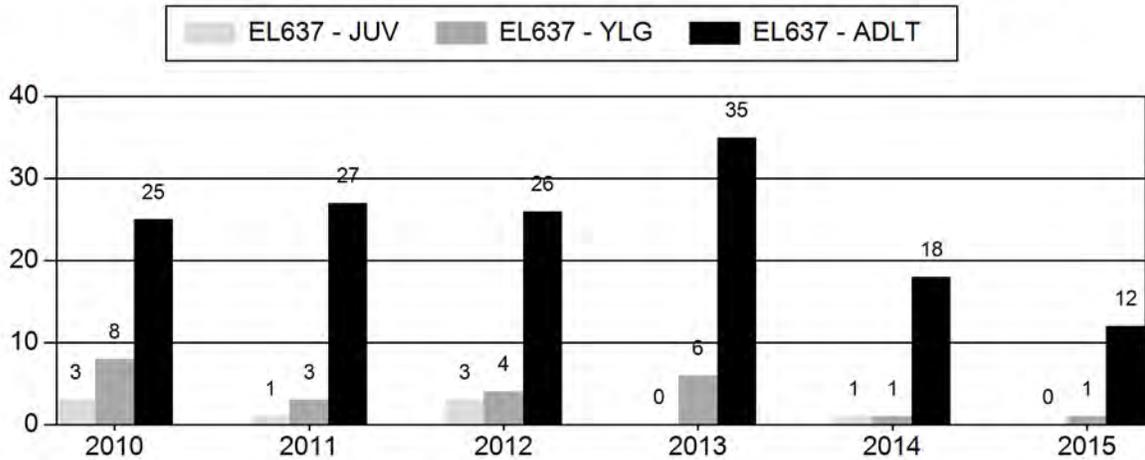
Postseason Animals per 100 Females



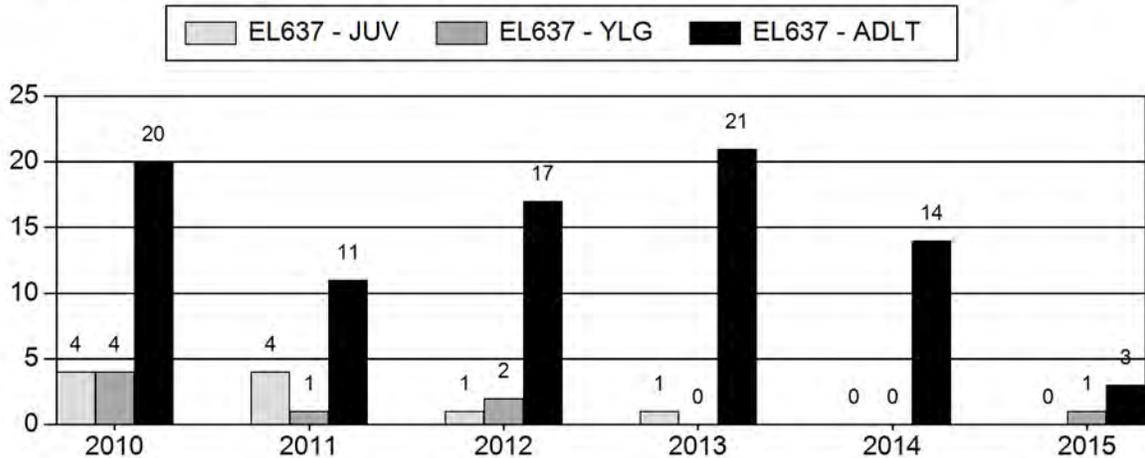
Age Structure of Field Checked Males



Age Structure Data (Field and Laboratory) - Male



Age Structure Data (Field and Laboratory) - Female



2010 - 2015 Postseason Classification Summary

for Elk Herd EL637 - SOUTH WIND 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
2010	0	174	231	405	16%	1,554	62%	563	22%	2,522	460	11	15	26	± 1	36	± 1	29
2011	0	179	299	478	21%	1,397	62%	365	16%	2,240	0	13	21	34	± 2	26	± 1	19
2012	0	183	356	539	16%	2,066	63%	691	21%	3,296	0	9	17	26	± 1	33	± 1	27
2013	0	165	228	393	16%	1,623	65%	499	20%	2,515	0	10	14	24	± 0	31	± 0	25
2014	0	149	226	375	16%	1,550	66%	420	18%	2,345	0	10	15	24	± 0	27	± 0	22
2015	0	181	288	469	18%	1,650	63%	502	19%	2,621	0	11	17	28	± 0	30	± 0	24

2016 HUNTING SEASONS
South Wind River Elk Herd Unit (EL 637)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
25, 27	1	Oct. 1	Oct. 31	200	Limited Quota	Any elk
25, 27	1	Nov. 1	Nov. 20			Antlerless elk
25	4	Oct. 15	Nov. 20	200	Limited Quota	Antlerless elk
25	6	Nov. 1	Nov. 20	100	Limited Quota	Cow or calf
27	4	Oct. 1	Nov. 20	100	Limited Quota	Antlerless elk
28		Oct. 1	Oct. 7		General	Any elk
28		Oct. 8	Oct. 22		General	Antlered elk
28	4	Nov. 1	Nov. 20	200	Limited Quota	Antlerless elk
99	1	Oct. 1	Oct. 31	175	Limited Quota	Any elk
99	1	Nov. 1	Nov. 20			Antlerless elk
99	4	Oct. 1	Nov. 20	200	Limited Quota	Antlerless elk
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

MANAGEMENT EVALUATION

Current Mid-Winter Trend Count Management Objective: 2,600

Management Strategy: Recreation (15 – 29 bulls/100 cows)

2015 Mid-winter Trend Count: 2,621

Most Recent 3-year Running Average Trend Count: 2,648

Herd Unit Issues/Population

The management objective for the South Wind River Elk Herd Unit was changed in 2014, and is a mid-winter trend count of 2,600 elk, based on a running 3-year average. Trend count data vary due to annual changes in snow depth, light and wind conditions during flights, and condition of habitats each winter. A key factor in our ability to detect elk in winter is the variability and extent of winter habitats, which range from mixed aspen/conifer/sagebrush habitats to open sagebrush/grassland habitats. The 2015 trend count/classification survey was completed in January and February 2016, with a total of 2,621 elk observed. Survey conditions were generally favorable and we believe this to be a good trend count. While some wolf activity has been reported for several years, documentation and public reports of wolves in several portions of the herd unit have substantially increased since fall 2015.

Weather

Precipitation has improved substantially since fall 2013, after a period of intense drought. Precipitation from October 2013 through September 2014 was about average in the South Wind River elk herd unit. Winter 2014-15 had lower than average snowfall, yet precipitation from October 2014 through September 2015 was higher than the 30-year average due to April and May 2015 getting nearly double the average precipitation in Lander. Precipitation in Lander was 140% above average for the first four months of 2016, with record breaking rain falling in the first week of May, which should lead to excellent summer forage conditions.

Habitat

Habitat conditions have greatly improved as a result of increased precipitation, and should result in improved survival over winter 2015-16, which has been fairly mild. Recently developed “Rapid Habitat Assessments” will be implemented for the South Wind River mule deer herd unit to develop a baseline from which to gauge overall habitat condition across the landscapes. These assessments should also be useful for evaluating habitat conditions for South Wind River elk.

Field Data

Classification flights were conducted in mid-January 2016 with a Bell Jet Ranger 206 helicopter in Areas 25, 27, and 28. Personnel from the Pinedale Region surveyed Area 99 in early-February 2016, also with a Bell Jet Ranger 206 helicopter. A total of 2,621 elk were counted and classified. We have not seen any large groups in the portion Area 25 south of the Sweetwater River in a few years, despite knowledge of expanding elk numbers there. The observed post-season calf/cow ratio of 30J/100F and bull ratio of 28M/100F were near the previous 5-year average.

Harvest Data

Weather during fall 2015 hunting seasons was moderate in the South Wind River Herd Unit, with above average temperatures and below average snowfall. The biggest snow event occurred over the last few days of the November antlerless elk seasons.

Total harvest was above average in 2015, despite complaints from many hunters of low elk numbers and increased wolf activity. Adult bull harvest dropped slightly to 277 adult bulls in 2015, coupled with an increase in yearling bull take with 66 spikes harvested. Antlerless harvest increased to 371 cows and calves, 9% above the previous 5-year average. Based on final harvest survey results, total harvest increased 13% in 2015 to 714 elk. Hunter success rates have remained fairly stable, with the 2015 success rate of 31% equaling the 5-year average. Hunter effort data indicate hunters were better able to find elk compared with the previous 5 years (24.5 days/harvest in 2015 vs. 25.1 days per harvest since 2010).

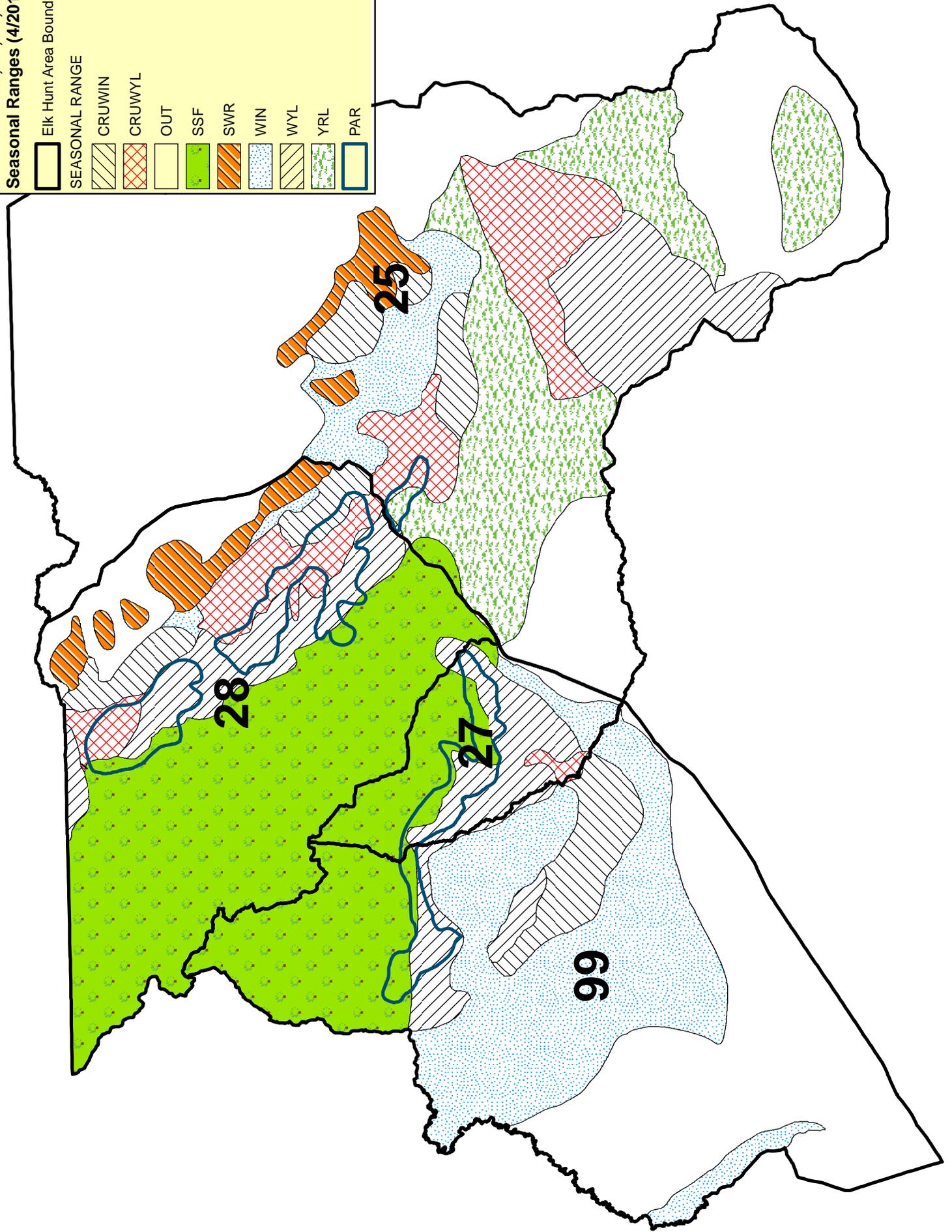
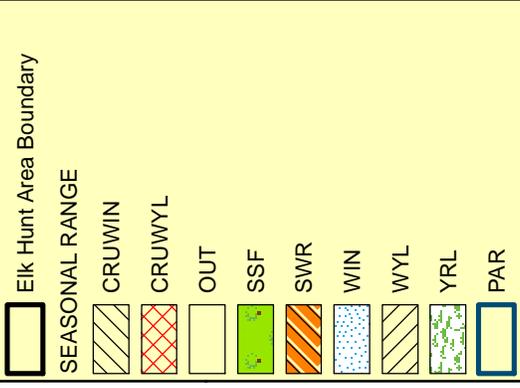
Management Summary

With the 2015 mid-winter and 3-year running average trend counts being almost exactly the same as the objective, the 2016 seasons are designed to maintain this population at the current level. Elk hunters will again be allowed to harvest “any elk” for the first part of the general license season in hunt area 28 (October 1–7), shifting to antlered only for the remainder of the season (October 8–22). This season structure in 2015 resulted in a 14% increase in hunter numbers (which was less than expected) and an increase antlerless harvest, and may have contributed to less pressure on adult bulls and increased spike harvest, which may lead to improved bull quality over time.

Beginning in 2015, the hunt area 25 boundary was extended southerly to encompass the Cyclone Rim area south to the Rocky Crossing Road. This was popular with many hunters and met with few complaints. Seasonal ranges need to be updated to match our understanding of elk use of the extended area.

We expect the 2016 seasons outlined above should result in a harvest of at least 750 elk with a stable to slightly higher cow harvest. If calf recruitment remains near average, this harvest should maintain the population at objective.

South Wind River Elk (EL637)
 Hunt Areas 25, 27, 28, 99
 Seasonal Ranges (4/2016)



2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL638 - GREEN MOUNTAIN

HUNT AREAS: 24, 128

PREPARED BY: STAN HARTER

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	592	728	600
Harvest:	262	222	250
Hunters:	673	533	500
Hunter Success:	39%	42%	50%
Active Licenses:	679	533	500
Active License Success	39%	42%	50%
Recreation Days:	3,538	3,477	3,400
Days Per Animal:	13.5	15.7	13.6
Males per 100 Females:	39	26	
Juveniles per 100 Females	45	38	

Trend Based Objective (\pm 20%)

500 (400 - 600)

Management Strategy:

Recreational

Percent population is above (+) or (-) objective:

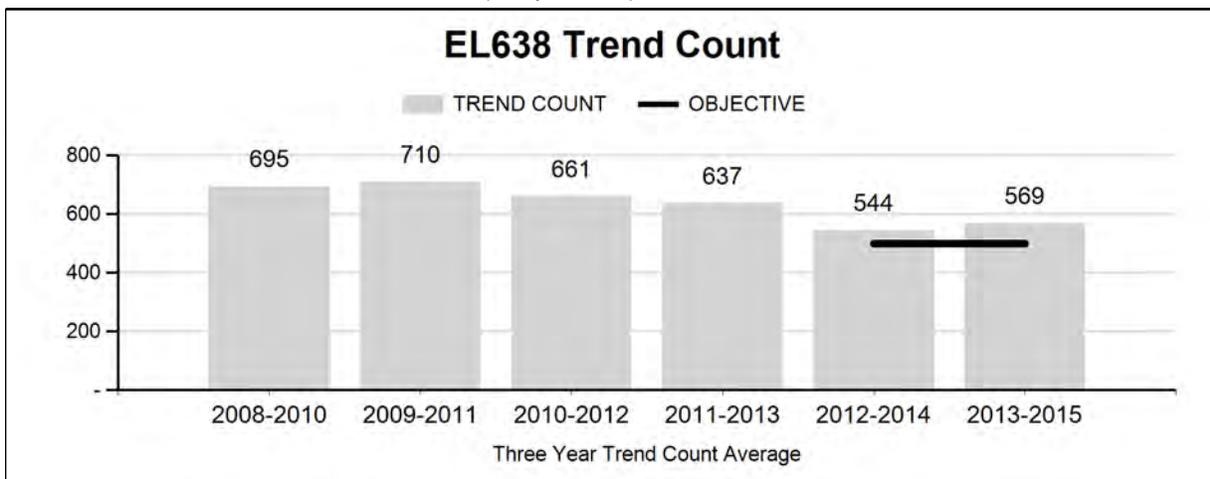
46%

Number of years population has been + or - objective in recent trend:

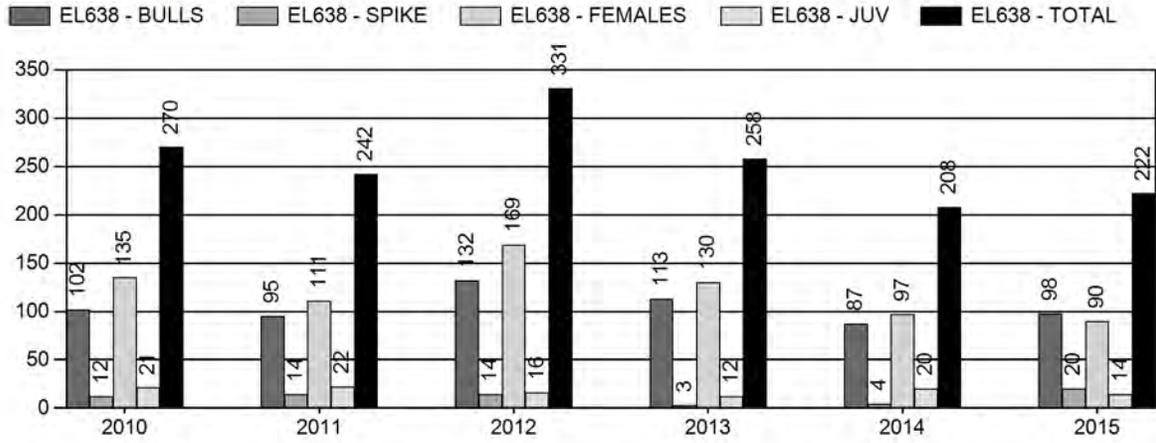
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Proposed harvest rates (percent of pre-season estimate for each sex/age group):

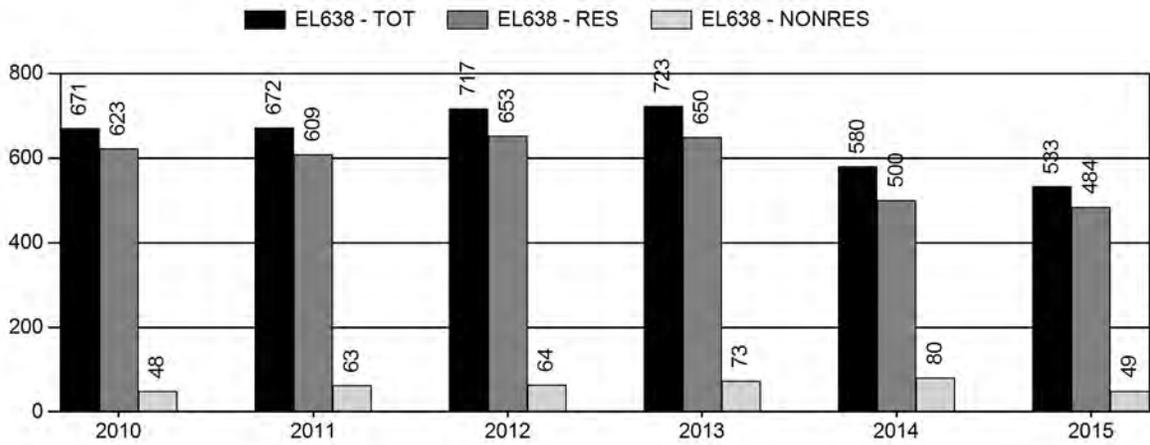
	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	0%	0%
Males \geq 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



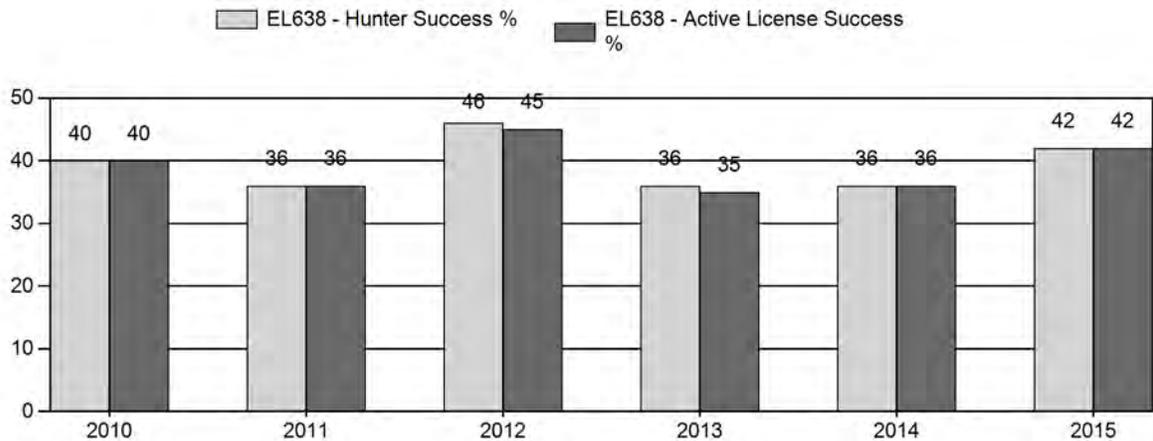
Harvest



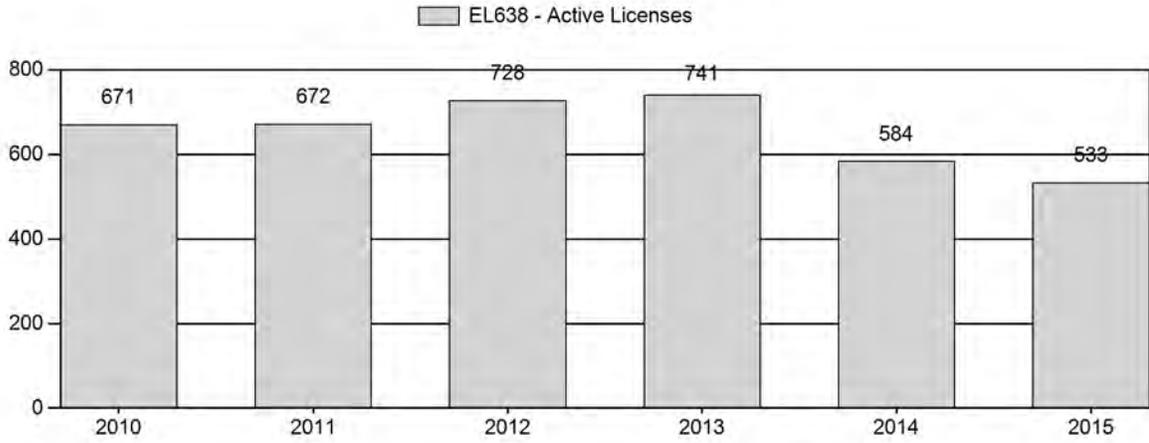
Number of Hunters



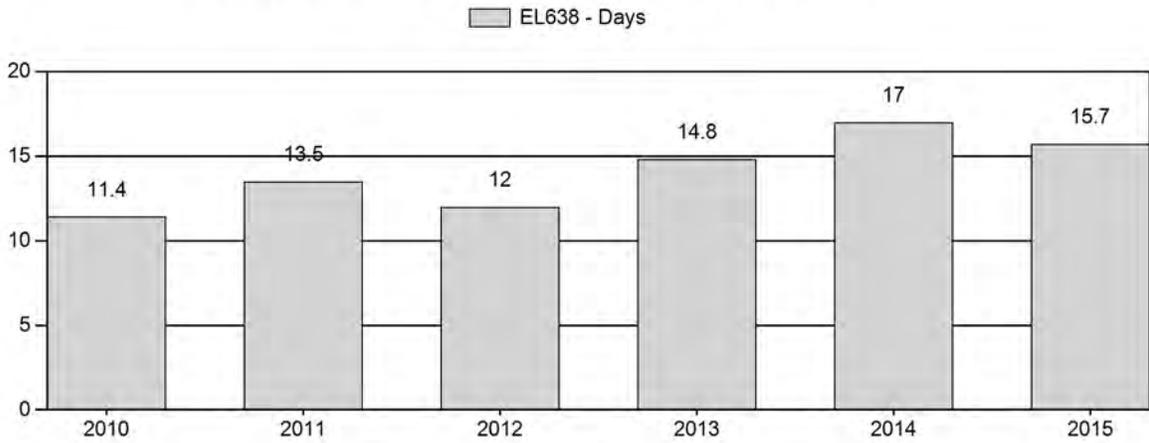
Harvest Success



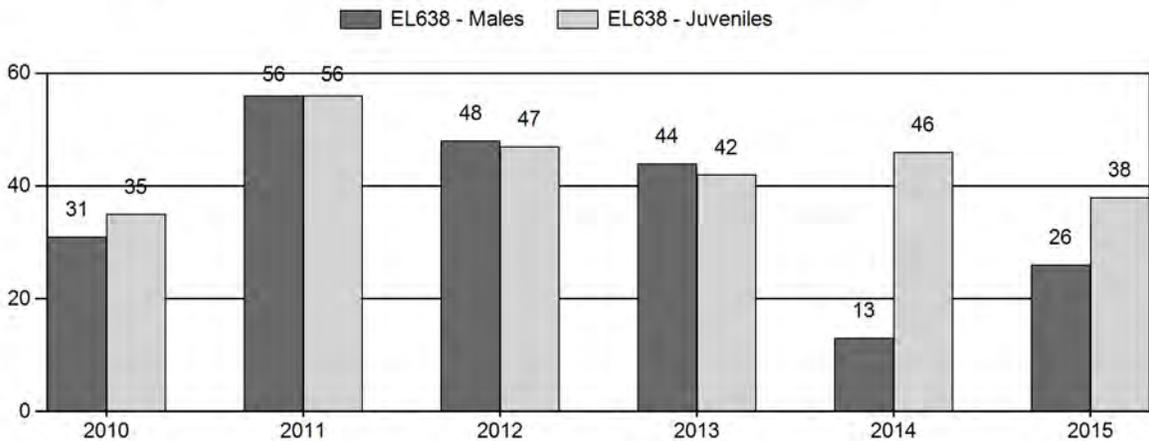
Active Licenses



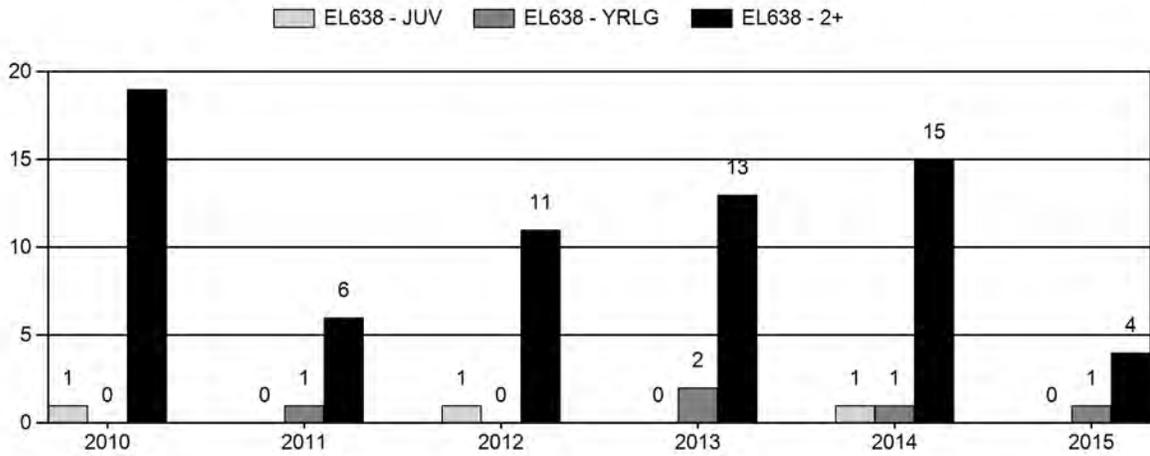
Days per Animal Harvested



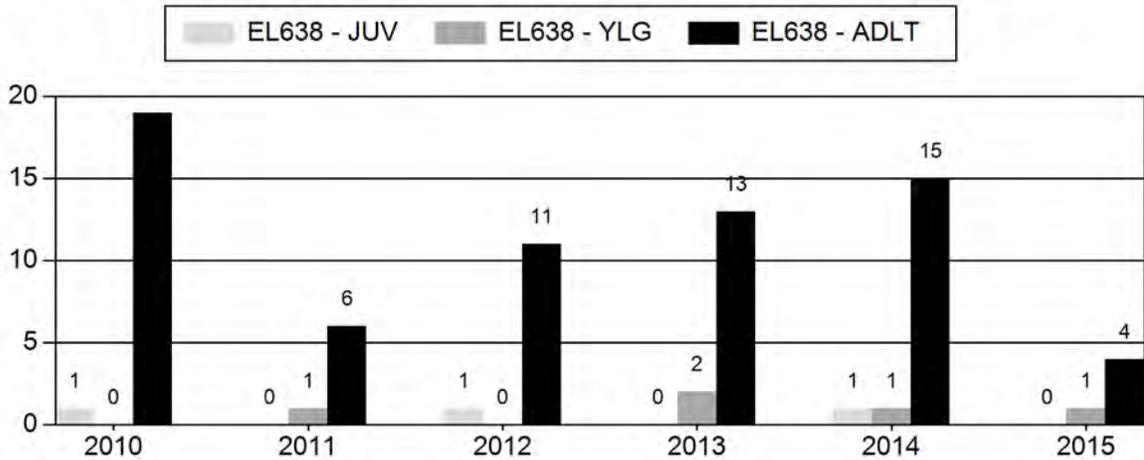
Postseason Animals per 100 Females



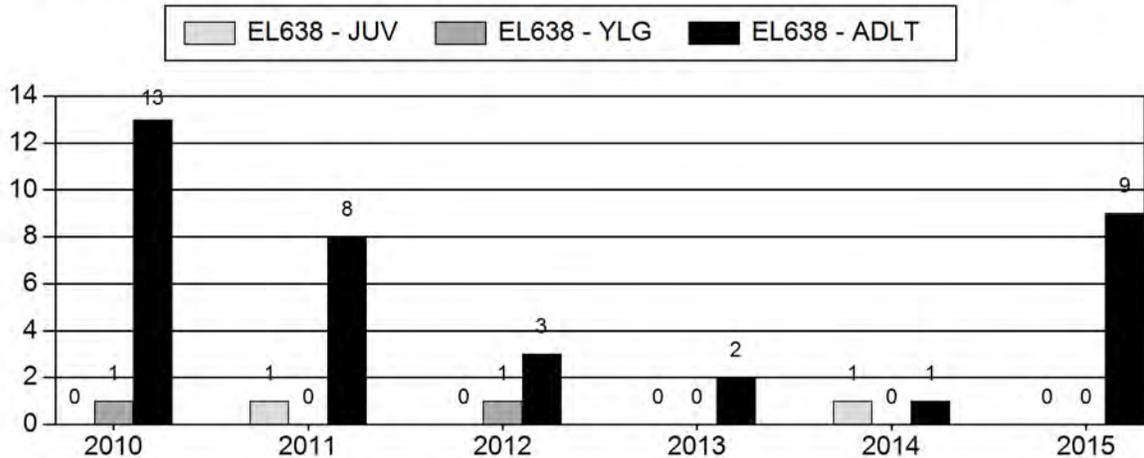
Age Structure of Field Checked Males



Age Structure Data (Field and Laboratory) - Male



Age Structure Data (Field and Laboratory) - Female



2010 - 2015 Postseason Classification Summary

for Elk Herd EL638 - GREEN MOUNTAIN

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	0	61	62	123	18%	401	60%	141	21%	665	0	15	15	31	± 0	35	± 0	27
2011	0	47	127	174	26%	313	47%	176	27%	663	0	15	41	56	± 0	56	± 0	36
2012	0	49	111	160	24%	336	51%	158	24%	654	0	15	33	48	± 0	47	± 0	32
2013	0	41	99	140	24%	319	54%	135	23%	594	0	13	31	44	± 0	42	± 0	29
2014	0	19	12	31	8%	243	63%	111	29%	385	0	8	5	13	± 0	46	± 0	41
2015	0	73	44	117	16%	444	61%	167	23%	728	0	16	10	26	± 0	38	± 0	30

**2016 HUNTING SEASONS
Green Mountain Elk Herd Unit (EL 638)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
24	1	Oct. 1	Oct. 14	175	Limited Quota	Any elk
24	1	Nov. 1	Nov. 30			Antlerless elk
24	4	Oct. 1	Oct. 14	50	Limited Quota	Antlerless elk
24	4	Nov. 1	Nov. 30			Antlerless elk
24, 128	5	Nov. 1	Nov. 30	125	Limited Quota	Antlerless elk
128		Oct. 1	Oct. 14		General	Antlered elk
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

Hunt Area	License Type	Quota Change from 2015
24, 128	5	+25
Herd Unit Total	5	+25

MANAGEMENT EVALUATION

Current Mid-Winter Trend Count Management Objective: 500

Management Strategy: Recreation (15 – 29 bulls/100 cows)

2015 Mid-Winter Trend Count: 728

Most Recent 3-year Running Average Trend Count: 569

Herd Unit Issues/Population

The management objective for the Green Mountain Elk Herd Unit was changed in 2014 to a mid-winter trend count of 500 elk, based on a running 3-year average. Trend count data vary due to annual changes in snow depth, light and wind conditions during flights, and condition of habitats each winter. A key factor in our ability to detect elk in winter is the extreme variability and extent of winter habitats, which range from mixed aspen/conifer/sagebrush habitats to open sagebrush/grassland habitats. The 2015 trend count/classification survey was completed in January 2016, with a total of 728 elk observed.

Weather

Precipitation has improved substantially since fall 2013, after a period of intense drought. Precipitation from October 2013 through September 2014 was about average in the Green Mountain elk herd unit. Winter 2014-15 had lower than average snowfall, yet precipitation from October 2014 through September 2015 was higher than the 30-year average due to April and May 2015 getting nearly double the average precipitation in Jeffrey City. Precipitation in Jeffrey City was 80% above average for the first four months of 2016, with another 2.42 inches of rain falling in the first week of May, and should lead to excellent summer forage conditions.

Habitat

Habitat conditions have greatly improved as a result of increased precipitation, and should result in improved survival over winter 2015-16, which has been fairly mild. Recently developed “Rapid Habitat Assessments” will be implemented for the Sweetwater mule deer herd unit to develop a baseline from which to gauge overall habitat condition across the landscapes. These assessments should also be useful for evaluating habitat conditions for the Green Mountain elk herd.

Field Data

The 2015 trend count/classification survey was conducted in January 2016 using a Bell 206 Jet Ranger helicopter, with 630 elk observed in Hunt Area 24, mostly on or near Green Mountain and another 98 elk in Hunt Area 128, for a total of 728 elk; about 46% over the mid-winter trend count objective of 500 elk. The 3-year trend count average of 569 is 13% above objective. More bulls were observed this year than in 2014, but with the lack of snow on and around Green and Crooks Mountains, we believe we missed seeing several bull groups. The resulting post-season calf/cow ratio of 38J/100F is considered good, but is about 16% below the previous 5-year average. The observed bull/cow ratio of 26M/100F was 36% below average but much better than observed in 2014 (13M/100F). Some wind and fog precluded complete surveys around Green Mountain; as such we likely missed a few groups of bulls.

Harvest Data

In 2015, a total 222 elk were harvested in the Green Mountain herd unit, an increase of 14 compared with 2014. Hunter success increased in Area 24 this year, with 62% for the Type 1 any elk season, 41% and 60% respectively for Type 4 and Type 5 antlerless elk hunters (59% overall – the highest since 2006). Changes made to the season structure in 2014 were maintained in 2015, including fewer licenses to reduce hunter crowding and allowing Type 1 and 4 hunters to hunt in November if unsuccessful in October. An unintended error not detected until after Commission approval of the 2015 elk seasons allowed Type 1 hunters to harvest “any” elk in November, versus the intent to allow only antlerless harvest. The result was inconsequential as only 2 more adult bulls were harvested in 2015 compared with 2014, and the total bull harvest was in line with long-term trends. Complaints about hunter crowding were minimal during the 2015 seasons. Along with increased hunter success, the number of days/animal harvested declined in 2015 to 15.7 days/elk killed, but was 2.2 days per animal longer than the previous 5-year average.

Management Summary

In response to numerous public complaints regarding hunter crowding and the early cow/calf season, hunting seasons were adjusted quite dramatically in 2014 to maintain or increase harvest, and reduce hunter crowding. In the recent years, we had nearly doubled license numbers in Area 24 to increase harvest and manage toward objective. Yet, as illustrated in Figure 2, increasing license numbers did not result in similar increases in harvest. To avoid overharvesting bulls in Hunt Area 24 and in response to Type 1 hunter success in 2014 being among the lowest in 10 years, we reduced Type 1 any elk licenses by 25 in 2015. The 2015 post-season bull/cow ratio of 26M/100F is within the “recreational” management range, perhaps in part due to that reduction.

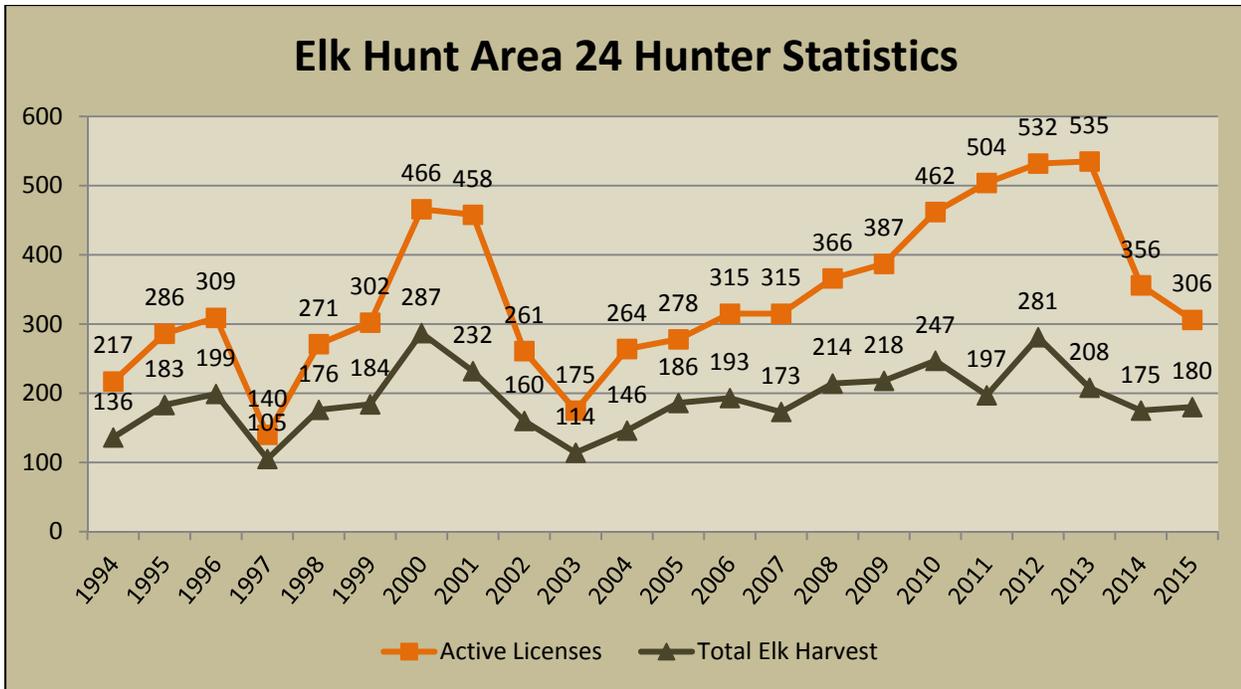


Figure 2. Comparison of elk license numbers and elk harvest trends in Elk Hunt Area 24, 1994-2015.

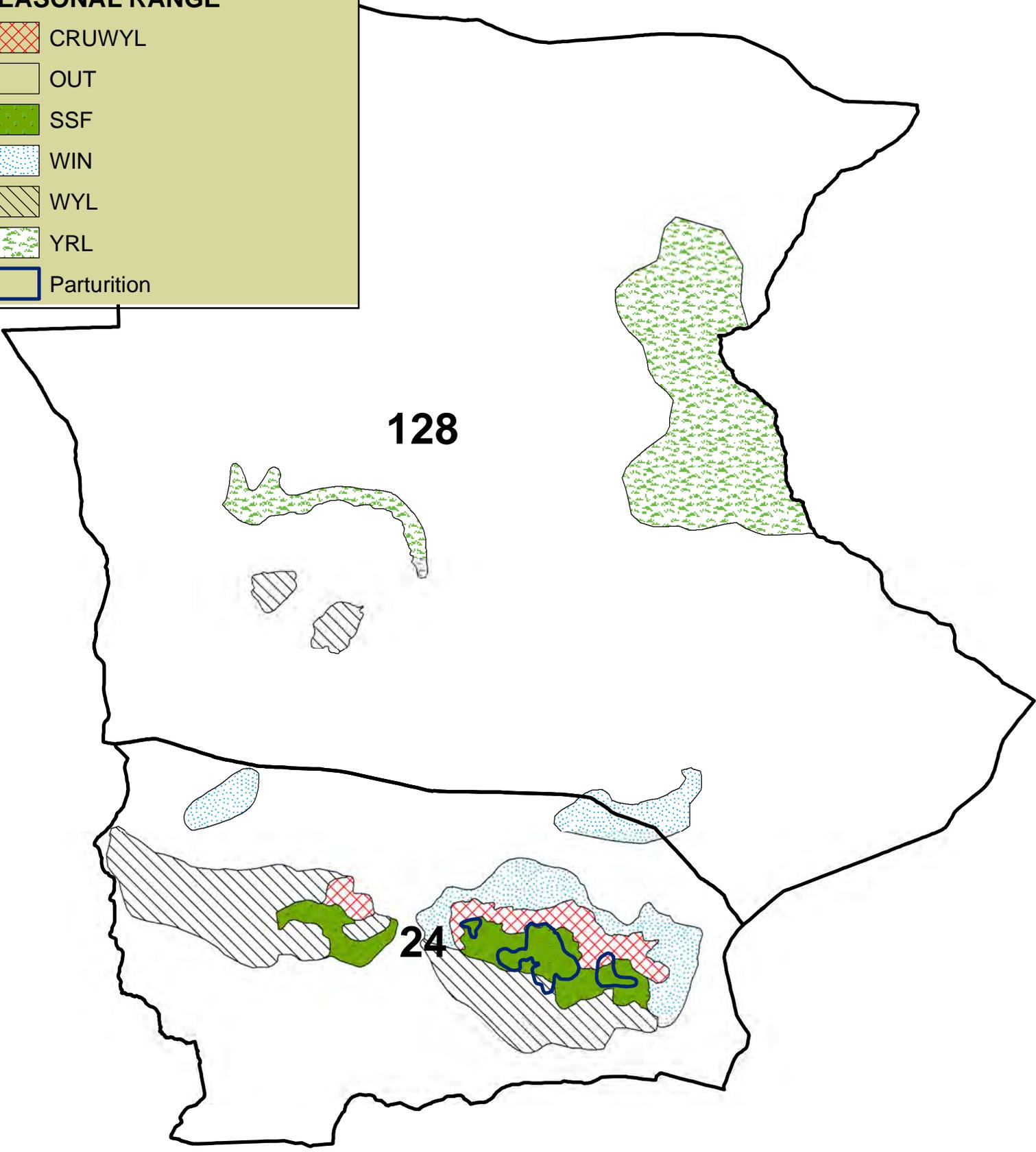
Nearly 87% of the elk counted in 2015 were in Hunt Area 24. We are refocusing our emphasis on harvesting female elk there by increasing the number of Type 5 licenses to 125 (valid in both Hunt Areas 24 and 128, however few hunters have reported hunting in Hunt Area 128), and not allowing Hunt Area 24 Type 1 and 4 hunters to hunt for antlerless elk in Hunt Area 128 in November as was done the past few seasons. November harvest from Type 1 and 4 hunters seemed quite low in 2015, as per “date of harvest” data provided via harvest surveys. Area 23 (Rattlesnake Elk Herd Unit) hunters will continue to have the ability to hunt in Area 128 from mid-November to mid-December, mostly targeting elk that move off the Rattlesnake Hills into the Gas Hills/Beaver Rim area. We will maintain the General License season in Hunt Area 128 as an “antlered elk” season again in 2016 in response to observed high hunter densities in portions of the hunt area, which prompted some concerns from area landowners, especially in the west half of the hunt area. We are focusing cow harvest in Area 128 with late-season opportunities as described above. We extended the Hunt Area 24 boundary southerly to encompass the Lost Creek area south to the Osborne Road for the 2015 season. Seasonal ranges need to be updated to match our understanding of elk use of the extended area. The expected 2016 harvest should consist of about 250 elk, mostly from Area 24, and move the herd closer to objective.

**Green Mountain Elk (EL638)
Hunt Areas 24, 128
Seasonal Ranges (Rev. 4/2016)**

Elk Hunt Area Boundary

SEASONAL RANGE

-  CRUWYL
-  OUT
-  SSF
-  WIN
-  WYL
-  YRL
-  Parturition



2015 - JCR Evaluation Form

SPECIES: Elk
 HERD: EL639 - FERRIS
 HUNT AREAS: 22, 111

PERIOD: 6/1/2015 - 5/31/2016
 PREPARED BY: GREG HIATT

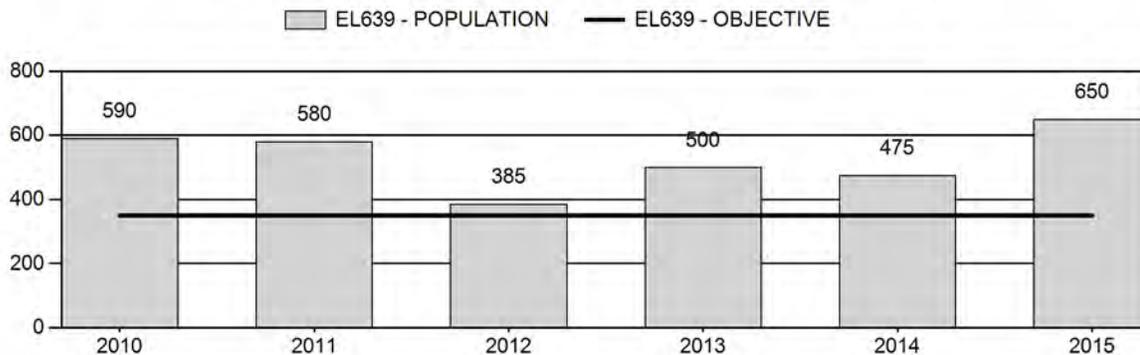
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	506	650	600
Harvest:	141	104	170
Hunters:	258	199	345
Hunter Success:	55%	52%	49 %
Active Licenses:	266	213	345
Active License Success:	53%	49%	49 %
Recreation Days:	1,794	1,391	3,100
Days Per Animal:	12.7	13.4	18.2
Males per 100 Females	52	56	
Juveniles per 100 Females	35	50	

Population Objective ($\pm 20\%$) : 350 (280 - 420)
 Management Strategy: Special
 Percent population is above (+) or below (-) objective: 86%
 Number of years population has been + or - objective in recent trend: 35
 Model Date: None

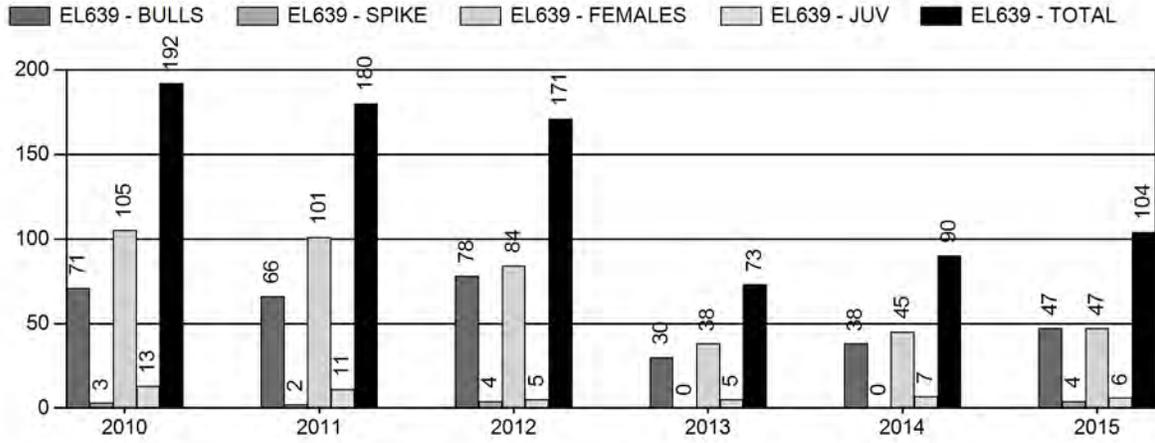
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%
Total:	0%	0%
Proposed change in post-season population:	-7%	-8%

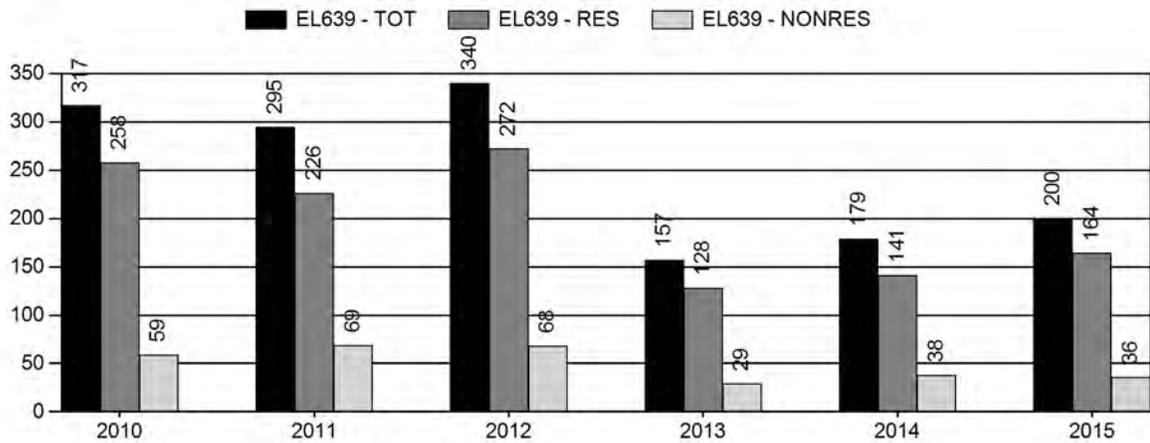
Population Size - Postseason



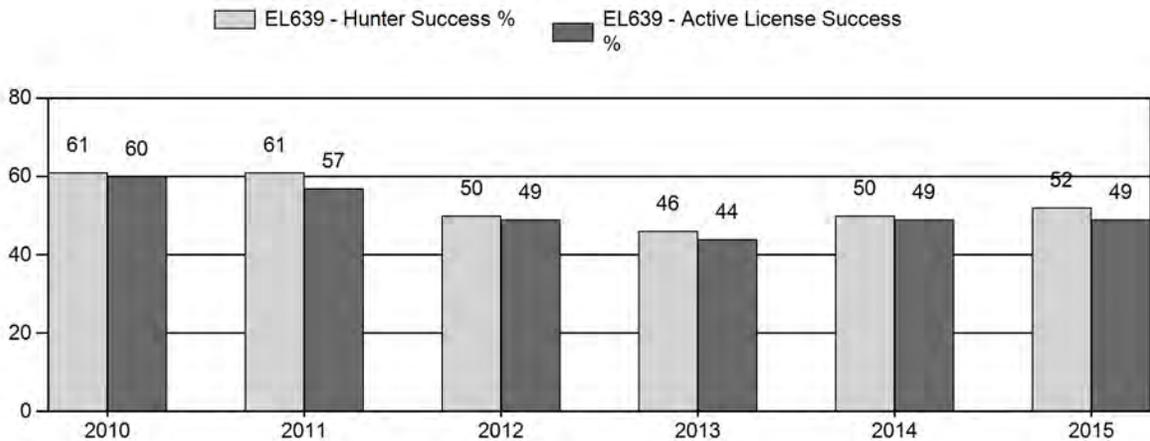
Harvest



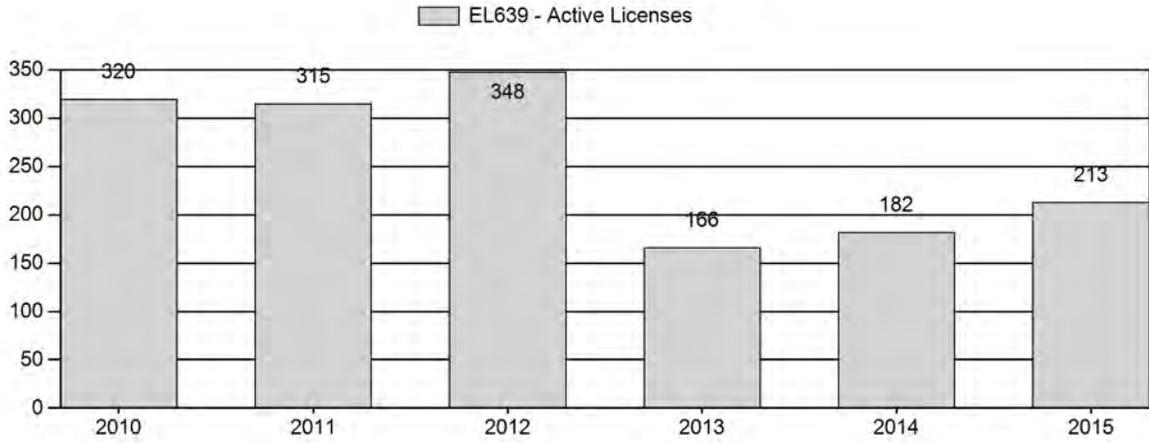
Number of Hunters



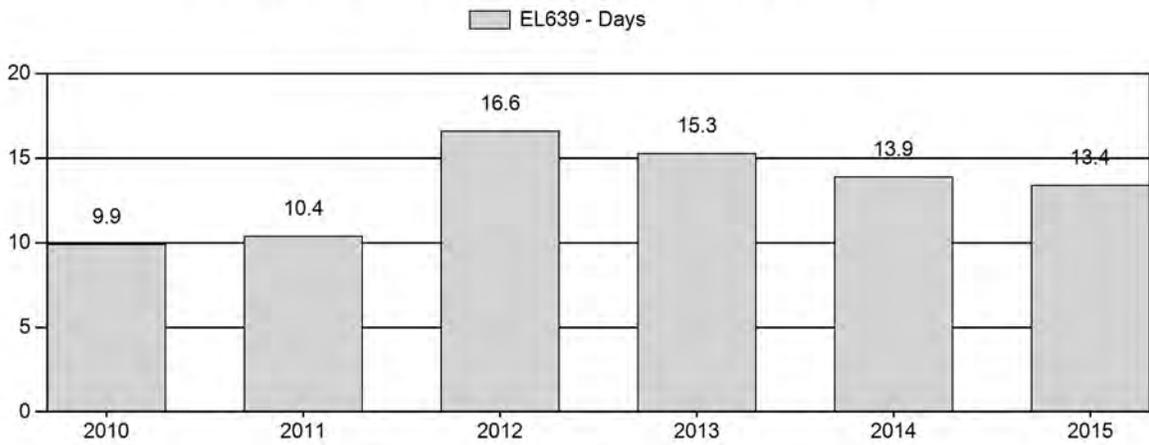
Harvest Success



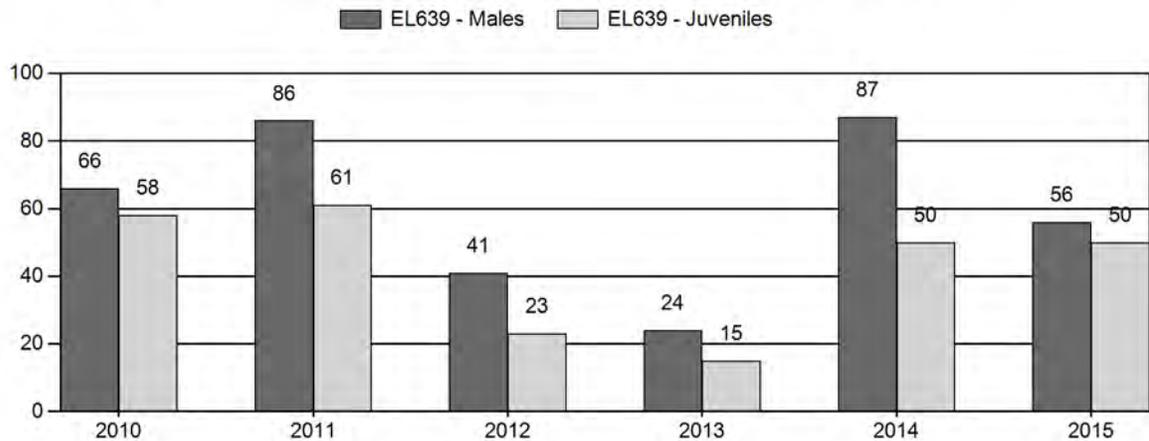
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Elk Herd EL639 - FERRIS

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
2010	590	25	53	78	29%	119	45%	69	26%	266	432	21	45	66	± 9	58	± 8	35
2011	580	23	87	110	35%	128	41%	78	25%	316	474	18	68	86	± 10	61	± 8	33
2012	385	25	50	75	25%	182	61%	42	14%	299	237	14	27	41	± 3	23	± 2	16
2013	500	34	49	83	17%	353	72%	54	11%	490	176	10	14	24	± 1	15	± 0	12
2014	475	39	112	151	37%	174	42%	87	21%	412	400	22	64	87	± 5	50	± 3	27
2015	650	55	108	163	27%	291	49%	145	24%	599	0	19	37	56	± 2	50	± 2	32

**2016 HUNTING SEASONS
FERRIS ELK HERD (EL639)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations	
		Opens	Closes				
22	1	Oct. 8	Oct. 31	40	Limited quota	Any elk	
	1	Nov. 1	Jan. 31			Antlerless elk	
	6	Oct. 8	Oct. 31	25	Limited quota	Cow or calf valid in the Muddy Creek drainage	
	6	Nov. 1	Jan. 31			Cow or calf valid in the entire area	
111	1	Oct. 10	Oct. 31	40	Limited quota	Any elk	
	1	Nov. 1	Jan. 31			Antlerless elk valid off the Wyoming Game and Fish Commission's Morgan Creek Wildlife Habitat Management Area	
	4	Oct. 10	Oct. 31	25	Limited quota	Antlerless elk	
	4	Nov. 1	Jan. 31			Antlerless elk valid off the Wyoming Game and Fish Commission's Morgan Creek Wildlife Habitat Management Area	
	6	Nov. 1	Jan. 31	150	Limited quota	Cow or calf valid off the Wyoming Game and Fish Commission's Morgan Creek Wildlife Habitat Management Area	
	7	Nov. 10	Jan. 31	125	Limited quota	Cow or calf valid off the Wyoming Game and Fish Commission's Morgan Creek Wildlife Habitat Management Area	
	Archery						
	22, 111		Sep. 1	Sep. 30			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
22	1	0
	6	0
111	1	+15
	4	0
	6	+25
	7	+125
Herd Unit Total	1	+15
	4	0
	6	+25
	7	+125

Management Evaluation

Current Postseason Population Management Objective: 350

Management Strategy: Special

2015 Postseason Population Estimate: ~650

2016 Proposed Postseason Population Estimate: ~600

Herd Unit Issues

The management objective for the Ferris Elk Herd Unit is a post-season population objective of 350 elk. The management strategy is “special” management, with bull:cow ratios allowed to exceed 30:100 and the proportion of branch-antlered bulls expected to exceed 66 percent of the antlered harvest. The population objective and management strategy were last publicly reviewed in 2012. All affected major landowners strongly endorsed keeping the population objective of 350 elk.

Access is a major issue with this herd unit. While there are large blocks of accessible, public land, refugia created by several large ranches that are either closed to hunting or greatly limit hunter numbers have prevented harvest from most of the elk in this herd unit, particularly in Area 111. As license quotas are increased to reduce elk numbers to objective, the lack of hunter access to these animals leads to over-harvest of public land areas while still preventing the harvest necessary to reach the population objective.

Weather

Improved precipitation which arrived in the latter half of 2014, following severe drought conditions in 2012 and 2013, continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth, improving calf survival. Condition of elk going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall. Most groups of elk seen during the January trend count were in crucial winter ranges well off the mountain ranges, indicative of heavy snow cover. Milder conditions arrived in mid-February and winter losses are not expected to be above average.

Habitat

While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation. Herbaceous production measured on the Morgan Creek WHMA in the Seminole Mountains was unusually high. Two shrub transects have been established within this herd unit, primarily to monitor mule deer winter forage. One of these, on the Morgan Creek WHMA, was burned in the 2012 fires and the second was not read in 2015.

Over the past several years the Rawlins BLM has implemented prescribed burns in the Seminole and Ferris Mountains, partly to address conifer encroachment while also rejuvenating decadent mountain mahogany and bitterbrush stands. In the summer of 2012, two large wildfires in the Seminole Mountains and the eastern Ferris Mountains burned thousands of acres. These prescribed burns and the recent wildfires should benefit elk as herbaceous forage reclaims burned areas.

The Seminole Fire burned over 3,800 acres in the Seminole Mountains including areas within Morgan Creek WHMA. As in other years following the fire, the Rawlins BLM again coordinated and funded aerial application of Plateau® in 2015 to mitigate cheatgrass spread on BLM and WGFD managed areas within the fire perimeter. The wildfire enveloped several previously planned prescribed burns, although not with the desired prescriptions.

Plans for additional prescribed fires in the Seminole Mountains, particularly on the Morgan Creek WHMA, have been accelerated to take advantage of the secure fire breaks provided by the 2012 wildfire.

Field Data

Obtaining reliable classification samples from small populations is difficult because, statistically, the majority of the population must be included in the sample to have any confidence in the resulting ratios. Ratios collected for this herd are further skewed because elk in this herd are not distributed randomly among the winter bands. Missing any of a handful of bachelor bull herds will significantly under-estimate bull:cow ratios. Failure to classify even one of the large cow/calf bands will greatly over-estimate bull:cow ratios, as happened in 2011 and 2014. Without reliable, consistent herd ratios, spreadsheet modeling for this small herd does not work.

Conditions during a helicopter trend count in January 2016 were near ideal, with deep snow cover and most elk being found well off the mountain ranges. All 599 elk counted were also classified, yielding the largest sample since 2009. As with most recent surveys, elk numbers were skewed between the two hunt areas, with only 81 being found in Area 22 and 518 in Area 111, where access is limited to large portions of the area.

Calf production remained high at 50:100 for the second consecutive year, well above the record low ratios recorded in 2012 and 2013. Improved precipitation increased calf production in Area 111, at 50:100, but the ratio in Area 22 was only 45:100, presumably a result of the small sample in that area.

Since most bull groups appear to have been located, as well as all major cow/calf groups, the bull:cow ratio of 56:100 from the 2015 classification sample is probably a realistic estimate of herd composition, and met the special management criterion. Distribution of antlered elk was also skewed, with 80 percent of the elk found in Area 22 being antlered, and only 11 were cows. Sixty percent of the antlered elk were in Area 111, but that area had only 43 percent of the branch-antlered bulls. The spike:cow ratio fell slightly to 19:100, despite high calf production in 2014.

Harvest Data

With the increased quota of Type 1 licenses in Area 22 in 2015, success dropped and the average number of days hunted increased by more than half. In contrast, success for Type 1 hunters in Area 111 rose to 92 percent and days of effort declined. These data suggest many of the bulls seen in the classification survey were in Area 111 during the hunt. Seven percent of the successful Type 1 hunters in Area 22 harvested antlerless elk, and 14 percent took spikes, the highest proportion since 1999. None of the Type 1 hunters in Area 111 chose to do so. Like the classification data, these harvest statistics suggest the supply of bulls in this herd has improved, at least in Area 111.

Beginning in 2010, Type 6 licenses in Area 22 were restricted to the Muddy Creek drainage for the first portion of the 5-week season to address damage concerns on irrigated hayfields. Initial success for hunters with these licenses was high, at 72 percent, but has steadily declined and was only 21 percent in 2013, 25 percent in 2014 and 19 percent in 2015. The average number of days hunted per elk harvested on these licenses began at 5 days in 2010 and has steadily risen, at 11 days in 2015. This license strategy has successfully reduced the number of elk found on these irrigated fields in the fall.

To address a problem of inadequate harvests resulting from poor license sales, most of the antlerless licenses in Area 111 were converted into reduced price cow/calf licenses beginning in 2009. To address crowding issues in the Seminole Mountains and to direct harvest to the segments of the herd protected by ranches with limited access during the fall hunt, those cow/calf licenses were not valid on the Morgan Creek WHMA. Seasons were extended through January to offer hunters opportunity to harvest antlerless elk in early winter when they are often found in winter ranges on accessible public lands. Success for hunters with these licenses had dropped off each year since, yielding only 33 percent success in 2015, despite the extended season. Hunters able to hunt the entire area with Type 4 antlerless elk had slightly better success, at 38 percent.

Population

Past efforts to model this herd using standardized values for some parameters in POP-II failed, as did recent efforts to employ spreadsheet modeling. As a result, population estimates and harvest recommendations have been based on winter trend counts. In years when counting conditions were not favorable, estimates of herd size are made using the most recent reliable trend count, adding annual calf production and subtracting harvest for each intervening year. Conditions were ideal during the 2013 winter trend count, when 490 elk were found. Snow cover was less ideal in 2014 and only 412 elk were observed. Ideal conditions during the 2015 count yielded a count of 599 elk, still well above objective and little different from numbers seen in 2009, despite large increases in antlerless license quotas and seasons extended through January. All of the surplus

elk are still in Area 111 where access is limited. A total of 130 elk were found in the Haystack Mountains in the checkerboard in the southern portion of Area 111 where landowners do not allow public access. In Area 22 where most lands are accessible to hunters, elk numbers have been successfully reduced and remain low.

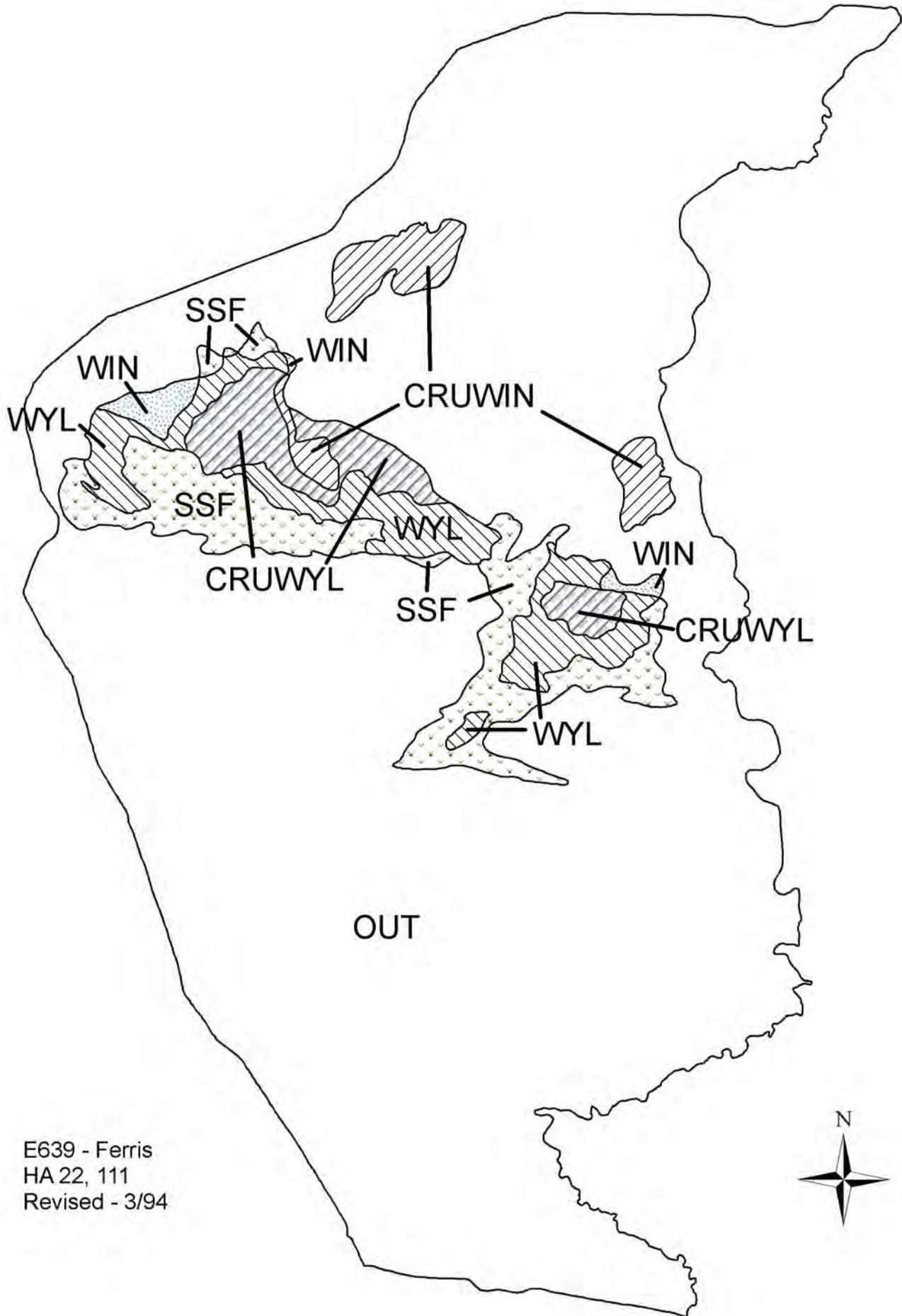
Management Evaluation

License quotas were reduced in 2013 in response to the low 2012 trend count, poor hunter success and low calf production, intended to maintain herd reduction while providing reasonable chances of success for hunters applying for such tags. This was the proper response for Area 22, but elk numbers were still above objective in Area 111 and quotas for that area were increased by 75 in 2014. While the high bull:cow ratio seen in Area 22 is probably skewed by antlerless elk dispersing into wintering areas in Area 111, high hunter success for Type 1 licenses in Area 111 indicates there was a good supply of bulls in that area and the quota for those licenses is increased by 15 in 2016. In addition, the quota for Type 6 licenses in Area 111 was increased by 25. An additional 125 Type 7 licenses were added to attempt to reduce this herd towards objective of 350, with the season for these licenses opening nine days later to reduce crowding.

Expected harvest from the 2016 seasons would be about 170 elk, with roughly 67 percent being antlerless. About 80 percent of the harvest should come from Area 111. Assuming normal calf production and improved hunter success, the herd should be reduced to approximately 600 elk in 2016.

Comments from several major landowners indicated they want elk harvested from this herd, but do not want public hunters on their lands. This herd offers an unusual opportunity where large portions of summer/fall habitats are on private lands with limited or no public access, but many winter ranges are on accessible public lands. Hence a strategy was initiated with an emergency regulation in 2012 and continued in the following years to allow hunters to pursue antlerless elk as late as January, where most of the elk are expected to be on public land. The intent is to achieve harvest of the reproductive segment of most of the elk herd, not just the segments which are publicly available in the fall. This same strategy is repeated in the 2016 seasons. Barring changes in access across private lands, elk occupying the Haystack Mountains in checkerboarded lands in Area 111 will continue to be unavailable to most hunters.

With the exception of the new Type 7 licenses in Area 111, all 2016 license types are consistent with the application booklets. Opening dates in both areas are consistent with the application booklets. Closing dates are the same as in the 2015 season. Archery seasons coincide with local deer archery seasons and archery seasons in neighboring elk areas.



2015 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL643 - SHAMROCK

HUNT AREAS: 118

PREPARED BY: GREG HIATT

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	86	N/A	N/A
Harvest:	56	24	60
Hunters:	93	61	110
Hunter Success:	60%	39%	55 %
Active Licenses:	98	65	110
Active License Success:	57%	37%	55 %
Recreation Days:	485	381	700
Days Per Animal:	8.7	15.9	11.7
Males per 100 Females	0	0	
Juveniles per 100 Females	0	0	

Population Objective ($\pm 20\%$) :	75 (60 - 90)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0
Model Date:	None

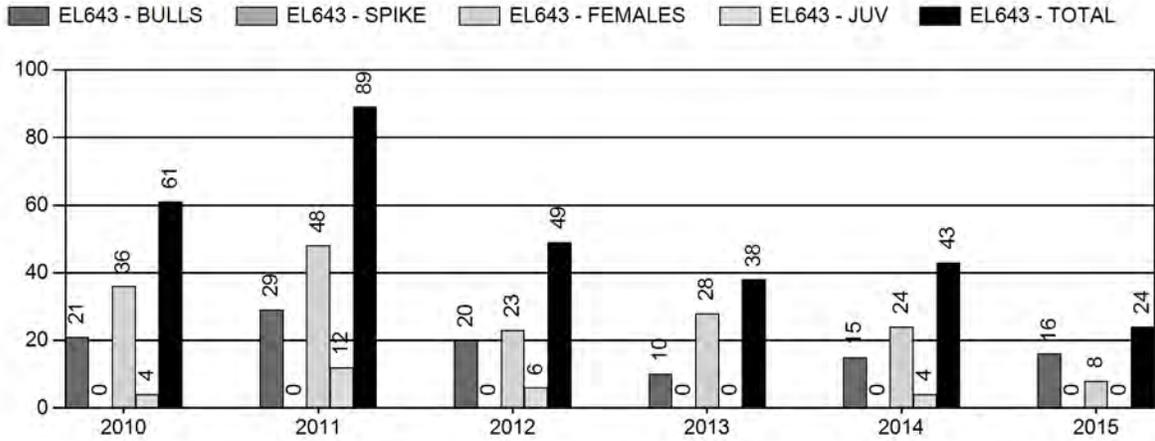
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

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

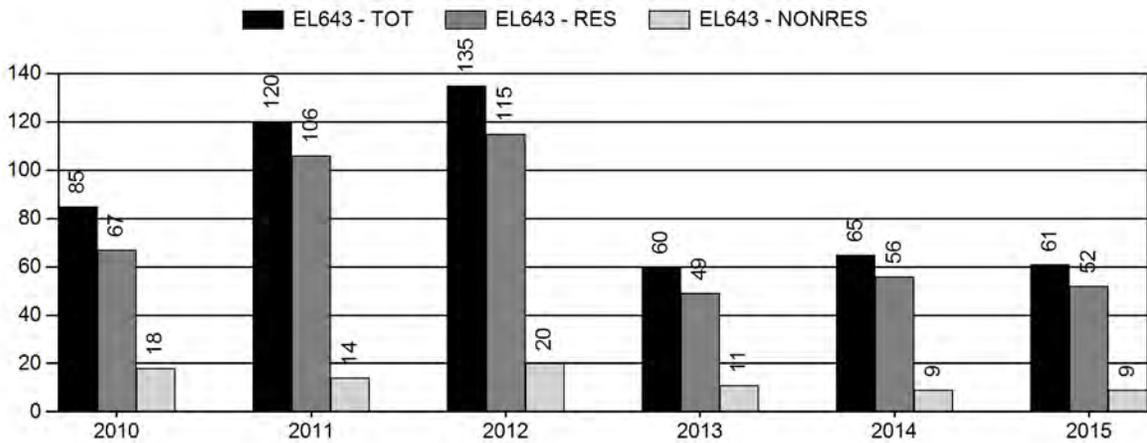
Population Size - Postseason



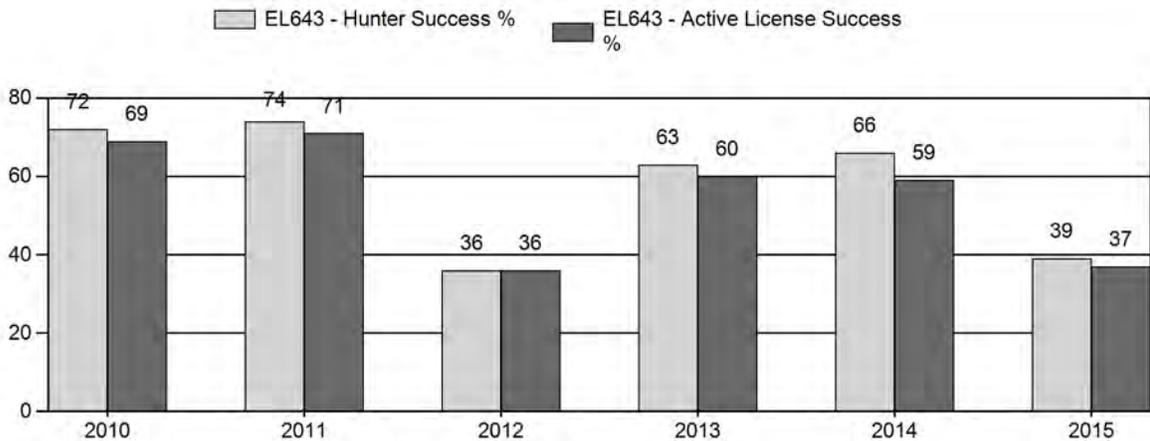
Harvest



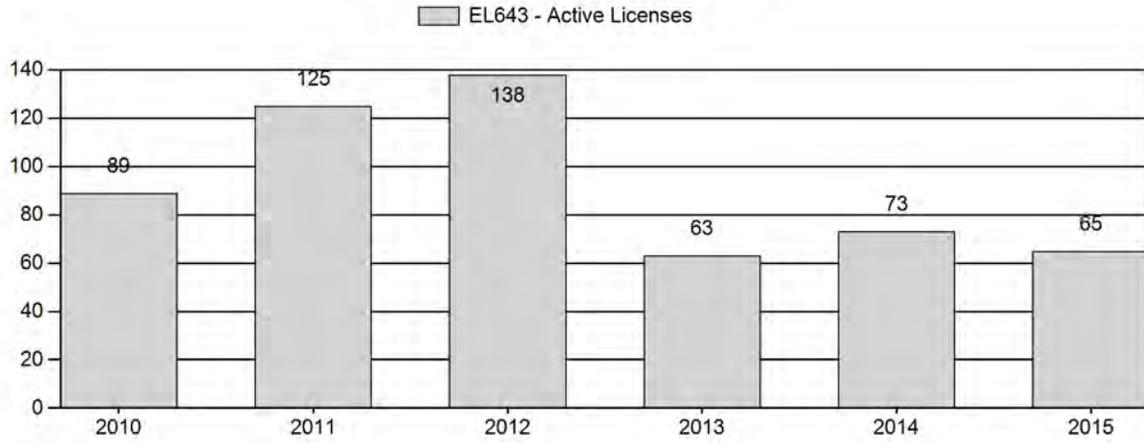
Number of Hunters



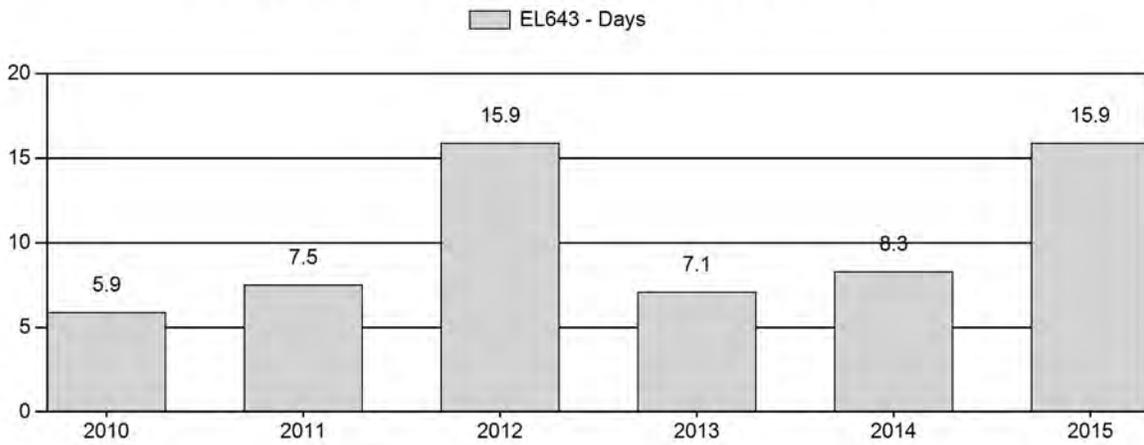
Harvest Success



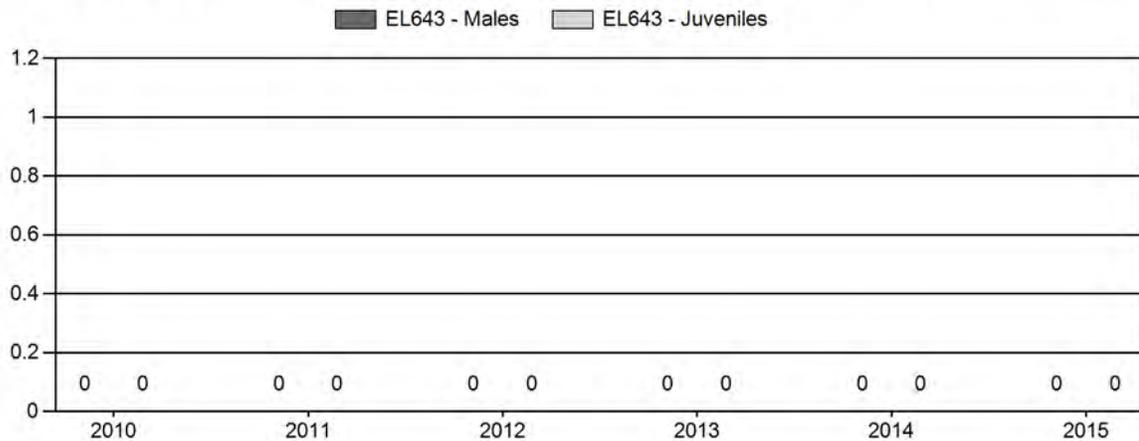
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Elk Herd EL643 - SHAMROCK

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
2010	230	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2011	200	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2012	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2013	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2014	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2015	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0

**2016 HUNTING SEASONS
SHAMROCK ELK HERD (EL643)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
118	1	Oct. 22	Nov. 12	25	Limited quota	Antlered elk
	4	Oct. 22	Nov. 30	25	Limited quota	Antlerless elk; also valid in that portion of Area 100 east of the Bar-X Road (Sweetwater County Road 21) and south of the Luman Road (Sweetwater County Road 20)
	6	Oct. 1	Nov. 30	75	Limited quota	Cow or calf valid south of the Mineral X Road (Sweetwater County Road 63 and BLM Road 3206); also valid in that portion of Area 100 east of the Bar-X Road (Sweetwater County Road 21) and south of the Luman Road (Sweetwater County Road 20)
Archery 118		Sep. 1	Sep. 30			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
118	1	0
	4	0
	6	+50
Herd Unit Total	1	0
	4	0
	6	+50

Management Evaluation

Current Postseason Population Management Objective: 75

Management Strategy: Recreation

2015 Postseason Population Estimate: N/A

2016 Proposed Postseason Population Estimate: N/A

Herd Unit Issues

The management objective for the Shamrock Elk Herd Unit is a post-season population objective of 75 elk. The management strategy is recreational management. This objective and management strategy were first established in 1984, when elk were found almost exclusively in the southeastern quarter of the herd unit, and were last publicly reviewed in 2015. Change to a landowner and hunter satisfaction objective was proposed in 2015 and was met with resistance by landowners who prefer management be committed to a fixed number of elk. A new trend count management objective is currently being reviewed.

This herd consists of bands of elk scattered in open sagebrush desert with three main areas of concentration in the southeast, southwest and the northeast corners of the herd unit. Observations have documented movement of bands of elk between these three concentration areas, as well as into Area 100 to the west, producing uncertainty on the actual numbers of elk in the population. Aerial trend counts have been attempted, but often failed to find elk in all three areas simultaneously. Snow cover is rarely adequate for good visibility of elk from an aircraft. Classification samples have been too small and inconsistent to allow for a reliable herd population model to guide management. As a result, license quotas have been based upon harvest statistics and simple assumptions of annular herd growth and harvest.

These bands of elk are highly mobile, and observations before and during the 2012 hunt suggested a significant number of elk from the southwestern portion of the herd may have moved west into more mesic habitats in the eastern portion of Area 100. This shift into Area 100 was noted again in 2014 and 2015, but may have been due to hunting pressure from cow/calf hunters rather than weather or drought.

A cow elk died of lichen toxicity just a few miles into Area 100 in September of 2012, presumably induced into consuming lichen as a result of extremely poor forage conditions that year. At least eight elk died of lichen toxicity in the eastern portion of Area 100 during the 2015-16 winter. No incidences of lichen toxicity in elk were noted in this herd, however roughly 150-200 elk wintering along the border between Areas 118 and 100 were reported to have left orange and red urine stains, indicative of lichen consumption, during both the 2014-15 and 2015-16 winters.

Weather

Following severe drought in 2012 and 2013, improved precipitation arrived in the latter half of 2014 and continued through 2015. Record precipitation in 2015 produced high calf crops in neighboring herds and is expected to have occurred in this herd as well. Condition of elk going into the 2015-16 winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

While no herbaceous habitat transects are established within this herd unit, herbaceous forage production appeared exceptional due to record precipitation in 2015. Only one shrub transect has been established near this herd unit, on the Chain Lakes WHMA, but was not read in 2015.

Habitat losses to uranium development increased with the opening of the *Ur in situ* uranium mine near the center of the herd unit, but is not in or near crucial elk ranges. Habitat losses to gas development have slowed significantly due to low oil and gas prices.

Field Data

All classification samples for this herd have been statistically inadequate and no posthunt classification data were collected again this year. Dispersal of these elk in small bands across hundreds of square miles of sagebrush makes both aerial and ground classifications prohibitively expensive. Increased precipitation during 2015 improved calf production in neighboring herds and production in this desert herd probably increased as well.

Harvest Data

Hunter success is typically quite high in this herd unit due to the open terrain and limited cover, but was exceptionally poor in 2012 when large numbers of elk were reported to have moved into southeastern portion of Area 100. Success improved when license quotas were reduced beginning in 2013, but success for Type 1 hunters was still below the long-term average. Success fell for all three license types in 2015, to record lows for the Type 4 and Type 6 hunters. At only 11 percent success for Type 4 hunters and 27 percent for Type 6 hunters, success in 2015 was lower than in the muzzleloader/archery hunt held in 1984. Again, many hunters attributed the low numbers of elk in Area 118 to movement west into the southeast portion of Area 100.

As would be expected with poor hunter success, the average number of days hunted per elk harvested increased in 2015, for all three license types. The effort required to harvest an antlerless elk on a Type 6 license more than doubled. The days of effort required for hunters with Type 4 licenses to harvest rose to an incredible record high of 63.5 days, almost seven times the 2014 average. Not surprisingly, hunter satisfaction fell to 33 percent from a five-year average of 62 percent.

Because of poor success, harvest in 2015 was almost half that of 2014, despite license quotas remaining unchanged. Even with low elk numbers, none of the Type 1 holders reported having to harvest a spike or antlerless elk.

Population

While initially found only in the southeastern portion of the herd unit, over the past 20 years elk have expanded into most portions of Area 118, at least for some seasons of the year. Numbers increased as well, with Department personnel being able to confirm at least 270 elk in this area prior to the 2010 hunting season. Harvests were increased, and the herd was estimated at about 200 elk following the 2011 hunt. Harvest from Type 6 licenses was most effective at reducing elk numbers in the southeast corner where elk use of private lands had been a concern.

Localized movement of elk westward into Area 100 from the southwest portion of Area 118 cannot explain the difficulty hunters had finding elk to harvest in the entire area in 2015. Harvest statistics indicate increased harvests in recent years have reduced elk numbers across the herd unit.

Management Evaluation

Harvest from the 2016 season is expected to be about 60 elk, with roughly three-quarters being antlerless elk. In previous years, cow/calf licenses were restricted to the southeastern portion of the area to address landowner concerns about elk numbers on private lands close to Rawlins. This strategy was successful, and the restricted area for those Type 6 licenses was expanded to include all of the hunt area south of the Mineral X Road beginning in 2013, which encompasses most private lands within the checkerboard. A similar delineation for the Type 6 licenses is used in 2016.

Opening date in this hunt area has been in the third week of October since it was reopened to hunting in 1992. Recently, there have been years when significant numbers of elk moved west out of the southwestern portion of this herd unit into Area 100 before or during hunting season, reducing harvests. In an attempt to compensate for this movement, the opening date for this area was synchronized with Area 100 in 2011 and 2012, on Oct 15. The attempt failed, with a large number of elk still moving west in 2012. There simply was not enough hunting pressure in the eastern end of Area 100 to shift elk back into Area 118. Complaints about the earlier opening date were received from nearly every hunter contacted, most being upset about crowding due to the season opener coinciding with that for the deer season. Others commented on the lack of a Department presence in the field on opening day, and subsequent poor hunting behavior (chasing with vehicles, herd shooting) by some participants.

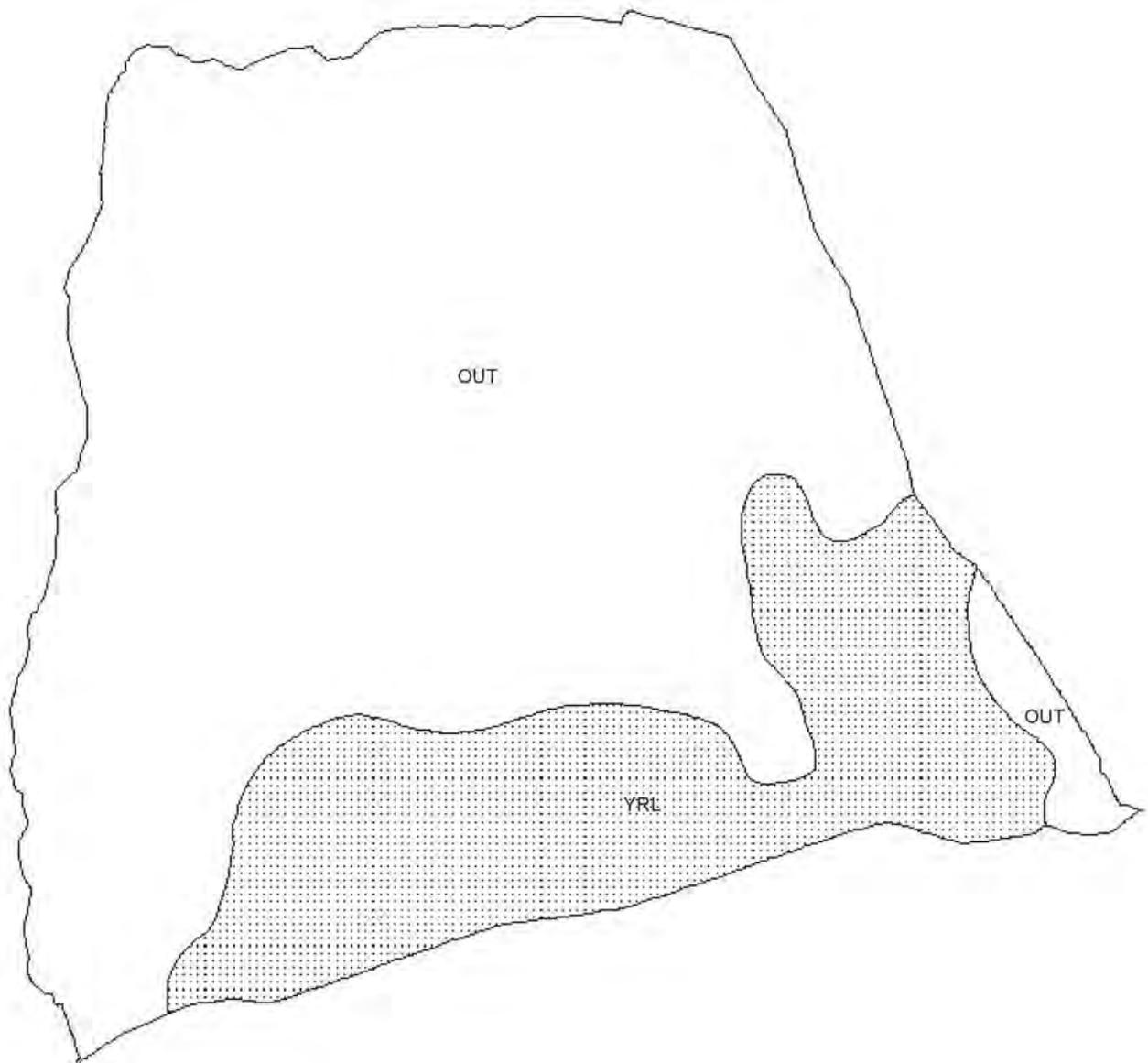
Opening date for the Type 1 and Type 4 seasons was returned to the traditional third week of October beginning in 2014, avoiding overlap with the general license deer hunt in the same area. Closing date for the Type 4 season is extended to the end of November to match the opportunity available to the Type 6 hunters. The archery season uses standardized dates and is comparable to those in neighboring areas.

To address the problem of elk dispersing into the southeastern portion of Area 100, Area 118 Type 4 and Type 6 licenses will also be valid in the southeastern corner of Area 100, bounded by the Bar-X and Luman Roads. This strategy will also allow for a test of the boundary change between these two herd units that was proposed in 2014. To prevent those elk residing along the herd unit boundary from avoiding harvest by moving east into Area 118, hunters with Area 100 Type 6 licenses will also be able to hunt in that portion of Area 118 south of the Mineral X Road and west of the Riner Road. The opening dates for the Area 118 Type 1 and Type 4 seasons are advanced by one day to synchronize with the Area 100 Type 6 season.

The population objective of 75 elk adopted for this herd unit in 1984 may have been appropriate when elk were only resident in the checkerboard, primarily in the southeast corner near Rawlins. With increased elk numbers in the habitats shared with Area 100 to the west and expansion of the population into mostly public lands north of the Mineral X Road, it may be reasonable to consider a different objective, particularly since collection of adequate data to model the herd is unlikely with current budgetary restraints. To address concerns over elk use on private lands, a

commitment to restrain elk numbers within the checkerboard may be beneficial. Realignment herd unit and hunt area boundaries with Area 100 to the west may also improve management of elk in this portion of the Red Desert.

E643 - Shamrock
HA 118
Revised - 5/88



2015 - JCR Evaluation Form

SPECIES: Moose
 HERD: MO620 - LANDER
 HUNT AREAS: 2, 30, 39

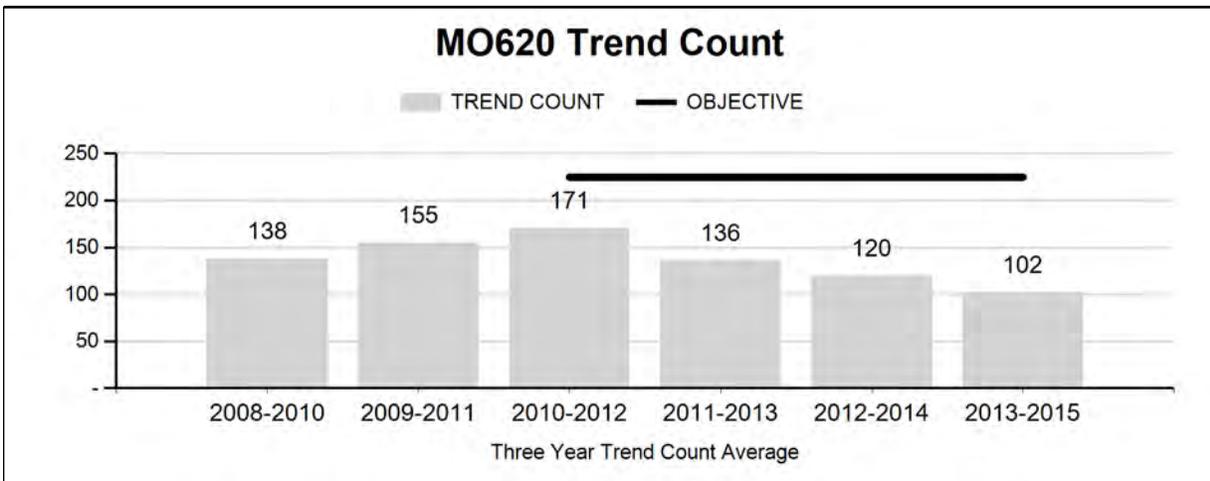
PERIOD: 6/1/2015 - 5/31/2016
 PREPARED BY: STAN HARTER

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Trend Count:	146	86	150
Harvest:	8	6	10
Hunters:	11	9	10
Hunter Success:	73%	67%	100 %
Active Licenses:	11	9	10
Active License Success	73%	67%	100 %
Recreation Days:	103	162	100
Days Per Animal:	12.9	27	10
Males per 100 Females:	69	45	
Juveniles per 100 Females	36	43	

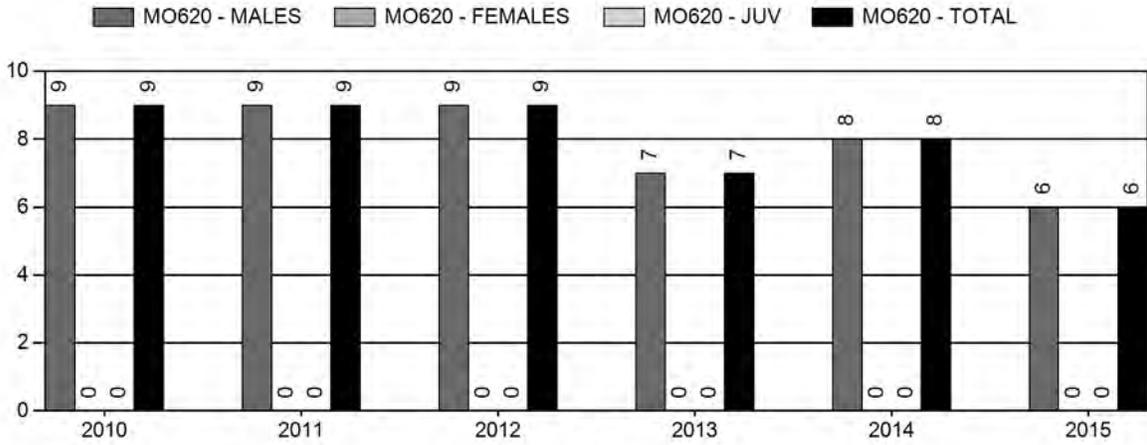
Trend Based Objective (± 20%) 225 (180 - 270)
 Management Strategy: Special
 Percent population is above (+) or (-) objective: -61.8%
 Number of years population has been + or - objective in recent trend: 5

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

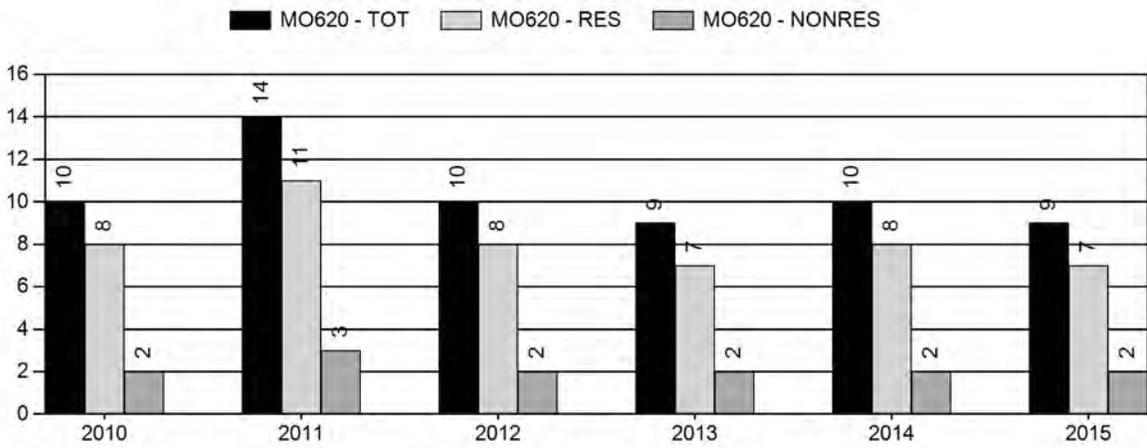
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



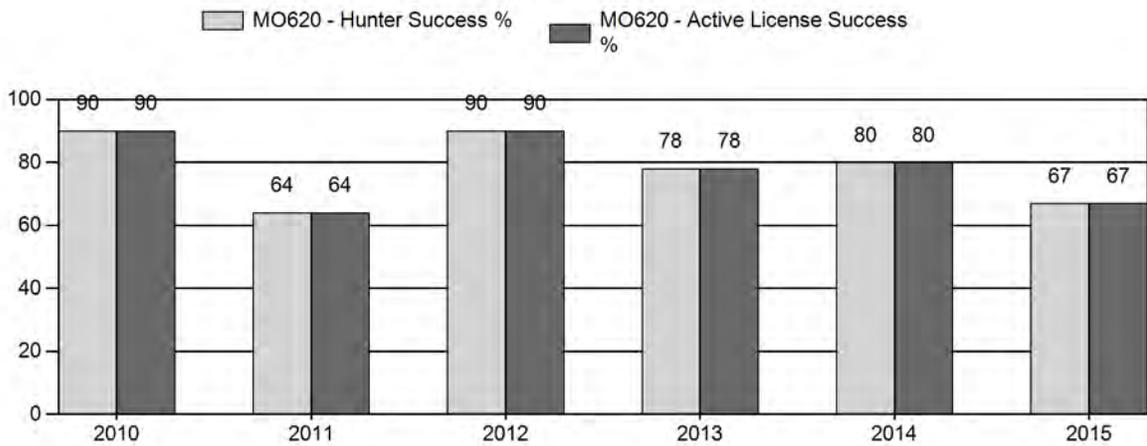
Harvest



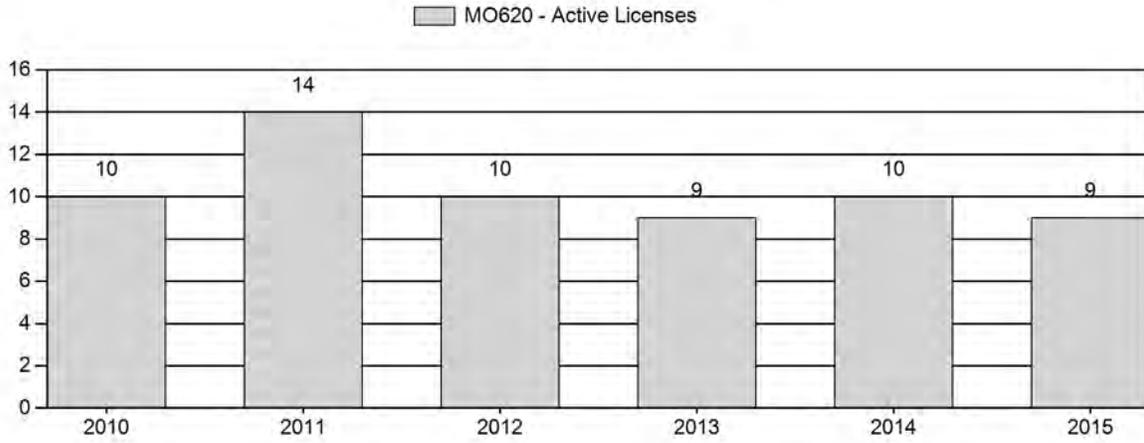
Number of Hunters



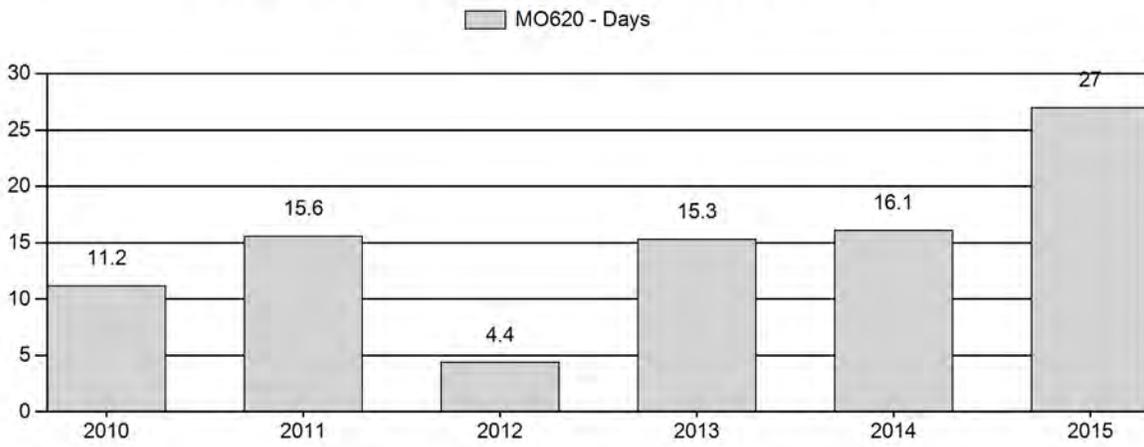
Harvest Success



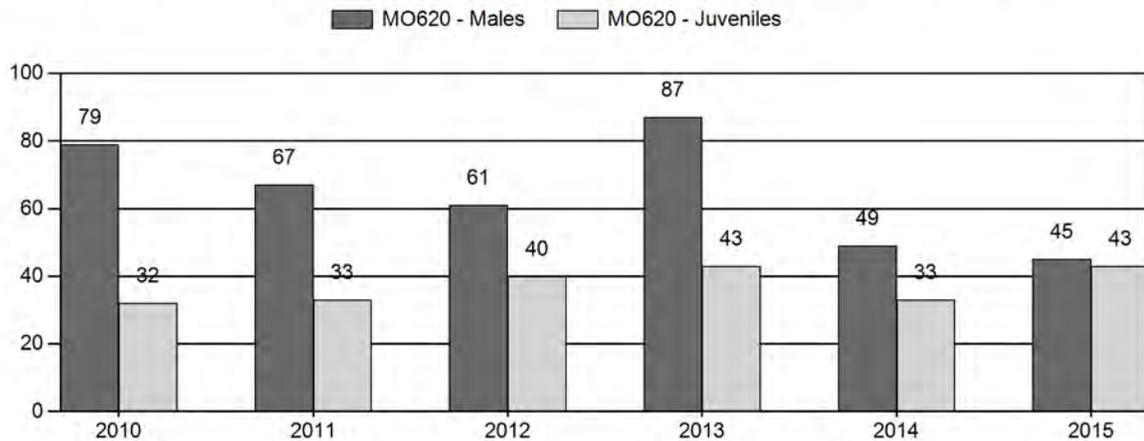
Active Licenses



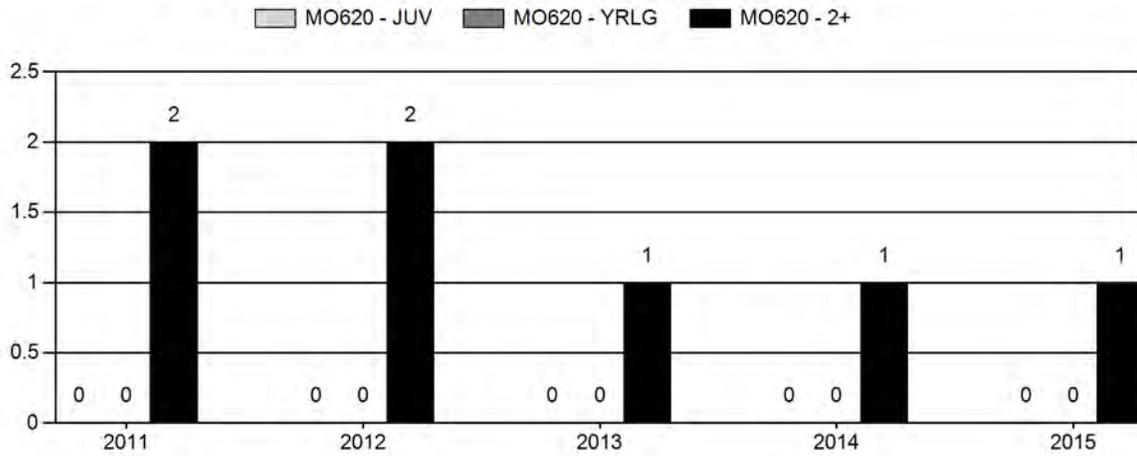
Days per Animal Harvested



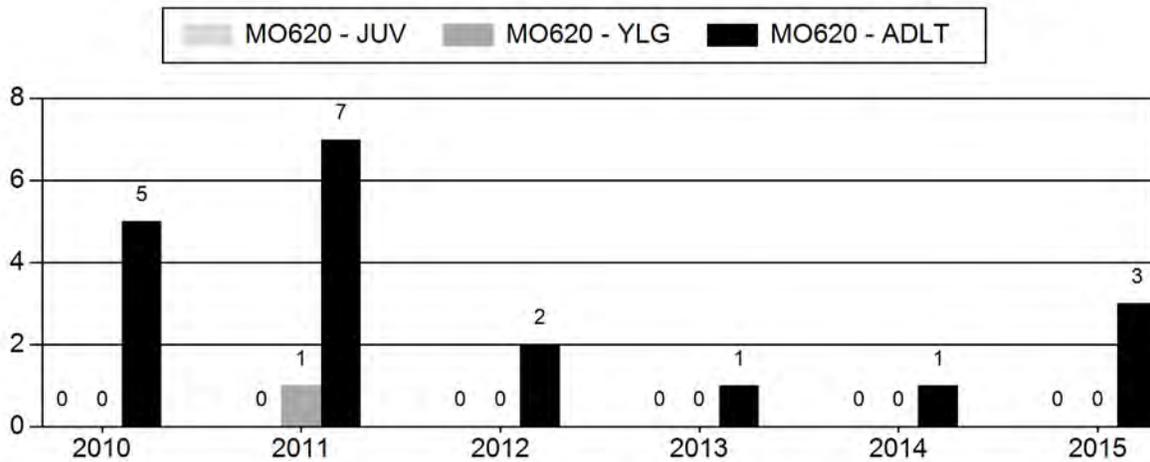
Postseason Animals per 100 Females



Age Structure of Field Checked Males



Age Structure Data (Field and Laboratory) - Male



Age Structure Data (Field and Laboratory) - Female

No Data Available



2010 - 2015 Postseason Classification Summary

for Moose Herd MO620 - LANDER

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
2010	0	0	0	78	37%	99	47%	32	15%	209	281	0	0	79	± 9	32	± 5	18
2011	0	0	0	54	33%	81	50%	27	17%	162	263	0	0	67	± 11	33	± 7	20
2012	0	0	0	43	30%	70	50%	28	20%	141	0	0	0	61	± 12	40	± 9	25
2013	0	0	0	40	38%	46	43%	20	19%	106	0	0	0	87	± 0	43	± 0	23
2014	0	0	0	30	27%	61	55%	20	18%	111	0	0	0	49	± 0	33	± 0	22
2015	0	0	0	20	24%	44	53%	19	23%	83	0	0	0	45	± 0	43	± 0	30

**2016 HUNTING SEASONS
Lander Moose Herd Unit (MO 620)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
2	1	Oct. 1	Nov. 20	5	Limited Quota	Antlered moose
30	1	Oct. 1	Oct. 31	5	Limited Quota	Antlered moose
30	1	Nov. 1	Nov. 20			Antlered moose also valid in Area 2
39		CLOSED				
Archery		Sept. 1	Sept. 30			Refer to license type and limitations in Section 2

MANAGEMENT EVALUATION

Current Mid-Winter Trend Count Management Objective: 225

Management Strategy: 60-70 bull/100 cows

2015 Trend Count = 83

Most Recent 3-year Running Average Trend Count = 102

Herd Unit Issues/Population

This population has experienced a general decline beginning in 1995. Trend counts showed a general upward trend from 2004 through 2010, an excellent year for detecting moose with near optimal snow cover and flight conditions. Starting in 2011, sample sizes have declined quite sharply, mostly due to less favorable snow cover and/or flight conditions. While this decline is possibly only the result of reduced detection of moose, it may also indicate a real decline in moose numbers. While some wolf activity has been reported for several years, documentation and public reports of wolves in several portions of the herd unit have substantially increased since fall 2015.

Moose throughout their range are susceptible to a variety of diseases, parasites, and other maladies. Presence of carotid artery worms (*Elaeophora schneideri*) has been increasingly documented in most herd units in Wyoming. However, no worms have been found in moose from the Lander Herd Unit recently. In fact, no presence of *Elaeophora* worms has been detected in this herd unit since it was first discovered in 1999 and 2000. Several cases of winter ticks were reported in bio-year 2015, with at least one confirmed mortality of a bull calf at Slate Creek along Wyoming Highway 28.

Attempts to develop a spreadsheet model for Lander Moose were not successful. In the absence of an accurate, or even usable, population estimate for the Lander Moose Herd Unit, a change to an alternative objective was necessary. Mid-winter trend counts, collected as classification survey data were deemed the best alternative, and seem to be a reliable trend indicator as we fly all available winter ranges annually. Therefore, the management objective was changed in 2013 to a trend count of 225 moose (range of 180-270 moose). The 2015 trend count was 86 moose.

Field Data

Moose winter range trend count/classification surveys were conducted January and February 2016, in combination with elk and deer classifications. All hunt areas were surveyed using a Bell Jet Ranger helicopter to survey traditional winter habitats throughout the herd unit. Most moose were observed in traditional willow riparian areas and adjacent sagebrush/bitterbrush slopes, or aspen stands. However, due to very light snow cover and increasing winds affecting flight safety, we did not observe as many moose as we anticipated in several locations, particularly in Area 30, and the Middle Popo Agie drainage, Maxon Basin, Pass Creek burn, and lower Sweetwater River portions of Area 2. The classification sample of 83 moose was the lowest since 2010 and also 39% below the average in that time frame (range 83-209). The post-season calf/cow ratio increased to 43J/100F, but the bull/cow ratio dropped to 45M/100F (Figure 1).

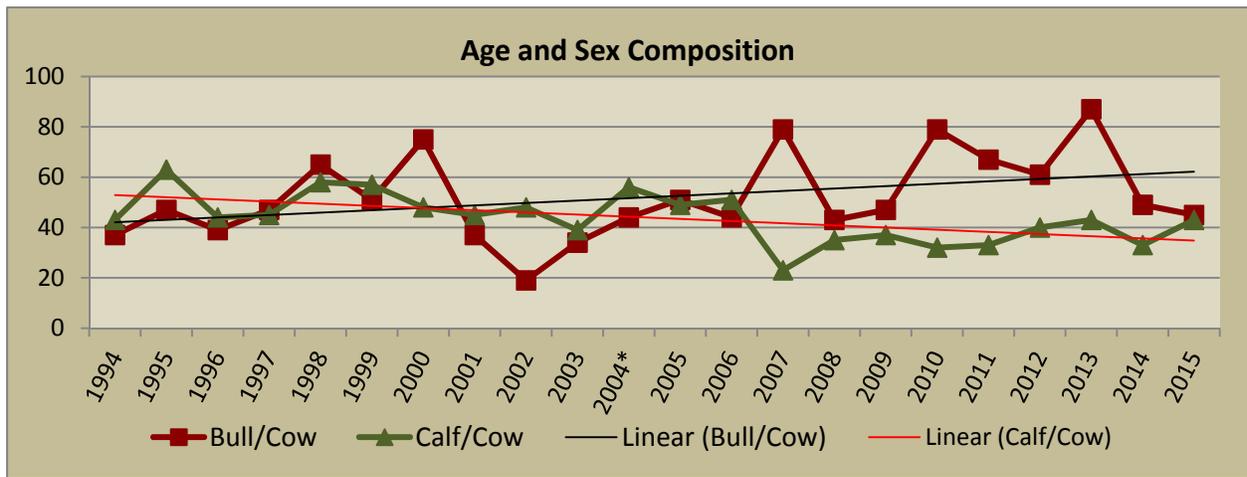


Figure 1. Age and sex composition for Lander Moose, 1994 – 2015.

Weather

Precipitation has improved substantially since fall 2013, after a period of intense drought. Precipitation from October 2013 through September 2014 was about average in the Lander moose herd unit. Winter 2014-15 had lower than average snowfall, yet precipitation from October 2014 through September 2015 was higher than the 30-year average due to April and May 2015 getting nearly double the average precipitation in Lander and Jeffrey City. Precipitation in Lander was 140% above average for the first four months of 2016, with record breaking rain falling in the first week of May, which should lead to excellent summer forage conditions.

Habitat

Future management of Lander Moose will also include evaluation and monitoring of habitat conditions on key moose winter ranges. Habitat management and monitoring strategies are being deliberated by the Department's Moose Working Group, and we are awaiting direction from them before moving forward with establishing transects. In the meantime, recently developed "Rapid Habitat Assessments" will be implemented as appropriate to develop a baseline from which to gauge overall habitat condition across the landscapes of the Lander moose herd unit. These assessments will include visits to several old monitoring locations in 2016, as well as at selected new locations.

Harvest Data

In 2015, nine hunters harvested 6 moose (3 in each hunt area) for hunter success of only 67%. The number of days per moose harvested increased to 27 days, the most in over 20 years. No hunters from Area 30 reported harvesting moose in November in Area 2, but at least one hunter did hunt both areas.

According to the tooth aging report, teeth were submitted from only 2 of the 6 harvested bull moose. The average age of 2 harvested bulls via cementum annuli was 3.5 years (range 3 – 4 years). With such a small sample size, comparing these data with prior years has little value, but the average age was down from 5 years in 2014. Hunters reported seeing 62 moose in Area 2 and 48 moose in Area 30 in 2015. Antler width averaged 35 inches (range 26 – 44 inches) for the 2 moose from which we received width measurements.

Management Summary

Hunting seasons remain conservative in 2016 with 5 Type 1 Antlered Moose licenses in Hunt Area 2 and with 5 Type 1 licenses in Hunt Area 30. The bull/cow ratio trend has been increasing in recent years, but experienced a small decline this year. Also, calf/cow ratios remain low (average of 35/100 since 2006, range 32 – 43) and with lower trend counts, we don't believe this population can yet sustain an increase in bull harvest, and in fact may need to be reduced. Hunter success averaged less than 80% the past several years, in spite of increases in bull/cow ratios.

Given poor detection of moose, it is likely the actual number of moose is much higher than that observed in the 2015 classification/trend survey. Regardless, the population seems to be experiencing a relatively stable trend since 2004 (Figure 2). However, decreasing counts after 2010 are increasing our concern this population is declining.

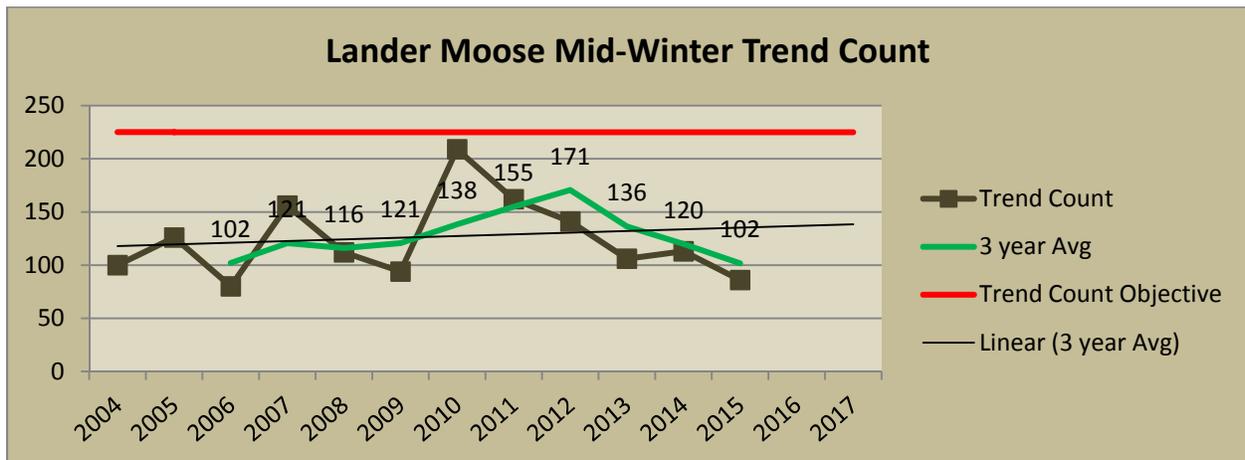
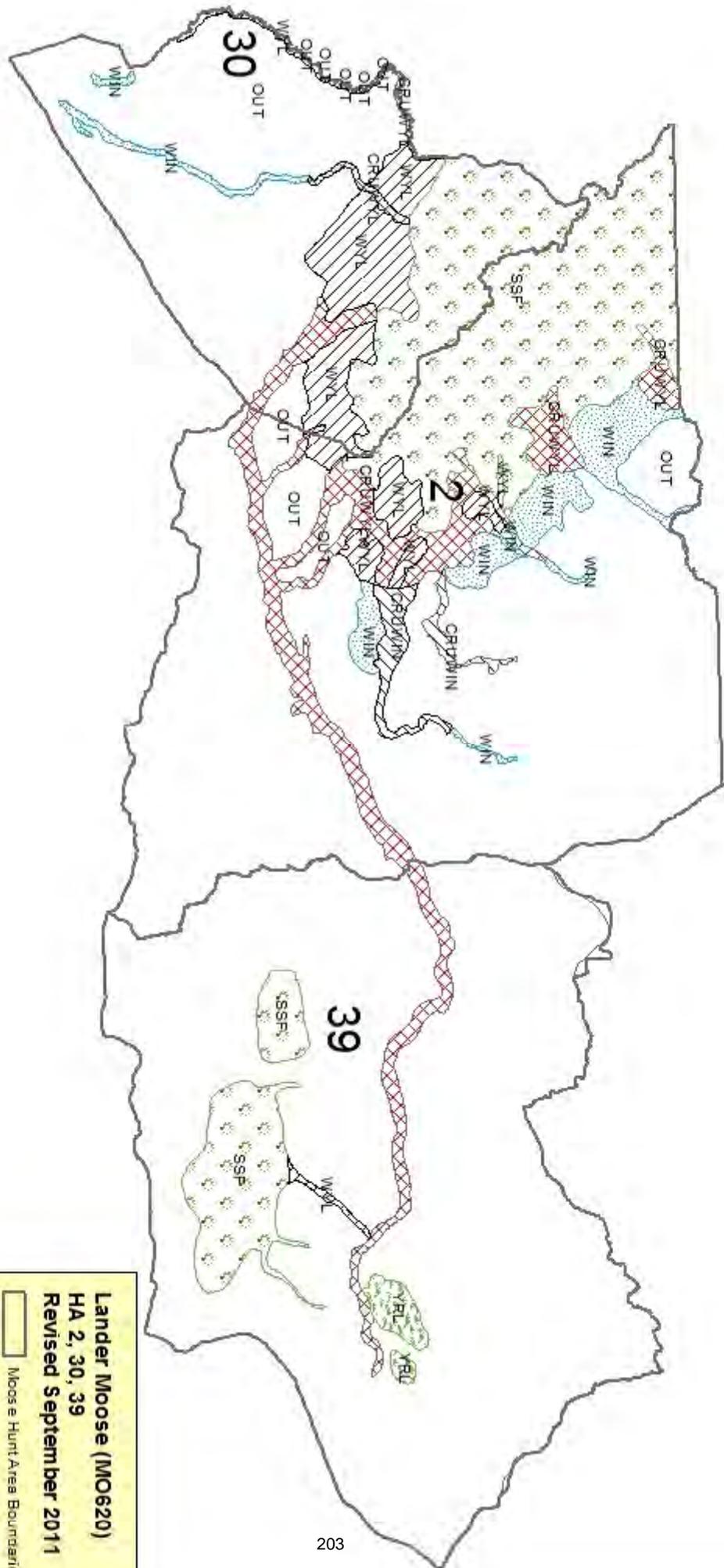


Figure 2. Mid-winter trend count data for Lander Moose (2004-2015) with projected trend through 2017 based on 3-year running average.

Area 30 hunters will continue to be allowed to hunt in Area 2 after November 1, if they are unsuccessful in Area 30 during October. We have discussed the potential for combining hunting opportunities for both areas simultaneously. If the recent poor hunter/harvest statistics continue, we will consider this in 2017, along with a reduction in total moose licenses for the herd unit. The 2016 seasons should provide a quality experience for moose hunters and improved hunter statistics. We expect hunter success to be 100%, resulting in a harvest of 10 bulls.



Lander Moose (MO620)
HA 2, 30, 39
Revised September 2011

Moose Hunt Area Boundaries

Moose Seasonal Range

- CRUWIN
- CRUWYL
- OUT
- SSP
- WIN
- WYL
- YRL

2015 - JCR Evaluation Form

SPECIES: Moose
 HERD: MO621 - DUBOIS
 HUNT AREAS: 6

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

 PREPARED BY: GREG
 ANDERSON

	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	0	N/A	N/A
Harvest:	5	4	4
Hunters:	5	5	5
Hunter Success:	100%	80%	80 %
Active Licenses:	5	5	5
Active License Success:	100%	80%	80 %
Recreation Days:	45	49	40
Days Per Animal:	9	12.2	10
Males per 100 Females	0	0	
Juveniles per 100 Females	0	0	

Population Objective (± 20%) :	0 (0 - 0)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0
Model Date:	1/1/2016

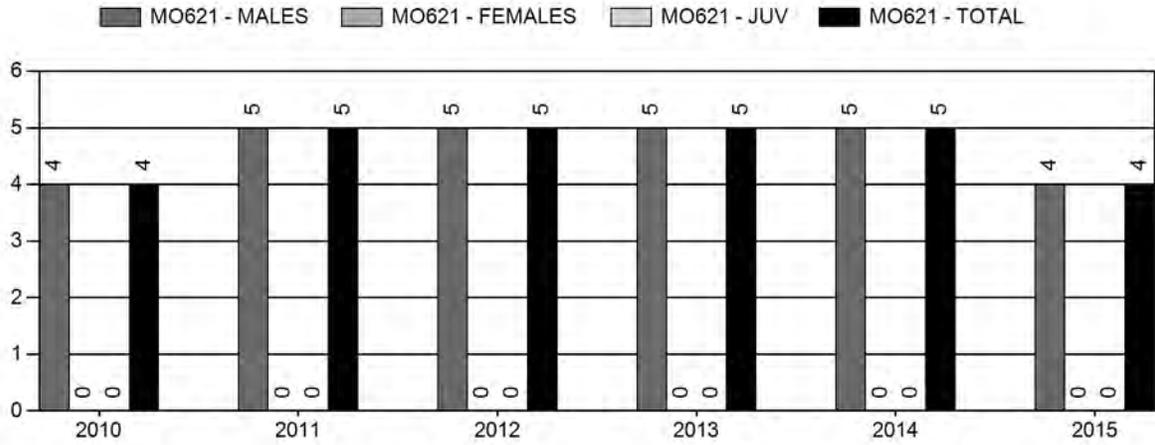
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

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

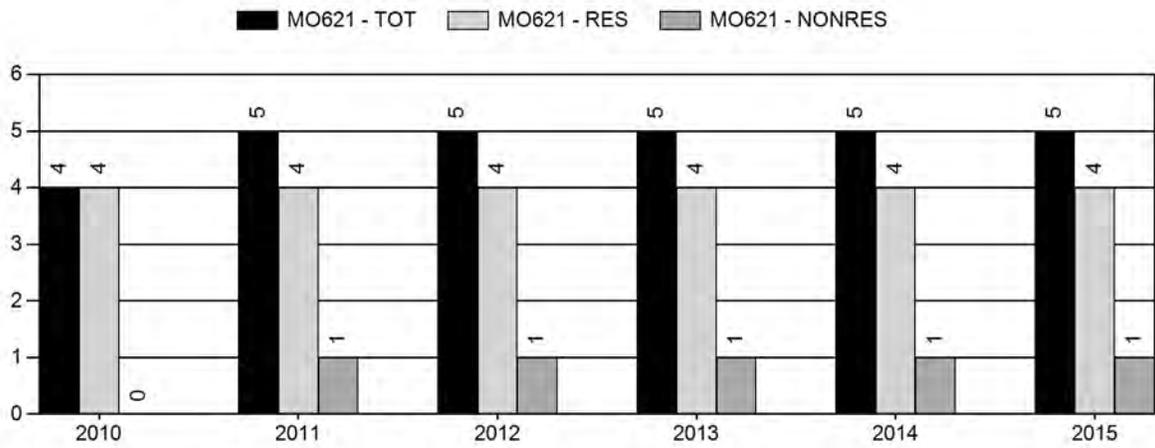
Population Size - Postseason



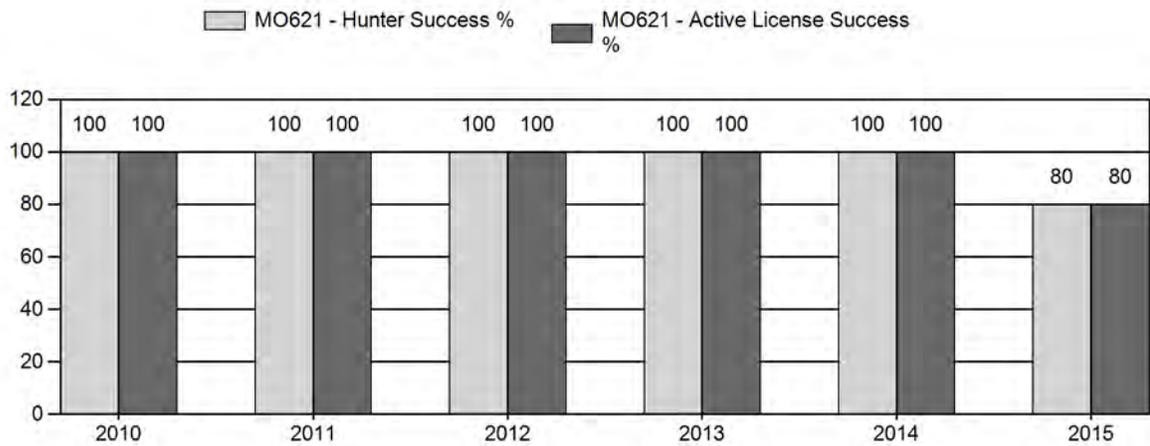
Harvest



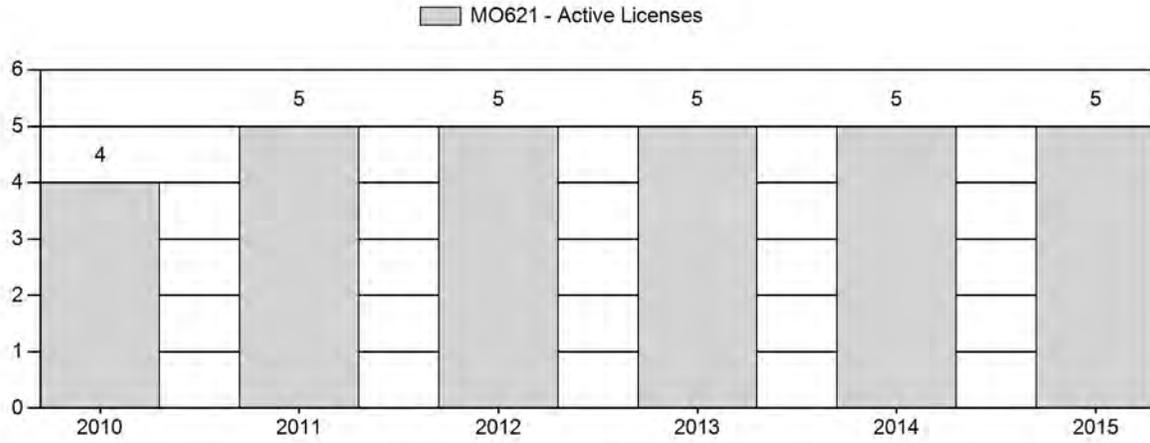
Number of Hunters



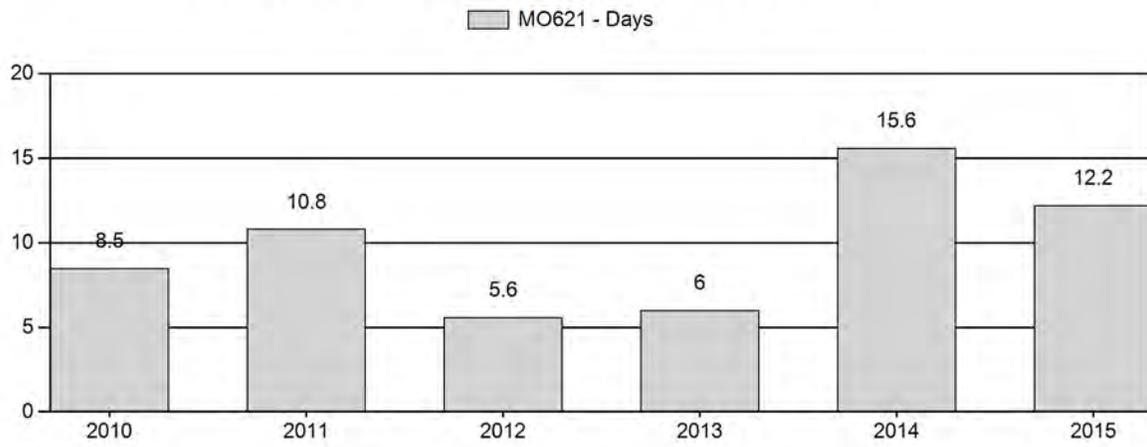
Harvest Success



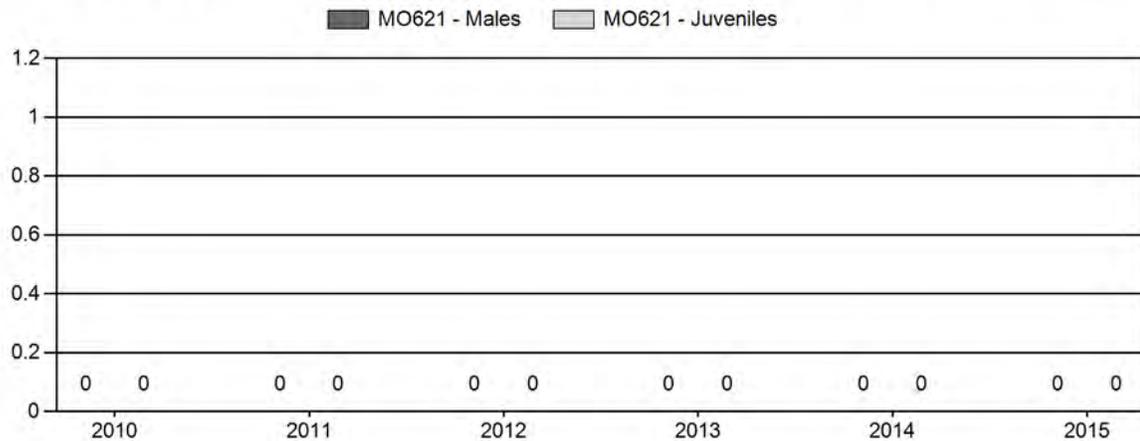
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



**2016 HUNTING SEASONS
DUBOIS MOOSE (MO 621)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
6	1	Oct. 1	Nov. 20	5	Limited quota	Antlered moose
Archery		Sep. 1	Sep. 30			Refer to section 2

Hunt Area	Type	Quota change from 2015
6		
Total		

Management Evaluation

Current Management Objective: Moose limited opportunity objective

Objective Status: At objective

Management Strategy: Special

Management Issues

In 2014, the management objective for the Dubois Moose Herd was changed to a ‘moose limited opportunity objective.’ This objective includes a list of several items intended to gauge the hunting experience in the herd unit and to ensure adequate herd health. The intent is to provide a small number of license holders a high quality experience. To this end, the Department aims to issue licenses such that:

1. The 5-year running median age of harvested bulls is ≥ 4 years.
2. The 5-year running average of the days/animal statistic for Type 1 license holders is ≤ 10 .
3. Department personnel document adult bulls in the herd unit each year.
4. 40% of harvested bulls are ≥ 5 years old for a 5-year running average.

Over the past 7 years, the Department has only issued 5 licenses in this herd unit annually. Since the objective criteria in the herd unit are dependent on harvest statistics and particularly tooth age data it can be problematic at times evaluating even these basic items. For example, only 1 set of teeth was submitted for age analysis in 2012 and only 2 sets were submitted in 2013. That said, in 2015, personnel did begin collecting annual census data at 5 select moose wintering sites to document the presence of adult bulls in the population as well as providing a mechanism to identify major population changes.

Habitat/Weather

No specific data regarding moose habitat is collected within this herd unit on an annual basis. Vegetation monitoring transects on both sheep and elk winter range indicated herbaceous vegetation production was quite good in 2015. Good moisture and growing conditions should have resulted in high feed production for moose on both low elevation winter sites and mid-elevation summer range. Moose observed throughout winter appeared to be in excellent body condition. It is likely this population has been and will continue to be impacted by large tracts of beetle killed timber across the herd unit. The effects of this natural successional change on moose in this herd unit should manifest themselves over the next decade.

Harvest Data/Population

Anecdotal evidence suggests this population declined significantly over the past decade. Concurrently, harvest pressure was reduced and the small amount of harvest data collected annually became less useful for making management decisions. In 2014, the Department adopted the ‘moose limited opportunity objective’ for use in herds like Dubois. This objective seeks to utilize the minimal amount of harvest data available to ensure herd health and hunt quality standards are met in small moose herds.

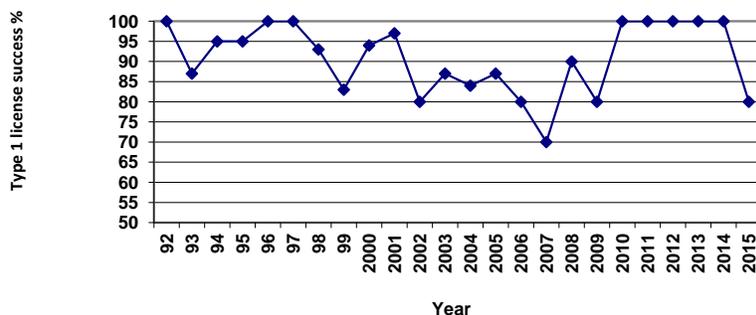
In 2015, Type 1 license holders had an 80% success rate in the Dubois Moose Herd Unit. Over the previous 5 years, Type 1 license success was 100% annually (Fig. 1). The days/animal was 12.3 in 2015 and was somewhat higher than the previous 5-year average of 9.3.

Given the 2015 harvest, the following conditions were met:

1. Five-year median age of bull harvest was 5.
2. Five-year average of days/animal was 10.0
3. Fifteen mature bulls were classified in a sample size of 29 moose.
4. Over the past five years, 7 out of 13 (54%) of tooth aged, harvested bulls were 5 years or older.

As such, all objective criteria for the herd were met and the herd is considered at objective. That said, harvest success did decline in 2015 and the days/animal was above the 5-year average.

Figure 1. Type 1 license success in the Dubois Moose Herd



In January, 2015, personnel began counting moose at five distinct wintering areas within this herd unit (Table 1). In theory, these counts will provide a useful year-to-year comparison in the future. Significant population changes should be evident based on the presence of more or less

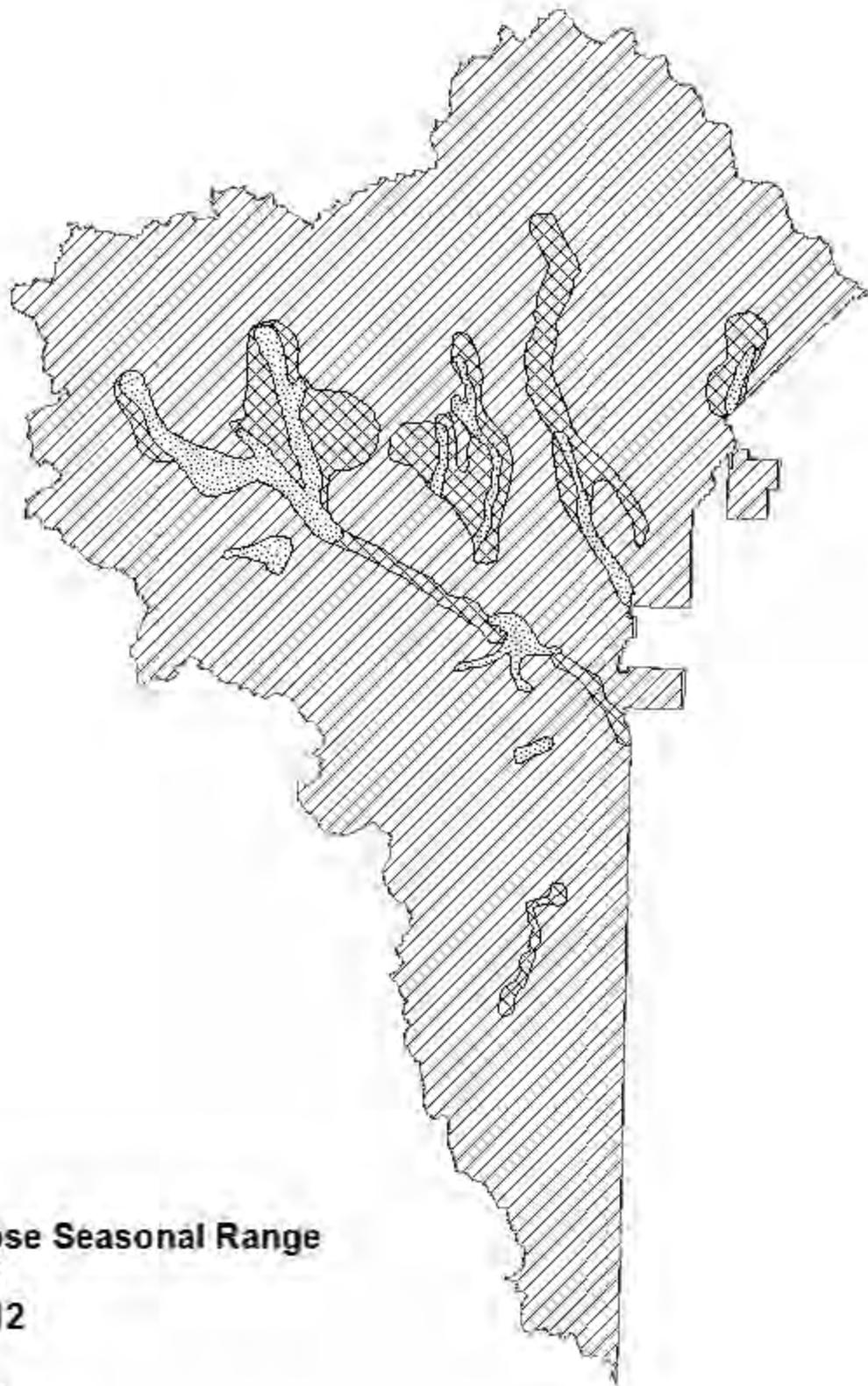
moose at these sites. Additionally, monitoring these sites provides documentation of adult bulls in the population each year.

Table 1. Moose numbers at select wintering sites in the Dubois Moose Herd.

Location	2015		2016	
	Bulls	Total Moose	Bulls	Total Moose
East Fork Basin	1	6	4	9
Lower Horse Creek		3	4	4
Double Cabin		2	2	2
Upper Dunoir	4	10	5	11
Upper Wind River		8		3
Total	5	29	15	29

Management Summary

While hunter success has been high the past 5 years, there is no indication the moose population increased dramatically. A significant population increase should be indicated by greater moose numbers on key, highly visible winter ranges throughout the herd unit. Several years of data collection at the sites listed in Table 1 should provide some anecdotal information on the moose population in the area. Given no good information suggesting population growth in this herd unit as well as decreased hunter success, the 2016 hunt season will remain unchanged with the issuance of 5 Type 1 licenses.



**Dubois Moose Seasonal Range
Hunt Area 6
Revised 2012**

-  CRUWYL
-  SSF
-  WYL



2015 - JCR Evaluation Form

SPECIES: Bighorn Sheep

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

HERD: BS609 - WHISKEY MOUNTAIN

HUNT AREAS: 8-10, 23

PREPARED BY: GREG
ANDERSON

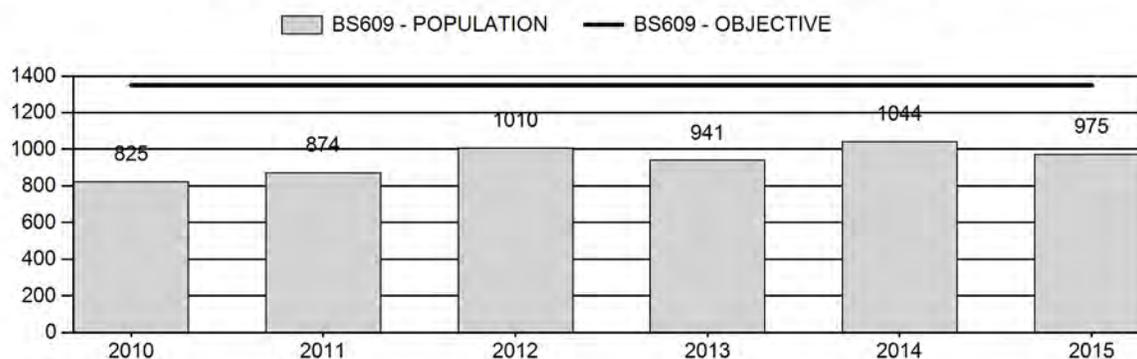
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	939	975	969
Harvest:	14	16	16
Hunters:	24	21	24
Hunter Success:	58%	76%	67%
Active Licenses:	24	21	24
Active License Success:	58%	76%	67%
Recreation Days:	209	213	220
Days Per Animal:	14.9	13.3	13.8
Males per 100 Females	46	47	
Juveniles per 100 Females	30	25	

Population Objective (± 20%) :	1350 (1080 - 1620)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-27.8%
Number of years population has been + or - objective in recent trend:	10
Model Date:	2/16/2016

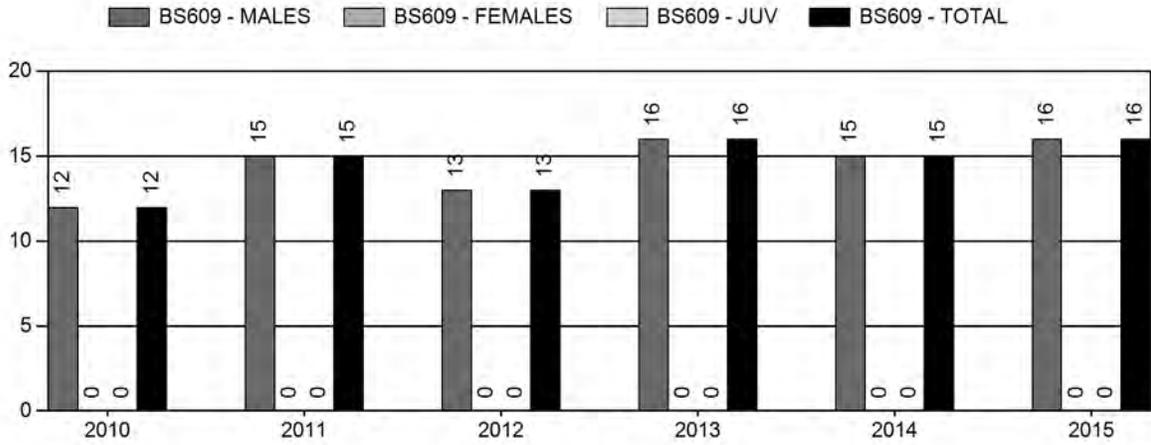
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	6%	6%
Juveniles (< 1 year old):	0%	0%
Total:	1%	1%
Proposed change in post-season population:	-4%	0%

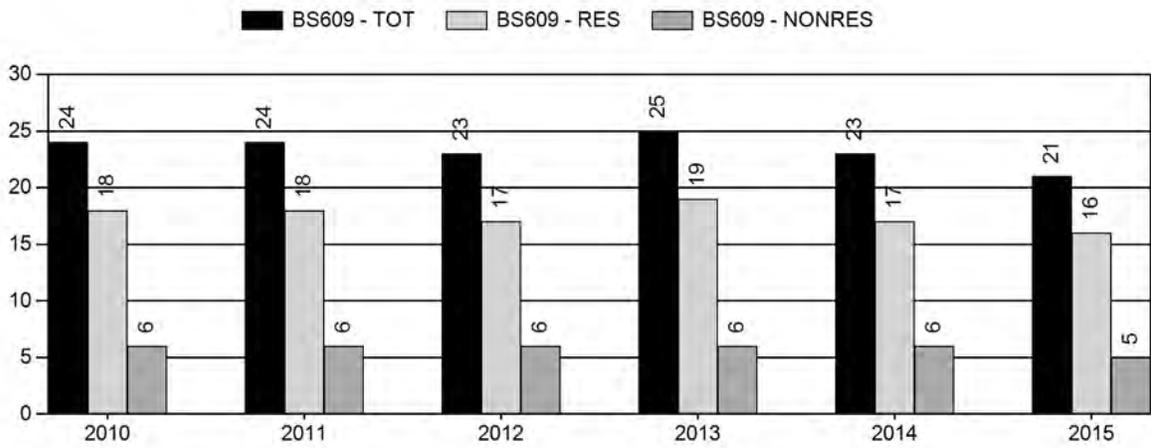
Population Size - Postseason



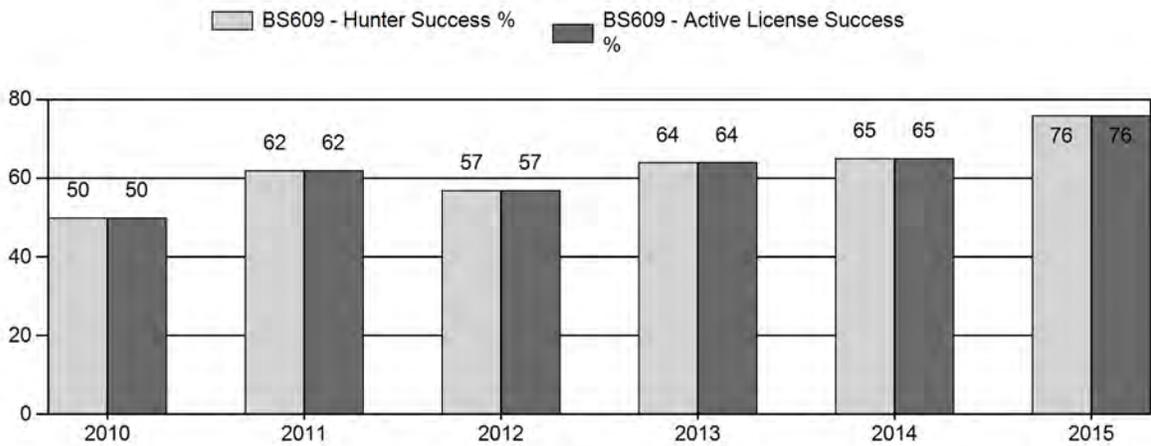
Harvest



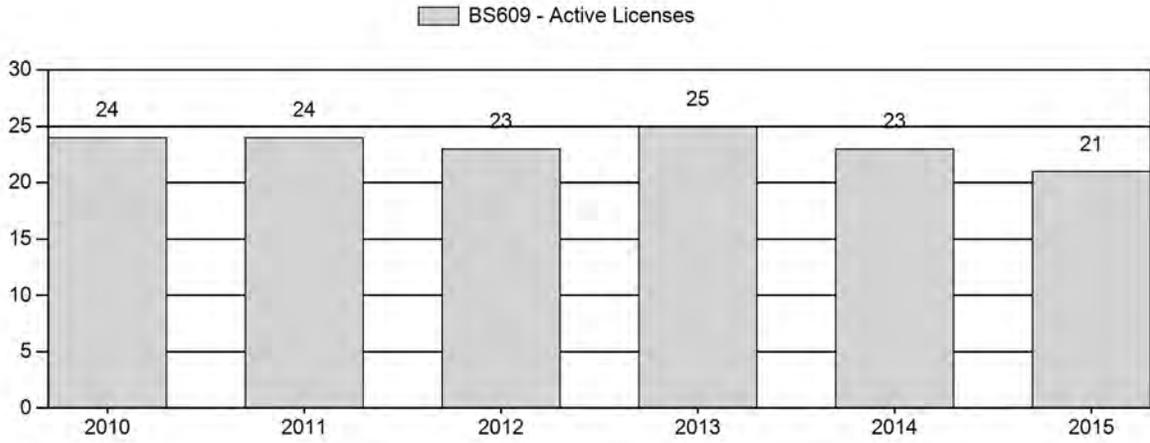
Number of Hunters



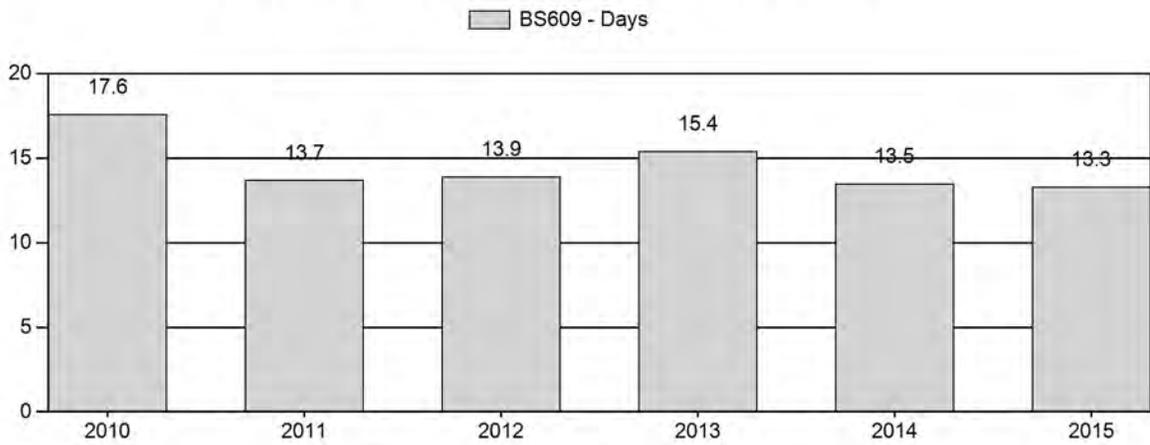
Harvest Success



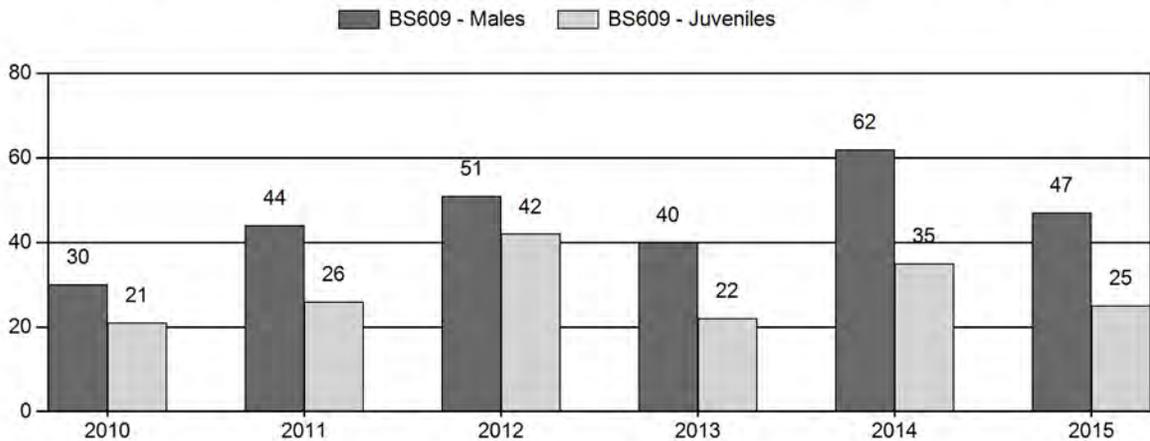
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Bighorn Sheep Herd BS609 - WHISKEY MOUNTAIN

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
2010	825	0	0	77	20%	255	66%	53	14%	385	240	0	0	30	± 4	21	± 3	16
2011	874	15	83	98	26%	223	59%	58	15%	379	328	7	37	44	± 5	26	± 4	18
2012	1,010	14	149	163	26%	320	52%	133	22%	616	496	4	47	51	± 4	42	± 3	28
2013	941	16	79	95	24%	240	62%	53	14%	388	365	7	33	40	± 5	22	± 3	16
2014	1,044	22	132	154	31%	249	51%	88	18%	491	559	9	53	62	± 6	35	± 4	22
2015	975	24	128	152	27%	323	58%	81	15%	556	0	7	40	47	± 4	25	± 3	17

**2016 HUNTING SEASONS
WHISKEY MOUNTAIN BIGHORN SHEEP (BS 609)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
8, 23	1	Sep. 1	Oct. 31	12	Limited quota	Any ram
9	1	Aug. 15	Oct. 15	4	Limited quota	Any ram
10	1	Aug. 15	Oct. 15	8	Limited quota	Any ram
Archery						
8, 23		Aug. 15	Aug. 31			Refer to section 3
9		Aug. 1	Aug. 14			Refer to section 3
10		Aug. 1	Aug. 14			Refer to section 3

Hunt Area	Type	Quota change from 2015
Total		

Management Evaluation

Current Postseason Population Management Objective: 1,350

Management Strategy: Special

2015 Postseason Population Estimate: ~1,000

2016 Proposed Postseason Population Estimate: ~1,000

Management Issues

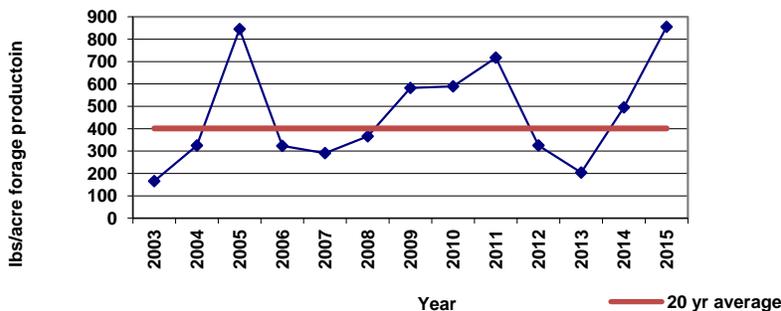
The post-season population objective for this herd is 1,350 sheep and it is classified as special management. The current objective was originally adopted in 2002. In 2013 the Department conducted an objective evaluation and review including a public meeting. The objective was left at 1,350 following the 2013 review. The herd has been below objective for over two decades following a catastrophic, all-age pneumonia die-off in 1991. The population continues to languish below objective primarily due to low recruitment associated with persistent lamb pneumonia. The Department collected blood samples from 47 sheep in 2012 and 22 sheep in 2014 to document the presence and frequency of various pathogens. In 2015, 20 more sheep were outfitted with GPS collars to enable tracking over a 3-year period. The intent is to monitor body condition, lamb production, and overall health of the 20 collared ewes. The monitoring will allow comparisons between ewe health and environmental conditions.

Habitat/Weather

The Whiskey Mountain bighorn sheep herd occupies the northern Wind River Mountain Range. The majority of sheep winter at sites located along the very northern tip of the Wind River Mountains. Some sheep winter at high elevation along the continental divide and scattered throughout the west slope of the mountains. Sheep disperse from the wintering sites to populate the entire northern portion of the Wind River Mountains in the summer and fall. Much of the sheep habitat is located in wilderness areas and remains undisturbed. Important winter range sites in the upper Wind River Valley are part of the Department’s Whiskey Mountain WHMA and are also relatively undisturbed.

Despite protection from development and disturbance, the condition of key winter range throughout this herd unit is still subject to change based on environmental conditions. In 2012 and 2013, sheep range throughout the herd unit was impacted by extreme drought. Casual observations both years suggest vegetation production was quite low at high elevation summer range. Based on data from vegetation monitoring transects, herbaceous production on winter range in both 2012 and 2013 was well below average for the area (Fig. 1). In contrast to the previous 2 years, vegetation production throughout the herd unit was quite good in 2014 and was the highest on record in 2015. Average production across all monitoring sites on winter range was 855 lbs/acre and well above the 20-year average of 401 lbs/acre. Again, based on casual observations, it appeared forage production was also good at high elevation summer range sites. Body condition of sheep entering winter appeared to be very good. Despite appearing to enter winter in good body condition, preliminary results from the body condition study initiated in 2015 indicated collared ewes entered winter in extremely poor shape. Fourteen collared ewes were sampled using ultrasound in December, 2015. The data revealed they only gained an average of 1% body fat relative to when they were previously sampled in March, 2015.

Figure 1. Annual, herbaceous forage production on bighorn sheep winter range



Field/Harvest Data/Population

Classification data yielded a lamb/ewe ratio of 25/100 in 2015 (Fig. 2). This ratio was very close to the 10-year average of 27/100. Although the lamb/ewe ratio for the entire herd unit was close to average, the lamb/ewe ratio in hunt area 10 where most of the sheep in the herd unit winter was quite low at 14/100. In particular, sheep groups wintering at the top of Whiskey Mountain and on Torrey Rim had particularly low lamb/ewe ratios at 9/100 and 8/100 respectively.

Reasons for the low recruitment ratios at these sites are unknown as it appeared forage conditions were good throughout the year and environmental conditions were mild. Again, samples taken from 14 sheep in December, 2015 indicated sheep wintering in hunt areas 9 and 10 were in quite poor body condition. Although low lamb recruitment has been a persistent problem in this herd, the lamb/ewe ratio for 6 of the last 10 years has been 25/100 or above. Average recruitment is still well below the levels typically seen prior to the 1990-91 pneumonia die-off but the herd has had 2 excellent recruitment years in the last 4. Despite low recruitment for much of the last 20 years, the ram/ewe ratio has remained fairly stable over that time period. Since 2011 the ram/ewe ratio steadily increased and peaked at 62/100 in 2014 (Fig. 3). The ram/ewe ratio declined a bit to 47/100 in 2015 but indicates ram numbers are still good in the herd unit

A population model developed in 2012 behaved predictably with the addition of data in 2015. For 2015, the TSJ/CA version of the model was selected to track the population. While this model had a higher AIC value than 2 other models, it was the only version to produce reasonable population estimates. Both the CJ/CA and SCJ/SCA models produce estimates of less than 500 sheep annually for the past 10 years and show a declining population. Many of the estimates produced by these 2 models are well below the number of sheep personnel classified on a given year. Indications are the TSJ/CA model does a fair job of simulating the population. The model simulates a long, steady decline in the sheep population from the late 1990's through 2010. The population then increased in 2012 following a good recruitment year. Overall, the model indicates the population has been stable over the past 5 years. The 2015 population estimate is approximately 1,000 sheep.

Harvest success in the herd unit was 76% in 2014 which was a bit higher than the 5-year average of 60%. This included success rates of 50% in hunt area 9, 100% in hunt area 10, and 66% in hunt areas 8/23. Much of the increased success in the herd unit was due to better success in areas 8 and 23 in 2015. The 66% success rate in these areas was well above the 5-year average success rate in these areas of 58%. The average age of rams harvested in areas 8/23 and 10 remained essentially unchanged between 2014 and 2015 (Fig. 4). The most notable change is the significant decline in age of harvested rams in hunt area 9. On closer inspection, this decline is due to the fact only 1 ram was killed in each of 2012 and 2013. Both were older rams, thus the high age of harvest for those years. In addition, 1 yearling ram was harvested in area 9 in 2015 and brought the average age down significantly. Overall, the average age of harvested rams does not reveal any significant demographic trend in any hunt areas throughout the herd unit over the past 10 years.

Figure 2. Ten-year recruitment history in the Whiskey Mountain Bighorn Sheep Herd

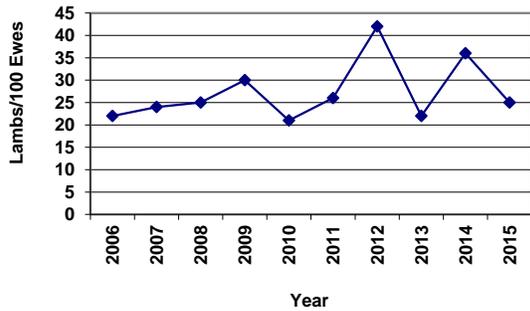


Figure 3. Ten-year history of the ram/ewe ratio in the Whiskey Mountain Bighorn Sheep Herd.

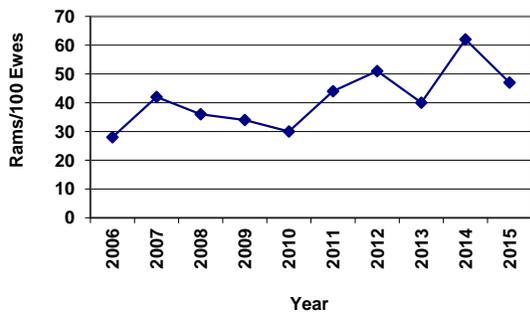
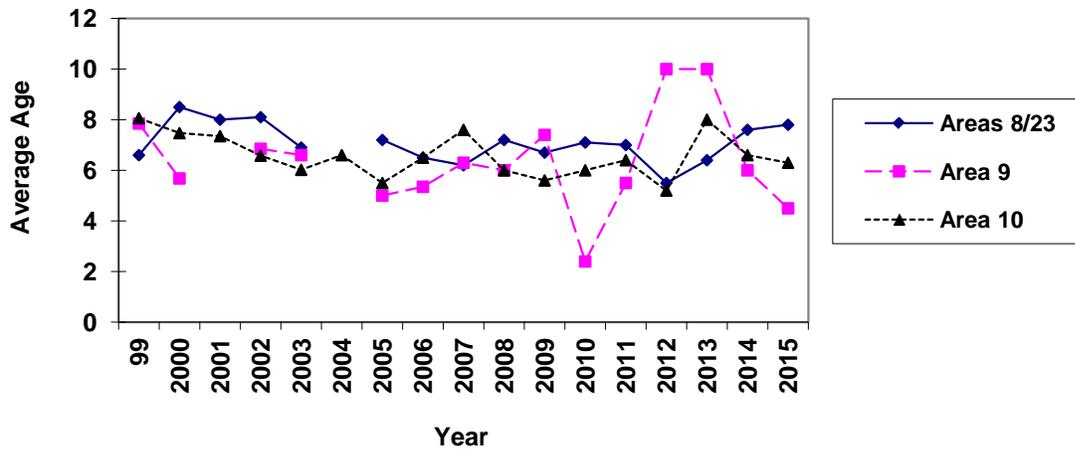


Figure 4. Average age of rams harvested in the Whiskey Mountain Bighorn Sheep Herd.

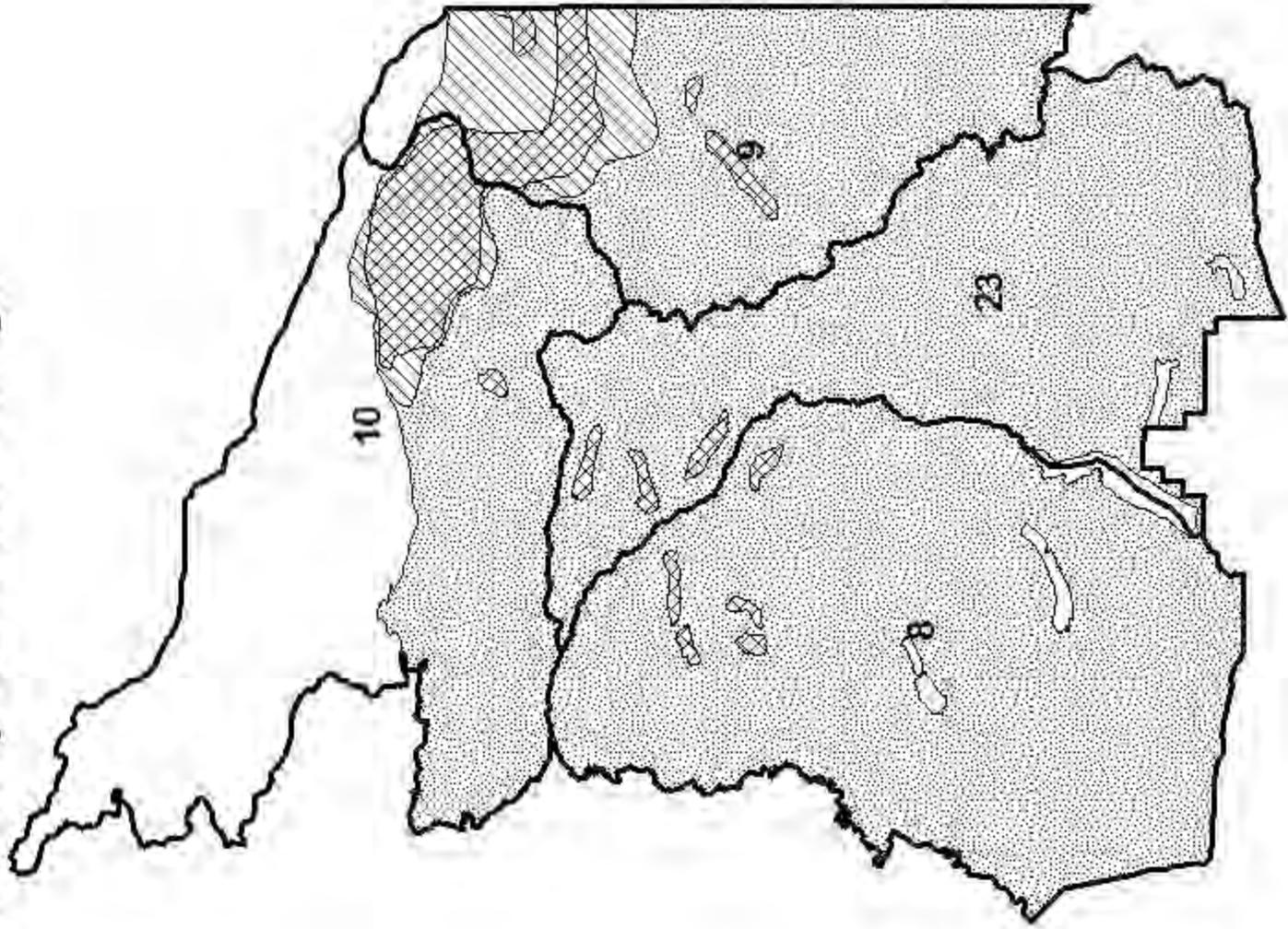
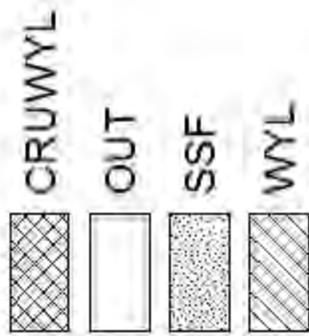


Management Summary

Overall, indications are there was little demographic change in this population over the past year. This population remains well below objective. Given no indications of significant population

growth, license numbers for the 2016 hunting season will remain unchanged. In hunt areas 8 and 23, the season length will be extended 16 days and run until October 31. This change is in response to comments from hunters and outfitters wondering why sheep seasons in many areas throughout the state last a full 2 months but have traditionally only been 1.5 months in 8 and 23. With 24 licenses issued throughout the herd unit, hunters are expected to harvest 15 rams in 2015. The population is expected to remain stable in 2016 at about 1,000 animals.

**Whiskey Mountain Bighorn Sheep Seasonal Range
Hunt Areas 8, 9, 10, 23
Revised 2012**



2015 - JCR Evaluation Form

SPECIES: Bighorn Sheep

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

HERD: BS615 - FERRIS-SEMINOE

HUNT AREAS: 17, 26

PREPARED BY: GREG HIATT

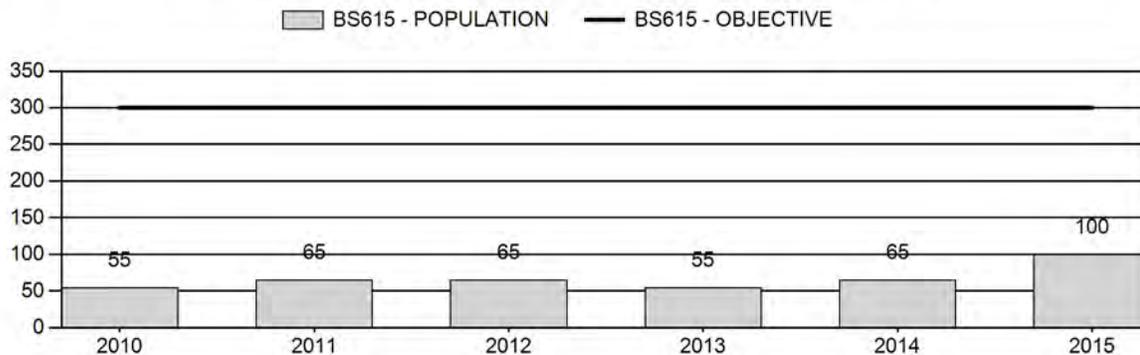
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	61	100	150
Harvest:	0	1	2
Hunters:	0	1	2
Hunter Success:	0%	100%	100 %
Active Licenses:	0	1	2
Active License Success:	0%	100%	100 %
Recreation Days:	1	6	10
Days Per Animal:	0	6	5
Males per 100 Females	0	83	
Juveniles per 100 Females	0	79	

Population Objective ($\pm 20\%$) :	300 (240 - 360)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-66.7%
Number of years population has been + or - objective in recent trend:	31
Model Date:	None

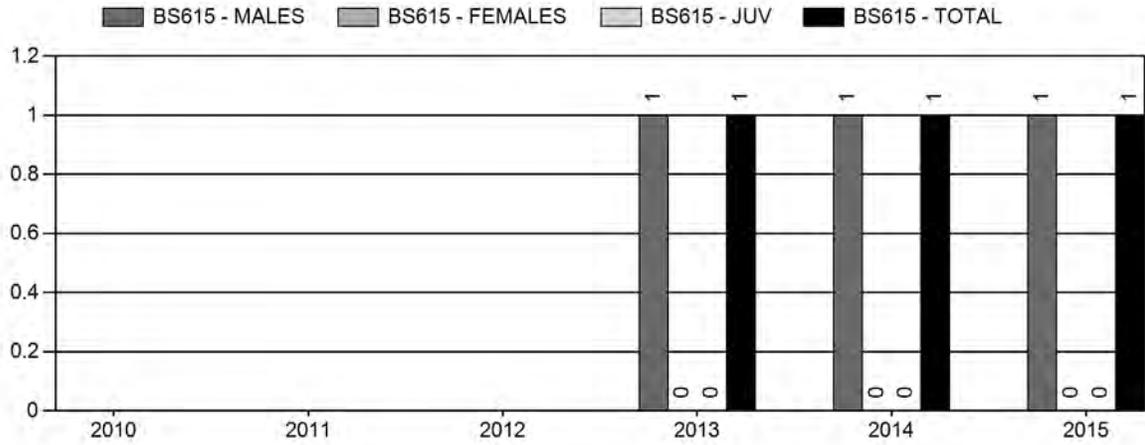
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	5%	6%
Juveniles (< 1 year old):	0%	0%
Total:	0%	1%
Proposed change in post-season population:	54%	+50%

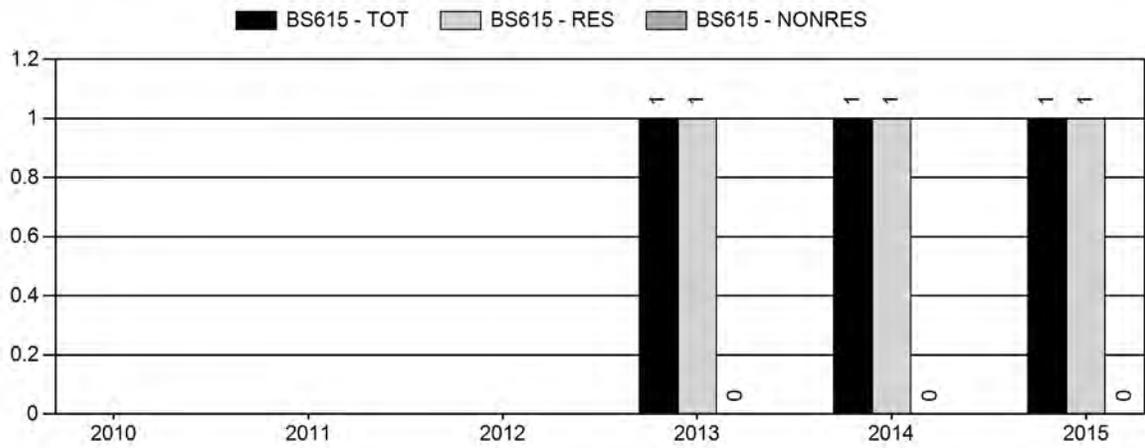
Population Size - Postseason



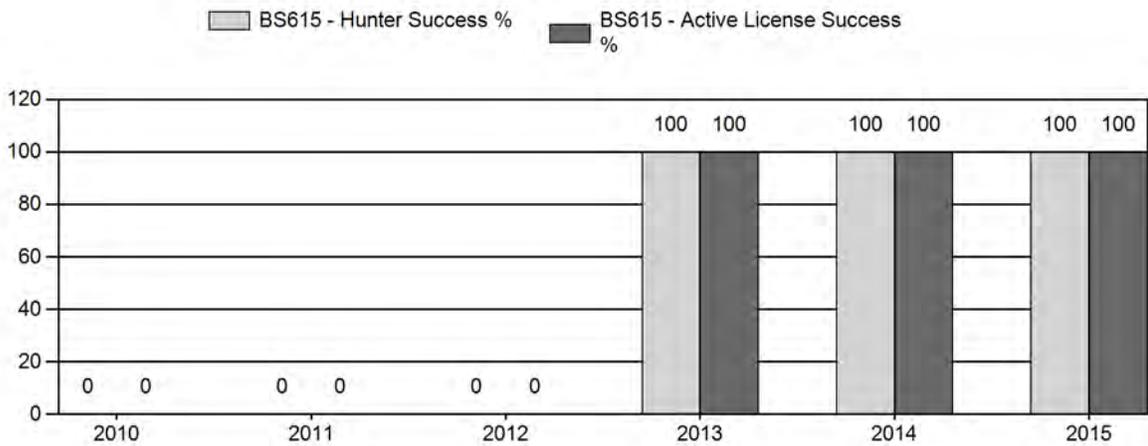
Harvest



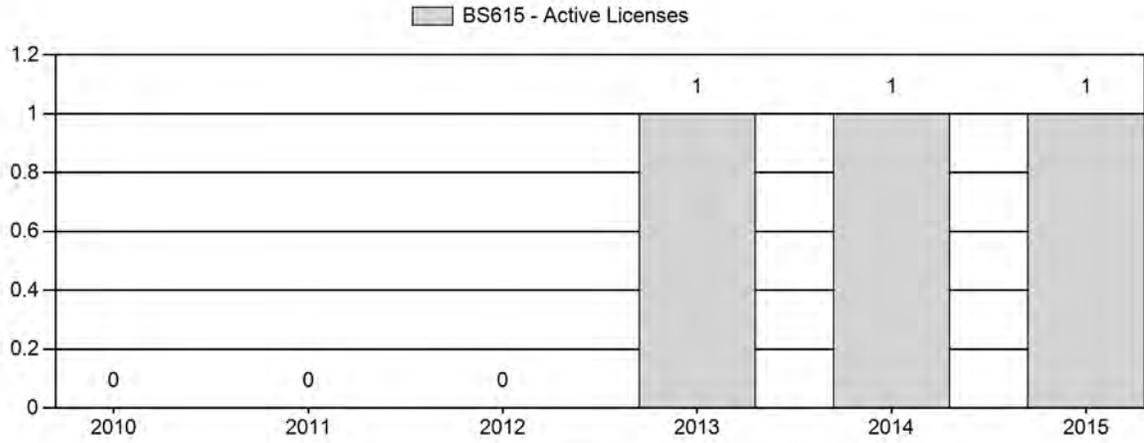
Number of Hunters



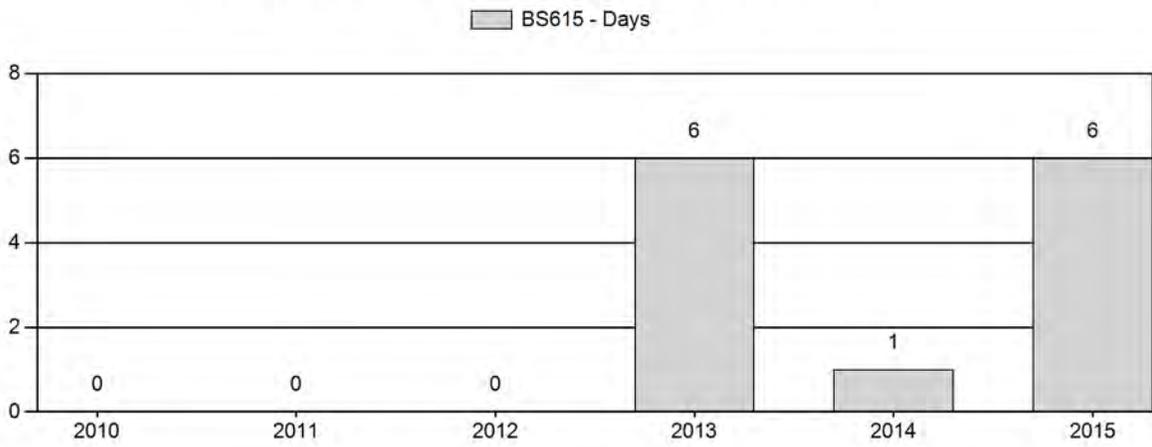
Harvest Success



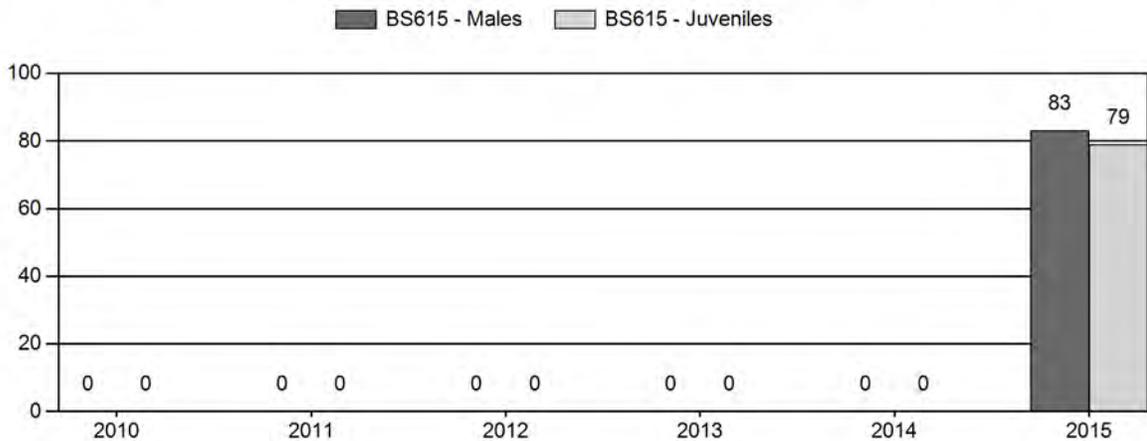
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2015 Postseason Classification Summary

for Bighorn Sheep Herd BS615 - FERRIS-SEMINOE

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
2010	55	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2011	65	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2012	65	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2013	55	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2014	65	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2015	100	1	19	20	32%	24	38%	19	30%	63	97	4	79	83	±20	79	±19	43

**2016 HUNTING SEASONS
FERRIS-SEMINOE BIGHORN SHEEP HERD (BS615)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
17, 26	1	Sep. 1	Oct. 31	2	Limited quota	Any ram (1 resident and 1 nonresident)
Archery 17		Aug. 15	Aug. 31			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
17	1	+1
Herd Unit Total	1	+1

Management Evaluation

Current Postseason Population Management Objective: 300

Management Strategy: Special

2015 Postseason Population Estimate: ~100

2016 Proposed Postseason Population Estimate: ~140

Herd Unit Issues

The management objective for the Ferris-Seminole Bighorn Sheep Herd Unit is a post-season population objective of 300 sheep, established in 1984 and last publicly reviewed in 1994. As with all bighorn sheep herds, management strategy is “special” management. The objective and management strategy are currently undergoing public review, with no changes proposed.

Bighorn sheep were first reintroduced into the Ferris Mountains in the late 1940's with two small transplants, one of which consisted of desert bighorns from Nevada. Neither produced a viable population. Slightly larger transplants were made into the Seminole Mountains in the 1950's and 1960's, but numbers never increased appreciably. A total of one hundred bighorn sheep from the Whiskey Mountain herd were released on the Morgan Creek Unit in the Seminole Mountains in 1978 and 1980 and, after initial losses and dispersal, a reproducing population was established. Survival of transplanted animals was high, and animals were successfully recruited into the population, but growth rate for the herd was low. To expand the herd's size and range, another 100 bighorn sheep from Whiskey Mountain were released in the Muddy Creek drainage of the Ferris Mountains in January of 1985. Dispersal was high, but roughly 40 to 60 of the sheep remained in the herd unit. As with the Seminole transplant, survival of transplanted animals was good.

Poor lamb survival during summer months was a major problem for this reintroduced herd, in both the Seminoe and Ferris portions, with few yearling bighorns recruited each year. Three summers of intensive monitoring identified poor forage quality as the most likely cause of lamb loss. Few losses to predation were found, with numerous lambs dying untouched on lambing grounds. No herd threatening diseases were identified. The source population for these transplanted sheep was the Whiskey Mountain herd by Dubois, where sheep are adapted to high elevation summer habitats and lambled in the first half of June. In the Ferris and Seminoe Mountains, sheep were in essentially low elevation year-long range where much of the lush spring growth is cured and gone by the time lambs were born. Low recruitment failed to replace natural mortality and the herd steadily declined. By 2003, there were estimated to be fewer than 15 sheep remaining in this population.

Forty low elevation, non-migratory bighorn sheep from Oregon and 12 surplus sheep from the Devil's Canyon herd in Wyoming were transplanted into the Seminoe Mountains in 2009 and 2010. These animals typically lamb 4-6 weeks sooner than the high-elevation migratory sheep brought in from Dubois and lambing appears to be better synchronized with spring green-up for the Seminoe and Ferris habitats. About a half dozen of these sheep established themselves in the Bennett Mountains east of Seminoe Reservoir and have successfully reproduced and recruited young animals. Habitats there appear to be suitable for bighorns, and the herd unit boundary was expanded to encompass the ranges of these animals in a new Hunt Area 26.

Initial indications are these sheep are reproducing well in the Seminoe and Bennett Mountains, and another transplant of low-elevation, non-migratory, early-lambing sheep were released into the Ferris Mountains in February 2016 to expand their range. The 2011 prescribed natural fire and 2012 wildfire on the eastern end of the Ferris Mountains should provide improved habitats for bighorn.

Weather

Following severe drought in 2012 and 2013, improved precipitation arrived in the latter half of 2014 and continued through 2015. Record precipitation in 2015 produced exceptional vegetative growth, improving lamb survival. Condition of bighorn sheep going into the 2015-16 winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

Habitat

Decades without fire resulted in decadent shrub stands encroached by conifer in this herd unit. Severe drought reduced the quantity and quality of forage in 2012 and 2013. Two browse transects have been established in this herd unit, but one was burned by fire in 2012 and the other was not read in 2015. While no herbaceous habitat transects are established within this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation. Herbaceous production measured on the Morgan Creek WHMA in the Seminoe Mountains was exceptionally high.

Over the past several years the Rawlins BLM has implemented prescribed burns in the Seminole and Ferris Mountains, partly to address conifer encroachment while also rejuvenating decadent mountain mahogany and bitterbrush stands. In the summer of 2012, two large wildfires in the Seminole Mountains and the eastern Ferris Mountains burned thousands of acres, including occupied bighorn habitat. In addition to opening habitats adjacent to rocky escape cover, the prescribed burns should benefit bighorn sheep productivity with herbaceous cover and return of young vigorous shrub complexes. Forage benefits from the wildfires will be longer term.

The Seminole Fire burned over 3,800 acres in the Seminole Mountains including areas within Morgan Creek WHMA. The Rawlins BLM again coordinated and funded aerial application of Plateau® in 2015 to mitigate cheatgrass spread on BLM and WGFD managed areas within the fire perimeter. The wildfire enveloped several previously planned prescribed burns, although not with the desired prescriptions. Plans for additional prescribed fires in the Seminole Mountains, particularly on the Morgan Creek WHMA, have been accelerated to take advantage of the secure fire breaks provided by the 2012 wildfire.

Field Data

Obtaining reliable classification samples from small populations is difficult because, statistically, the majority of the population must be included in the sample to have any confidence in the resulting ratios. These low elevation sheep do not congregate in restricted, well-defined winter ranges like many herds in high mountain valleys, having instead the option to move wherever winds have exposed forage.

Thirty-seven bighorn sheep were classified during helicopter surveys for mule deer in the Seminole Mountains in December 2015. Another 14 sheep were classified from the ground along Hamilton Creek, as well as 12 sheep east of the Miracle Mile in Area 26, yielding a total sample of 63 sheep classified out of an estimated population of 100 animals. The sample did not include any sheep on the south slopes of the Bennett Mountains, which are presumed to number ~15-20 sheep, nor any of the sheep along Long Creek in the Seminoes.

Lamb production was exceptional in 2015, presumably a consequence of the record precipitation. Nineteen lambs were found in the classification sample, with a lamb:ewe ratio of 79:100. Even if the high ratio is a result of a statistically inadequate sample size, 19 lambs is a significant improvement over the one or two lambs that used to be found in this herd when it consisted of sheep from a high-elevation, migratory source herd.

Classifications also confirmed 20 rams, for a ram:ewe ratio of 83:100. Again possibly an artifact of the small sample, these data do indicate there are more than enough rams in the herd for the single harvest allowed each of the past three years.

Harvest Data

The single resident hunter in this area harvested a 3-year old ram during the regular season. It was eartagged, and was a young ram transplanted from the Devil's Canyon herd seven months earlier. The hunter reported six days of hunting, compared to a single day for the hunter in 2014 and six days for the hunter in 2013. Where the 2013 and 2014 rams were taken from the ridges on the south face of the Seminole Mountains, the 2015 harvest came from the north slope of the

Seminole. It is surprising that the harvested rams only averaged three years of age, while quite a few older rams were included in the classification sample.

Population

No model exists for this small herd and with limited classification data, one is not likely in the near future. Current population estimates are based upon limited observations of bands in the Seminole and Bennett Mountains. Based upon known mortality of telemetered bighorns, losses during the 2012-13 winter were probably high, and the herd was estimated to be between 60 to 70 sheep at post-hunt 2014, roughly the same size as after the 2010 transplants. Lamb production was high in 2015, and the herd is estimated near 100 animals at posthunt 2015. While lamb production is unlikely to remain at the level seen in 2015, recovery of burned areas should improve the quantity and quality of forage available for gestating and lactating ewes and the herd is expected to continue to increase.

Twenty-four low-elevation, non-migratory, early-lambing bighorn sheep from the Devil's Canyon herd near Lovell were released in Miner's Canyon on the east end of the Ferris Mountains on 21 February 2016. The release consisted of 20 ewes, 1 male lamb and three young rams. All but the lamb and one ewe with injuries on her neck were marked with satellite-uplink telemetry collars. Assuming most of these sheep will remain in the Ferris Mountains and adding expected recruitment from a 2016 lamb crop, the herd is expected to reach 140 animals by fall of 2016.

Management Evaluation

The population was first hunted in 1983, with two rams being harvested by four hunters. Minimal hunts with only four licenses were held each year through 1989, with a total of 21 rams being harvested by 28 hunters. Illegal killing of both rams and ewes was a problem during this period, but decline of the herd was attributed to lambing of the high elevation sheep used to re-establish this population being asynchronous with plant phenology in these lower mountain ranges. With better adapted "low-elevation sheep" introduced into this herd, that issue appears to be resolved.

Non-consumptive use of this herd is high, particularly in the Seminole Mountains. A single resident license for "any ram" was issued in each of the past three years. Classification data indicate there are at least 20 rams available in the Seminole Mountains and in the Bennett Mountains in the new Area 26, several of which are nearing true trophy age classes. With these numbers of trophy animals available, the license quota is increased by 1 in 2016. To satisfy the 25 percent requirement, one of these licenses needs to be issued to a nonresident.

Opening and closing dates are the same used in this herd during the 1980s, the same as in the past three years and comparable to most other sheep areas in the state. Archery season dates are standard for most areas.

Bighorn Sheep
Ferris (615)
08/1999

