2014 - JCR Evaluation Form

SPECIES: Elk

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

HERD: EL211 - MEDICINE LODGE

HUNT AREAS: 41, 45

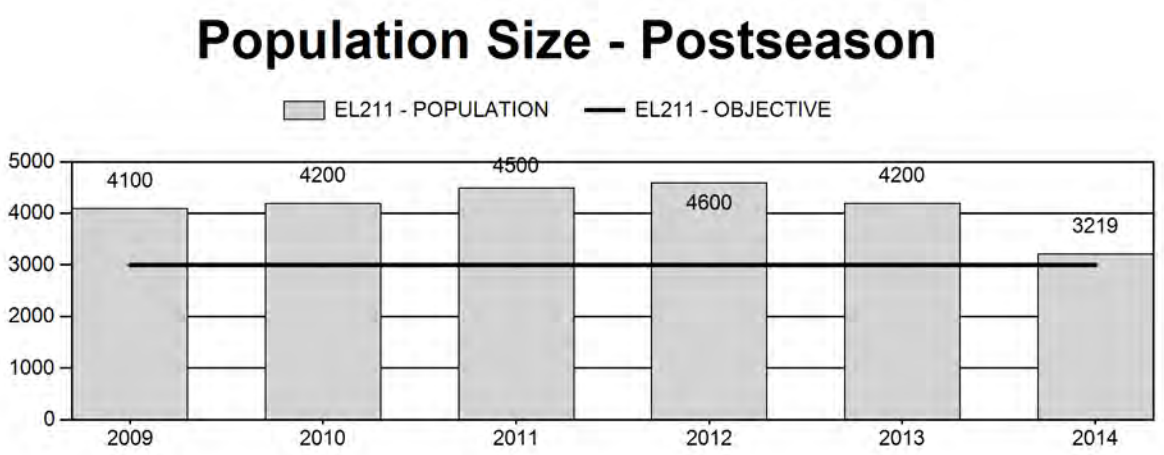
PREPARED BY: LESLIE SCHREIBER

	2009 - 2013 Average	2014	2015 Proposed
Population:	4,320	3,219	3,120
Harvest:	676	689	595
Hunters:	1,643	1,878	1,850
Hunter Success:	41%	37%	32 %
Active Licenses:	1,667	1,899	1,800
Active License Success:	41%	36%	33 %
Recreation Days:	12,692	13,633	13,400
Days Per Animal:	18.8	19.8	22.5
Males per 100 Females	24	28	
Juveniles per 100 Females	45	41	

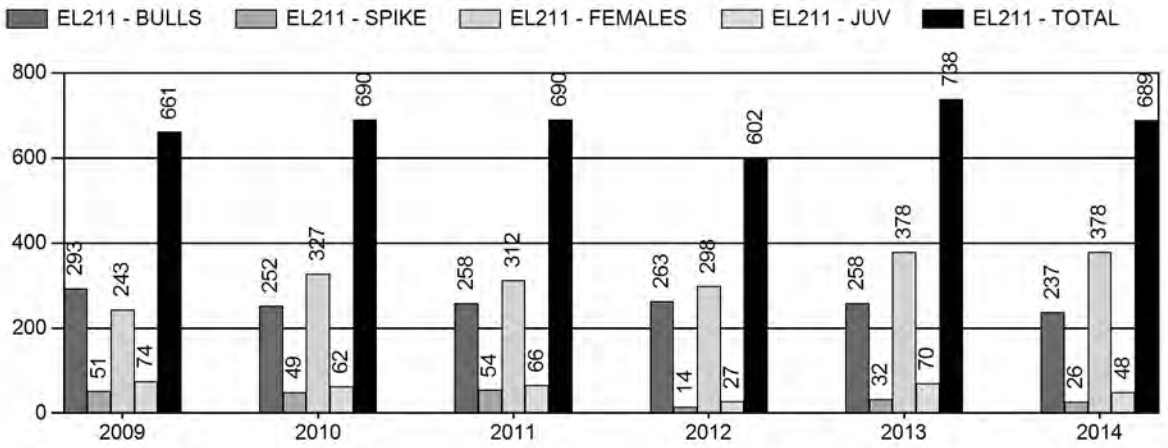
Population Objective (± 20%) :	3000 (2400 - 3600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	7%
Number of years population has been + or - objective in recent trend:	12
Model Date:	05/10/2015

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

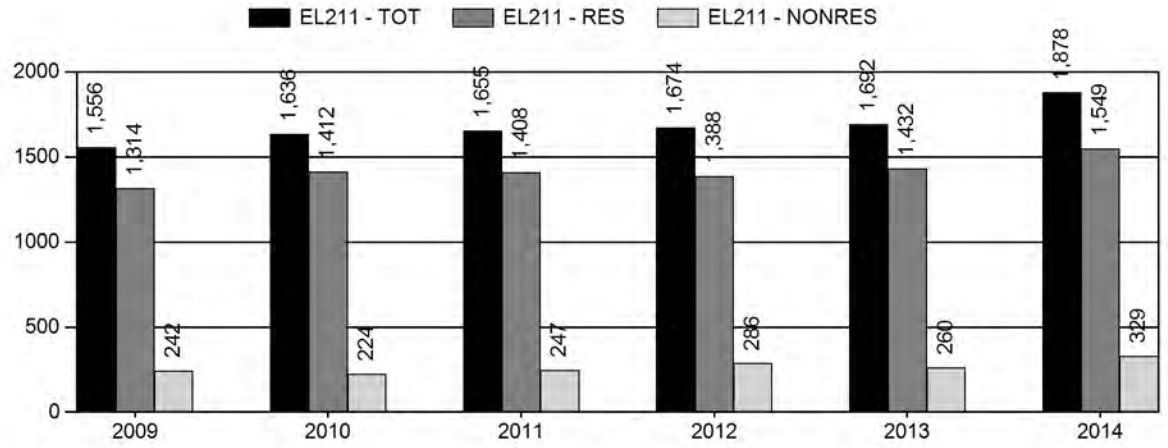
	JCR Year	Proposed
Females ≥ 1 year old:	17%	16%
Males ≥ 1 year old:	29%	30%
Juveniles (< 1 year old):	6%	3%
Total:	17%	16%
Proposed change in post-season population:	0%	-3%



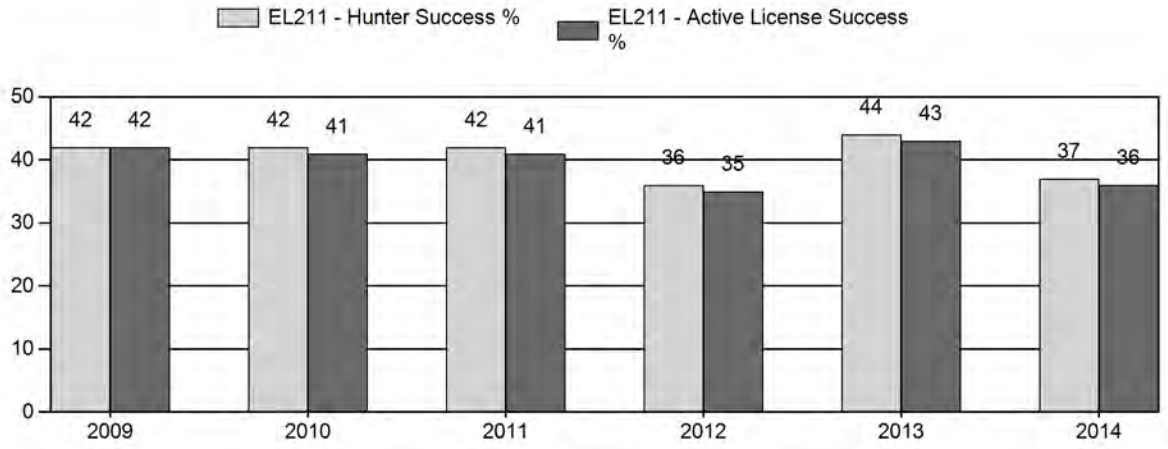
Harvest



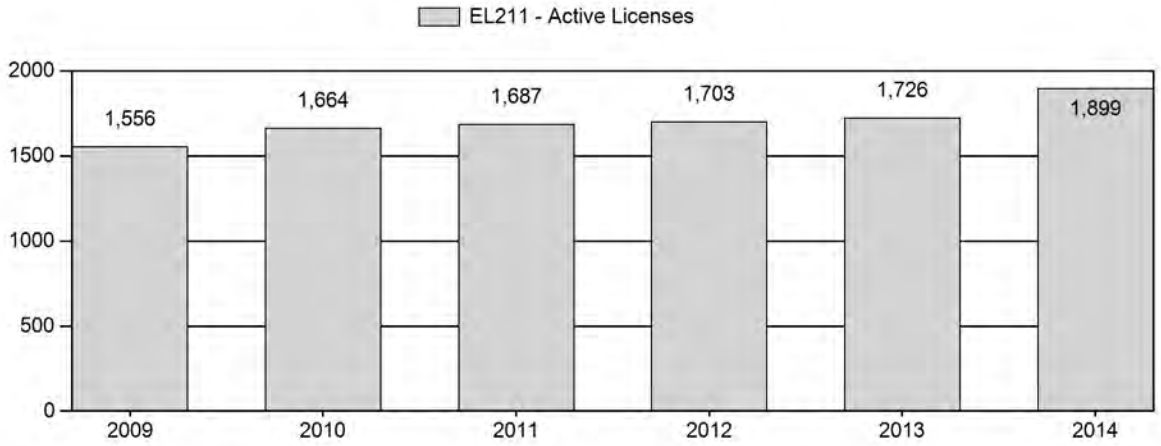
Number of Hunters



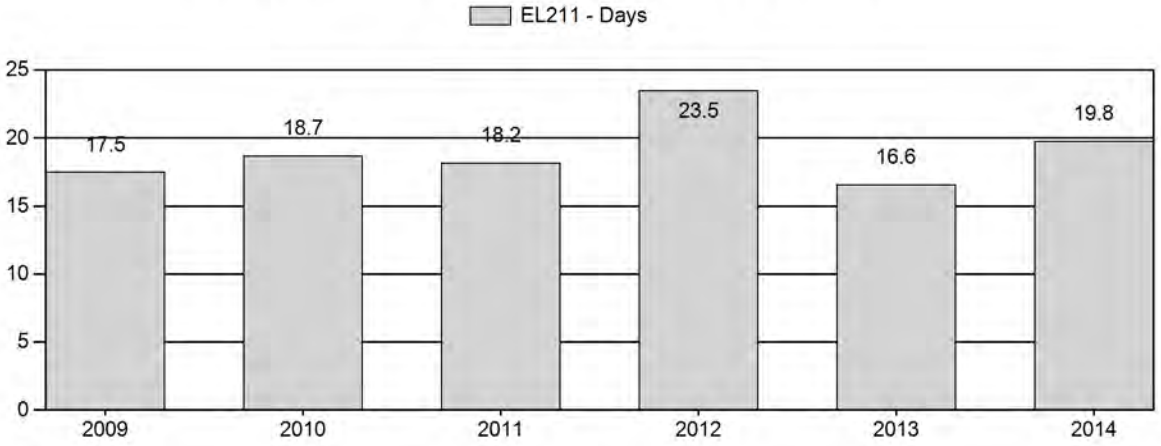
Harvest Success



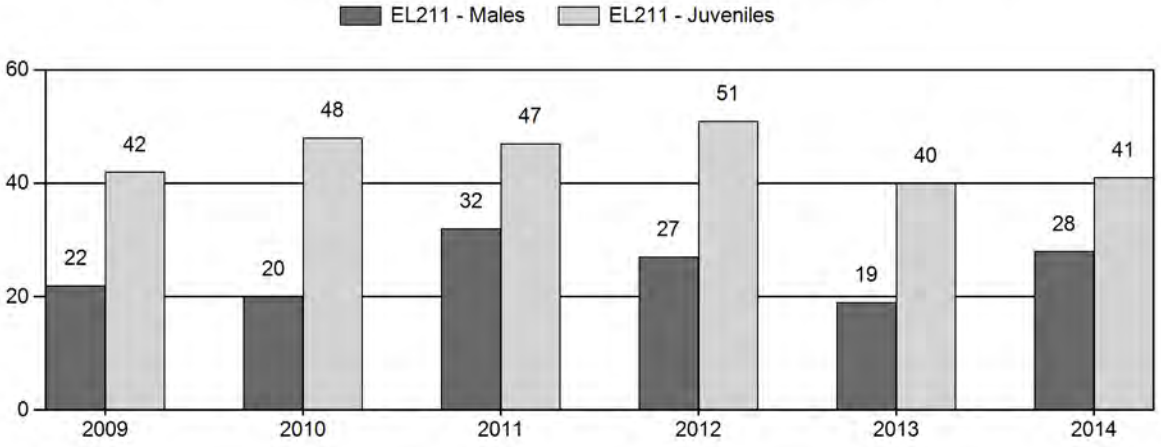
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2009 - 2014 Postseason Classification Summary																		
for Elk Herd EL211 - MEDICINE LODGE																		
		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	4,100	212	207	419	13%	1,914	61%	798	25%	3,131	543	11	11	22	± 1	42	± 1	34
2010	4,200	155	134	289	12%	1,430	60%	684	28%	2,403	506	11	9	20	± 1	48	± 2	40
2011	4,500	245	215	460	18%	1,453	56%	686	26%	2,599	582	17	15	32	± 1	47	± 2	36
2012	4,600	164	177	341	15%	1,251	56%	634	28%	2,226	753	13	14	27	± 2	51	± 2	40
2013	4,200	127	186	313	12%	1,622	63%	641	25%	2,576	614	8	11	19	± 1	40	± 1	33
2014	3,311	200	242	442	17%	1,570	59%	636	24%	2,648	513	13	15	28	± 1	41	± 1	32

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	1RY	1RY	8QXVHG $UHD 7\SH
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	1RY	1RY	8QXVHG $UHD 7\SH LQ WKH HQWLUH DUH
	'HF	'HF	8QXVHG $UHD 7\SH LQ WKH HQWLUH DUH
	6HS	6HS	/LPLWHG TXRWD DQ\
	2FW	1RY	/LPLWHG TXRWD DQ\
	2FW	1RY	/LPLWHG TXRWD DQ\
	2FW	1RY	/LPLWHG TXRWD DQ\
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DQG EULQJ LW WR REMHFWLYH :H ZLOO FRQWLQXH WR LQ
SRSXODWLRQ GRHV QRW JURZ DQG VWD\V DW REMHFWLYH

INPUT	
Species:	Elk
Biologist:	Leslie Schreiber
Herd Unit & No.:	Med Lodge - EL211
Model date:	05/10/15

☐ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	1187	1196	☐ CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	1142	1153	☐ SCJ,SCA Mo	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	224	388	☑ TSJ,CA Model	
TSJ,CA,MSC	Time-Specific Juv, Constant Adult Survival, Male survival coefficient	182	357	☐ TSJ,CA,MSC Model	

Population Estimates from Top Model

Year	Posthunt Population Est.		Trend Count	Predicted Prehunt Population			Total	Predicted Posthunt Population			Total	Objective
	Field Est	Field SE		Juveniles	Total Males	Females		Juveniles	Total Males	Females		
1985			828	1120	425	2587	4132	1041	132	2232	3405	3000
1986			1136	761	389	2448	3598	717	222	2235	3174	3000
1987			1512	1029	397	2369	3795	979	295	2228	3502	3000
1988			1137	1117	534	2429	4079	1085	316	2255	3655	3000
1989			1220	1279	581	2481	4340	1248	297	2313	3858	3000
1990			1749	1485	603	2578	4667	1448	283	2364	4095	3000
1991			1354	1078	639	2679	4396	1027	367	2474	3869	3000
1992				1084	652	2716	4452	1070	405	2593	4068	3000
1993			1730	1240	905	3049	5195	1212	639	2874	4725	3000
1994				1283	929	3120	5332	1253	575	2939	4767	3000
1995				1128	1001	3318	5446	1099	717	3123	4939	3000
1996			2170	1221	977	3335	5533	1189	581	3081	4851	3000
1997				1502	867	3317	5686	1466	574	3058	5099	3000
1998				1306	929	3364	5599	1207	588	2910	4706	3000
1999			2916	1282	878	3154	5314	1211	545	2818	4574	3000
2000				1188	837	3065	5089	1086	496	2496	4078	3000
2001				853	770	2730	4352	772	468	2205	3445	3000
2002			2044	625	652	2354	3631	522	413	2065	2999	3000
2003				781	652	2271	3705	734	401	1925	3059	3000
2004				797	741	2235	3773	726	456	1927	3109	3000
2005			2437	949	792	2233	3975	894	483	1989	3367	3000
2006			2412	899	898	2374	4171	847	555	2087	3489	3000
2007				764	946	2448	4158	724	579	2134	3437	3000
2008			2130	1004	911	2435	4351	951	632	2192	3774	3000
2009				1023	996	2525	4545	941	618	2258	3818	3000
2010				1089	886	2493	4468	1020	555	2133	3709	3000
2011				1127	1028	2576	4730	1054	685	2232	3971	3000
2012				1106	935	2451	4492	1076	630	2123	3830	3000
2013				841	887	2350	4078	764	568	1934	3266	3000
2014				799	919	2259	3977	746	630	1843	3219	3000
2015				795	895	2084	3774	773	620	1726	3120	3000
2016												3000
2017												3000

Survival and Initial Population Estimates

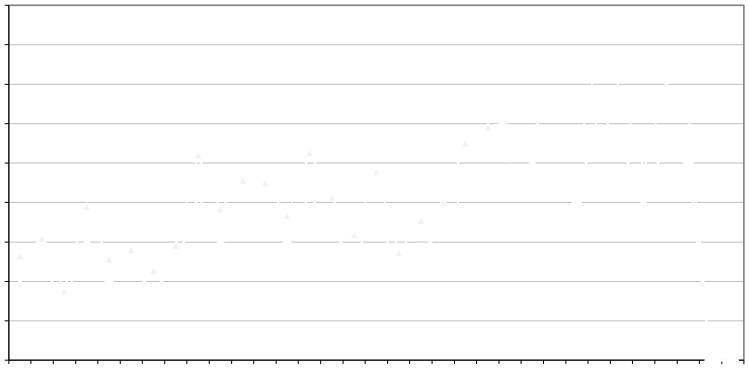
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1985	0.50			0.98		
1986	0.50			0.98		
1987	0.50			0.98		
1988	0.50			0.98		
1989	0.50			0.98		
1990	0.50			0.98		
1991	0.57			0.98		
1992	0.95			0.98		
1993	0.50			0.98		
1994	0.70			0.98		
1995	0.50			0.98		
1996	0.50			0.98		
1997	0.50			0.98		
1998	0.50			0.98		
1999	0.50			0.98		
2000	0.52			0.98		
2001	0.50			0.98		
2002	0.95			0.98		
2003	0.95			0.98		
2004	0.95			0.98		
2005	0.95			0.98		
2006	0.95			0.98		
2007	0.95			0.98		
2008	0.79			0.98		
2009	0.60			0.98		
2010	0.95			0.98		
2011	0.50			0.98		
2012	0.50			0.98		
2013	0.95			0.98		
2014	0.74			0.98		
2015	0.70			0.98		
2016						
2017						

Parameters:	Optim cells
Adult Survival =	0.980
Initial Total Male Pop/10,000 =	0.013
Initial Female Pop/10,000 =	0.223

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Total Bulls Adjustment Factor	80%

	Classification Counts							Harvest						
Year	Juvenile/Female Ratio			Total Male/Female Ratio									Segment Harvest Rate (% of Prehunt Segment)	
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/ bull adj	Field Est w/o bull adj	Field SE	Juv	Yrl males	2+ Males	Females	Total Harvest	Total Males	Females
1985		46.64	3.73	5.90	13.24	10.59	1.54	72	159	108	322	661	69.0	13.7
1986		32.08	2.58	9.94	15.45	12.36	1.47	40	103	49	194	386	42.9	8.7
1987		43.94	2.68	13.22	8.78	7.02	0.92	45	37	56	128	266	25.8	5.9
1988		48.11	3.42	14.00	19.50	15.60	1.72	29	125	73	158	385	40.8	7.2
1989		53.97	3.34	12.84	12.79	10.23	1.23	28	155	103	153	439	48.9	6.8
1990		61.25	3.16	11.97	14.00	11.20	1.12	34	146	145	195	520	53.1	8.3
1991		41.52	2.59	14.85	11.38	9.10	1.06	46	134	113	186	479	42.5	7.6
1992		41.26	2.79	15.63	14.52	11.62	1.32	13	103	121	112	349	37.8	4.5
1993		42.15	3.20	22.24	26.02	20.82	2.07	26	132	110	159	427	29.4	5.7
1994		42.63	2.65	19.57	19.15	15.32	1.43	27	137	185	164	513	38.1	5.8
1995		35.21	2.11	22.95	22.82	18.26	1.42	26	119	139	177	461	28.4	5.9
1996		38.59	2.19	18.87	22.49	17.99	1.38	29	164	196	231	620	40.5	7.6
1997		47.94	2.67	18.78	18.34	14.67	1.30	33	73	193	235	534	33.8	7.8
1998		41.46	3.12	20.22	26.33	21.06	2.06	90	69	241	412	812	36.7	13.5
1999		42.96	1.99	19.34	20.67	16.54	1.12	65	86	217	305	673	37.9	10.6
2000		43.53	2.45	19.86	15.94	12.75	1.17	92	61	249	517	919	40.8	18.6
2001		34.99	2.34	21.23	23.90	19.12	1.62	74	36	238	477	825	39.2	19.2
2002		25.26	2.17	20.00	13.64	10.91	1.35	94	37	180	263	574	36.6	12.3
2003		38.14	2.56	20.81	17.70	14.16	1.42	43	69	160	315	587	38.6	15.3
2004		37.71	1.93	23.68	20.07	16.06	1.16	64	78	181	280	603	38.4	13.8
2005		44.97	2.61	24.29	27.52	22.01	1.68	50	69	212	222	553	39.0	10.9
2006		40.59	1.93	26.60	29.59	23.67	1.39	47	28	284	261	620	38.2	12.1
2007		33.91	1.99	27.13	30.22	24.17	1.62	37	41	293	285	656	38.8	12.8
2008		43.36	2.18	28.82	30.79	24.64	1.54	49	20	234	221	524	30.7	10.0
2009		41.69	1.76	27.36	27.36	21.89	1.18	74	51	293	243	661	38.0	10.6
2010		47.83	2.22	26.00	25.26	20.21	1.30	62	49	252	327	690	37.4	14.4
2011		47.21	2.19	30.69	39.57	31.66	1.69	66	54	258	312	690	33.4	13.3
2012		50.68	2.47	29.68	34.07	27.26	1.67	27	14	263	298	602	32.6	13.4
2013		39.52	1.84	29.35	24.12	19.30	1.19	70	32	258	378	738	36.0	17.7
2014		40.51	1.90	34.19	35.19	28.15	1.52	48	26	237	378	689	31.5	18.4
2015		44.79	2.10	35.93	31.48	25.18	1.47	20	20	230	325	595	30.7	17.2
2016														
2017														

FIGURES



Comments: