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Virgil Moore, Director

Project W-170-R-34

Progress Report



MOOSE

Study I, Job 6

July 1, 2010 to June 30, 2011

Prepared by:

Jim Hayden, Wayne Wakkinen..... Panhandle Region
Jay Crenshaw, Tom Schrempp Clearwater Region
Jeff Rohlman..... Southwest Region
Randy Smith, Regan Berkley..... Magic Valley Region
Toby Boudreau, Corey Class Southeast Region
Daryl Meints, Shane Roberts Upper Snake Region
Tom Keegan..... Salmon Region
David Smith Wildlife Bureau

Compiled and edited by: Dale Toweill, Wildlife Program Coordinator

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**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Moose Surveys and Inventories</u>
PROJECT:	<u>W-170-R-34</u>		
SUBPROJECT:	<u>1-7</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>5</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2010 to June 30, 2011</u>		

STATEWIDE

Moose populations in Idaho have greatly expanded their range and numbers over the past few decades, moving westward into Washington and northeastern Oregon, and southward into Utah. Although data on moose population size are difficult to obtain, it appears that moose populations in central Idaho Wilderness areas are declining as wolf populations expand.

A total of 613 antlered moose were reported harvested by 814 tag holders in fall 2010 (Table 1). The mean antler spread of harvested moose was 38 inches (up from 36 inches in 2009), based on animals measured during the mandatory check conducted statewide at Regional Offices, taxidermists, and contracted checkpoints. Based on 781 reports received (no reports were received from 33 tag holders), harvest success on antlered moose averaged over 79% statewide.

In addition, 152 antlerless moose were harvested by the 197 tag holders in fall 2010 (Table 1). The hunter success rate of antlerless moose based on 190 reports received was 80%.

An additional 4 tags were issued in conjunction with the Department's "Super Tag" drawings. Four moose (100%, up from 75% in 2009) were reported harvested, in Game Management Units (GMU) 2, 8A, 36A, and 63A. Three moose had an average antler spread of 37.8 inches.

Data on moose age and antler spread at harvest were analyzed to assist in the monitoring and evaluation of current and creation of new hunting seasons.

Moose continue to be one of Idaho's most desirable trophy species. Hunters are allowed to draw a tag to harvest only 1 antlered and 1 antlerless moose in their lifetime (except for those tags left over after the initial drawing, which do not apply to the lifetime limit). A total of 5,375 first-choice applications were received for the 761 tags for antlered moose in April 2011 for the fall 2011 hunting season, yielding overall drawing success of 14%. Among the 94 separate hunts identified for antlered moose, some were under-subscribed, resulting in 13 (1 of these 13 tags was tags not picked up after the first drawing and then put into the second drawing) unfilled tags on the initial drawing. A total of 154 people applied for the 13 leftover tags, for a 8% chance of obtaining one of these tags.

The majority of applicants for antlered moose tags were resident Idahoans (5,039 or 94% of the total); only 336 non-residents applied despite non-residents being able to draw up to 10% of the total number of tags offered. Of the 833 applicants for 163 antlerless moose tags allocated among 25 different hunt areas, 832 (99.9%) were received from residents. No antlerless tags were available after the first drawing.

Table 1. Moose hunter participation and harvest between July 1, 2010 and June 30, 2011.

Area	Hunters	Hunter Days	Total Harvest	Males	Females	% Change in Total Harvest from Previous Year
Statewide	1,015	4,748	769	617	152	-2% decline

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PANHANDLE REGION

GMUs 1, 2, 3, 4, 4A, 5, 6, 7, 9

Controlled Hunt Areas 1-1, 1-2, 1-3, 1-4, 2, 3, 4, 4A, 5, 6, 7, 9

Abstract

The Panhandle Region offered 386 tags in the 2009-2010 season setting period, the highest total ever and over three times the number of tags offered 10 years ago. Overall drawing odds for moose tags in the region were one in 7.3 applicants for the 2010 hunts, slightly worse odds than the previous 3 years but still substantially better than the odds over the past 30 years. In 2010, 10 of the 283 bulls harvested exceeded 50 inches in antler spread (3.5%). The average spread for harvested antlered moose (n=283) was 36.5 inches. Success rates averaged 83% from 2000-2009 and was 86% in 2010.

Management Direction

1. Develop an index to moose population trends that does not rely solely on aerial surveys.
2. Place enforcement emphasis on known problem areas of illegal moose kills. Publicize moose poaching arrests and the statewide reward system (Citizens Against Poaching) in the media.
3. Develop a program for warning deer and elk hunters that moose are in an area to reduce accidental kills of moose.
4. Continue to examine present controlled hunt boundaries to include areas not now open to hunting and to distribute moose hunters more evenly. Coordinate moose management and tag levels along the Idaho/Washington border with the Washington Department of Fish and Wildlife.
5. Continue collecting information on moose distribution and mortality from Department and other agency personnel and the hunting public.

Background

Open areas and extensive riparian areas that typify moose habitat elsewhere are not widespread in the Panhandle Region. Moose in this region often utilize closed-canopy timber stands with interspersed shrub fields and creek bottoms. Presently, moose populations appear to be stable in most areas of the Panhandle.

Historically, moose have been managed in Idaho for long hunts with high success rates and a good opportunity to harvest a large-antlered bull. This conservative approach, coupled with a high demand for moose hunting, led to poor odds for drawing a moose tag. In response, short, 7-day hunts were initiated during the fall of 2005 to: a) provide hunters a choice for better drawing odds at the expense of season length and b) provide data on how success rates change with a short season. Further modifications to the moose hunting season structure were initiated for the 2007 and 2008 seasons. The 86-day hunts in GMUs 1 and 2 were eliminated and replaced with a series of 14-day hunts.

For the 2009-2010 seasons, both long and short hunts were offered. Long seasons (77 days) offered more opportunity but lower drawing odds while short hunts resulted in better drawing odds. Hunters applying for the short hunts were over twice as likely to successfully draw a tag (Table 3).

Population Surveys

In December of 2010, an aerial helicopter survey was flown in the northern part of GMU 5, including the Mica Peak area from the Spokane River south to Windy Bay. In 18 search units, 68 total moose were observed (23 bulls, 26 cows, 15 calves, 4 un-classified). The moose sightability data were run through several models. Quayle et al. (2001) developed a sightability model for moose in south-central British Columbia, which estimated the Mica Peak population to be 72. Anderson and Lindzey's (1996) sightability model developed for moose in Wyoming estimated the total to be 82 moose. The Hiller sightability model, developed for elk, produced an estimate of 100 moose. The Bell helicopter model, developed for elk, estimated the total number of moose in the Mica Peak area to be 115.

An aerial thermal infrared survey was conducted by Vision Air Research, Boise, ID at the end of March in the same section of GMU 5. Transects were flown 800 ft apart at 1,500 ft above ground in a fixed wing aircraft. An infrared sensor was mounted on the wing of the aircraft and operated by a wildlife biologist. Moose were located by observing their level of emitted infrared energy versus background levels. A total of 112 moose were observed. Some moose may have been missed if they were obscured by vegetation.

The infrared survey technique yielded an estimate for the number of moose that fell within the range of the elk sightability model estimates. Thermal infrared surveys should be further explored as a way to estimate moose populations.

Harvest

Moose hunting was authorized in all Panhandle GMUs for the first time in 2007 (Table 2). In 2007, 5 antlered tags each were issued in GMU 4A and GMU 5. Three hundred and eighty-six moose tags were issued for the 2010 hunting season: 210 tags for antlered moose with a 77-day season (15 Sept – 1 Dec), 121 tags for antlered moose with 2 different 14-day seasons (1 Oct – 14 Oct; 1 Nov – 14 Nov), and 55 tags for antlerless moose with a 49-day season (15 Oct – 1 Dec).

Hunters reported harvesting 333 moose with the 386 available tags for an overall success rate in 2010 of 86% (Table 1). The success rate in hunts within GMU 1, where most of the tags are located, was 83%, a decrease from 2009 but an increase from 2007-2008. Success rates from 2000- 2009 in GMU 1 averaged 82%. Success rates in other GMUs varied from 33% to 100%, but small sample sizes in some of these GMUs make success rates volatile.

Ten of 283 bulls (2.83%) harvested in the Panhandle in 2010 had an antler spread of 50 inches or greater. This is similar to the 2006 (3.7%) and 2007 (2.3%) levels and is higher than 2008 (0.8%) and 2009 (1.0%).

Controlled Hunt Odds

Most areas of Idaho have tags available for a variety of big game species. By forcing a choice between moose and other big game tags, the Department has been successful in substantially improving drawing odds across most of the state. In the Panhandle, the only big game species managed entirely under a tag system is moose, making drawing odds poor for moose.

In an attempt to address the complaint of hunters that it was too difficult to draw a moose tag, the Department conducted a trial 7-day hunt for 2005 and 2006 to provide an avenue for improving drawing odds. It was believed that relatively few hunters would opt for the shorter season, thus greatly improving drawing odds for those hunters who were interested in choosing better drawing odds at the expense of a shorter hunting season. It was also believed that success rates would diminish slightly with the shorter season, allowing the moose herd to support additional tags to be issued, which would further improve drawing odds.

Over the past 29 years, the number of moose applicants in the Panhandle Region has steadily risen, but the number of tags being offered has increased at a faster rate, resulting in significantly better drawing odds (Table 1). Further, antlered moose hunts with short seasons had much better drawing odds than longer seasons (Table 3).

Another modification of the shorter hunts was offered in 2007-2008. A series of 6 14-day hunts were offered in GMUs 1 and 2 with the first hunt starting on 30 August and the last hunt starting on 15 November. This was another attempt to provide hunter opportunity and improve drawing odds. Drawing odds were significantly better for these 14-day hunts as compared to the traditional 86-day hunts, however, hunters were disappointed that no long hunt was offered in these GMUs.

For the 2009-2010 season, both long and short hunts were offered in most Panhandle GMUs. Drawing odds were better for the shorter hunts (Table 3) and hunters seemed happy that they had the choice of the long or short hunts.

Management Implications

An attempt was made beginning in 2001 to become less conservative in many of our moose hunts, particularly in Hunt Areas 1-1, 1-3, and 2. The overall drawing odds have improved to the point that an applicant now has a one in 7.3 chance of drawing a moose tag in the Panhandle Region. Success rates have remained relatively high and the mean antler spread has remained stable. Although the percent of large bulls (50 inches or larger) is greater than the 2009 season, the harvest of large bulls has declined over the past few years.

The lack of moose population surveys is a serious handicap to moose management in Idaho. For the most part, tag levels continue to be set conservatively, based on anecdotal information and the perception of what is socially acceptable. This conservative approach has produced poor drawing odds, the major complaint regarding moose management in Idaho, although recent changes in the Panhandle Region have improved the situation. However, the lack of surveys makes it difficult to determine the impact of the significant changes that have been made to the Panhandle seasons.

Drawing odds were much better for the 14-day hunts than the 77-day hunts, providing an avenue for hunters willing to trade season length for improved odds. Hunters with the shorter hunts reported high satisfaction with the hunts during animal check-ins. It was hypothesized that the success rates for the shorter hunts would be lower than the longer hunts, allowing more hunters afield. The difference, however, was relatively minor. The success rates during the different time periods of these short hunts will be used to evaluate the practicality of continuing to offer these hunts and the possibility of adjusting tag levels based on success rates.

Table 1. Moose harvest and overall drawing odds, Panhandle Region, 1981-present.

Year	Tags	Harvest			Hunter success (%)	First-choice applicants	Applicants per tag
		M	F	Total			
1981	11	7	0	7	64	701	63.7
1982	11	11	0	11	100	599	54.5
1983	15	14	0	14	93	712	47.5
1984	15	14	0	14	93	721	48.1
1985	28	21	0	21	75	907	32.4
1986	28	23	0	23	82	750	26.8
1987	28	24	0	24	86	653	23.3
1988	40	34	0	34	85	597	14.9
1989	40	35	0	35	88	725	18.1
1990	42	38	0	38	90	849	20.2
1991	51	45	0	45	88	1,024	20.1
1992	51	44	0	44	86	1,071	21.0
1993	83	69	0	69	83	1,361	16.4
1994	83	63	0	63	76	1,430	17.2
1995	100	84	0	84	84	1,529	15.3
1996	100	74	0	74	74	1,516	15.2
1997	103	85	0	85	83	1,837	17.8
1998	103	91	0	91	88	1,623	15.8
1999	123	100	0	100	81	2,001	16.3
2000	123	106	0	106	86	1,765	14.3
2001	220	176	5	181	82	1,799	8.2
2002	220	156	5	161	73	1,703	7.7
2003	235	189	17	206	88	1,858	7.9
2004	236	188	14	202	86	2,088	8.8
2005	285	226	26	253	88	2,536	8.9
2006	285	215	22	237	83	2,878	10.1
2007	352	251	32	283	80	2,443	6.9
2008	352	235	36	271	77	2,352	6.8
2009	386	298	48	346	90	2,763	7.2
2010	386	283	50	333	86	2,814	7.3

Table 2. Moose harvest and drawing odds by Game Management Unit, Panhandle Region, 2000-present.

GMU	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Applicants per tag
			M	F				
1	2000	88	75	0	85	8.6	812	9.2
	2001	155	120	0	77	8.6	828	5.3
	2002	155	103	0	66	9.2	1,065	6.9
	2003	170	135	14	88	9.3	1,165	6.9
	2004	171	131	10	82	7.2	1,185	6.9
	2005	170	145	18	96	8.9	1,220	7.2
	2006	170	139	15	90	8.1	1,316	7.7
	2007	218	147	17	75	8.7	1,053	4.8
	2008	218	136 ^a	18	71	5.6	917	3.9
	2009	206	160 ^a	15	85	7.0	1,112	5.4
2010	206	152	20	83	5.7	1,071	5.2	
2	2000	10	10	0	100	6.4	162	16.2
	2001	25	20	5	100	7.1	211	8.4
	2002	25	20	5	100	4.4	205	8.2
	2003	25	20	4	96	8.2	208	8.3
	2004	25	17	4	84	5.5	287	11.5
	2005	35	25	8	94	6.0	309	12.4
	2006	35	25	7	91	6.5	385	15.4
	2007	44	25	15	91	6.9	334	7.6
	2008	44	22	18	91	2.8	496	7.8
	2009	65	35	28	97	5.6	526	8.1
2010	65	31	25	86	7.5	506	7.8	
3	2000	5	4	0	80	11.3	27	5.4
	2001	5	5	0	100	7.2	35	7.0
	2002	5	5	0	100	10.8	49	9.8
	2003	5	4	0	80	8.5	44	8.8
	2004	5	5	0	100	6.8	66	13.2
	2005	10	11 ^a	0	100	4.9	83	8.3
	2006	10	10	0	100	3.9	114	11.4
	2007	20	19	0	95	7.2	122	6.1
	2008	20	18	0	90	5.9	165	8.3
	2009	30	24	5	97	5.6	192	8.4
2010	30	20	5	83	6.2	227	7.6	
4	2000	5	5	0	100	9.5	68	13.6
	2001	10	9	0	90	12.0	108	10.8
	2002	10	7	0	70	10.0	122	12.2
	2003	10	8	0	80	14.6	133	13.3
	2004	10	8	0	80	9.9	175	17.5
	2005	15	15	0	100	4.0	229	15.3
	2006	15	13	0	87	8.1	247	16.5
	2007	20	20	0	100	8.2	333	16.7
	2008	20	19	0	95	4.4	364	18.2
	2009	25	22	0	88	9.7	358	14.3
2010	25	25	0	100	5	398	15.9	
4A	2007	5	2	0	40	3.0	20	4.0
	2008	5	2	0	40	12.5	24	4.8

Table 2 Continued

GMU	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Applicants per tag
			M	F				
	2009	5	3	0	60	3.0	8	1.6
	2010	5	3	0	60	3.0	17	3.4
5	2007	5	5	0	100	7.3	163	32.6
	2008	5	4	0	80	9.3	149	29.8
	2009	10	9	0	90	6.8	175	17.5
	2010	10	10	0	100	11.9	193	19.3
6	2000	5	4	0	80	8.3	121	14.2
	2001	10	7	0	70	11.0	132	13.2
	2002	10	8	0	80	4.1	147	14.7
	2003	10	10	0	100	9.2	185	18.5
	2004	10	8	0	80	9.9	233	23.3
	2005	15	14	0	93	6.4	275	18.3
	2006	15	13	0	87	6.9	334	22.3
	2007	20	20	0	100	7.2	292	14.6
	2008	20	20 ^a	0	100	5.8	338	16.9
	2009	25	26 ^a	0	100	6.7	294	11.8
	2010	25	24	0	96	5.3	280	11.2
7	2000	5	3	0	60	8.8	34	6.8
	2001	10	10	0	100	11.8	108	10.8
	2002	10	10	0	100	9.4	57	5.7
	2003	10	9	0	90	5.0	83	8.3
	2004	10	8	0	80	4.1	86	8.6
	2005	10	8	0	80	4.7	112	11.2
	2006	10	7	0	70	12.0	97	9.7
	2007	10	9	0	90	6.9	70	7.0
	2008	10	5	0	50	6.8	68	6.8
	2009	10	9	0	90	4.4	36	3.6
	2010	10	8	0	80	4.9	68	6.8
9	2000	5	5	0	100	9.2	41	8.2
	2001	5	5	0	100	8.0	61	12.2
	2002	5	5	0	100	10.0	40	8.0
	2003	5	5	0	100	10.8	40	8.0
	2004	5	5	0	100	8.0	56	11.2
	2005	10	9	0	90	5.8	54	5.4
	2006	10	8	0	80	4.4	69	6.9
	2007	10	9	0	90	6.9	56	5.6
	2008	10	9	0	90	6.4	78	7.8
	2009	10	9	0	90	4.1	62	6.2
	2010	10	10	0	100	4.9	54	5.4

^a Includes one Supertag harvest.

Table 3. Drawing odds by hunt type and season length for moose, Panhandle Region, 2005-present.

Year	Hunt type	Season length (days)	Tags	First choice drawn	First choice applicants	Applicants per tag
2005	Antlered	86	200	200	2,200	11.0
	Antlered	7	55	46	82	1.5
	Antlerless	40	30	30	254	8.5
2006	Antlered	86	200	200	2,408	12.0
	Antlered	7	55	55	254	4.6
	Antlerless	40	30	30	216	7.2
2007	Antlered	86	50	50	924	18.5
	Antlered	14	262	261	1,251	4.8
	Antlerless	40	40	40	268	6.7
2008	Antlered	86	50	50	913	18.3
	Antlered	14	262	259	1,192	4.6
	Antlerless	40	40	40	247	6.2
2009	Antlered	77	210	210	1,966	9.4
	Antlered	14	121	116	394	3.3
	Antlerless	49	55	55	403	7.3
2010	Antlered	77	210	210	1,930	9.2
	Antlered	14	121	120	482	4.0
	Antlerless	49	55	55	402	7.3

Table 4. Comparison of moose harvest success rates and mean antler spread with 77-day and 14-day seasons, Panhandle Region, 2010.

Season length	Season Dates	Tags issued	Number harvest	Success rate (%)	Mean antler spread
77 days	15 Sep – 1 Dec	210	181	86	36.7
14 days	1 Oct – 14 Oct	58	53	91	36.8
14 days	1 Nov – 14 Nov	63	49	78	36.0

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Moose Surveys and Inventories</u>
PROJECT:	<u>W-170-R-34</u>		
SUBPROJECT:	<u>2</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>6</u>		<u>Habitat Studies</u>
PERIOD COVERED: <u>July 1, 2010 to June 30, 2011</u>			

CLEARWATER REGION

GMUs 8, 8A, 10, 10A, 12, 14, 15, 16, 16A, 17, 19, 20

**Controlled Hunt Areas 8, 8A, 10-1, 10-2, 10-3, 10-4, 10-5, 10-6,
10A-1, 10A-2, 10A-3, 10A-4, 10A-5, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6,
14-1, 14-2, 15-1, 15-2, 15-3, 15-4, 16-1, 16-2, 16A, 17, 19, 20**

Abstract

Based upon mandatory harvest report data, Clearwater Region hunters harvested 81 antlered moose in 31 antlered-only controlled hunts and an additional 8 antlerless moose in 2 controlled hunts for antlerless moose in 2010. A total of 169 (161 antlered, 8 antlerless) tags were available across the region for a total harvest success rate of 53%. Antlered and antlerless success rates were 50% and 100%, respectively. Drawing odds ranged from 1:1.0 (Hunt Areas 10-4, 10-6, 12-3, 15-2, 15-3, 16-2, 16A, 17, 19, and 20) to 1:22.5 (Hunt Area 8A). The mean antler spread for the 81 antlered moose harvested in the region was 40.3 inches, with a range of 24 to 54 inches for 2010. Cumulative drawing odds for antlered-only hunts in the Clearwater Region were 1:4.5 for the 2010 season.

Management Direction

Moose populations will be allowed to increase in GMUs where habitat conditions will support expansion. Legal harvest will continue to be focused on antlered bulls. Antlerless moose hunting opportunities will be continued in those areas where population control measures are considered desirable. Moose harvest will be increased where feasible and decreased where necessary. Known mortalities will be documented and information on numbers and distribution will be obtained from big game mandatory harvest checks.

Moose populations large enough to support hunts are found in all big game management units in the region except GMUs 11, 11A, 13, and 18. GMUs are divided into controlled hunts to disperse hunters and to direct harvest to specific areas.

Historically, moose were hunted through controlled hunts on a bulls-only basis; however, in 1999, 2 antlerless moose hunts (Hunts 8-2 and 8A-2 with 4 tags each) were initiated to increase hunting opportunity, address high cow moose densities, and minimize the potential for moose-automobile collisions in these areas. Hunting season lengths for moose in the Clearwater Region were 86 days for antlered moose hunts and 40 days for antlerless hunts (Appendix A). Since 1986, persons applying for moose tags have been prohibited from applying for any other controlled hunt to improve drawing odds. Additionally, unsuccessful hunters must wait 2 years before applying for another controlled moose hunt. Tag levels are based on trends in antler spread of harvested moose and hunter success rates of recent tag holders in the respective controlled hunts.

Some moose populations in the Clearwater Region are found in climax vegetative cover. Summer feeding habits tend to be nocturnal in open, wet meadows, while diurnal activity is limited to adjacent forested areas. Logging may reduce habitat for these populations. Winter habitat selection favors subalpine fir and Pacific yew plant communities. Other populations are adapted to seral plant communities, except in winter. These populations may be expanding in areas where extensive habitat manipulation has resulted in seral brush fields. Winter ranges appear to be timbered areas where yew-wood thickets are several hundred years old. Creating openings in these timber stands through logging may impact moose by eliminating these yew-wood thickets. Effects of the recent expansion of wolves on moose populations within the region are as yet undetermined.

Population Surveys

Moose in the Clearwater Region are usually counted incidental to elk surveys. Consequently, many moose are not counted because these surveys are seldom flown at elevations where moose normally winter and because moose tend to prefer dense subalpine fir plant associations for winter habitat where they are less conspicuous. As a result, no comparative population data have been collected on a regular basis on moose throughout the region.

A sightability survey of moose in GMU 15 was attempted in 2000. Results were unsatisfactory because of overly large confidence intervals. These results were due to the extreme correction factors applied to animals detected under heavy canopy coverage classes. During model development, only 4 moose were encountered in cover greater than 70%.

Harvest Characteristics

Harvest levels, hunter success, and hunter days expended for 2010 were determined from mandatory harvest reports (Tables 1 and 2). Several changes have been made to regional moose Hunt Areas over the past decade. Hunt areas in GMUs 12, 15, and 17 were combined and/or renamed in 2001 and 1 new hunt area was added in GMU 10 (10-6) in 2001. Tag numbers were adjusted in the region to respond to changes in hunter success rates and/or antler spread with a net loss of 22 tags in 2001 (from 290 to 270) and a further reduction of 20 tags in 2005 (250). For the 2009 and 2010 seasons, the total number of tags was reduced from 250 (242 antlered and 8 antlerless) to 169 (161 antlered and 8 antlerless). The 169 moose tags available in 2010 resulted in a reported harvest of 81 antlered and 8 antlerless moose.

Mortality reports from some tag holders were unaccounted for and were not used in calculating hunter success. The 2010 cumulative success rate of 53% was lower than the previous 5-year (2006-2010) average of 57%. Success rates for 2010 antlered and antlerless moose were 51% and 100%, respectively. Drawing odds ranged from 1:1.0 (Hunt Areas 10-4, 10-6, 12-3, 15-2, 15-3, 16-2, 16A, 17, 19, and 20) to 1:22.5 (Hunt Area 8A).

Reported moose mortalities due to methods other than legal harvest during controlled hunts have varied considerably by year (Table 3). It is likely that the level of mortality is considerably higher than what is reported.

The mean antler spread for the 81 antlered moose harvested in the region in 2010 was 40.3 inches, with a range of 24 to 54 inches. Cumulative drawing odds for antlered-only hunts in the Clearwater Region were 1:4.5 in 2010.

Climatic Conditions

According to the United States Department of Agriculture Natural Resources Conservation Service, precipitation for April and May of 2010 was 123% of average for the Clearwater River Basin; however, snowpack was still only 62% of average while precipitation was 74% of average leading into summer. March 2011 brought 139% of average precipitation to the Clearwater River Basin resulting in a snowpack 112% of average; nearly twice the snowpack as this same time last year. April and May 2011 brought 197% and 125% of average precipitation respectively, boosting the Clearwater snowpack to 221% of average as of 1 June. Based on the 13 station Clearwater snow index, the 1 June snow water content was the highest since records started in 1984. As of 1 June, the Selway, Lochsa, Dworshak inflow and Clearwater rivers were forecasted at 138-146% of average for the June-September period. Dworshak Reservoir was 80% of average and 71% of capacity and was not expected to fill until late June or early July.

Management Implications

Tag levels will continue to be allocated based on trends in antler spread of harvested moose and hunter success rates of recent tag holders. Numbers of tags may be increased or decreased as dictated by harvest data. Tag numbers were decreased by 22 in the Clearwater Region in 2001 and by an additional 20 tags in 2005. Tag numbers were again reduced for the 2009 season by an additional 81 tags.

All areas need more intensive investigation to determine population levels, trends, and habitat selection and use. Some moose populations appear to be increasing and seem to respond favorably to extensive habitat alteration by silvicultural practices. However, other populations may be displaced or eliminated because they cannot adapt to habitat changes, particularly where yew-wood thickets are eliminated through logging and where increased road densities make moose more vulnerable to illegal and Native American harvest.

Additionally, the effects of the recent expansion of wolves across the region on moose populations are as yet undetermined. In 2008, the region began monitoring moose in GMU 10

that were captured and radio-collared to determine mortality rates and causes of death in the presence of wolves. This work is being done in conjunction with the ongoing wolf-elk interaction research in the Lolo Zone. A total of 12 radio-collars were placed on yearling or adult moose during the 2008-2009 winter. Eleven of the 12 collared animals survived the first year. The lone mortality was a young bull that was harvested by a hunter in Hunt Area 10-3 in 2009. One additional radio-collar was deployed in January 2010 prior to a helicopter accident, after which capture operations ceased. Again, 11 of the 12 collared animals survived the year (2010). The one mortality was a bull that was injured while sparring with another bull during the rut. In February 2011, an additional 22 moose were captured and radio-collared (2 bulls, 8 cows, and 12 calves). By early 2011, wolves had killed 1 adult cow moose and 4 calves. While results are very preliminary, to date, wolves have not proven to be a significant cause of mortality on radio-collared adult moose. However, if early trends in wolf-caused calf mortality continue, calf survival and recruitment could be a serious issue.

Table 1. Moose harvest and drawing odds, Clearwater Region, 1990-present.

Year	Tags	Harvest			Hunter success (%)	First-choice applicants	Drawing odds
		M	F	Total			
1990	167	118	0	118	71	1,156	1:6.9
1991	176	134	0	134	76	1,201	1:6.8
1992	176	132	0	132	75	1,221	1:6.9
1993	201	159	0	159	79	1,211	1:6.0
1994	201	133	0	133	66	1,115	1:5.5
1995	263	177	0	177	67	1,501	1:5.7
1996	263	162	0	162	62	1,288	1:4.9
1997	263	157	0	157	60	1,579	1:6.0
1998	263	153	0	153	58	1,250	1:4.8
1999	292	180	8	188	64	1,540	1:5.3
2000	292	177	7	184	63	961	1:3.3
2001	270	141	7	148	55	931	1:3.4
2002	270	151	8	159	59	813	1:3.0
2003	270	156	6	162	60	798	1:3.0
2004	270	150	7	157	58	891	1:3.3
2005	250	152	8	160	64	964	1:3.9
2006	250	144	7	151	60	943	1:3.8
2007	250	130	7	137	55	938	1:3.8
2008	250	117	8	125	50	850	1:3.4
2009	169	79	6	85	50	788	1:4.7
2010	169	79	8	87	51	801	1:4.5

Table 2. Moose harvest and drawing odds by Game Management Unit, Clearwater Region, 2000-present.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter ^a	First-choice applicants	Drawing odds
			M	F				
8	2000	10	5	3	80	5.1	34	1:3.4
	2001	10	5	3	80	7.1	35	1:3.5
	2002	10	6	4	100	5.4	52	1:5.2
	2003	10	6	3	90	5.4	48	1:4.8
	2004	10	6	4	100	4.2	54	1:5.4
	2005	12	8	4	100	12.0	66	1:5.5
	2006	12	7	4	92	8.3	73	1:6.1
	2006	12	7	4	92	8.3	73	1:6.1
	2007	12	7	4	92	6.5	98	1:8.2
	2008	12	7	4	92	3.1	112	1:9.3
	2009	12	7	4	92	5.3	123	1:10.3
8A	2010	12	7	4	92	3.0	164	1:13.7
	2000	10	6	4	100	3.5	76	1:7.6
	2001	10	5	4	90	4.1	104	1:10.4
	2002	10	5	4	90	4.6	93	1:9.3
	2003	10	6	3	90	11.3	113	1:11.3
	2004	10	6	4	100	6.8	105	1:10.5
	2005	12	8	4	100	8.2	138	1:11.5
	2006	12	7	3	83	10.4	142	1:11.8
	2006	12	7	3	83	10.4	142	1:11.8
	2007	12	8	3	92	7.7	169	1:14.1
	2008	12	8	4	100	6.5	181	1:15.1
10	2009	12	8	2	83	7.9	201	1:16.8
	2010	12	8	4	100	7.5	223	1:18.6
	2000	23	13	0	57	4.0	112	1:4.9
	2001	28	17	0	61	6.4	91	1:3.3
	2002	28	14	0	50	9.3	86	1:3.1
	2003	28	20	0	71	6.4	82	1:2.9
	2004	28	21	0	75	3.9	105	1:3.8
	2005	32	21	0	66	7.8	100	1:3.1
	2006	32	20	0	63	9.2	112	1:3.5
	2006	32	20	0	63	9.2	112	1:3.5
	2007	32	25	0	78	5.7	113	1:3.5
10A	2008	32	17	0	53	6.6	106	1:3.3
	2009	32	22	0	69	9.2	120	1:3.8
	2010	32	19	0	59	5.8	97	1:3.0
	2000	34	29	0	85	11.9	134	1:3.9
	2001	32	28	0	88	6.8	116	1:3.6
	2002	32	26	0	81	7.9	130	1:4.1
	2003	32	27	0	84	8.9	140	1:4.4
	2004	32	25	0	78	9.4	145	1:4.5
	2005	34	32	0	94	7.6	148	1:4.4

Table 2. Continued.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter ^a	First-choice applicants	Drawing odds
			M	F				
12	2006	34	26	0	76	7.6	172	1:5.1
	2007	34	31	0	91	11.8	191	1:5.6
	2008	34	24	0	71	9.0	192	1:5.6
	2009	29	20	0	69	13.9	168	1:5.8
	2010	29	20	0	69	6.1	152	1:5.2
	2000 ^b	61	31	0	51	6.3	119	1:2.0
	2001	45	16	0	36	3.0	70	1:1.6
	2002	45	24	0	53	4.5	58	1:1.3
	2003	45	27	0	58	6.7	75	1:1.7
	2004	45	22	0	49	5.6	87	1:1.9
	2005	43	20	0	47	6.9	73	1:1.7
	2006	43	23	0	53	8.5	70	1:1.6
	2007	43	18	0	42	9.0	73	1:1.7
	2008	43	21	0	49	10.6	64	1:1.5
14	2009	26	9	0	35	5.9	42	1:1.6
	2010	26	15	0	58	11.1	48	1:1.8
	2000	10	9	0	90	4.5	100	1:10.0
	2001	13	11	0	85	3.5	124	1:9.5
	2002	13	11	0	85	5.3	120	1:9.2
	2003	13	11	0	85	4.6	121	1:9.3
	2004	13	11	0	85	8.2	114	1:8.8
	2005	13	11	0	85	10.0	114	1:8.8
	2006	13	10	0	77	10.4	92	1:7.1
	2007	13	8	0	62	6.5	71	1:5.5
15	2008	13	6	0	46	8.0	83	1:6.4
	2009	11	6	0	56	9.2	42	1:3.8
	2010	11	5	0	45	4.4	55	1:5.0
	2000	60	44	0	73	8.2	212	1:3.5
	2001	60	34	0	57	8.9	256	1:4.3
	2002	60	35	0	58	8.5	176	1:2.9
	2003	60	35	0	58	11.2	173	1:2.9
	2004	60	37	0	62	7.1	186	1:3.1
	2005	45	30	0	67	8.4	155	1:3.4
	2006	45	25	0	55	12.4	143	1:3.2
	2007	45	20	0	44	11.1	117	1:2.6
	2008	45	18	0	40	11.0	108	1:2.4
16	2009	24	3	0	13	6.0	70	1:2.9
	2010	24	4	0	17	25.8	46	1:1.9
	2000	14	13	0	93	6.2	78	1:5.6
	2001	17	10	0	59	6.3	65	1:3.8
	2002	17	11	0	65	5.4	40	1:2.4
	2003	17	9	0	53	7.0	58	1:3.4
	2004	17	10	0	59	4.8	47	1:2.8

Table 2. Continued.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter ^a	First-choice applicants	Drawing odds
			M	F				
16A	2005	12	8	0	67	6.3	55	1:4.6
	2006	12	6	0	50	5.7	37	1:3.1
	2007	12	9	0	75	8.2	38	1:3.2
	2008	12	3	0	25	12.7	38	1:3.2
	2009	4	2	0	50	6.5	7	1:1.8
	2010	4	1	0	25	ND	7	1:1.8
	2000	7	3	0	43	8.7	21	1:3.0
	2001	7	6	0	86	4.3	13	1:1.9
	2002	7	3	0	43	14.3	14	1:2.0
	2003	7	3	0	43	4.0	8	1:1.1
	2004	7	5	0	71	16.8	12	1:1.7
	2005	7	5	0	71	8.0	13	1:1.9
	2006	7	4	0	57	10.7	9	1:1.3
	2007	7	1	0	14	30.0	18	1:2.6
17	2008	7	3	0	43	4.5	6	1:1.0
	2009	4	0	0	0	ND	2	1:1.0
	2010	4	0	0	0	ND	4	1:1.0
	2000 ^b	35	12	0	34	5.8	23	1:1.0
	2001	22	2	0	9	4.5	25	1:1.1
	2002	22	9	0	41	6.5	14	1:1.0
	2003	22	6	0	27	7.7	16	1:1.0
	2004	22	7	0	32	10.3	16	1:1.0
	2005	18	5	0	28	3.8	22	1:1.2
	2006	18	6	0	33	6.5	13	1:1.0
19	2007	18	0	0	0	ND	18	1:1.1
	2008	18	5	0	28	8.5	17	1:1.0
	2009	5	1	0	20	15.0	7	1:1.4
	2010	5	1	0	20	1.0	2	1:1.0
	2000	14	7	0	50	5.6	29	1:2.1
	2001	12	2	0	17	14.0	15	1:1.3
	2002	12	4	0	33	5.0	6	1:1.0
	2003	12	6	0	50	10.7	14	1:1.2
	2004	12	3	0	25	12.5	40	1:3.3
	2005	12	1	0	8	5.0	18	1:1.5
20	2006	12	8	0	66	4.9	19	1:1.6
	2007	12	0	0	0	ND	19	1:1.6
	2008	12	3	0	25	6.7	7	1:1.0
	2009	5	1	0	20	5.0	3	1:1.0
	2010	5	1	0	20	2.0	1	1:1.0
	2000	14	5	0	36	11.4	23	1:1.6
	2001	14	5	0	36	8.4	17	1:1.2
	2002	14	4	0	29	4.5	14	1:1.0
	2003	14	2	0	14	7.0	10	1:1.0

Table 2. Continued.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter ^a	First-choice applicants	Drawing odds
			M	F				
	2004	14	2	0	14	16.5	9	1:1.0
	2005	10	3	0	30	17.5	8	1:1.0
	2006	10	2	0	20	12.0	12	1:1.2
	2007	10	3	0	30	4.0	11	1:1.1
	2008	10	2	0	20	15.0	6	1:1.0
	2009	5	0	0	0	ND	3	1:1.0
	2010	5	0	0	0	ND	2	1:1.0

^a Data from successful hunters only.

^b Some tags not sold.

Table 3. Known moose mortalities, excluding controlled hunts, Clearwater Region, 1979-present.

Year	Mortality agent					Total
	Native American harvest	Illegal kill	Road kill	Natural	Other	
1979	4	9	4	0	0	17
1980	4	19	3	0	0	26
1981	1	13	4	0	0	18
1982	11	21	0	0	0	32
1983	13	25	5	0	0	43
1984	10	19	4	0	0	33
1985	6	15	4	0	0	25
1986	18	14	7	0	0	39
1987	2	13	11	0	0	26
1988	0	0	0	0	0	0
1989	4	17	7	0	0	28
1990	13	11	1	0	0	25
1991	15	21	3	0	0	39
1992	10	33	5	6	4	58
1993	7	31	5	0	2	45
1994	2	13	2	1	5	23
1995	10	4	7	4	2	27
1996	4	9	4	3	6	26
1997	1	18	2	2	5	28
1998	6	3	3	0	5	17
1999	6	1	0	0	8	15
2000	5	10	0	5	0	20
2001	1	9	3	0	1	14
2002	2	13	4	0	2	21
2003	0	2	0	0	3	5
2004	0	7	2	2	1	12
2005	2	7	6	2	0	17
2006	0	2	0	2	1	5
2007	1	2	1	0	1	5
2008	0	1	3	0	1	5
2009	1	2	3	0	0	6
2010	0	2	2	1	0	5

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Moose Surveys and Inventories</u>
PROJECT:	<u>W-170-R-34</u>		
SUBPROJECT:	<u>3</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>6</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2010 to June 30, 2011</u>		

SOUTHWEST REGION

GMUs 19A, 20A, 25, 26

Controlled Hunt Areas 19A, 20A-1, 20A-2, 25, 26

Abstract

Two moose were harvested in Hunt Area 19A, and one moose in Hunt Area 25 in 2010. No moose were harvested in Hunt Area 20A. Population trend and herd composition surveys were not conducted in GMUs 19A, 20A, 25, or 26 during the reporting period. The GMU 26 hunt was eliminated after the 2006 harvest season.

Management Direction

Management will be consistent with the statewide management direction delineated in the 1991-1995 Moose Management Plan.

Background

Moose observations had been increasing in GMUs 19A, 20A, 25, and 26. As a result, a 2-tag hunt was initiated in GMU 20A in 1983. Further increases in moose sightings led to subdivision of the GMU in 1995 into 3 hunt areas, 20A-1, 20A-2, and 20A-3, consisting of 2, 3, and 2 tags, respectively. This increase in moose observations also led to the establishment of a 2-tag hunt in GMU 26 in 1997. Consequently, 2 new hunts, Hunt Areas 19A and 25, were created in 1999 consisting of 2 tags each. Since then, moose sightings and activity appear to have declined. As a result, the 3 hunt areas in GMU 20A were combined into 2 new hunt areas with 2 tags in each area for the 2005-2006 regulation cycle. These hunt areas were combined into one hunt area (20A) for the 2007-2008 regulation cycle.

Population Surveys

No moose population surveys were conducted during the reporting period.

Harvest Characteristics

Moose hunting seasons last 86 days in GMUs 19A, 20A, and 25 (Appendix A). Harvest data are generated through a mandatory hunter report requirement. Two moose were harvested in Hunt Area 19A and 1 moose in Hunt Area 25 in 2010. No moose were harvested in Hunt Area 20A in 2010 (Table 1). Average antler spread for moose was 21.0 inches and 47.6 inches in Hunt Areas 19A and 20A, respectively.

Management Implications

Because reliable population data are not available and difficult to generate, tag levels have been conservative. The frequency and location of reports indicated pioneering populations existed in GMUs adjacent to or near GMUs 20A and 26 (e.g., 19A, 24, 25) in the early 1990s. Two moose hunts with 2 tags each were implemented in GMUs 19A (Hunt Area 19A) and 25 (Hunt Area 25) in 1999. Several years of poor or no hunter success in GMU 26 indicated moose numbers may have declined. The most vulnerable moose may have been harvested, making hunting more difficult. There may also be effects of predation on animals in these areas. This hunt was eliminated from the 2007-2008 regulation cycle.

No moose were harvested for 2 consecutive years in Hunt Area 19A and 3 consecutive years in Hunt Areas 20A and 25 prior to the 2010 season. This poor harvest trend, combined with lack of field reports of moose, led to the closure of hunts in Hunt Areas 19A, 20A, and 25 for the 2011-2012 regulation cycle. All areas need intensive data collection to determine population levels, trends, and habitat selection.

Table 1. Moose harvest and drawing odds by hunt area, Southwest Region, 1999-present.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
			M	F				
19A ^a	1999	2	2	0	100	18.5	39	1:19.5
	2000	2	1	0	50		17	1:8.5
	2001	2	1	0	50		18	1:9.0
	2002	2	2	0	100	9.5	19	1:9.5
	2003	2	2	0	100	4.5	24	1:12
	2004	2	1	0	50		32	1:16
	2005	2	2	0	100		17	1:8.5
	2006	2	1	0	50		15	1:7.5
	2007	2	2	0	100		17	1:8.5
	2008	2	0	0	0	0	22	1:11.0
	2009	2	0	0	0	0	17	1:8.5
20A	2010	2	2	0	100		6	1:3.0
	1999	7	4	0	57	2.8	14	1:2.0
	2000 ^b	7	2	0	29	15.0	19	1:2.7
	2001 ^c	10	3	0	30	4.7	10	1:1.0
	2002	7	2	0	28		8	1:1.1
	2003	7	0	0	0	0	13	1:1.9
	2004	7	1	0	14		7	1:1.0
	2005	4	0	0	0	0	19	1:4.8
	2006	4	3	0	75		10	1:2.5
	2007	2	0	0	0	0	10	1:5.0
	2008	2	0	0	0	0	2	1:1.0
25 ^a	2009	2	0	0	0	0	2	1:1.0
	2010	2	0	0	0	0	3	1:1.5
	1999	2	2	0	100	8.5	38	1:19.0
	2000	2	1	0	50		9	1:4.5
	2001	2	2	0	100	8.5	15	1:7.5
	2002	2	2	0	100	5.0	17	1:8.5
	2003	2	2	0	100	3.0	25	1:12.5
	2004	2	1	0	50		31	1:15.5
	2005	2	1	0	50		14	1:7.0
	2006	2	2	0	100		15	1:7.5
	2007	2	0	0	0	0	14	1:7.0
2008	2	0	0	0	0	3	1:1.5	
2009	2	0	0	0	0	6	1:3.0	
2010	2	1	0	50		5	1:2.5	

^a Hunt established in 1999.

^b Three tag holders opted for a rain-check tag in 2001.

^c Includes 3 rain-check tag recipients from the 2000 hunting season.

Table 2. Moose harvest and drawing odds, Southwest Region, 1983-present.

Year	Tags	Harvest			Hunter success (%)	First-choice applicants	Drawing odds
		M	F	Total			
1983	2	1	0	1	50	28	1:14.0
1984	4	3	0	3	75	49	1:12.3
1985	2	2	0	2	100	29	1:14.5
1986	2	2	0	2	100	14	1:7.0
1987	2	1	0	1	50	9	1:4.5
1988	2	2	0	2	100	14	1:7.0
1989	2	1	0	1	50	9	1:4.5
1990	2	2	0	2	100	21	1:10.5
1991	2	2	0	2	100	22	1:11.0
1992	2	1	0	1	50	18	1:9.0
1993	2	1	0	1	50	18	1:9.0
1994	2	1	0	1	50	41	1:20.5
1995	7	7	0	7	100	38	1:18.4
1996	7	4	0	4	57	38	1:5.4
1997	9	7	0	7	78	49	1:5.4
1998	9	4	0	4	44	38	1:4.2
1999	13	9	0	9	69	105	1:8.1
2000 ^a	13	4	0	4	31	50	1:3.8
2001 ^b	16	8	0	8	50	47	1:2.9
2002	13	8	0	8	62	47	1:3.6
2003	13	6	0	6	46	70	1:5.4
2004	13	3	0	3	23	78	1:6.0
2005	10	3	0	3	30	58	1:5.8
2006	10	6	0	6	60	41	1:4.1
2007	6	2	0	2	33	41	1:6.8
2008	6	0	0	0	0	27	1:4.5
2009	6	0	0	0	0	25	1:4.2
2010	6	3	0	3	50	14	1:2.3

^a Three tag holders opted for a rain-check tag in 2001.

^b Includes 3 rain-check tag recipients from the 2000 hunting season.

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Moose Surveys and Inventories</u>
PROJECT:	<u>W-170-R-34</u>		
SUBPROJECT:	<u>4</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>6</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2010 to June 30, 2011</u>		

MAGIC VALLEY REGION

GMUs 44, 48, 49, 56, 73, 73A

Controlled Hunt Areas 44, 48, 56

Abstract

Moose populations have declined the northern portion of the Magic Valley Region and increased in the southern portion. In 2010, 15 tags were issued for 3 hunt areas in the region and 8 hunters were successful (53%). For the 2011 and 2012 seasons, antlerless harvest was eliminated and antlered tags reduced in GMUs 44, 48 and 49. Hunts were authorized for the first time in GMUs 55 and 57.

Management Direction

Follow statewide management direction; allow established populations to expand; transplant moose where feasible; and increase effort to record sightings and mortalities.

Background

Prior to 1990, transient moose were recorded throughout Magic Valley Region, but there were no viable, resident populations. From 1986-2000, 31 moose were released in GMUs 43 and 44 from and these transplants likely contributed to the increase in the moose population in these GMUs. Following these releases, moose numbers in the region continued to increase as a result of good reproduction and natural ingress. Presently, viable populations capable of sustaining limited harvest occur in GMUs 44, 48, 49, 55, 56, and 57.

Population Surveys

Aerial population surveys for moose have not been conducted in the region. During the 1990s and 2000s, increasing anecdotal observations indicated a growing moose population along the South Fork Boise River in GMU 43, Willow Creek in GMU 44, Big Wood River in GMU 48, and in the Trail Creek drainage on the border of GMUs 48-49. However, over the past few

years, observations and harvest rates have declined. Populations in the Sublett area (GMU 56) appear to be stable and observations are common. Although there has been no legal moose harvest in GMUs 54, 55, and 57, moose in these GMUs have increased in recent years.

Harvest Characteristics

Hunting season length for antlered moose in the 3 hunt areas in Magic Valley Region was 86 days in 2010 (Appendix A). Four antlered tags were offered in Hunt Area 44. The boundary of Hunt Area 44 was changed prior to the 2005 hunting season to include portions of GMUs 44 and 48. One bull was harvested in the GMU 48 portion of Hunt Area 44 during the reporting period (Table 1). A hunt with 2 antlered tags was offered in Hunt Area 48, which includes all of GMU 49 and part of GMU 48. Two bulls were harvested in Hunt Area 48 during the reporting period; both were harvested from GMU 48. Five antlered tags were again offered in Hunt Area 56 (includes GMUs 56, 73, and 73A). Five bulls were harvested, with 3 taken in GMU 56 and 2 taken in GMU 73 (Table 1). In 2010, Hunt Area 56 had the lowest drawing odds in Idaho, at only 4.5%.

Antlerless hunts were offered in Hunt Areas 44 and 48. These hunts offered 2 tags each and a season length of 40 days. No antlerless moose were harvested in either Hunt Area during the 2010 hunting season. No non-harvest mortalities were reported in Magic Valley Hunt Areas during the reporting period.

Capture and Translocation

No moose were released in the region during this reporting period.

Management Implications

Moose population declines in the Big Wood River drainage and surrounding areas have resulted in the elimination of antlerless hunts and a reduction in antlered tags in those hunt areas for the 2011 and 2012 seasons. Although no formal population surveys are planned, the population will continue to be monitored through incidental observations by agency personnel and the public.

Increasing moose numbers in the southern portion of the region (GMUs 54, 55, and 57) have provided the opportunity to expand hunting opportunities. For the 2011 and 2012 seasons, GMUs 55 and 57 will be opened to moose hunting for the first time and grouped with GMU 56 in a hunt area.

Table 1. Moose harvest and drawing odds by hunt area, Magic Valley Region, 1999-present.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
			M	F				
44 ^a	2001	2	2	0	100	3.8	9	1:4.5
	2002	2	1	0	50	1.0	13	1:6.5
	2003	4	3	0	75	11.0	16	1:4.0
	2004	4	4	0	100	7.7	20	1:5.0
	2005	6	2	0	33	6.5	13	1:2.2
	2006	6	1	2	50	6.5	21	1:3.5
	2007	6	3	1	67	3.5	10	1:1.7
	2008	6	1	1	33	5	23	1:3.7
	2009	6	1	1	33	19.5	18	1:3.0
	2010	6	1	0	17	5	11	1:1.8
48 ^b	2005	4	2	2	100	6.3	8	1:2.0
	2006	4	1	2	75	4.5	9	1:2.3
	2007	4	0	0	0	0	6	1:1.5
	2008	4	2	0	50	12.0	8	1:2
	2009	4	2	2	100	4.5	11	1:2.8
	2010	4	2	0	50	8.0	9	1:2.3
56	1999	5	5	0	100	16.0	28	1:5.6
	2000	5	5	0	100	3.8	21	1:4.2
	2001	5	4	1	100	19.2	31	1:6.2
	2002	5	4	0	80	3.0	31	1:6.2
	2003	5	5	0	100	17.2	37	1:7.4
	2004	5	5	0	100	5.6	44	1:8.8
	2005	5	5	0	100	12.3	46	1:9.2
	2006	5	5	0	100	4.5	42	1:8.4
	2007	5	5	0	100	7.8	73	1:14.5
	2008	5	3	0	60	10.0	114	1:22.8
2009	5	5	0	100		116	1:23.2	
2010	5	5	5	100	6.8	111	1:22.2	

^a Hunt established in 2001; includes portions of GMUs 44 and 48.

^b Hunt established in 2005; includes all of GMU 49 and a portion of GMU 48.

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Moose Surveys and Inventories</u>
PROJECT:	<u>W-170-R-34</u>		
SUBPROJECT:	<u>5</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>6</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2010 to June 30, 2011</u>		

SOUTHEAST REGION

GMUs 66A, 70, 71, 72, 73, 73A, 74, 75, 76, 77, 78

**Controlled Hunt Areas 66A, 70, 71-1, 71-2, 72,
74, 75, 76-1, 76-2, 76-3, 77, 78**

Abstract

The number of moose tags available were reduced by 39% in 2005 and have not increased since. Ninety-five antlered-only and 65 antlerless-only tags were offered in 2010. Mandatory harvest reports identified a total of 73 antlered and 32 antlerless moose harvested. The average outside antler spread was 35.4 inches for 73 antlered moose for which data is available. Data for Hunt Area 56 (GMUs 56, 73, and 73A) are reported under the Magic Valley Region-subproject 4.

Management Direction

Management direction for moose in Southeast Region follows that for the state in general: to provide “high-quality” hunting and other moose-related recreational opportunities. Consequently, tag levels are conservative, and hunter success is high relative to hunts for other cervid species. For antlered-only hunts, emphasis is on providing each hunter with the opportunity to harvest a mature bull moose. Antlerless-only moose hunting is also offered due to relatively high moose populations. Non-consumptive values of moose are also important.

The 1991-1995 Moose Management Plan established the goals of providing high-quality moose hunting and other moose-related recreational experiences for as many people as possible, assisting the expansion of moose populations into available habitat, and increasing tag numbers where possible.

Background

Prior to the 1950s, there were too few moose in Southeast Region to justify harvest. The first hunt for moose in the region was held in 1959 when 5 antlered-only tags were issued for a portion of GMU 76. With continued growth of the population, harvest has increased to recent

levels of over 150 moose in 11 GMUs. Illegal moose harvest may be substantial (Kuck and Ackerman 1984), although reporting of these cases is sporadic. The Department issued a small number of tags for any moose in several GMUs from 1975-1990. An average of 80% of that harvest was antlered moose. In 1991, antlerless-only hunts were instituted in GMUs 66A and 76. Since 1991, tags have been issued for antlered or antlerless-only moose. Antlerless moose hunts start later than antlered hunts to provide more time for calf development.

Portions of the region continue to be colonized by moose, and populations apparently are increasing. Notably, moose appear to be expanding in GMUs 73 and 73A.

Population Surveys

No moose surveys were conducted in Southeast Region during the reporting period. During January 2002, search GMUs were flown in Hunt Areas 66A and 76-3.

In Hunt Area 66A, 19 search units were stratified as high, medium, or low likelihood of moose and 13 search units were flown for sightability. One hundred fifty-two moose were counted in these 13 search units consisting of 75 cows, 48 bulls, and 29 calves (Table 1). Estimates of 219 (± 31) total moose including 105 (± 15) cows, 75 (± 18) bulls, and 39 (± 9) calves were generated using the Hiller-Soloy Wyoming-based model (Unsworth et al. 1994). Overall herd composition was estimated as 48% cows, 34% bulls, and 18% calves. The population estimate of 219 in 2002 was 23% lower than the estimate of 285 in 1995; however, 90% confidence intervals overlap. Average moose seen were 3.0 in low units, 16.0 in medium units, and 18.5 in high units. Search units were likely well-stratified for the survey.

In Hunt Area 76-3, 13 search units were stratified as high or low likelihood of moose and 10 search units were flown for sightability. One hundred three moose were counted in these 10 search units consisting of 41 cows, 48 bulls, and 14 calves (Table 1). Estimates of 174 (± 40) total moose including 71 (± 20) cows, 78 (± 20) bulls, and 25 (± 8) calves were generated using the Hiller-Soloy Wyoming-based model. Overall herd composition was estimated as 41% cows, 45% bulls, and 14% calves. The population estimate of 174 in 2002 was very close to the 167 estimated in 1995. Average moose seen was 9.8 in low units and 11.2 in high units. Search units may need to be re-stratified or have stratification by moose likelihood deleted in future surveys.

Harvest Characteristics

Tag levels (Tables 2 and 3) for 2009 were the same as 2009. One hundred sixty tags (95 antlered and 65 antlerless) were issued. Minimum reported harvest was available through a mandatory mortality report of successful hunters. Reported harvest totaled 105; 73 antlered and 32 antlerless moose (Tables 2 and 3). Average antler spread for Southeast Region was 35.4 inches.

Minimum overall hunter success rate for the region was 66%; 49% for antlerless-only tags and 77% for antlered-only tags. Which is a decline from 2009 when success overall rate was 78%.

Other sources of moose mortality are Native American harvest, natural, road-kills, illegal, and other. For the 2010-2011 reporting period, 1 non-harvest mortalities were reported (Table 4). Reporting of non-hunting mortalities is believed to be much lower than the actual number.

Climatic Conditions

Winter 2010-2011 snow depths were above the 30-year average, with snow levels at 109-134% of average in most drainages. Average temperature during winter was 5 degrees cooler than the 30-year norm.

Habitat Conditions

Succession of aspen stands into conifer may negatively affect moose habitat in the future. Treatment to retard succession may slow potential decreases. Development and disturbance associated with mining and timber harvest in the eastern portion of the region continued. Livestock grazing and other development of riparian areas impacts moose habitat in many parts of the region.

Management Implications

Aerial surveys, using sightability models such as Anderson (1994) and Unsworth et al. (1994), and the mandatory check of moose harvested provide the majority of information available for management. Conservative tag levels likely allow for passive population expansion and growth, particularly in those areas being newly colonized.

Relatively high drawing odds for antlered-only tags indicate strong demand for moose hunting opportunity. Antlerless-only drawing odds are generally 1:2 or less; however, leftover tags sell quickly.

Moose also have high non-consumptive values for viewing by the public. Their relative abundance and general lack of fear of humans make them easy for people to observe.

Moose translocations and hazing activities are expanding to include the entire year rather than spring and early summer. During the year, an average of 5-30 moose wander into the city of Pocatello and surrounding communities. These are nearly always yearlings or 2-year olds and are most often hazed back into the surrounding hills or captured and translocated to more suitable habitat.

Moose population data may need to be collected again in the form of specific sightability surveys or incidentally during deer and elk surveys in the future. Wyoming is experiencing unexplained declines in moose populations directly to the East of the Southeast Region. Some possible explanations may be carotid artery worm (which has been documented in Idaho moose and in this region) and meningeal worm. Several Department regions are cooperating with Wyoming Game and Fish to evaluate this potential problem.

Literature Cited

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- Unsworth, J. W., F. A. Leban, D. J. Leptich, E. O. Garton, and P. Zager. 1994. Aerial survey: user's manual. Second edition. Idaho Department of Fish and Game, Boise, USA.

Table 1. Total observed moose by sex/age class and model estimates of moose from aerial surveys, Southeast Region, 1991-2002.

Hunt area Year	Observed		Estimate	
	Total	Bull:cow:calf	Total	Bull:cow:calf
76-1, 2				
1994	90	42:100:42	432	26:100:50
2000	286	74:100:42	510±83	74:100:42
76-3, 4				
1993	104	76:100:37	192	76:100:36
1997	89	85:100:44	190	100:100:53
76-5, 6				
1991	136	49:100:60		
1995	121	55:100:40	167±22	54:100:34
2002	103	117:100:34	174±40	110:100:35
76				
1999	140	100:100:62	583±146	99:100:60
66A				
1995	159	69:100:49	285±60	67:100:43
2002	152	64:100:39	219±31	71:100:37

Table 2. Moose harvest and drawing odds, Southeast Region, 1984-present.

Year	Tags	Harvest			Hunter success (%)	First-choice applicants	Drawing odds
		M	F	Total			
1984	95	77	5	82	86	1,908	1:20.1
1985	95	73	4	77	81	1,841	1:19.4
1986	95	79	4	83	87		
1987	95	81	8	89	94	834	1:8.8
1988	110	100	5	105	95	830	1:7.5
1989	110	95	4	99	90	556	1:5.1
1990	125	98	9	107	86	738	1:5.9
1991	135	94	20	114	84	910	1:6.7
1992	135	98	19	117	87	837	1:6.2
1993	160	113	29	142	89	728	1:4.6
1994	160	114	29	143	89	809	1:5.1
1995	180	115	32	147	82	932	1:5.2
1996	180	105	34	139	77	921	1:5.1
1997	180	115	31	146	81	849	1:4.7
1998	180	103	28	131	73	804	1:4.5
1999	185	104	49	153	83	1,026	1:5.5
2000	185	111	34	145	78	600	1:3.2
2001	220	124	48	172	78	747	1:3.4
2002	220	127	38	165	75	723	1:3.3
2003	225	129	51	180	80	701	1:3.1
2004	225	129	31	160	71	737	1:3.1
2005	160	75	41	116	73	736	1:4.6
2006	160	81	40	121	76	647	1:4.0
2007	160	80	39	119	74	715	1:4.5
2008	160	72	37	109	68	667	1:4.2
2009	160	80	44	124	78	809	1:5.0
2010	160	73	32	105	66	584	1:4.8

Table 3. Moose harvest and drawing odds by hunt area, Southeast Region, 1999-present.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
			M	F				
66A	2000	42	27	7	81	5.7	194	1:4.6
	2001	45	24	12	80	4.1	220	1:4.9
	2002	45	29	12	91		202	1:4.5
	2003	45	28	12	89	3.8	215	1:4.8
	2004	45	30	7	82	6.5	197	1:4.8
	2005	25	15	8	92	4.1	188	1:7.5
	2006	25	14	9	92	4.5	176	1:7.0
	2007	25	10	6	64	7.2	170	1:6.8
	2008	25	12	8	80	4.7	131	1:5.2
	2009	25	13	8	84	4.6	151	1:6.0
70	2010	25	12	6	72	4.9	147	1:5:9
	2000	5	4	0	80	20.0	21	1:4.2
	2001	5	4	0	80	11.8	15	1:3.0
	2002	5	5	0	100		30	1:6.0
	2003	5	5	0	100	10.0	15	1:3.0
	2004	5	5	0	100	5.8	34	1:3.0
	2005	5	4	0	80	10.0	47	1:9.4
	2006	5	5	0	100	3.6	68	1:13.6
	2007	5	5	0	100	10.5	75	1:15.0
	2008	5	5	0	100	10.8	50	1:10.0
71	2009	5	4	0	80	4.0	99	1:19.8
	2010	5	5	0	100	17.6	68	1:13:6
	2000	15	7	4	73	11.0	42	1:2.8
	2001	20	9	5	70	7.1	54	1:2.7
	2002 ^a	20	7	3	50		25	1:1.3
	2003 ^a	20	9	6	75	7.5	23	1:1.2
	2004	20	8	3	55	4.1	34	1:1.2
	2005	20	6	3	45	8.0	34	1:1.2
	2006	20	8	6	70	8.2	36	1:1.8
	2007	20	8	7	75	2.5	45	1:2.3
72	2008	20	6	4	50	7.0	52	1:2.6
	2009	20	6	7	65	5.8	58	1:2.9
	2010	20	4	3	35	6.4	35	1:1:8
	2000	5	5	0	100	5.4	26	1:5.2
	2001	5	5	0	100	1.8	39	1:7.8
	2002	5	5	0	100		31	1:6.2
	2003	5	4	0	80	12.8	34	1:6.8
	2004	5	5	0	100	6.8	27	1:6.8
	2005	5	5	0	100	5.6	27	1:6.8
	2006	5	5	0	100	15.6	33	1:6.6
2007	5	4	0	80	11.8	34	1:6.6	
2008	5	5	0	100	12.2	41	1:8.2	
2009	5	5	0	100	10.6	36	1:7.2	

Table 3. Continued.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
			M	F				
74	2010	5	5	0	100	12.4	44	1:8:2
	2000	5	4	0	80	13.7	12	1:2.4
	2001	5	4	0	80	34.7	16	1:3.2
	2002	5	3	0	60		16	1:3.2
	2003	5	4	0	80	7.0	24	1:4.8
	2004	5	3	0	60	13.7	17	1:4.8
	2005	5	5	0	100	6.0	22	1:4.4
	2006	5	4	0	80	10.5	21	1:5.3
	2007	5	5	0	100	10.4	23	1:4.6
	2008	5	3	0	60	12.0	22	1:4.4
	2009	5	5	0	100	16.5	29	1:5.8
75	2010	5	5	0	100	19.0	34	1:6:8
	2000	15	5	4	60	3.8	28	1:1.9
	2001	15	10	4	93	7.1	26	1:1.7
	2002	15	9	2	73		29	1:1.9
	2003 ^a	15	9	3	80	6.8	31	1:2.1
	2004	15	9	3	80	8.1	36	1:2.1
	2005	10	3	3	60	10.0	30	1:3.0
	2006	10	4	4	80	5.4	42	1:4.2
	2007	10	5	3	80	3.6	26	1:2.6
	2008	10	4	4	80	11.4	40	1:4.0
	2009	10	4	4	80	6.9	71	1:7.1
76	2010	10	1	6	70	5.9	41	1:4:1
	2000	84	45	19	76	5.6	249	1:3.0
	2001	105	51	27	74	4.8	326	1:3.1
	2002 ^a	105	57	21	74		329	1:3.1
	2003	110	51	30	74	6.2	323	1:2.9
	2004	110	51	18	63	6.9	321	1:2.9
	2005	70	28	20	69	4.8	335	1:4.8
	2006	70	28	14	60	6.3	211	1:3.0
	2007	70	32	15	78	6.7	290	1:4.1
	2008	70	28	13	59	6.7	270	1:3.9
	2009	70	36	14	71	6.9	299	1:4.3
77	2010	70	25	14	56	8.3	231	1:3:3
	2000	7	7	0	100	7.1	12	1:1.7
	2001	10	8	0	80	7.6	24	1:2.4
	2002	10	4	0	40		25	1:2.5
	2003	10	9	0	90	6.3	23	1:2.3
	2004	10	9	0	90	5.4	20	1:2.3
	2005	10	5	3	80	11.4	23	1:2.3
	2006	10	5	5	100	6.1	34	1:3.4
	2007	10	5	3	80	6.7	28	1:2.8
	2008	10	4	4	80	15.1	38	1:3.8

Table 3. Continued.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
			M	F				
78	2009	10	5	3	80	8.5	29	1:2.9
	2010	10	4	3	70	8.9	52	1:5:2
	2000	7	7	0	100	13.9	16	1:2.3
	2001	10	9	0	90	10.9	27	1:2.7
	2002	10	8	0	80		36	1:3.6
	2003	10	9	0	90	19.8	13	1:1.3
	2004	10	9	0	90	8.2	51	1:1.3
	2005	10	4	4	80	20.3	30	1:3.0
	2006	10	5	2	70	4.4	26	1:2.6
	2007	10	5	4	90	5.5	24	1:2.4
	2008	10	5	4	90	5.4	23	1:2.3
	2009	10	4	5	90	7.4	37	1:3.7
	2010	10	5	5	100	5.7	45	1:4:5

^a Applicants and drawing odds for antlered hunts only.

Table 4. Known moose mortalities, excluding controlled hunts, Southeast Region, 1993-present.

Year	Mortality agent						Total
	Native American harvest	Illegal kill	Road kill	Natural	Train kill	Other	
1993	0	0	2	0	0	0	2
1994	0	0	1	0	0	0	1
1995	1	10	1	1	0	7	20
1996	1	2	5	0	1	1	10
1997	0	1	1	3	0	3	8
1998	0	1	1	0	1	3	6
1999	0	1	4	3	0	0	8
2000	0	4	2	1	0	2	9
2001	1	1	3	0	0	4	9
2002	0	1	2	1	0	1	5
2003	0	0	2	3	0	1	6
2004	0	0	2	1	0	0	3
2005	0	1	2	0	0	0	3
2006	0	0	1	3	0	0	4
2007	0	1	1	5	0	0	7
2008	0	1	1	3	0	1	6
2009	0	0	4	1	0	0	5
2010	0	0	0	0	0	1	1

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Moose Surveys and Inventories</u>
PROJECT:	<u>W-170-R-34</u>		
SUBPROJECT:	<u>6</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>6</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2010 to June 30, 2011</u>		

UPPER SNAKE REGION

Abstract

Hunting season lengths for antlered and antlerless moose remained at 86 days (30 Aug-23 Nov) and 40 days (15 Oct-23 Nov), respectively, in 2010. Due to concerns over hunter success and/or bull quality, tag numbers for the 2009 season were reduced significantly from the 2008 levels. Twenty controlled hunts with 195 tags were offered for antlered moose and 12 controlled hunts with 65 tags were offered for antlerless moose in the Upper Snake Region in 2010 (Table 1). This was a 17% reduction from 2008 antlered tag levels and a 43% reduction from 2008 antlerless tag levels. A total of 162 antlered (83% hunter success) and 53 antlerless (82% success) moose were harvested in 2010 as determined by BGMR reports. The mean antler spread for all antlered hunts combined was 36.7 inches. Overall drawing odds for moose hunts were 1:4.9 (Table 1).

Other sources of moose mortality are Native American harvest, natural, road-kill, train-kill, illegal, and other. For the 2010-2011 reporting period, 2 non-harvest mortalities were reported for the Upper Snake Region (Table 2).

No population surveys were conducted specifically for moose during this reporting period due to fiscal constraints. However, 125 moose were counted incidental to the Teton elk survey (portions of GMUs 65, 62, and 62A), 2 were counted incidental to the Lemhi elk survey (GMU 51).

Climatic Conditions

Overall, climatic conditions were very favorable for moose throughout this reporting period. The summer of 2010 was average. The winter of 2010-2011 was severe, with more than average snow pack and crusting.

Depredation, Capture, and Translocation

Nuisance moose complaints in and around houses and towns are common in the Upper Snake Region and are often dealt with through hazing, public education, or relocation of the animal. Due to the severe winter conditions in the region during 2010-2011, there were many nuisance moose complaints. Many of these complaints were fielded by local officers and dealt with by hazing or discussions with the affected party. However, some moose have to be moved from human habitation due to conflicts and human safety concerns. Regional staff chemically immobilized 23 moose and relocated them to suitable, occupied moose habitat within the Upper Snake Region this reporting period.

GMUs 50, 51, 58, 63, 63A

Controlled Hunt Areas 50, 51, 63, 63A

Background

In early 1980, 6 moose were released near North Fork of the Big Lost River (GMU 50). Most initially remained close to their release site, but there has been egress to other areas. Reproduction has occurred, and additional transplants have augmented this population. During winter 2001-2002, several nuisance moose were also translocated to GMU 50.

An antlered hunt in GMU 50 was initiated in 1993 and an antlerless hunt was initiated in 2003. An antlered moose hunt was opened in GMU 51 in 1999 as a result of an increasing number of moose being sighted incidentally during deer and elk sightability surveys and ground observations. In 2003 and 2004, an antlered hunt was authorized in GMU 58 for the same reason but was subsequently closed in 2005.

A significant population of moose exists in GMU 63A. Moose utilize riparian habitat along the North and South Forks of the Snake River and associated sloughs, and depredation and nuisance complaints occur on a fairly regular basis. Moose distribution in GMU 63 is centered around the Mud Lake Wildlife Management Area (WMA)-Camas National Wildlife Refuge (NWR) area.

Hunt Area 63A was initiated in 1987. GMU 63 was added to Hunt Area 63A in 1999 and was then split into 2 separate hunts (Hunt Areas 63 and 63A) in 2003. Due to declines in harvest success, average antler spread, and moose observed during Mud Lake WMA spotlight surveys, all moose harvest was eliminated in Hunt Area 63 for the 2009 and 2010 seasons.

Population Surveys

No moose population surveys were conducted during this reporting period.

Harvest Characteristics

A total of 20 antlered tags were issued in these GMUs in 2010, resulting in the harvest of 14 animals (70% success) based on mandatory harvest reports (Table 3). In addition, 12 moose were harvested on 15 antlerless tags (80% success). Mean antler spreads were 34 ($n = 5$) in GMU 50, 35 ($n = 3$) in GMU 51, and 38 ($n = 8$) in GMU 63A.

Habitat Conditions

Habitats within these GMUs are quite varied. In GMU 50, extensive willow bottoms provide good summer and winter habitat, and the moose population appears to be increasing and ranging throughout the coniferous zone in summer. Habitat in GMUs 51 and 58 are limited to discontinuous willow riparian areas. Habitat in GMU 63 is almost entirely desert and unsuitable for moose, except areas on and adjacent to Mud Lake WMA and Camas NWR. Habitat in GMU 63A consists primarily of the Snake River riparian zone adjacent to private residential and agricultural lands.

Management Implications

Based on harvest data, populations in most hunt areas appear to be relatively stable. However, there may need to be changes made in Hunt Area 51 moose opportunity to address declines in harvest success and average antler spread. Spotlight surveys conducted at Mud Lake WMA have shown a consistent decline in moose numbers over time. This, coupled with poor harvest success and average antler spread in the Hunt Area 63A harvest, resulted in the elimination of moose tags in 63A for the 2009 and 2010 seasons. The opportunity to reinstate moose harvest in 63A will be re-evaluated during the 2011-2012 moose season setting process.

GMUs 59, 59A

Controlled Hunt Area 59

Background

Former Hunt Areas 59 and 59A were combined in 1993 to form the current Hunt Area 59. Prior to 1993, 2 hunts with a total of 12 antlered tags were offered in these GMUs. Former Hunt Area 59 had been open continuously since 1974 with tag levels fluctuating between 4 and 8 with over 90% hunter success reported. Hunt Area 59A was closed in 1978 after only 1 moose was harvested in the preceding 4 years. In 1983, this hunt was reopened and 2 tags were issued annually through 1988 with 100% hunter success. Four tags were issued each season from 1989-1992 with 100% hunter success. Due to declines in average antler spread and harvest success, combined with concerns from sportsmen and field personnel, harvest opportunity was significantly reduced in Hunt Area 59 for the 2009 and 2010 seasons. During the 2005-2008 seasons, there were 15 antlered and 5 antlerless tags available in this hunt. For the 2009 and 2010 seasons, tags were reduced to 5 antlered and no antlerless.

Population Surveys

A moose trend count was flown in GMUs 59 and 59A on 17-18 December 1994 using a Bell Model G47 Soloy helicopter. Counting conditions were good, with 8 or more inches of relatively new snow cover present over the entire area. All probable moose habitat was surveyed. A total of 179 moose (129 in GMU 59 and 50 in GMU 59A) with a bull:cow:calf ratio of 44:100:54 was counted on the survey. Of the 40 bulls counted, 13 were classified as yearlings, 20 as adults, and 7 had already shed antlers.

Few previous data are available for comparison. Prior to this count, no surveys had been conducted in GMU 59 since 1984 (64 total moose), and GMU 59A had never been surveyed specifically for moose. However, during deer and elk sightability surveys, moose were counted on an incidental basis. In 1991-1992, 46 moose were counted in GMU 59 and 71 in GMU 59A. In 1993-1994, 49 moose were observed in GMU 59 and 46 in GMU 59A (unclassified). The 1999-2000 survey resulted in a total count of 90 moose (10 bulls, 19 cows, 13 calves, 48 unclassified). The 2004-2005 survey resulted in a total count of 74 moose (6 bulls, 13 cows, 6 calves, 49 unclassified). During the 2008 Beaverhead elk survey, 11 and 13 moose were incidentally counted in GMUs 59 and 59A, respectively. Not all moose habitat is flown during elk surveys, so these incidental numbers are not a reliable estimate of the number of moose in an area. No aerial surveys were conducted in this Hunt Area during the reporting period.

Harvest Characteristics

Five tags for antlered moose were offered in 2010, hunter success was 80% (Table 3) and mean antler spread was 33 inches ($n = 4$).

Known illegal kill (Table 2) was a serious problem in the early 1980s when it nearly equaled controlled harvest but has been of little significance, based on documented mortalities, in recent years.

Habitat Conditions

Habitat consists primarily of conifer/sagebrush ecotones and aspen. Riparian areas are limited and discontinuous. Habitat extends down major drainages that have willows. Improving riparian zone management would increase habitat quality and quantity in this area.

Management Implications

General observations indicate the moose population in these GMUs has declined in recent history. Additionally, average antler spread on harvested bulls was below the management objective of 35 inches during the 2005-2008 seasons. Therefore, tags were significantly reduced for 2009 and 2010 in an attempt to increase total numbers and bull quality in the Hunt Area. The effects of the tag reduction on average antler spread and harvest success should continue to be monitored.

GMUs 60, 60A, 61, 62, 62A

Controlled Hunt Areas 60, 60A, 61-1, 61-2, 61-3, 62, 62A

Background

During the 1970s, the moose population in Fremont County was thought to be declining and experiencing high levels of illegal mortality and Native American harvest. As a result, all moose hunts in Fremont County were closed in 1977. After a boundary change to include only Clark County, Hunt 61-1 was the only hunt open from 1977 to 1982.

A winter aerial survey conducted in 1983 counted moose in numbers slightly below the highs of the early 1950s. The Island Park area is the only area where counts were clearly lower than those in the 1952-1956 periods. In response to the population recovery, 8 controlled hunts were opened in 1983 in Fremont County.

A new hunt was established in GMU 60A in 1986. The hunt area consists of agricultural land and the riparian zone along Henrys Fork of the Snake River. Many residences and farms are in the area. The moose population within this corridor has been increasing. We received many depredation and nuisance complaints of moose in agriculture fields and near towns and residences, resulting in expanded antlerless hunting opportunity. Tags were reduced by approximately 50% on the Island Park caldera portion of the region in 1991 as a result of significant winter mortality during the winter of 1988-1989, but steadily increased through 2004 as the populations continued to grow. Like other portions of the region, tag levels were significantly reduced during 2005-2007 in an attempt to increase the number of larger bulls in the population.

Based on declines in harvest success and average antler spread in many of these Hunt Areas, along with concerns over the unknown effect of an expanding wolf population on moose numbers, antlered and antlerless tags were reduced within these hunts for the 2009 and 2010 seasons. A total of 65 antlered and 15 antlerless tags were offered in 2010, which was a 19% and 63% reduction in antlered and antlerless tags, respectively.

Population Surveys

A population survey was conducted in GMU 62 and a portion of 62A during December 2000. The survey in 62A was not completed because of fiscal constraints. The final population estimate for GMU 62 was 366 moose including 180 cows, 109 bulls, and 77 calves (Table 4). This total compares to fixed wing censuses of 228 cows and 97 bull moose observed during 1989 and 1990, respectively.

Most of the area was surveyed by airplane from November 1989-February 1990 (Table 5). Survey results indicated that moose populations had decreased substantially since the previous winter. Moose appeared to be in poor condition prior to the 1988-1989 winter, following 2 years of drought, and significant winter losses probably occurred. In 2011, 125 moose were counted incidental to the Teton elk survey (portions of GMUs 65, 62, and 62A).

A helicopter survey was conducted along the North Fork Snake River corridor between St. Anthony and the Highway 33 Bridge in Hunt Area 60A in December 1991. Only the riparian corridor was searched, so this should be considered a minimum count. A total of 37 moose were observed (2 bulls, 21 cows, 14 calves).

Moose have been counted incidental to deer and elk sightability surveys in GMU 60A on a fairly regular basis. However, moose distribution varies greatly from year to year and, since not all search units are surveyed, the usefulness of this information is questionable.

In 2010, a total of 241 moose (104 cows, 61 bulls, 55 calves, 21 unclassified) were counted incidental to an elk sightability survey in GMU 60A (and small portions of GMUs 60, 61, and 62A). This was the first time in recent history an effort was made to document composition of the moose seen incidentally to an elk or deer survey. Other recent totals for GMU 60A (most unclassified) include 328 (2007), 239 (2004), 185 (2003), 387 (2002), 473 (2000), 585 (1998), 340 (1997), 219 (1996), 272 (1996), 360 (1995), 187 (1994), and 312 (1993). Twenty-two moose were counted incidental to the 2010 elk survey in GMUs 62 and 65 east (12 cows, 6 bulls, 4 calves) and 38 moose (unclassified) were counted during 2007 deer trend surveys in GMU 62.

Harvest Characteristics

Sixty-five antlered moose tags were issued in 2010, resulting in the harvest of 49 animals (75% success) based on BGMR reports (Table 3). In addition, 12 moose were harvested on 15 antlerless tags (80% success). Mean antler spreads were 37.7 ($n = 13$) in GMU 60, 44.4 ($n = 3$) in GMU 60A, 36.7 ($n = 19$) in GMU 61, 38 ($n = 5$) in GMU 62, and 36.6 ($n = 9$) in GMU 62A.

Management Implications

The increase in desert-wintering moose has led to increased depredations and nuisance complaints during average to severe winters. Mortality during the 1988-1989 winter resulted in significant population declines. However, moose populations have rebounded rapidly to levels above those present prior to the 1988-1989 die-off. Consequently, tag levels were increased accordingly through 2004. Populations appear to be relatively stable, but mean antler spread and harvest success declined in many Hunt Areas between 2007 and 2009. The influence of wolves on the moose population in the Island Park caldera is not well understood. Therefore, harvest metrics should continue to be monitored carefully into the future. Research designed to investigate the relationship between wolves and moose in this area would be beneficial to effective moose management.

GMUs 64, 65, 67

Controlled Hunt Areas 64, 65, 67-1, 67-2

Background

All of GMU 64 except the Canyon Creek drainage, GMU 65, and GMU 67 north and west of State Highway 31 has been open to moose hunting since 1974. In 1983, this area (old Hunt Area 364) was split along GMU boundaries into 3 separate hunts. Increasing moose populations allowed a steady increase in tag levels until 1987. A new Hunt Area, 67-2, was created in 1983 and allowed the harvest of moose in that portion of GMU 67 previously closed. An antlerless hunt with 5 tags was created in 2005 in GMU 65.

Hunting opportunity has increased in these GMUs from 1 hunt with 2 tags during the early 1980s to 7 hunts with 78 tags (58 antlered and 20 antlerless tags) in 2004. Tags were subsequently reduced in 2005 to 65 (45 antlered and 20 antlerless) and have remained at this level since.

Population Surveys

Historically, moose populations appeared to be increasing in these GMUs prior to the winter of 1988-1989. Forage was impacted by 2 years of drought and moose shifted their distribution to lower elevation agricultural and urban areas. Moose appeared to be in poor condition and significant winter losses likely occurred.

During winter 1992-1993, moose were first counted incidental to elk sightability surveys. Totals of 48, 26, and 90 moose were counted in GMUs 64, the western portion of 65, and 67, respectively. Most animals counted were unclassified. Moose were also counted incidental to elk sightability surveys during the 1995-1996 winter. Totals of 36, 101, and 60 moose were observed in GMUs 64, 65, and 67, respectively. Again, most animals were not classified. Moose were again counted incidentally during the 1997-1998 winter. Totals of 67, 30, and 88 (largely unclassified) moose were counted in GMUs 64, western 65, and 67, respectively. Moose were counted in GMUs 64, 65, and 67, incidental to elk surveys during the 2003-2004 winter and a total of 110 moose were observed. In 2007, a total of 38 moose were counted in GMU 64 incidental to mule deer trend surveys. During 2008, 139 moose were counted incidental to the Palisades elk survey (31 in GMU 64, 43 in GMU 65, and 65 in GMU 67). A total of 237 (59 in GMU 64, 107 in GMU 65, and 71 in GMU 67) moose (unclassified) were counted incidental to the Palisades deer survey in 2010.

Harvest Characteristics

Hunters harvested 38 antlered moose on 45 tags (84% hunter success) and 15 antlerless moose on 20 tags (75% hunter success) in 2010 (Table 3). Mean antler spreads were 39.4 ($n = 12$) in GMU 64, 39.8 ($n = 9$) in GMU 65, and 37.25 ($n = 17$) in GMU 67.

Habitat Conditions

Conifer with interspersed aspen and narrow riparian areas make up the majority of moose habitat in this area. Mountain mahogany on south-facing ridges provides important winter moose habitat in GMUs 65 and 67. In GMU 64, moose are found wintering primarily in stream bottom willow/aspen/dogwood communities.

Management Implications

A 1989 aerial survey found approximately half the number of moose counted in 1985. A shift in moose distribution resulting from drought and severe winter conditions was partially responsible for the low count. Also, mortality during the 1988-1989 winter was above normal. Tag levels were maintained for the 1989 and 1990 seasons, but were adjusted in 1991 in response to data analysis. Moose populations appear to have rebounded rapidly to levels at or above those present prior to the 1988-1989 die-off. Consequently, tag levels increased in 1993, 1995, 1997, and again in 1999. Additionally, an antlerless hunt was initiated in GMU 64 in 1993. Bull tags were reduced, starting in 2005, in an attempt to increase the number of larger bulls in the population. In recent years, the moose population appears relatively stable (based on incidental counts) and the bulls harvested in GMUs 65 and 67 have had the highest average antler spread in the Upper Snake Region.

GMUs 66, 69

Controlled Hunt Areas 66-1, 66-2, 69-1, 69-2, 69-3

Background

The moose population in these GMUs increased at a fairly rapid rate during the late 1970s when populations elsewhere in Upper Snake Region were decreasing or remaining static. Hunts 66 and 69 were split in 1981 to create 4 hunts (66-1, 66-2, 69-1, and 69-2). This resulted in a 50% increase in tag levels from 1980 (16 to 24). A new hunt (69-3) was created in 1984 from adjacent portions of Hunts 66-1 and 69-2.

Hunt 69-1 was changed from antlered-only to either-sex in 1986 to address landowner concerns over grain field depredations. Either-sex tags were not effective in harvesting antlerless moose; no female moose were harvested. As a result, this hunt was changed back to antlered-only in 1991. However, beginning in 1993, an antlerless hunt (69-4) was initiated. This hunt had 10 tags and included all of GMU 69. In 1999, GMU 66 was added to this hunt, tags were increased to 20, and it was renumbered Hunt Area 66-3. This antlerless hunt was restructured again in 2001. GMU 66 was dropped from the hunt area and GMU 69 was split into 3 hunt areas (69-1, 69-2, and 69-3) that correspond to the like-numbered antlered hunts.

Average antler spread of bull moose harvested in GMU 66 from 2004-2008 was below the management goal of 35 inches. Therefore, both antlered and antlerless tags were reduced (antlerless tags eliminated) for the 2009 and 2010 seasons to increase moose numbers and increase trophy quality of bulls. Eight hunts with 60 antlered tags and 15 antlerless tags were offered in GMUs 66 and 69 during 2010, compared with 70 antlered tags and 30 antlerless tags that were offered from 2005-2008. This was a 14% reduction in antlered and a 50% reduction in antlerless tag levels.

Population Surveys

No population surveys have been conducted in these GMUs specifically to monitor moose populations. However, moose were counted incidentally during deer and elk sightability surveys (not all subunits containing moose were surveyed). A total of 276 moose (131 cows, 89 bulls, 59 calves) were counted incidentally to the Tex Creek elk survey (GMUs 66 and 69) in 2010. Other recent totals, during various deer and elk surveys, include 169 (2008), 304 (2007), 384 (2005), 317 (2000), 228 (1999), 293 (1997), 200 (1995), 98 (1994), and 147 (1992).

Harvest Characteristics

Eight hunts with a total of 75 tags were offered in these GMUs in 2010 (Table 3). A total of 53 antlered moose were harvested on 60 tags (88% success). An additional 11 antlerless moose were harvested on 15 tags (73% success). Mean antler spreads were 34.2 ($n = 19$) in GMU 66 and 35.8 ($n = 34$) in GMU 69.

Habitat Conditions

GMU 66 is characterized by conifer/aspen habitats with narrow canyon bottom riparian areas which support moderate willow/dogwood communities. GMU 69 is primarily aspen/sagebrush and private agricultural land with willow riparian areas in most canyon bottoms. Tex Creek WMA contains important winter habitat for a variety of ungulates, including moose, and moose from adjacent areas may be migrating to the WMA to winter.

Management Implications

Steadily increasing moose populations in these GMUs resulted in an increase in tag levels in all of these hunts from the early 1990's through 2005. Additionally, an antlerless hunt has been offered since 1993. Bull tags were reduced, starting in 2005, in an attempt to increase the number of larger bulls in the population. Mean antler spread of bulls harvested remained slightly below the management goal of 35 inches from 2004-2008, in most Hunt Areas. GMUs 66 and 69 have the habitat conditions needed to produce trophy-class bulls. In an effort to increase bull quality, a number of bull and cow tags in these GMUs (particularly in GMU 66) were eliminated during the 2009-2010 trophy species season setting process. These changes should continue to be monitored to evaluate their effectiveness in increasing trophy bull quality.

Table 1. Moose harvest and drawing odds, Upper Snake Region, 1982-present.

Year	Tags	Harvest			Hunter success (%)	First-choice applicants	Drawing odds
		M	F	Total			
1982	42	35	0	35	83	2,434	1:1.7
1983	88	86	0	86	98	3,357	1:2.6
1984	98	96	0	96	98	3,049	1:3.2
1985	120	118	0	118	98	3,403	1:3.5
1986	145	143	1	144	99	2,071	1:7.0
1987	148	144	2	146	99	1,970	1:7.5
1988	140	134	2	136	97	1,597	1:8.8
1989	145	129	6	135	93	1,248	1:11.6
1990	148	143	2	145	98	1,204	1:12.3
1991	128	111	14	125	98	1,554	1:8.2
1992	128	109	16	125	98	1,162	1:11.0
1993	214	170	30	200	93	1,225	1:5.7
1994	214	171	33	204	95	1,564	1:7.3
1995	231	187	31	218	94	1,668	1:7.2
1996	231	167	28	195	84	1,551	1:6.7
1997	276	201	35	236	86	1,767	1:6.4
1998	276	200	29	229	83	1,654	1:6.0
1999	379	280	46	326	86	2,235	1:5.9
2000	379	274	45	319	84	1,387	1:3.7
2001	406	305	52	357	88	1,472	1:3.6
2002	406	262	45	307	76	1,529	1:3.8
2003	469	265	94	359	77	1,495	1:3.2
2004	469	287	95	382	81	1,387	1:2.9
2005	350	191	90	281	80	1,471	1:4.2
2006	350	183	92	275	79	1,311	1:3.7
2007	350	203	76	280	80	1,505	1:4.3
2008	350	183	85	268	77	1,498	1:4.3
2009	260	147	53	200	77	1,339	1:5.2
2010	260	162	53	215	83	1,276	1:4.9

Table 2. Known moose mortalities, excluding controlled hunts, Upper Snake Region, 1982-present.

Year	Mortality agent						Total
	Native American Harvest	Illegal kill	Road kill	Natural	Train kill	Other	
1982	0	3	0	0	0	0	3
1983	0	6	4	0	0	2	12
1984	11	10	6	3	0	17	47
1985	6	12	13	1	6	9	47
1986	6	19	14	1	0	7	47
1987	6	14	14	7	2	8	51
1988	1	6	31	7	4	41	90
1989	2	2	10	1	0	9	24
1990	3	8	16	4	0	13	44
1991	1	10	12	6	4	22	55
1992	3	10	38	0	0	15	66
1993	1	8	7	0	0	4	20
1994	0	9	36	3	0	6	54
1995	2	3	15	2	0	7	29
1996	2	1	30	1	0	16	50
1997	1	7	27	9	0	5	49
1998	0	2	25	1	0	7	35
1999	2	4	26	5	0	3	40
2000	2	6	19	1	0	4	32
2001	0	3	11	1	0	9	24
2002	0	0	15	3	0	4	22
2003	0	2	14	3	0	0	19
2004	0	6	22	0	0	7	25
2005	0	1	27	5	0	6	39
2006	0	2	23	1	0	5	31
2007	0	1	1	9	0	2	13
2008	1	0	2	0	0	2	5
2009	0	1	0	3	0	3	7
2010	0	1	0	1	0	0	2

Table 3. Moose harvest and drawing odds by analysis area, Upper Snake Region, 1997-present.

Analysis area	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
			M	F				
50, 51,	1997	26	13	9	85	4.8	116	1:4.5
58, 63	1998	26	9	8	65	5.6	96	1:3.7
63A	1999	34	17	10	79	12.0	160	1:4.7
	2000	34	17	11	82	2.7	90	1:2.6
	2001	37	18	13	84	3.3	113	1:3.1
	2002	37	22	11	89	6.7	111	1:3.0
	2003	53	23	14	70	3.7	107	1:2.0
	2004	53	25	19	83	5.0	135	1:2.5
	2005	45	21	19	89	4.8	158	1:3.5
	2006	45	16	17	73	4.8	190	1:4.2
	2007	45	20	15	78	4.0	170	1:3.8
	2008	45	18	14	71	6.4	174	1:3.9
	2009	35	20	12	91	6.7	225	1:6.4
	2010	35	14	13	77	5.3	191	1:5.5
59, 59A	1997	16	14	0	88	7.1	132	1:8.3
	1998	16	15	0	94	2.8	152	1:9.5
	1999	20	20	0	100	6.1	172	1:8.6
	2000	20	19	0	95	4.8	110	1:5.5
	2001	22	19	0	86	2.6	88	1:4.0
	2002	22	20	0	91	6.7	124	1:5.6
	2003	25	20	5	100	5.0	113	1:4.5
	2004	25	19	5	96	3.1	102	1:4.8
	2005	20	12	3	75	4.5	131	1:6.6
	2006	20	14	5	95	2.3	85	1:4.3
	2007	20	13	4	85	4.4	109	1:5.4
	2008	20	15	4	95	6.1	74	1:3.7
	2009	5	3	0	60	11.0	39	1:7.8
	2010	5	4	4	80	9.0	30	1:6.0
60, 60A	1997	101	81	6	86	3.8	773	1:7.7
61, 62,	1998	101	83	3	85	4.8	692	1:6.9
62A	1999	136	116	3	88	5.7	929	1:6.8
	2000	136	104	5	80	4.5	582	1:4.3
	2001	144	119	13	92	4.2	651	1:4.5
	2002	144	94	9	72	7.2	616	1:4.3
	2003	174	89	32	70	5.9	605	1:3.5
	2004	174	103	33	78	5.2	516	1:2.9
	2005	120	63	29	77	5.4	532	1:4.4
	2006	120	66	30	80	5.2	448	1:3.7
	2007	120	73	22	79	5.4	531	1:4.4
	2008	120	59	29	73	5.7	479	1:4.0
	2009	80	50	13	79	6.5	408	1:5.1
	2010	80	49	12	76	7.3	379	1:4.7
64, 65,	1997	56	35	7	75	4.5	228	1:4.1

Table 3. Continued.

Analysis area	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
			M	F				
67	1998	56	36	5	73	4.8	229	1:4.1
	1999	79	49	15	81	8.1	279	1:3.5
	2000	79	51	10	77	4.8	202	1:2.6
	2001	74	55	9	86	3.8	175	1:2.4
	2002	74	41	8	66	6.8	217	1:2.9
	2003	78	48	16	82	8.7	184	1:2.4
	2004	78	47	14	78	6.2	230	1:2.9
	2005	65	36	14	77	5.5	205	1:3.2
	2006	65	31	17	74	5.7	198	1:3.0
	2007	65	40	15	85	6.8	236	1:3.6
	2008	65	38	13	78	7.1	256	1:3.9
	2009	65	30	14	68	7.5	275	1:4.2
	2010	65	38	15	82	8.6	295	1:4.5
66, 69	1997	77	58	13	92	4.1	518	1:6.7
	1998	77	57	13	91	4.1	485	1:6.3
	1999	110	78	18	87	5.2	695	1:6.3
	2000	110	83	19	93	5.3	403	1:3.7
	2001	129	94	17	86	5.2	445	1:3.4
	2002	129	85	17	79	6.8	461	1:3.6
	2003	139	81	29	79	5.3	486	1:3.5
	2004	139	92	26	85	5.3	404	1:2.9
	2005	100	59	25	84	6.6	445	1:4.5
	2006	100	56	23	79	5.8	390	1:3.9
	2007	100	56	20	76	5.7	459	1:4.6
	2008	100	53	25	78	7.1	345	1:3.5
	2009	75	44	13	76	7.3	392	1:5.2
2010	75	53	11	85	5.4	295	1:3.9	

Table 4. Aerial survey of moose, Hunt Area 62, Upper Snake Region, 2000-2001.

	Observed	Estimated ($\pm 90\%$ CI)
Total moose	332	366 \pm 16
Cows	164	180 \pm 9
Bulls	98	109 \pm 8
Calves	70	77 \pm 5
Bulls:cows:calves	60:100:43	61:100:43

Table 5. Aerial survey of moose, Hunt Areas 60, 60A, 61, 62, Upper Snake Region.

Inclusive location	1990-1991		1991-1992	
	Bulls:cows:calves	Total	Bulls:cows:calves	Total
Middle to N Leigh Creek	67:100:83	15		0
Wiggleton Hollow to Johns Creek	56:100:56	19		7
N Fork Badger Creek to Bitch Crk	72:100:56	41		6
Bitch Creek to Conant Creek	7:100:68	49	56:100:67	20
Conant Creek to Fall River		14	27:100:55	20
Fall River Ridge to Cave Falls Rd	36:100:43	80		28
Cave Falls Rd to Fish Creek Rd		10	56:100:22	16
Fish Creek to Moose Creek		24		19
Warm River Hatchery to Survey Draw	17:100:67	11		5
Buffalo River		2		2
Macks Inn/Big Springs Henrys Lake Flat	42:100:52	59		19
Henrys Lake	22:100:56	16		19
Henrys Fork to Hatchery Butte west of Warm River	32:100:60	102		14
Humphrey to Spencer	73:100:55	25		14
Spencer to Rattlesnake Creek	25:100:75	24		23
Corral Creek to Spring Creek	5:100:47	29		7
West Camas Drainage		14		29
East Camas Drainage		9		4
Big Bend Ridge	14:100:105	88	22:100:122	68
Desert, east of Sand Creek		6		8
Desert, Red Rd to Sand Creek Rd ^a	100:100:100	85	65:100:41	50
Junipers and Hook of Sands ^a	118:100:44	103	33:100:67	18
Chokecherry Ridge and Second Sands ^a	69:100:45	63	72:100:36	48
Total		888		444

^a Moose counted in conjunction with helicopter deer survey, 18 December 1988.

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Moose Surveys and Inventories</u>
PROJECT:	<u>W-170-R-34</u>		
SUBPROJECT:	<u>7</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>6</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2010 to June 30, 2011</u>		

SALMON REGION

GMUs 21, 21A, 27, 29, 30, 30A, 36A, 37A

Controlled Hunt Areas 21, 27, 29, 36A

Abstract

Four controlled hunts with 16 total tags for antlered moose occurred in Salmon Region during 2010. Thirteen of 16 hunters harvested moose (81% hunter success). Average antler spread was 38.4 inches; the 5-year running average was 36.5 inches. Interest in moose tags was typical of recent years; 116 applicants selected Salmon Region hunts as first choices (drawing odds = 1:7.7).

Climatic Conditions

Rainfall during summer months in 2010 was above average, with some cool, moist weather during spring and early summer. Vegetative growth appeared well above average. Winter conditions were somewhat harsh, with normal temperatures and above normal precipitation, particularly during early winter. In general, animals should have entered winter in above average body condition, and then encountered a average to harsh winter, which should have produced low to moderate over-winter survival for adults. Snow-pack (as measured at higher elevations) was approximately 114% of average by late winter. Onset of spring weather and associated plant phenology was later than normal in 2011. Water-year precipitation through June 2011 has been approximately 126% of average lower elevations (Salmon weather station). Spring and early summer conditions in 2011 were cool and wetter than average.

Background

Habitats in these GMUs range from riparian river bottoms to sagebrush grasslands on rolling foothills up through ponderosa pine and Douglas fir forests to lodgepole pine and spruce-fir forests at higher elevations. Willow shrub communities usually associated with moose habitat are not common. Portions of these GMUs contain extensive cliff and rock talus areas at both low and high elevations. Topography is moderately to very rugged. Units 21 and 21A are in one of

the higher precipitation zones in Salmon Region, creating productive commercial forestlands. As a consequence, timber harvest is a dominant activity in at least the North Fork Salmon River drainage. Logging roads are common.

Game management units 21, 21A, 30, and 30A border areas in Montana where moose are common. Migrants from Montana may well have formed the initial nucleus for populations in GMUs bordering Montana. Cross-border movements are no doubt common in this area. No information exists on historical moose numbers other than an increase in moose sightings in recent decades. As a result, Hunt Area 21 (GMUs 21 and 21A) was initiated in 1990 with 3 tags. Similar increases in moose sightings resulted in establishment of Hunt Area 29 (GMUs 29 and 37A) in 1991 and Hunt Area 30 (GMUs 30 and 30A) in 1993. Hunt Area 30 was incorporated into Hunt Area 29 in 1999. Two new hunt areas were opened in 2005 with 1 tag each: 27 and 36A.

Population Surveys

Because of dense cover, low moose densities, and solitary habits of moose, formal population surveys are generally ineffective in occupied moose habitat in Salmon Region. Incidental observations of moose are recorded during aerial surveys for other ungulates. During 2010-2011 surveys, observers counted 93 moose.

Harvest Characteristics

Harvest and hunter information was compiled from Big Game Mortality Reports, which hunters must complete within 10 days of harvest; antlers of males must be presented to a Department representative. Tag levels (Table 1) and season structure (Appendix A) were unchanged for established hunts in 2010. Two tags were added in 2 new hunt areas in 2005 (Table 2); 1 tag each in areas 27 (all of GMU 27) and 36A (all of GMU 36A). Fifteen antlered-moose tags were allocated between 4 controlled hunts in Salmon Region for 2010 and 1 Super Tag holder hunted in GMU 36A. Thirteen of 16 hunters harvested moose (81% success). Overall hunter success was similar to the long-term average of approximately 83%. Of 263 hunters since 1990, 217 (83%) have taken a moose (Table 1). Antler spread of moose harvested during the 2010 season ranged from 30 to 44.5 inches (mean = 38.4 in., excluding 1 bull with a broken antler). Since 1995, average spread ranged from 33.4 to 38.6 inches.

No moose deaths were attributed to non-hunting mortality during the reporting period (Table 3). Non-hunting mortality ranged from 0 to 8 moose per year since 1982.

Habitat Conditions

Past logging operations in primary moose range of GMUs 21 and 21A generally enhanced moose habitat by encouraging forb and shrub production in cutover areas. However, positive impacts may eventually be counter-balanced by negative effects of increased road access and loss of mature, dense-canopy forest stands used by moose for winter cover. Timber harvest has declined in recent years and harvested areas are returning to pole stands with little forage value.

Capture and Translocation

No moose capture or translocation operations were conducted in Salmon Region during the reporting period (Table 4). Opportunities exist to expand moose populations in GMUs 36 and 36B via capture and translocation.

Management Implications

Intensive population or habitat data will not be available for this area in the foreseeable future. Management will be based on moose sighting reports, incidental field observations of moose, and data from moose harvest and miscellaneous mortalities.

Table 1. Moose harvest and drawing odds, Salmon Region, 1990-present.

Year	Tags	Harvest			Hunter success (%)	First-choice applicants	Drawing odds
		M	F	Total			
1990	3	2	0	2	67	12	1:4.0
1991	6	6	0	6	100	38	1:6.3
1992	6	6	0	6	100	32	1:5.3
1993	9	9	0	9	100	54	1:6.0
1994	9	8	0	8	89	54	1:6.0
1995	12	10	0	10	83	123	1:10.3
1996	12	11	0	11	92	82	1:6.8
1997	12	12	0	12	100	89	1:7.4
1998	12	11	0	11	92	92	1:7.7
1999	14	13	0	13	93	124	1:8.9
2000 ^a	14	11	0	11	79	80	1:5.7
2001 ^{a,b}	15	16	0	16	107	102	1:6.8
2002	14	12	0	12	86	76	1:5.4
2003	14	11	0	11	79	106	1:7.6
2004	14	11	0	11	79	93	1:6.6
2005 ^c	16	9	0	9	53	124	1:7.8
2006	16	13	0	13	81	119	1:7.4
2007	16	13	0	13	81	111	1:6.9
2008	16	11	0	11	69	113	1:7.1
2009	15	10	0	10	67	119	1:7.9
2010	16	13	0	13	81	116	1:7.7

^a One tag was deferred from 2000 until 2001 season because of wildfires.

^b Two hunters mistakenly harvested bulls in Hunt Area 29.

^c One hunter mistakenly harvested a bull in Hunt Area 29.

Table 2. Moose harvest and drawing odds by hunt area, Salmon Region, 1997-present.

Hunt area	Year	Tags	Harvest		Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
			M	F				
21	1997	4	4	0	100	4.8	17	1:4.2
	1998	4	4	0	100	4.5	18	1:4.5
	1999	4	4	0	100	17.3	21	1:5.3
	2000 ^a	4	2	0	67	4.0	10	1:2.5
	2001 ^a	5	4	0	80	16.3	15	1:3.8
	2002	4	2	0	50	10.5	15	1:3.8
	2003	4	3	0	75	9.0	10	1:2.5
	2004	4	3	0	75	7.0	9	1:2.3
	2005	4	1	0	25	16.0	11	1:2.8
	2006	4	2	0	50	12.5	9	1:2.3
	2007	4	2	0	50	6.0	4	1:1.0
	2008	4	1	0	25	11.0	6	1:1.5
	2009	2	0	0	0	0	0	
	2010	2	0	0	0	0	5	1:2.5
27	2005	1	0	0	0	0	2	1:2.0
	2006	1	0	0	0	0	1	1:1.0
	2007	1	1	0	100	10.0	4	1:4.0
	2008	1	0	0	0	0	2	1:2.0
	2009	11	0	0	0	0	5	1:5.0
	2010	1	0	0	0	0	2	1:2.0
29	1997	5	5	0	100	6.6	45	1:9.0
	1998	5	4	0	80	2.7	44	1:8.8
	1999	10	9	0	90	3.7	103	1:10.3
	2000	10	9	0	90	4.9	70	1:7.0
	2001 ^b	10	12	0	100	6.7	87	1:8.7
	2002	10	10	0	100	7.9	61	1:6.1
	2003	10	8	0	80	6.3	96	1:9.6
	2004	10	8	0	80	7.0	84	1:8.4
	2005 ^c	10	8	0	73	4.0	108	1:10.8
	2006	10	10	0	100	6.4	91	1:9.1
	2007	10	9	0	90	5.1	87	1:8.7
2008	10	10	0	100	5.7	97	1:9.7	
2009	11	9	0	82	11.0	99	1:9.0	
2010	11	11	0	100	4.7	99	1:9.0	
30	1997	3	3	0	100	3.0	27	1:9.0
	1998 ^d	3	3	0	100	8.3	30	1:10.0
36A	2005	1	0	0	0	0	3	1:3.0
	2006	1	1	0	100	3.0	18	1:18.0
	2007	1	1	0	100	10.0	16	1:16.0
	2008	1	0	0	0	0	8	1:8.0
	2009	1	1	0	100	4.0	15	1:15.0
	2010	2	2	0	100	16.5	10	1:1.0

- ^a One tag was deferred from 2000 until 2001 season because of wildfires.
- ^b Two hunters mistakenly harvested bulls in Hunt Area 29.
- ^c One hunter mistakenly harvested a bull in Hunt Area 29.
- ^d Hunt Area 30 combined with Hunt Area 29 after 1998.

Table 3. Known moose mortalities, excluding controlled hunts, Salmon Region, 1982-present.

Year	Mortality agent					Total
	Native American harvest	Illegal kill	Road kill	Natural	Other	
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	0	0	1	0	0	1
1987	0	0	0	1	0	1
1988	0	1	0	0	0	1
1989	0	0	0	0	0	0
1990	2	0	1	1	0	4
1991	6	0	0	0	0	6
1992	6	1	1	0	0	8
1993	0	1	0	1	0	2
1994	0	1	1	1	0	3
1995	0	0	0	2	0	2
1996	0	0	0	0	2	2
1997	0	1	1	1	0	3
1998	0	1	0	0	2	3
1999	0	0	1	0	1	2
2000	0	0	2	0	0	2
2001	0	2	2	0	0	4
2002	0	2	1	1	1	5
2003	0	0	3	1	0	4
2004	0	0	3	2	1	6
2005	0	1	0	1	1	3
2006	0	0	1	1	1	3
2007	0	0	0	1	0	1
2008	0	0	1	0	0	1
2009	0	1	3	0	0	4
2010	0	0	0	0	0	0

Table 4. Moose translocation, Salmon Region, February 1993.

Capture site	Release site	Adults		Calves		Total
		M	F	M	F	
GMUs 60, 60A, 62 in various locations	GMU 36: Valley Cr.	1	2	0	0	3
	GMU 36: Decker Flat	0	2	1	0	3
	GMU 36: Gold Cr.	0	2	0	0	2

APPENDIX A
IDAHO
2010 SEASON
MOOSE RULES

Moose, Bighorn Sheep and Mountain Goat

Controlled Hunt Seasons and Rules 2009 and 2010



Photo courtesy Teri Thamer

Controlled Hunt application period: April 1 - April 30.
Persons applying for controlled hunts must submit tag and application fees.

Major changes are highlighted in yellow.



2009 & 2010 Moose Hunting Seasons

Antler Restrictions

- Only moose with at least one antler longer than six inches may be taken in any season open for antlered moose only.
- Only moose without antlers or with antlers less than six inches long may be taken in any season which is open for antlerless moose only.

Mandatory Check and Report Requirements

Antlers must be presented at Idaho Fish and Game regional offices or official check point or to a conservation officer within 10 days of the date of the kill. Fish and Game headquarters office is not equipped to check in moose. In the Boise area, these animals can be checked at the IDFG Regional Office in Nampa (3101 S. Powerline Rd, 208-465-8465) between the hours of 8 a.m. and 5 p.m. or by appointment at the Garden City facility, 109 W. 44th St., 208-327-7099. Successful hunters must complete a big game mortality report, available at Fish and Game regional offices, from conservation officers, taxidermists

and meat processors within 10 days of the date of the kill. All hunters who have harvested either an antlered or antlerless moose must complete this report.

A hunter may authorize another person to comply with the above report requirements if that person complies with those requirements and possesses the necessary information to accurately complete the form.

Unsuccessful permittees must present or mail their unused tags to a Fish and Game office within 10 days after the close of the season for which the tag was valid. Cancelled tags will be returned to the hunter upon request. Failure to report may result in future ineligibility in moose drawings.

NOTE: Moose tags unfilled after the first drawing are available to any Idaho hunter during a second drawing. (See page 8). Hunters who have previously harvested a bull and/or a cow moose and not eligible for the first drawing **may apply** for and receive one of these tags in the second drawing or as a left-over permit if tags are still available.

2009 - 2010 Antlered Moose Controlled Hunts - 814 Permits							
Hunt No.	Controlled Hunt Area	Permits	Season Dates	Hunt No.	Controlled Hunt Area	Permits	Season Dates
3001	1-1	55	Sep 15-Dec 1	3025	6	5	Oct 1-Oct 14
3002	1-1	15	Oct 1-Oct 14	3026	6	5	Nov 1-Nov 14
3003	1-1	15	Nov 1-Nov 14	3027	7	5	Sep 15-Dec 1
3004	1-2	20	Sep 15-Dec 1	3028	7	5	Oct 1-Oct 14
3005	1-2	5	Oct 1-Oct 14	3029	8	8	Aug 30-Nov 23
3006	1-2	10	Nov 1-Nov 14	3030	8A	8	Aug 30-Nov 23
3007	1-3	15	Sep 15-Dec 1	3031	9	5	Sep 15-Dec 1
3008	1-3	3	Oct 1-Oct 14	3032	9	5	Oct 1-Oct 14
3009	1-3	3	Nov 1-Nov 14	3033	10-1	6	Aug 30-Nov 23
3010	1-4	30	Sep 15-Dec 1	3034	10-2	5	Aug 30-Nov 23
3011	1-4	5	Oct 1-Oct 14	3035	10-3	10	Aug 30-Nov 23
3012	1-4	10	Nov 1-Nov 14	3036	10-4	4	Aug 30-Nov 23
3013	2	20	Sep 15-Dec 1	3037	10-5	4	Aug 30-Nov 23
3014	2	5	Oct 1-Oct 14	3038	10-6	3	Aug 30-Nov 23
3015	2	10	Nov 1-Nov 14	3039	10A-1	5	Aug 30-Nov 23
3016	3	15	Sep 15-Dec 1	3040	10A-2	8	Aug 30-Nov 23
3017	3	5	Oct 1-Oct 14	3041	10A-3	3	Aug 30-Nov 23
3018	3	5	Nov 1-Nov 14	3042	10A-4	8	Aug 30-Nov 23
3019	4	15	Sep 15-Dec 1	3043	10A-5	5	Aug 30-Nov 23
3020	4	5	Oct 1-Oct 14	3044	12-1	2	Aug 30-Nov 23
3021	4	5	Nov 1-Nov 14	3045	12-2	10	Aug 30-Nov 23
3022	4A	5	Sep 15-Dec 1	3046	12-3	4	Aug 30-Nov 23
3023	5	10	Sep 15-Dec 1	3047	12-4	2	Aug 30-Nov 23
3024	6	15	Sep 15-Dec 1	3048	12-5	4	Aug 30-Nov 23

MOOSE

Hunt No.	Controlled Hunt Area	Permits	Season Dates
3049	12-6	4	Aug 30-Nov 23
3050	14-1	7	Aug 30-Nov 23
3051	14-2	4	Aug 30-Nov 23
3052	15-1	8	Aug 30-Nov 23
3053	15-2	5	Aug 30-Nov 23
3054	15-3	3	Aug 30-Nov 23
3055	15-4	8	Aug 30-Nov 23
3056	16-1	2	Aug 30-Nov 23
3057	16-2	2	Aug 30-Nov 23
3058	16A	4	Aug 30-Nov 23
3059	17	5	Aug 30-Nov 23
3060	19	5	Aug 30-Nov 23
3061	19A	2	Aug 30-Nov 23
3062	20	5	Aug 30-Nov 23
3063	20A	2	Aug 30-Nov 23
3064	21*	2	Aug 30-Nov 23
3065	25	2	Aug 30-Nov 23
3066	27	1	Aug 30-Nov 23
3067	29*	11	Aug 30-Nov 23
3068	36A	1	Aug 30-Nov 23
3069	44*	4	Aug 30-Nov 23
3070	48*	2	Aug 30-Nov 23
3071	50	5	Aug 30-Nov 23
3072	51	5	Aug 30-Nov 23
3073	56*	5	Aug 30-Nov 23
3074	59*	5	Aug 30-Nov 23
3075	60 ^b	15	Aug 30-Nov 23
3076	60A ^c	5	Aug 30-Nov 23

Hunt No.	Controlled Hunt Area	Permits	Season Dates
3077	61-1	10	Aug 30-Nov 23
3078	61-2	5	Aug 30-Nov 23
3079	61-3	10	Aug 30-Nov 23
3080	62	10	Aug 30-Nov 23
3081	62A	10	Aug 30-Nov 23
3082	63A ^{c,d}	10	Aug 30-Nov 23
3083	64	15	Aug 30-Nov 23
3084	65	10	Aug 30-Nov 23
3085	66-1	10	Aug 30-Nov 23
3086	66-2	10	Aug 30-Nov 23
3087	66A	15	Aug 30-Nov 23
3088	67-1	10	Aug 30-Nov 23
3089	67-2	10	Aug 30-Nov 23
3090	69-1	15	Aug 30-Nov 23
3091	69-2	15	Aug 30-Nov 23
3092	69-3*	10	Aug 30-Nov 23
3093	70	5	Aug 30-Nov 23
3094	71-1	5	Aug 30-Nov 23
3095	71-2	5	Aug 30-Nov 23
3096	72	5	Aug 30-Nov 23
3097	74	5	Aug 30-Nov 23
3098	75	5	Aug 30-Nov 23
3099	76-1	15	Aug 30-Nov 23
3100	76-2	10	Aug 30-Nov 23
3101	76-3	15	Aug 30-Nov 23
3102	77	5	Aug 30-Nov 23
3103	78	5	Aug 30-Nov 23

* See controlled hunt area descriptions. This hunt includes other units or parts of other units.
^b Short-range weapons only on Chester Wetlands WMA.
^c Short-range weapons only. Limited access.
^d Motorboat advised for game retrieval.

 2009 - 2010 Antlerless Moose Controlled Hunts - 197 Permits							
Hunt No.	Controlled Hunt Area.	Permits	Season Dates	Hunt No.	Controlled Hunt Area.	Permits	Season Dates
3104	1-1	20	Oct 15-Dec 1	3118	66A	10	Oct 15-Nov 23
3105	2	30	Oct 15-Dec 1	3119	67-1	5	Oct 15-Nov 23
3106	3	5	Oct 15-Dec 1	3120	67-2	5	Oct 15-Nov 23
3107	8	4	Oct 15-Nov 23	3121	69-1	5	Oct 15-Nov 23
3108	8A	4	Oct 15-Nov 23	3122	69-2	5	Oct 15-Nov 23
3109	44*	2	Oct 15-Nov 23	3123	69-3*	5	Oct 15-Nov 23
3110	48*	2	Oct 15-Nov 23	3124	71-1	5	Oct 15-Nov 23
3111	50	5	Oct 15-Nov 23	3125	71-2	5	Oct 15-Nov 23
3112	60 ^b	5	Oct 15-Nov 23	3126	75	5	Oct 15-Nov 23
3113	60A ^c	5	Oct 15-Nov 23	3127	76-1	10	Oct 15-Nov 23
3114	62A	5	Oct 15-Nov 23	3128	76-2	10	Oct 15-Nov 23
3115	63A ^{c, d}	10	Oct 15-Nov 23	3129	76-3	10	Oct 15-Nov 23
3116	64	5	Oct 15-Nov 23	3130	77	5	Oct 15-Nov 23
3117	65	5	Oct 15-Nov 23	3131	78	5	Oct 15-Nov 23

^b Short-range weapons only on Chester Wetlands WMA.

^c Short-range weapons only. Limited access.

^d Motorboat advised for game retrieval.

HUNT AREA DESCRIPTIONS

Hunt Area 1-1—That portion of Unit 1 within the Priest River drainage, and those portions of the Pend Oreille and Salmo River drainages downstream from the Priest River drainage.

Hunt Area 1-2—That portion of Unit 1 within the following boundaries: beginning on U.S. Highway 95 bridge across the Pend Oreille River at Sandpoint, then northward along Highway 95 to the Kootenai River at Bonner's Ferry, then northwesterly along the Kootenai River to the U.S. border, then west along the U.S. border to the Priest River-Kootenai River divide, then south along the Priest River-Pack River divide to Flat Top Mountain, then south along the divide separating the Priest River drainage and the Pend Oreille drainage to Priest River, then east along the Pend Oreille River to the point of beginning. **Except Myrtle Creek Game Preserve – Closed.**

Hunt Area 1-3—That portion of Unit 1 north and east of the Kootenai River.

Hunt Area 1-4—That portion of Unit 1 south of the Kootenai River and east of U.S. Highway 95. **Except The David Thompson Game Preserve – Closed.**

Hunt Area 2—All of Unit 2.

Hunt Area 3—All of Unit 3.

Hunt Area 4—All of Unit 4.

Hunt Area 4A — All of Unit 4A.

Hunt Area 5— All of Unit 5.

Hunt Area 6—All of Unit 6.

Hunt Area 7—All of Unit 7.

Hunt Area 8 — All of Unit 8.

Hunt Area 8A —All of Unit 8A.

Hunt Area 9—All of Unit 9.

Hunt Area 10-1—That portion of Unit 10 within the Cayuse Creek drainage.

Hunt Area 10-2—That portion of Unit 10 on the north side of the Kelly Creek drainage upstream from, but excluding, the Moose Creek drainage, and that portion on the south side of the Kelly Creek drainage upstream from, but excluding, the Cayuse Creek drainage.

Hunt Area 10-3—That portion of Unit 10 on the north side of the Kelly Creek drainage upstream from its mouth to and including the Moose Creek drainage, and the North Fork of the Clearwater River drainage upstream from the mouth of Kelly Creek.

Hunt Area 10-4—That portion of Unit 10 within the Fourth of July Creek drainage, that portion on the south side of the North Fork of the Clearwater River from the mouth of Fourth of July Creek upstream to the mouth of Kelly Creek, and the south side of the Kelly Creek drainage from its mouth upstream to, but excluding, the Cayuse Creek drainage.

Hunt Area 10-5—That portion of Unit 10 within the Weitas Creek drainage (a tributary of the upper North Fork of the Clearwater River), and the drainages on the southwest side of the North Fork of the Clearwater River from the Weitas Creek drainage to, but excluding, the Fourth of July Creek drainage.

Hunt Area 10-6 — That portion of Unit 10 on the north side of the North Fork of the Clearwater River drainage downstream from the mouth of Kelly Creek.

Hunt Area 10A-1—That portion of Unit 10A within the following boundary: Beginning at the junction of the Unit 10A boundary with Forest Service Road 250 along the North Fork of the Clearwater River, then southwest along Forest Service Road 250 to Forest Service Road 669, then west and south along Forest Service Road 669 to Highway 11 at Pierce, then south on Highway 11 to Forest Service Road 100, then south on Forest Service Road 100 to the Clearwater National Forest boundary, then south along the Clearwater National Forest boundary to the Unit 10A boundary, then north along the Unit 10A boundary to the point of beginning.

Hunt Area 10A-2—That portion of Unit 10A within the following boundary: Beginning at the junction of Unit 10A boundary with Forest Service Road 247, then south on Forest Service Road 247 to Forest Service Road 251, then south on Forest Service Road 251 to Forest Service Road 246, then southwest on Forest Service Road 246 to State Highway 11 at Headquarters, then south on Highway 11 to Forest Service Road 669 at Pierce, then northeast on Forest Service Road 669 to Forest Service Road 250, then northeast on Forest Service Road 250 to the Unit 10A boundary, then north and east along the Unit 10A boundary to the point of beginning.

Hunt Area 10A-3—That portion of Unit 10A within the following boundary: Beginning at the Grandad Bridge on the Unit 10A boundary, then south and east along the Silver Creek-Casey Creek Road to Forest Service Road 247, then south on Forest Service Road 247 to Forest Service Road 246 at Headquarters, then northeast on Forest Service Road 246 to Forest Service Road 251, then north on Forest Service Road 251 to Forest Service Road 247, then north on Forest Service Road 247 to the Unit 10A boundary at the North Fork of the Clearwater River, then west on the Unit 10A boundary to the point of beginning.

Hunt Area 10A-4—That portion of Unit 10A north of Forest Service Road 1705 from Elk River to Grandad Bridge and north and west of Dworshak Reservoir and the Little North Fork of the Clearwater River.

Hunt Area 10A-5—That portion of Unit 10A south of Forest Service Road 1705 from Elk River to Grandad Bridge and north and west of Dworshak Reservoir.

Hunt Area 12-1—That portion of Unit 12 north of the Lochsa River from and including the Lost Creek drainage upstream to, but excluding the Crooked Fork drainage.

Hunt Area 12-2—That portion of Unit 12 within the Crooked Fork drainage and north of White Sand Creek upstream to and including the Storm Creek drainage.

Hunt Area 12-3—That portion of Unit 12 south of the Lochsa River from and including the Old Man Creek drainage upstream to and including the Mocus Creek drainage.

Hunt Area 12-4—That portion of Unit 12 south of the Lochsa River from, but excluding, the Mocus Creek drainage, upstream to and including the Cliff Creek drainage.

Hunt Area 12-5—That portion of Unit 12 within the Walton Creek drainage, that portion on the south side of White Sand Creek upstream to the mouth of Storm Creek, and all of White Sand Creek drainage upstream from, but excluding, the Storm Creek drainage.

Hunt Area 12-6—That portion of Unit 12 north of the Middle Fork of the Clearwater River from the Smith Creek Road (Forest Service Road 101) upstream to the mouth of the Lochsa River, that portion

on the north side of the Lochsa River upstream to, but excluding, the Lost Creek drainage, and that portion on the south side of the Lochsa River from its mouth upstream to, but excluding, the Old Man Creek drainage.

Hunt Area 14-1—That portion of Unit 14 north of the following boundary: Beginning on the Unit 14 west boundary on the Slate Creek Road (Forest Service Road 354), then east on the Slate Creek Road to Forest Service Road 221, then north on Forest Service Road 221 to the Unit 14 east boundary.

Hunt Area 14-2—That portion of Unit 14 south of the following boundary: Beginning on the Unit 14 west boundary on the Slate Creek Road (Forest Service Road 354), then east on the Slate Creek Road to Forest Service Road 221, then north on Forest Service Road 221 to the Unit 14 east boundary.

Hunt Area 15-1—That portion of Unit 15 north of the South Fork of the Clearwater River from and including the American River drainage downstream to and including the Newsome Creek drainage.

Hunt Area 15-2—That portion of Unit 15 south of the South Fork of the Clearwater River downstream from and including the Crooked River drainage upstream to and including the Red River drainage.

Hunt Area 15-3—That portion of Unit 15 on the south and west sides of the South Fork of the Clearwater River downstream from, but excluding, the Crooked River drainage.

Hunt Area 15-4 — That portion of Unit 15 north and east of the South Fork of the Clearwater River from and including the Sally Ann Creek drainage upstream to and including the Leggett Creek drainage.

Hunt Area 16-1 — That portion of Unit 16 north and west of the Hamby Creek Road (Forest Service Road 651), and that portion south and west of the Selway River from its mouth upstream to the Hamby Creek Road.

Hunt Area 16-2 — That portion of Unit 16 south and east of Hamby Creek Road (Forest Service Road 651), and that portion north and east of the Selway River from its mouth upstream to Fog Mountain Road (Forest Service Road 319).

Hunt Area 16A— All of Unit 16A.

Hunt Area 17—All of Unit 17.

Hunt Area 19—All of Unit 19.

Hunt Area 19A—All of Unit 19A.

Hunt Area 20—All of Unit 20.

Hunt Area 20A — All of Unit 20A.

Hunt Area 21—All of Units 21 and 21A.

Hunt Area 25—All of Unit 25.

Hunt Area 27 — All of Unit 27.

Hunt Area 29 —All of Units 29, 30, 30A, 37A, and 58.

Hunt Area 36A — All of Unit 36A.

Hunt Area 44 — That portion of Unit 44 east of the Fairfield-Couch Summit-Five Points Road, and that portion of Unit 48 west of State Highway 75.

Hunt Area 48 — All of Unit 49 and that portion of Unit 48 east of State Highway 75.

Hunt Area 50—All of Unit 50.

Hunt Area 51—All of Unit 51.

Hunt Area 56—All of Units 56, 73, and 73A.

Hunt Area 59—All of Units 59 and 59A.

Hunt Area 60—All of Unit 60.

Hunt Area 60A —That portion of Unit 60A south and east of the North Fork (Henrys Fork) of the Snake River, and that portion within one (1) mile north and west of the North Fork of the Snake River.

Hunt Area 61-1—That portion of Unit 61 west of East Dry Creek.

Hunt Area 61-2—That portion of Unit 61 east of East Dry Creek and west of U.S. Highway 191-20 and south and west of State Highway 87.

Hunt Area 61-3—That portion of Unit 61 north of State Highway 87 and that portion east of U.S. Highway 191-20 **except** that portion enclosed by the Big Springs Loop Road and U.S. Highway 191-20.

Hunt Area 62—All of Unit 62.

Hunt Area 62A—All of Unit 62A.

Hunt Area 63A—All of Unit 63A.

Hunt Area 64—All of Unit 64.

Hunt Area 65—All of Unit 65.

Hunt Area 66-1—That portion of Unit 66 north of main Bear Creek **EXCEPT** the Pritchard and Garden Creek drainages.

Hunt Area 66-2—That portion of Unit 66 south of main Bear Creek.

Hunt Area 66A—All of Unit 66A.

Hunt Area 67-1—That portion of Unit 67 north and west of Highway 31 and north of Highway 26.

Hunt Area 67-2—That portion of Unit 67 south and east of Highway 31 and that portion of Unit 67 south of Highway 26.

Hunt Area 69-1—That portion of Unit 69 west of the Grays Lake-Long Valley-Bone-Iona Road.

Hunt Area 69-2—That portion of Unit 69 east of the Grays Lake-Long Valley-Bone-Iona Road **except** the Antelope and Granite Creek drainages.

Hunt Area 69-3—That portion of Unit 69 within the Antelope and

Granite Creek drainages, and that portion of Unit 66 within the Pritchard and Garden Creek drainages.

Hunt Area 70—All of Unit 70.

Hunt Area 71-1—That portion of Unit 71 located in Bannock and Bingham counties.

Hunt Area 71-2—That portion of Unit 71 located in Caribou County.

Hunt Area 72—All of Unit 72.

Hunt Area 74—All of Unit 74.

Hunt Area 75—All of Unit 75.

Hunt Area 76-1—That portion of Unit 76 within the following boundary: Beginning at Soda Springs on State Highway 34, then northeast to the Lanes Creek Road at Wayan, then south along the Lanes Creek-Diamond Creek Road to Timber Creek Road, then northeast along Timber Creek-Smoky Canyon-Stump Creek Road to the Idaho-Wyoming state line, then south along the state line to the Crow Creek Road, then southwest along Crow Creek-Wells Canyon-Georgetown Canyon Road to U.S. 30, then north along U.S. Highway 30 to Soda Springs, the point of beginning.

Hunt Area 76-2—That portion of Unit 76 south of the Georgetown-Wells Canyon-Crow Creek Road.

Hunt Area 76-3—That portion of Unit 76 north and east of the following boundary: Beginning at the Idaho-Wyoming state line, then west along the Stump Creek-Smoky Canyon-Timber Creek Road to the Diamond Creek Road, then north along the Diamond Creek-Lanes Creek Road to State Highway 34 at Wayan.

Hunt Area 77—All of Unit 77.

Hunt Area 78—All of Unit 78.

* See controlled hunt area descriptions. This hunt includes other units or parts of other units.

Submitted by:

Jim Hayden
Regional Wildlife Manager

Jay Crenshaw
Regional Wildlife Manager

Jeff Rohlman
Regional Wildlife Manager

Randy Smith
Regional Wildlife Manager

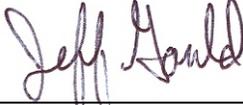
Toby Boudreau
Regional Wildlife Manager

Daryl Meints
Regional Wildlife Manager

Tom Keegan
Regional Wildlife Manager

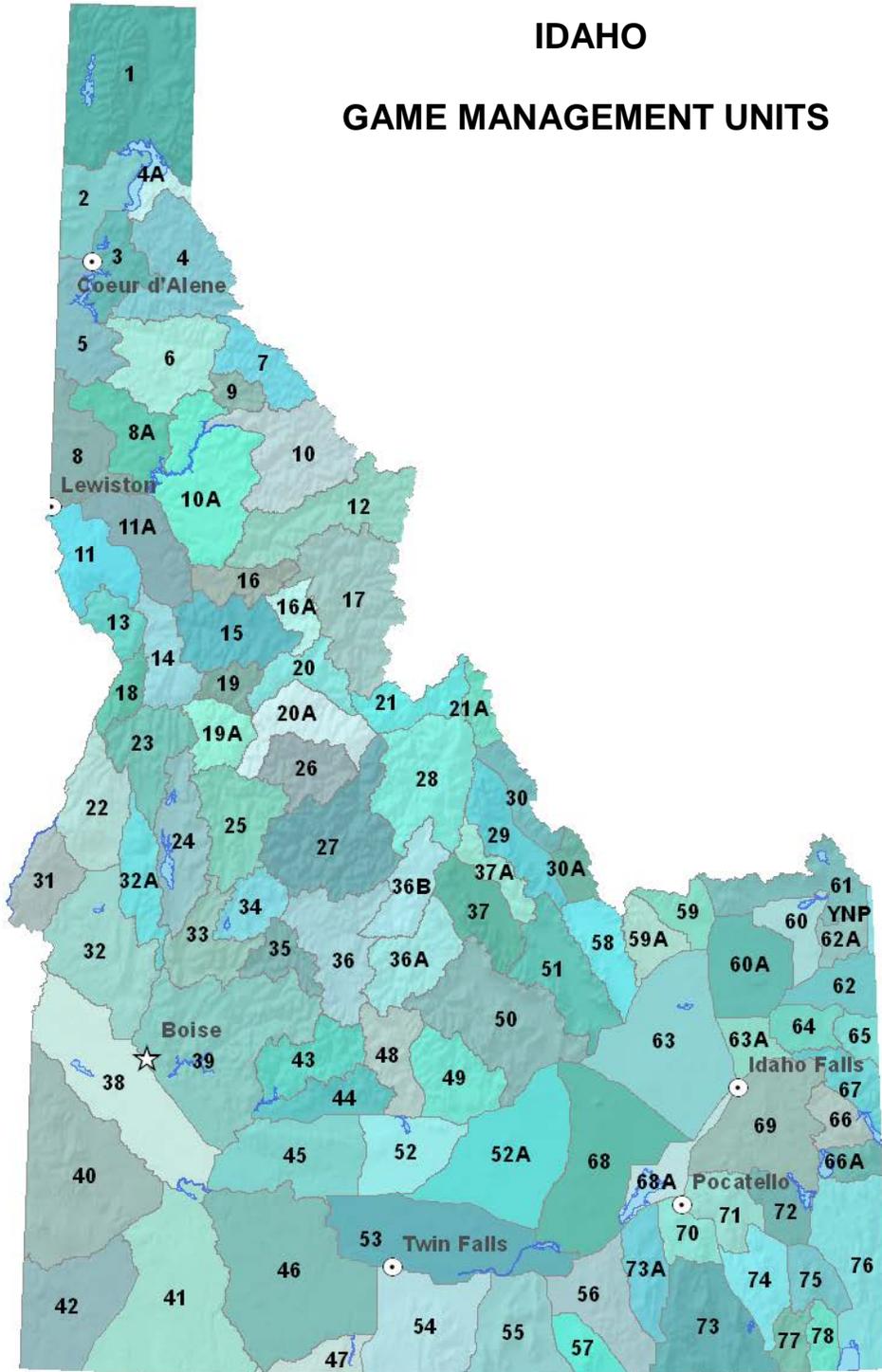
Approved by: IDAHO DEPARTMENT OF FISH AND GAME


Brad Compton
Brad Compton, Asst. Chief
Bureau of Wildlife


Jeff Gould
Jeff Gould, Chief
Bureau of Wildlife

IDAHO

GAME MANAGEMENT UNITS



FEDERAL AID IN WILDLIFE RESTORATION

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sale of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program then allots the funds back to states through a formula based on each state's geographic area and the number of paid hunting license holders in the state. The Idaho Department of Fish and Game uses the funds to help restore, conserve, manage, and enhance wild birds and mammals for the public benefit. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes necessary to be responsible, ethical hunters. Seventy-five percent of the funds for this project are from Federal Aid. The other 25% comes from license-generated funds.

