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July 1, 1998 to June 30, 1999



MOOSE

JOB PROGRESS REPORT

STUDY I, JOB 6

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TABLE OF CONTENTS

STATEWIDE	1
ABSTRACT	1
PANHANDLE REGION	3
ABSTRACT	3
UNITS 1, 2, 3, 4, 6, 7 AND 9.....	3
MANAGEMENT DIRECTION	3
BACKGROUND	4
POPULATION SURVEYS.....	4
HARVEST.....	5
MANAGEMENT IMPLICATIONS	5
CLEARWATER REGION	17
ABSTRACT	17
UNITS 8, 8A, 10, 10A, 12, 14, 15, 16, 17, 19, AND 20.....	17
MANAGEMENT DIRECTION	17
POPULATION SURVEYS.....	18
HARVEST.....	18
CLIMATIC CONDITIONS	19
MANAGEMENT IMPLICATIONS	19
LITERATURE CITED.....	19
SOUTHWEST REGION (MCCALL).....	39
ABSTRACT	39
UNITS 19A, 20A, 25, AND 26	39
MANAGEMENT DIRECTION	39
BACKGROUND	39
POPULATION SURVEYS.....	39
HARVEST CHARACTERISTICS.....	40
MANAGEMENT IMPLICATIONS	40
MAGIC VALLEY REGION	42
ABSTRACT	42
UNITS 43, 44, 45, 46, 47, 48, 49, 52, 52A, 53, 54, 55, 56, AND 57	42
MANAGEMENT DIRECTION	42
BACKGROUND	42
POPULATION SURVEYS.....	43
HARVEST CHARACTERISTICS.....	43
TRAPPING AND TRANSPLANTING.....	43
MANAGEMENT IMPLICATIONS	43

TABLE OF CONTENTS
(Continued)

SOUTHEAST REGION	45
ABSTRACT	45
UNITS 66A, 70, 71, 72, 74, 75, 76, 77, AND 78.....	45
MANAGEMENT DIRECTION.....	45
BACKGROUND	46
POPULATION SURVEYS.....	46
HARVEST CHARACTERISTICS.....	46
CLIMATIC CONDITIONS	47
HABITAT CONDITIONS.....	47
MANAGEMENT IMPLICATIONS	47
LITERATURE CITED.....	47
UPPER SNAKE REGION	55
ABSTRACT	55
UNITS 59, 59A.....	55
BACKGROUND	55
POPULATION SURVEYS.....	56
HARVEST CHARACTERISTICS.....	56
CLIMATIC CONDITIONS	56
HABITAT CONDITIONS.....	57
DEPREDATIONS, TRAPPING, AND TRANSPLANTING.....	57
MANAGEMENT IMPLICATIONS	57
UNITS 64, 65, AND 67.....	57
BACKGROUND	57
POPULATION SURVEYS.....	58
HARVEST CHARACTERISTICS.....	58
CLIMATIC CONDITIONS	58
HABITAT CONDITIONS.....	58
DEPREDATIONS, TRAPPING, AND TRANSPLANTING.....	59
MANAGEMENT IMPLICATIONS	59
UNITS 66, 69	59
BACKGROUND	59
POPULATION SURVEYS.....	60
HARVEST CHARACTERISTICS.....	60
CLIMATIC CONDITIONS	60
HABITAT CONDITIONS.....	61
DEPREDATIONS, TRAPPING, AND TRANSPLANTING.....	61
MANAGEMENT IMPLICATIONS	61
UNITS 60, 60A, 61, 62, 62A.....	61
BACKGROUND	62
POPULATION SURVEYS.....	62

TABLE OF CONTENTS

(Continued)

HARVEST CHARACTERISTICS.....	63
CLIMATIC CONDITIONS	63
DEPREDATIONS, TRAPPING, AND TRANSPLANTING.....	63
MANAGEMENT IMPLICATIONS	63
UNITS 50, 51, 58, 63, 63A	64
BACKGROUND	64
POPULATION SURVEYS.....	64
HARVEST CHARACTERISTICS.....	64
CLIMATIC CONDITIONS	64
HABITAT CONDITIONS.....	65
DEPREDATIONS, TRAPPING, AND TRANSPLANTING.....	65
MANAGEMENT IMPLICATIONS	65
SALMON REGION.....	86
ABSTRACT	86
UNITS 21, 21A, 29, 30, 30A, AND 37A	86
BACKGROUND	86
POPULATION SURVEYS.....	87
HARVEST CHARACTERISTICS.....	87
CLIMATIC CONDITIONS	87
HABITAT CONDITIONS.....	87
TRAPPING AND TRANSPLANTING.....	88
MANAGEMENT IMPLICATIONS	88

LIST OF TABLES

PANHANDLE REGION

Table 1.	1998 Season Structure for Controlled Moose Hunts in the Panhandle Region.	6
Table 2.	Summary of Moose Harvest and Drawing Odds in the Panhandle Region, 1985-1998.....	6
Table 3.	Summary of Moose Harvest and Drawing Odds in Hunt Area 1-1 since 1985.	7
Table 4.	Summary of Moose Harvest and Drawing Odds in Hunt Area 1-2 since 1985.	8
Table 5.	Summary of Moose Harvest and Drawing Odds in Hunt Area 1-3 since 1985.	8
Table 6.	Summary of Moose Harvest and Drawing Odds in Hunt Area 1-4 since 1985.	9
Table 7.	Summary of Moose Harvest and Drawing Odds in Hunt Area 1-5 since 1985.	10
Table 8.	Summary of Moose Harvest and Drawing Odds in Hunt Area 1-6 since 1985.	11
Table 9.	Summary of Moose Harvest and Drawing Odds in Priest/Salmo River (Hunt Areas 1-7 and 1-8) since 1985 ^a	12
Table 10.	Summary of Moose Harvest and Drawing Odds in Hunt Area 1-9 since 1993.	13
Table 11.	Summary of Moose Harvest and Drawing Odds in Hunt Area 2 since 1985.....	13
Table 12.	Summary of Moose Harvest and Drawing Odds in Hunt Area 4-1, Units 3 and 4 north of Interstate 90, since 1988.....	14
Table 13.	Summary of Moose Harvest and Drawing Odds in Hunt Area 4-2, Units 3 and 4 south of Interstate 90, since 1988.....	14
Table 14.	Summary of Moose Harvest and Drawing Odds in Hunt Area 6, Units 5 and 6, since 1988.....	15
Table 15.	Summary of Moose Harvest and Drawing Odds in Hunt Area 7 since 1988.....	15
Table 16.	Summary of Moose Harvest and Drawing Odds in Hunt Area 9, Unit 9, since 1988.....	16
Table 17.	Summary of all known moose mortalities in the Panhandle Region, excluding controlled hunts, since 1992.....	16

CLEARWATER REGION

Table 1.	1998 Season Structure for controlled Moose Hunts 8, 8A, 10-1 through 10-5, 10A-1 through 10A-4, 12-1 through 12-11, 14-1, 14-2, 15-1 through 15-7, 16-1, 16-2, 16A-1, 16A-2, 17-1 through 17-7, 19-1, 19-2, and 20-1 through 20-4 in the Clearwater Region.	20
Table 2.	Summary of Moose Harvest ^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998.....	20
Table 3.	Summary of All Known Moose Mortalities in Unit 8, 1989-present.	33
Table 4.	Summary of All Known Moose Mortalities in Unit 8A, 1989-present.	33
Table 5.	Summary of All Known Moose Mortalities in Unit 10, 1989-present.	34
Table 6.	Summary of All Known Moose Mortalities in Unit 10A, 1988-present.....	34
Table 7.	Summary of All Known Moose Mortalities in Unit 12, 1988-present.	35
Table 8.	Summary of All Known Moose Mortalities in Unit 14, 1988-present.	35

LIST OF TABLES
(Continued)

Table 9. Summary of All Known Moose Mortalities in Unit 15, 1988-present. 36
 Table 10. Summary of All Known Moose Mortalities in Unit 16, 1988-present. 36
 Table 11. Summary of All Known Moose Mortalities in Unit 16A, 1988-present. 37
 Table 12. Summary of All Known Moose Mortalities in Unit 17, 1988-present. 37
 Table 13. Summary of All Known Moose Mortalities in Unit 19, 1988-present. 38
 Table 14. Summary of All Known Moose Mortalities in Unit 20, 1988-present. 38

SOUTHWEST REGION (MCCALL)

Table 1. The 1998 season structure for controlled moose Hunt Areas 20A-1, 20A-2, 20A-3, and 26 in the Southwest Region (all hunts open for antlered moose only) 41
 Table 2. Moose harvest and drawing odds by Hunt Area in Units 20A and 26, 1983-1998. 41

MAGIC VALLEY REGION

Table 1. Summary of All Known Moose Mortalities in the Magic Valley Region, 1986-1997. 44

SOUTHEAST REGION

Table 1. Aerial surveys of moose in the Southeast Region. 48
 Table 2. 1998 season structure for controlled moose hunts in the Southeast Region. 48
 Table 3. Summary of moose harvest and drawing odds by hunt area, 1989-1998. 49
 Table 4. Summary of reported nonhunting moose mortalities in the Southeast Region, 1991-1998. 54

UPPER SNAKE REGION

Table 1. 1998 Season Structure for Controlled Moose Hunt Area 59 in the Upper Snake Region. 66
 Table 2. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Area 59), 1989-1998. 66
 Table 3. Summary of All Known Nonhunting Moose Mortalities in Units 59 and 59A. 67
 Table 4. 1998 Season Structure for Controlled Moose Hunt Areas 64-1, 64-2, 65, 67-1, and 67-2 in the Upper Snake Region. 68
 Table 5. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 64-1, 64-2, 65, 67-1, 67-2), 1989-1998. 69
 Table 6. Summary of All Known Nonhunting Moose Mortalities in Units 64, 65, and 67, 1989-1998. 71

LIST OF TABLES
(Continued)

Table 7.	1998 Season Structure for Controlled Moose Hunt Areas 66-1, 66-2, 69-1, 69-2, 69-3, and 69-4 in the Upper Snake Region.....	72
Table 8.	Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 66-1, 66-2, 69-1, 69-2, 69-3, 69-4), 1989-1998.....	73
Table 9.	Summary of All Known Nonhunting Moose Mortalities in Units 66 and 69.	75
Table 10.	1998 Season Structure for Controlled Moose Hunt Areas 60, 60A-1, 60A-2, 61-1, 61-2, 61-3, 62, 62A in the Upper Snake Region.	76
Table 11.	Aerial Survey of Moose in Hunt Area 62.	76
Table 12.	Aerial Survey of Moose in Hunt Areas 61 (Eastern portion), 62, and 62A.	77
Table 13.	Aerial Survey of Moose in Hunt Area 61 (Western portion).	77
Table 14.	Aerial Survey of Moose in Hunt Areas 60 and 60A.	78
Table 15.	Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 60, 60A-1, 60A-2, 61-1, 61-2, 61-3, 62, 62A), 1989-1998.	79
Table 16.	Summary of All Known Nonhunting Moose Mortalities in Units 60, 60A, 61, 62, and 62A.	82
Table 17.	1998 Season Structure for controlled Moose Hunt Areas 50, 63A-1, and 63A-2 in the Upper Snake Region.....	83
Table 18.	Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 50, 63A-1, and 63A-2), 1989-1998.	84
Table 19.	Summary of All Known Nonhunting Moose Mortalities in Units 50 and 63A.	85

SALMON REGION

Table 1.	1997 Season Structure for controlled Moose Hunts in the Salmon Region.	89
Table 2.	Summary of Moose Harvest and Drawing Odds by Hunt Area.....	89
Table 3.	Summary of All Known Moose Mortalities in Units 21 and 21A.	90
Table 4.	Summary of All Known Moose Mortalities in Units 29 and 37A.	90
Table 5.	Summary of all known moose mortalities in Units 30 and 30A.	91
Table 6.	Summary of Moose Transplants in the Salmon Region.	91

LIST OF FIGURES

Figure 1. Management Units Open to Moose Hunting in 1998 (Unshaded).	2
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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-23</u>		
SUBPROJECT:	<u>1-7, McCall</u>	STUDY NAME:	<u>Big Game Population Status, Trends,</u>
STUDY:	<u>I</u>		<u>Utilization, and Associated Habitat</u>
JOB:	<u>6</u>		<u>Studies</u>
PERIOD COVERED:	July 1, 1998 to June 30, 1999		

MOOSE – STATEWIDE

ABSTRACT

In 1998 there were 749 permits available for antlered moose and 98 permits for antlerless moose. There were 5,310 applicants in 1998 with statewide drawing odds of 1:7.1 for antlered moose.

In 1997, 5,881 people applied for 749 antlered moose permits, which yielded statewide drawing odds of 1:7.9.

Successful permittees (847) reported killing 629 moose in 1998, for a success rate of 74%. This compares to 654 moose killed by 847 permittees in 1997, for a success rate of 77%.

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE: Idaho **JOB TITLE:** Moose Surveys and Inventories
PROJECT: W-170-R-23
SUBPROJECT: 1 **STUDY NAME:** Big Game Population Status, Trends,
STUDY: I Utilization, and Associated Habitat
JOB: 6 Studies
PERIOD COVERED: July 1, 1998 to June 30, 1999

MOOSE - PANHANDLE REGION

ABSTRACT

In 1998 the Panhandle Region continued to offer limited hunting for bull moose on a controlled hunt drawing basis. There were 103 permits distributed among 14 hunts in eight management units.

A record 91 permittees (88%) successfully bagged a bull moose during 1998.

The combined odds of drawing a moose permit in the Panhandle Region in 1998 were 1:16. The odds of drawing a moose permit in the Panhandle Region are still only about one-half as good as the odds of drawing a moose permit on a statewide basis (1:7).

UNITS 1, 2, 3, 4, 6, 7 AND 9

**CONTROLLED HUNT AREAS 1-1, 1-2, 1-3, 1-4, 1-5, 1-6,
1-7, 1-8, 1-9, 2, 4-1, 4-2, 6, AND 9**

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 (CAP) 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 permittees more evenly. Coordinate moose management and

permit levels along the Idaho/Washington border with the Washington Department of Game.

5. Continue collecting information on moose distribution and mortality from Department and other agency personnel and the hunting public.

BACKGROUND

For many years it was believed that the Panhandle Region provided little suitable moose habitat and that populations would remain relatively low. Open areas and extensive riparian areas that typify moose habitat are not widespread in the region. Rather, moose often utilize closed canopy timber with interspersed shrub fields and creek bottoms. Presently these populations are steadily expanding where timber harvesting and fire have created seral shrub fields.

Historically moose have been managed in Idaho for rapid population increases. Seasons have been set on a bulls-only, controlled-hunt basis with conservative permit levels. Currently moose are also managed on a one-kill-in-a-lifetime basis. In the Panhandle Region moose hunting is now authorized in Units 1, 2, 3, 4, 5, 6, 7, and 9 (Table 1) with an 86-day season.

The 1985 hunt boundaries were redrawn and clarified, and four more moose hunts were authorized. Three of the new hunts were in Unit 1, the fourth included all of Unit 2. The permit level was increased from 15 to 28 in 1985.

Five new hunts were authorized in 1988, including two hunts in Unit 4 and separate hunts for all of Units 6, 7, and 9, respectively. The Unit 4 hunts were a first for that unit. Moose hunts had been authorized in Units 6, 7, and 9 from 1970-1973. However these units were closed in 1974 because the illegal kill combined with the legal harvest was believed to be exceeding the annual recruitment.

In 1991 new hunts were authorized in Unit 1 (hunt area 1-8) and Unit 7 (hunt area 7-2) to change existing hunt boundaries to redistribute hunters. In 1993 hunt area 1-9 was developed from a portion of hunt area 1-4 to redistribute hunters and allow two extra permits to be issued.

Unit 5 was included in hunt area 6 beginning in 1997 to allow hunters to take advantage of that growing moose population. Hunt areas 7-1 and 7-2 were combined the same year, and permit numbers reduced slightly because of poor success rates in Unit 7. Hunt area 1-4 was inadvertently left out of the regional recommendations; thus, no hunt was authorized in this area in 1997 and 1998.

POPULATION SURVEYS

No surveys were conducted during this reporting period.

HARVEST

Telephone Survey

Fourteen controlled hunts were authorized in the Panhandle Region in 1998 with a total of 103 permits. Ninety-one permittees completed the mandatory report stating that they were successful in bagging a bull for a success rate of 88% (Table 2). Summaries of the individual controlled hunt units are shown in Tables 3 through 16.

Controlled Hunt Odds

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

Interest in moose hunting in the Panhandle Region has been high since moose hunting began. The odds of drawing a permit have improved gradually over time (Table 2). This has been due to a change in controlled hunt drawing procedures whereby an applicant must send in fees prior to the drawing and a prohibition on applying for any other permits if you applied for moose. In addition, the number of permits offered has increased almost six-fold the past ten years. In 1998 the combined odds of drawing a moose permit were 1 to 16.

MANAGEMENT IMPLICATIONS

By virtue of the increased number of moose sightings in areas previously uninhabited, it appears that moose are expanding their range in Idaho's Panhandle. Success rates, a rudimentary index to moose abundance, remain very good. Calf:cow ratios appear comparable to that in southeastern Idaho, and high bull:cow ratios reflect some potential for increased bull harvest, although the sample size precludes conclusive analysis.

Nonharvest Mortalities

Thirty-eight mortalities were documented in the Panhandle Region during 1998 outside controlled hunts (Table 17). These mortalities, including illegal kills, account for 29% of the known moose mortalities in the Panhandle Region. This continues to be a significant impact on the Region's moose population.

Table 1. 1998 Season Structure for Controlled Moose Hunts in the Panhandle Region.

1998 Hunt No.(s)	Season		Open For
	Dates	Length	
3001 thru 3013 and 3016	8/30-11/23	86 days	Antlered moose

Table 2. Summary of Moose Harvest and Drawing Odds in the Panhandle Region, 1985-1998.

Year	No. Permits	Harvest		Hunter Success	Days/ Hunter	First Choice Applicants	Drawing Odds
		M	F				
1985	28	21	0	75	8.8	907	1:32
1986	28	23	0	82	12.5	750	1:27
1987	28	24	0	86	8.5	653	1:23
1988	40	34	0	85	14.6	597	1:15
1989	40	35	0	88	NA ^a	725	1:18
1990	42	38	0	90	10.7	849	1:20
1991	51	45	0	88	9.5	1,024	1:20
1992	51	44	0	86	9.3	1,071	1:21
1993	83	69	0	83	9.3	1,361	1:16
1994	83	63	0	76	8.5	1,430	1:17
1995	100	84	0	84	10.3	1,529	1:15
1996	100	74	0	74	6.2	1,516	1:15
1997	103	85	0	83	9.6	1,837	1:18
1998	103	91	0	88	5.7	1,623	1:16

^a Not available

Table 3. Summary of Moose Harvest and Drawing Odds in Hunt Area 1-1 since 1985^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1985 ^c	4	3	0	75	10.0	41	1:10
1986	4	3	0	75	13.5	39	1:10
1987	4	3	0	75	14.0	30	1:8
1988	4	2	0	50	3.7	38	1:10
1989	4	4	0	100	NA ^b	69	1:17
1990	4	3	0	75	12.5	74	1:19
1991 ^d	6	5	0	83	13.3	51	1:9
1992	6	5	0	83	7.8	77	1:13
1993	9	7	0	78	8.3	75	1:8
1994	9	3	0	33	12.0	90	1:10
1995	10	5	0	50	12.8	86	1:9
1996	10	5	0	50	8.8	76	1:8
1997 ^e	8	7	0	89	15.5	108	1:14
1998	8	7	0	89	7.4	98	1:12

^a From 1978-1984 Hunt Area 1-1 included only the Kootenai River drainage west of US Highway 95.

^b Not available.

^c In 1985 the unit boundaries were redrawn. Hunt Area 1-1 included that portion of Unit 1 within the Kootenai River drainage west of US Highway 95 and west of the Kootenai River.

^d From 1991-1996 the unit boundaries were redrawn to create new Hunt Areas 1-7 and 1-8. Hunt Area 1-1 included that portion of the previous hunt unit north of but excluding the Myrtle Creek drainage, which is closed. Data from 1991-1996 were adjusted in this report to include both areas.

^e In 1997 Hunt Area 1-8 was recombined with Hunt Area 1-1.

Table 4. Summary of Moose Harvest and Drawing Odds in Hunt Area 1-2 since 1985^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1985	4	4	0	100	5.5	86	1:22
1986	4	4	0	100	8.8	64	1:16
1987	4	4	0	100	8.8	49	1:12
1988	4	3	0	75	18.0	71	1:18
1989	4	4	0	100	NA ^b	89	1:22
1990	5	4	0	80	3.4	93	1:19
1991	6	6	0	100	6.5	162	1:27
1992	6	6	0	100	4.6	160	1:27
1993	8	6	0	75	20.6	147	1:18
1994	8	8	0	100	7.8	142	1:18
1995	10	7	0	70	16.6	147	1:15
1996	10	9	0	90	5.2	139	1:14
1997	10	8	0	80	9.4	131	1:13
1998	10	7	0	70	10.5	109	1:11

^a Prior to 1985 this unit was part of Hunt 301-4. It now includes that portion of Unit 1 east and north of the Kootenai River and west of the Moyie River.

^b Not available.

Table 5. Summary of Moose Harvest and Drawing Odds in Hunt Area 1-3 since 1985^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1985	4	3	0	75	3.5	121	1:30
1986	4	4	0	100	10.5	98	1:25
1987	4	4	0	100	5.0	86	1:22
1988	4	4	0	100	8.5	114	1:29
1989	4	4	0	100	NA ^b	112	1:28
1990	5	5	0	100	3.2	117	1:23
1991	6	6	0	100	7.6	145	1:24
1992	6	6	0	100	7.5	142	1:24
1993	8	7	0	88	8.4	153	1:19
1994	8	7	0	88	6.9	163	1:20
1995	10	9	0	90	13.7	183	1:18
1996	10	5	0	50	4.0	167	1:17
1997	10	8	0	80	4.5	170	1:17
1998	10	9	0	90	7.3	147	1:15

^a This unit was formerly part of Hunt 301-4. It includes now that portion of Unit 1 north of the Kootenai River and east of the Moyie River.

^b Not available.

Table 6. Summary of Moose Harvest and Drawing Odds in Hunt Area 1-4 since 1985^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1985 ^c	2	1	0	50	5.5	18	1:9
1986	2	1	0	50	2.0	22	1:11
1987	2	1	0	50	7.0	12	1:6
1988	3	3	0	100	20.3	26	1:9
1989	3	2	0	67	NA ^b	41	1:14
1990	3	2	0	67	11.3	31	1:10
1991	4	4	0	100	7.8	62	1:16
1992	4	4	0	100	15.3	68	1:17
1993	6	6	0	100	8.6	58	1:10
1994	6	3	0	50	12.0	62	1:10
1995	8	6	0	75	12.4	61	1:8
1996	8	5	0	63	7.8	69	1:9
1997	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0

^a Formerly part of Hunt 301-4. This hunt includes the Kootenai River drainage east of US Highway 95.

^b Not available.

^c In 1985 this unit was split into three hunts. Hunt 301-4 now includes that portion of Unit 1 within the Kootenai River drainage east of US Highway 95 and south of the Kootenai River.

Table 7. Summary of Moose Harvest and Drawing Odds in Hunt Area 1-5 since 1985^a.

Year	No. Permits	Harvest		Hunter Days/ Success	First Choice Hunter	Applicants	Drawing Odds
		M	F				
1985	3	3	0	100	9.5	101	1:34
1986	4	4	0	100	5.3	76	1:19
1987	4	4	0	100	8.5	77	1:26
1988	4	3	0	75	8.5	77	1:26
1989	4	3	0	75	NA ^b	99	1:33
1990	4	4	0	100	2.8	124	1:31
1991	5	5	0	100	10.5	165	1:33
1992	5	5	0	100	4.8	159	1:32
1993	8	7	0	88	4.7	219	1:27
1994	8	5	0	63	7.3	210	1:26
1995	10	10	0	100	10.9	238	1:24
1996	10	9	0	90	9.3	227	1:23
1997	15	15	0	100	9.1	281	1:19
1998	15	15	0	100	6.6	335	1:22

^a This hunt was added in 1974 as Hunt 301-2 and was renumbered in 1985. It now includes the Pend Oreille River drainage east of US Highway 95 in Unit 1.

^b Not available.

Table 8. Summary of Moose Harvest and Drawing Odds in Hunt Area 1-6 since 1985^a.

Year	No. Permits	Harvest		Hunter Days/ Success	First Choice Hunter	Applicants	Drawing Odds
		M	F				
1985	2	2	0	100	10.5	31	1:16
1986	2	1	0	50	16.5	22	1:11
1987	2	2	0	100	1.5	28	1:14
1988	3	3	0	100	17.7	46	1:15
1989	3	3	0	100	NA ^b	49	1:16
1990	3	3	0	100	12.3	65	1:22
1991	4	2	0	50	15.0	57	1:14
1992	4	2	0	50	16.8	75	1:19
1993	6	5	0	83	12.0	66	1:11
1994	6	5	0	83	10.8	88	1:15
1995	6	6	0	100	7.2	98	1:16
1996	6	4	0	67	7.0	92	1:15
1997	6	6	0	100	9.3	93	1:15
1998	6	6	0	100	8.8	64	1:11

^a This hunt was established in 1985. It now includes that portion of Unit 1 within the Pend Oreille River drainage west of US Highway 95 excluding the Priest River drainage.

^b Not available.

Table 9. Summary of Moose Harvest and Drawing Odds in Priest/Salmo River (Hunt Areas 1-7 and 1-8) since 1985^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1985	6	4	0	67	14.8	174	1:29
1986	6	5	0	83	16.7	116	1:19
1987	6	5	0	83	10.5	102	1:17
1988	6	6	0	100	18.3	137	1:23
1989	6	6	0	100	NA ^b	115	1:19
1990	6	6	0	100	11.8	165	1:28
1991	6	5	0	83	5.3	164	1:27
1992	6	6	0	100	9.8	154	1:26
1993	12	11	0	92	12.5	247	1:21
1994	12	12	0	100	6.5	245	1:20
1995	18	18	0	100	9.0	268	1:15
1996	18	17	0	94	9.6	280	1:16
1997	8 ^c	7	0	88	10.3	64	1:8
1997	15 ^d	12	0	80	13.0	237	1:16
1998	8 ^c	8	0	100	11.8	63	1:8
1998	15 ^d	13	0	87	10.0	210	1:14

^a This hunt was added in 1977 as Hunt 301-3 and was renumbered in 1985. It now includes the Priest River and Salmo River drainages in Unit 1.

^b Not available.

^c Hunt Area 1-7, Salmo River drainage and Priest River drainage west of the river.

^d Hunt Area 1-8, Priest River drainage east of the river.

Table 10. Summary of Moose Harvest and Drawing Odds in Hunt Area 1-9 since 1993^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1993	2	2	0	100	20.0	25	1:13
1994	2	2	0	100	2.5	26	1:13
1995	2	2	0	100	8.0	25	1:13
1996	2	2	0	100	3.5	31	1:16
1997	2	1	0	50	7.0	25	1:13
1998	2	2	0	100	7.1	24	1:12

Table 11. Summary of Moose Harvest and Drawing Odds in Hunt Area 2 since 1985^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1985	2	0	0	0	15.0	24	1:12
1986	2	1	0	50	30.0	10	1:5
1987	2	2	0	100	13.0	16	1:8
1988	2	1	0	50	16.0	3	1:2
1989	2	2	0	100	NA ^b	18	1:9
1990	2	1	0	50	8.5	10	1:5
1991	2	2	0	100	4.0	59	1:30
1992	2	2	0	100	2.0	73	1:37
1993	4	4	0	100	7.0	125	1:31
1994	4	3	0	75	2.3	120	1:30
1995	5	5	0	100	4.8	116	1:23
1996	5	5	0	100	5.0	129	1:26
1997	10	9	0	90	9.0	230	1:23
1998	10	10	0	100	14.0	225	1:23

^a This hunt was first authorized during 1985.

^b Not available.

Table 12. Summary of Moose Harvest and Drawing Odds in Hunt Area 4-1, Units 3 and 4 north of Interstate 90, since 1988^a.

Year	No. Permits	Harvest		Hunter Days/ Success	First Choice Hunter	Applicants	Drawing Odds
		M	F				
1988	2	1	0	50	16.0	3	1:1
1989	2	2	0	100	NA ^b	18	1:9
1990	2	1	0	50	8.5	10	1:5
1991	2	1	0	50	25	21	1:11
1992	2	2	0	100	4.5	19	1:9
1993	2	1	0	50	1.0	39	1:20
1994	2	2	0	100	9.0	36	1:18
1995	2	2	0	100	10.0	35	1:18
1996	2	2	0	100	2.0	63	1:32
1997	2	1	0	50	6.0	67	1:34
1998	2	1	0	50	7.5	57	1:29

^a This hunt was first authorized during 1988.

^b Not available.

Table 13. Summary of Moose Harvest and Drawing Odds in Hunt Area 4-2, Units 3 and 4 south of Interstate 90, since 1988^a.

Year	No. Permits	Harvest		Hunter Success	Days/ Hunter	First Choice Applicants	Drawing Odds
		M	F				
1988	2	1	0	50	8.5	4	1:2
1989	2	1	0	50	NA ^b	11	1:5
1990	2	2	0	100	3.0	18	1:9
1991	2	1	0	50	4.5	16	1:8
1992	2	1	0	50	20.0	26	1:13
1993	2	2	0	100	4.5	18	1:9
1994	2	2	0	100	10.5	24	1:12
1995	2	1	0	50	10.0	22	1:12
1996	2	2	0	100	10.0	23	1:12
1997	2	1	0	50	4.0	37	1:19
1998	2	2	0	100	10.6	30	1:15

^a This hunt was first authorized during 1988.

^b Not available.

Table 14. Summary of Moose Harvest and Drawing Odds in Hunt Area 6, Units 5 and 6, since 1988^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1988	2	2	0	100	64.5	27	1:14
1989	2	2	0	100	NA ^b	33	1:17
1990	2	1	0	50	31	45	1:8
1991	2	2	0	100	15.0	45	1:22
1992	2	2	0	100	18.0	40	1:20
1993	4	3	0	75	3.0	92	1:23
1994	4	4	0	100	2.5	101	1:25
1995	5	5	0	100	10.3	156	1:31
1996	5	5	0	100	7.8	124	1:25
1997	5	4	0	80	7.0	175	1:35
1998	5	5	0	100	12.0	181	1:36

^a This hunt was first authorized during 1970 but closed 1974-1987.

^b Not available.

Table 15. Summary of Moose Harvest and Drawing Odds in Hunt Area 7 since 1988^a.

Year	No. Permits	Harvest		Hunter Success	Days/Hunter	First Choice Applicants	Drawing Odds
		M	F				
1988	2	2	0	100	1.5	24	1:12
1989	2	2	0	100	NA ^b	25	1:12
1990	2	2	0	100	15.5	37	1:18
1991	4	4	0	100	7.5	51	1:13
1992	4	1	0	25		47	1:12
1993	8	5	0	63		56	1:7
1994	8	4	0	50		87	1:11
1995	8	4	0	50		68	1:9
1996	8	2	0	25		46	1:6
1997	5	4	0	80	9.0	60	1:12
1998	5	1	0	20	17.7	48	1:10

^a This hunt was first authorized during 1970 but closed 1974-1987. From 1991-1996 this hunt was split on the St. Joe River to create hunts 307-1 and 307-2.

^b Not available.

Table 16. Summary of Moose Harvest and Drawing Odds in Hunt Area 9, Unit 9, since 1988^a.

Year	No. Permits	Harvest		Hunter Days/ Success	First Choice Hunter	Applicants	Drawing Odds
		M	F				
1988	2	2	0	100	5.5	12	1:6
1989	2	2	0	100	NA ^b	¹⁵	1:8
1990	2	2	0	100	20.0	23	1:12
1991	2	2	0	100	10.0	26	1:13
1992	2	1	0	50	8.0	32	1:16
1993	4	3	0	75	4.5	41	1:10
1994	4	3	0	75	7.8	40	1:10
1995	4	4	0	100	6.7	26	1:7
1996	4	2	0	50	5.0	50	1:13
1997	5	2	0	40	9.5	44	1:9
1998	5	5	0	100	10.6	32	1:6

^a This hunt was first authorized during 1970 but closed 1974-1987.

^b Not available.

Table 17. Summary of all known moose mortalities in the Panhandle Region, excluding controlled hunts, since 1992.

Year	Mortality Agent						Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Train Kill	Other	
1992	0	7	3	1	2	-	13
1993	1	3	1	1	1	-	7
1994	0	12	8	1	1	5	27
1995	2	20	5	3	0	3	33
1996	4	7	16	2	10	5	42
1997	5	5	9	3	4	2	23
1998	1	26	5	4	0	2	38

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE: Idaho **JOB TITLE:** Moose Surveys and Inventories
PROJECT: W-170-R-23
SUBPROJECT: 2 **STUDY NAME:** Big Game Population Status, Trends,
Utilization, and Associated Habitat
Studies
STUDY: I
JOB: 6
PERIOD COVERED: July 1, 1998 to June 30, 1999

MOOSE - CLEARWATER REGION

ABSTRACT

From the mandatory check, Clearwater Region hunters reported a 1998 harvest of 153 antlered moose from 48 controlled hunts. Two hundred sixty-three permits were available and hunter success rates averaged 58%. Drawing odds ranged from 1:0.0 (Hunt Area 17-1) to 1:23.3 (Hunt Area 8A).

UNITS 8, 8A, 10, 10A, 12, 14, 15, 16, 17, 19, AND 20

**CONTROLLED HUNT AREAS 8, 8A, 10-1, 10-2, 10-3, 10-4, 10-5, 10A-1, 10A-2,
10A-3, 10A-4, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 12-9, 12-10, 12-11,
14-1, 14-2, 15-1, 15-2, 15-3, 15-4, 15-5, 15-6, 15-7, 16-1, 16-2, 16A-1, 16A-2,
17-1, 17-2, 17-3, 17-4, 17-5, 17-6, 17-7, 19-1, 19-2, 20-1, 20-2, 20-3, AND 20-4**

MANAGEMENT DIRECTION

Moose populations will be allowed to increase in units where habitat conditions will support expansion. Legal harvest will continue primarily for antlered bulls only; antlerless moose hunting opportunity will be offered in areas where population control measures are considered necessary. Moose harvest will be increased where feasible, decreased where necessary, and hunt boundaries reexamined to create new hunts as desirable. Known mortality will be documented and information on numbers and distribution obtained from big game mortality report forms from the mandatory check.

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

Moose have been hunted with controlled hunts on a bulls-only and once-in-a-lifetime basis (if permittee is successful in harvesting a moose). Since 1986 persons applying for moose

permits have been prohibited from applying for any other controlled hunt. Unsuccessful permittees must wait 2 years before applying for another controlled moose hunt. Permit levels are based on trends in antler spread of harvested moose and hunter success rates of recent permittees in the respective controlled hunts.

Moose in the Clearwater Region use two distinct habitats. Some populations 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 drastically reduce habitat for these populations. Winter habitat is selective toward subalpine fir and pacific yew plant communities.

Other populations are adapted to seral plant communities, except in winter. These populations seem to be expanding in areas where extensive habitat manipulation has resulted in seral brushfields. 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.

POPULATION SURVEYS

Moose in the Clearwater Region are usually censused incidental to elk surveys. However, some 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. Consequently, no comparative population data have been obtained on moose throughout the Clearwater Region.

During aerial surveys for elk in Unit 17 in January 1995, 4 search units within the elk survey area and 7 additional search units outside of the area were flown for moose. These search units were located on the north side of the lower Selway River and were delineated to assess moose densities using the moose sightability model (Unsworth et al. 1994). Sixteen moose (5 cows, 9 bulls, 1 calf, and 1 unclassified) were observed in Hunt Area 17-3, for an estimate of 37 moose. Outside of the sightability survey area, 22 moose were observed (7 cows, 8 bulls, 3 calves, and 4 unclassified). Additionally, in Unit 16A, 19 moose (4 cows, 10 bulls, and 5 unclassified) were observed incidental to elk surveys. Unfortunately, an error that was discovered in the sightability model has precluded a more complete analysis of the data at this time.

HARVEST

Harvest levels, hunter success, and hunter days expended for 1998 were determined from big game mortality reports (Table 2). The 263 moose permits that were available in 1998 resulted in a reported harvest of 153 moose. Mortality reports from some permittees were unaccounted for and were not used in calculating hunter success. Fourteen permits were not filled during the controlled hunt drawing process due to lack of interest (7 permits each in Units 12 and 17). The 1998 success rate (58%) was lower than the average (66%) for the past 5-year period

(1993-1997). Drawing odds in 1998 were variable, ranging from 1:0.0 (Hunt Area 17-1) to 1:23.3 (Hunt Area 8A).

Reported moose mortalities resulting from other than legal harvest during controlled hunts has varied considerably by unit (Tables 3-14). Unit 15 continues to have the highest number of reported noncontrolled hunt mortalities in the region. It is likely that the level of mortality is considerably higher than reported in the Clearwater Region, particularly with respect to the Indian harvest and illegal kills categories.

CLIMATIC CONDITIONS

Clearwater Region weather intensified in 1998-1999 compared to the previous year. La Nina weather patterns produced cooler and wetter conditions, especially at higher elevations, and resulted in 130% of average snowpack with twice the amount of water content as last year. However, weather at lower elevations was comparatively mild and, as a result, provided favorable winter range conditions for big game species. Total mountain precipitation in the Clearwater River basin (October through March) was above average (125%). Cool spring temperatures contributed to a delay of green-up conditions throughout much of the region.

MANAGEMENT IMPLICATIONS

Permit levels will continue to be allocated based on trends in antler spread of harvested moose and hunter success rates of recent permittees. Numbers of permits may be increased or decreased as desired. However, because permit numbers have been increased significantly in the Clearwater Region since 1993 (+ 89), substantial increases in the near future are not anticipated.

All areas need more intensive work to determine population levels, trends, and habitat selection and use. Some moose populations are 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 Indian harvest.

LITERATURE CITED

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, ID. 84 pp.

Table 1. 1998 Season Structure for controlled Moose Hunts 8, 8A, 10-1 through 10-5, 10A-1 through 10A-4, 12-1 through 12-11, 14-1, 14-2, 15-1 through 15-7, 16-1, 16-2, 16A-1, 16A-2, 17-1 through 17-7, 19-1, 19-2, and 20-1 through 20-4 in the Clearwater Region.

Hunt Areas	Season		
	Dates	Length	Open For
All	8/30-11/23	86 days	Antlered only

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998.

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice	Draw Odds
			M	F			Applications	
308	1990	2	2	0	100	4.0	23	1:11.5
	1991	2	1	0	50	10.0	28	1:14.0
	1992	2	2	0	100	1.0	44	1:22.0
	1993	2	2	0	100	6.5	16	1:8.0
	1994	2	2	0	100	7.0	16	1:8.0
(Renamed Hunt Area 8 in 1995)								
8	1995	4	3	0	75	12.8	55	1:13.8
	1996	4	3	0	75	15.3	41	1:10.3
	1997	4	3	0	75	7.0	41	1:10.3
	1998	4	4	0	100	17.6	44	1:11.0
308A	1993	2	2	0	100	12.5	46	1:23.0
	1994	2	2	0	100	20.0	42	1:21.2
(Renamed Hunt Area 8A in 1995)								
8A	1995	4	4	0	100	15.5	58	1:14.5
	1996	4	3	0	75	7.8	65	1:16.3
	1997	4	2	0	50	9.5	84	1:21.0
	1998	4	4	0	100	5.5	93	1:23.3
310-1	1989	4	4	0	100	2.0	30	1:7.5
	1990	4	3	0	75	10.8	50	1:12.5
	1991	4	2	0	50	10.0	23	1:5.7
	1992	4	4	0	100	12.0	18	1:4.5
	1993	4	4	0	100	9.0	31	1:15.5
	1994	4	1	0	33	7.3	31	1:7.8
(Renamed Hunt Area 10-1 in 1995)								
10-1	1995	6	4	0	80	2.6	19	1:3.2
	1996	6	3	0	50	9.0	22	1:3.7
	1997	6	4	0	67	11.5	17	1:2.8
	1998	6	5	0	83	11.3	24	1:4.0

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice Applications	Draw Odds	
			M	F					
310-2	1989	3	2	0	67	6.3	22	1:7.3	
	1990	3	2	0	67	4.3	10	1:3.3	
	1991	3	2	0	75	2.7	16	1:5.3	
	1992	3	3	0	100	7.7	18	1:6.0	
	1993	3	3	0	100	7.0	24	1:8.0	
	1994	3	2	0	67	9.0	15	1:5.0	
(Renamed 10-2 in 1995)									
10-2	1995	3	1	0	34	8.0	12	1:4.0	
	1996	3	2	0	67	ND	16	1:5.3	
	1997	3	2	0	67	9.0	8	1:2.7	
	1998	3	1	0	33	9.0	14	1:4.7	
310-3	1989	4	4	0	100	5.8	54	1:13.5	
	1990	4	4	0	100	11.0	53	1:13.5	
	1991	5	5	0	100	9.3	90	1:18.0	
	1992	5	4	0	80	2.6	89	1:17.8	
	1993	6	6	0	100	9.0	83	1:13.8	
	1994	6	6	0	100	6.6	60	1:10.0	
(Renamed 10-3 in 1995)									
10-3	1995	6	6	0	100	6.0	69	1:11.5	
	1996	6	6	0	100	ND	56	1:9.3	
	1997	6	5	0	83	5.2	86	1:14.3	
	1998	6	5	0	83	5.4	89	1:14.8	
310-4	1989	3	2	0	67	3.5	9	1:3.0	
	1990	3	2	0	67	3.5	9	1:3.0	
	1991	3	2	0	67	6.0	11	1:3.7	
	1992	3	3	0	100	6.7	20	1:6.7	
	1993	4	2	0	50	11.0	15	1:3.8	
	1994	4	1	0	33	12.0	5	1:1.3	
(Renamed 10-4 in 1995)									
10-4	1995	4	0	0	0	14.0	6	1:1.5	
	1996	4	3	0	75	14.3	8	1:2.0	
	1997	4	2	0	50	3.5	7	1:1.7	
	1998	4	2	0	50	3.5	10	1:2.5	
310-7	1990	2	1	0	50	11.0	9	1:4.5	
	1991	2	1	0	50	12.5	17	1:8.5	
	1992	2	1	0	50	12.5	11	1:5.5	
	(Renamed 310-5 in 1993)								
	1993	2	2	0	100	6.0	6	1:3.0	
1994	2	1	0	100	3.0	8	1:4.0		
(Renamed 10-5 in 1995)									

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice Applications	Draw Odds
			M	F				
10-5	1995	4	3	0	75	10.8	8	1:2.0
	1996	4	2	0	50	3.0	22	1:5.5
	1997	4	3	0	75	12.7	16	1:4.0
	1998	4	1	0	25	18.0	14	1:3.5
310-5	1989	5	4	0	80	12.2	46	1:9.2
	1990	5	4	0	80	19.5	30	1:6.0
	1991	5	3	0	50	9.0	22	1:4.4
	1992	5	5	0	100	4.2	17	1:3.4
(Renamed 310A-1 in 1993)								
310A-1	1993	5	5	0	100	4.7	46	1:9.2
	1994	5	4	0	75	6.5	43	1:8.6
	1995	7	7	0	100	5.0	62	1:8.9
	1996	7	7	0	100	5.9	36	1:5.1
	1997	7	6	0	86	10.4	59	1:8.4
	1998	7	3	0	43	14.3	43	1:6.1
310-6	1989	3	3	0	100	4.7	15	1:5.0
	1990	3	3	0	100	7.3	22	1:7.3
	1991	3	3	0	100	6.0	19	1:6.3
	1992	3	3	0	100	6.0	27	1:9.0
(Renamed 310A-2 in 1993)								
310A-2	1993	4	3	0	75	7.5	36	1:9.0
	1994	4	3	0	75	15.5	15	1:3.8
(Renamed 10A-2 in 1995)								
10A-2	1995	6	6	0	100	11.8	35	1:5.8
	1996	6	4	0	67	8.3	47	1:7.8
	1997	6	6	0	100	15.5	28	1:4.7
	1998	6	4	0	67	5.3	38	1:6.3
10A-3	1995	5	3	0	67	11.3	17	1:3.4
	1996	5	3	0	60	25.0	11	1:2.2
	1997	5	3	0	60	2436	57	1:11.8
	1998	5	2	0	40	6.5		
10A-4	1995	5	5	0	100	5.6	70	1:14.0
	1996	5	5	0	100	10.	61	1:12.2
	1997	5	5	0	100	14.6	57	1:11.4
	1998	5	5	0	100	11.6	56	1:11.2
312-1	1989	2	1	0	50	5.0	16	1:8.0
	1990	2	2	0	100	6.0	13	1:6.5
	1991	2	2	0	100	3.5	6	1:3.0
	1992	2	2	0	100	7.5	20	1:10.0
	1993	3	3	0	100	6.3	17	1:5.7
	1994	3	2	0	6	16.3	14	1:4.7
(Renamed 12-1 in 1995)								
12-1	1995	3	3	0	100	5.7	23	1:7.7

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice Applications	Draw Odds
			M	F				
	1996	3	1	0	30	7.0	7	1:2.4
	1997	3	0	0	0	ND	7	1:2.4
	1998	3	3	0	100	4.0	3	1:1.0
312-2	1989	2	2	0	100	8.0	6	1:3.0
	1990	2	2	0	100	1.0	16	1:8.0
	1991	3	3	0	100	1.3	23	1:11.5
	1992	3	3	0	100	6.3	22	1:11.0
	1993	4	3	0	67	13.0	16	1:4.0
	1994	4	1	0	33	10.3	17	1:4.3
	(Renamed 12-2 in 1995)							
12-2	1995	4	2	0	50	8.5	13	1:3.3
	1996	4	2	0	50	6.5	4	1:1.0
	1997	4	1	0	25	1.0	11	1:2.7
	1998	4	2	0	50	6.5	5	1:1.3
312-3	1989	3	3	0	100	1.7	9	1:3.0
	1990	3	2	0	67	3.0	22	1:7.3
	1991	3	3	0	100	1.3	14	1:4.7
	1992	3	1	0	33	7.7	11	1:3.7
	1993	4	4	0	100	2.3	9	1:2.3
	1994	4	0	0	0	9.3	14	13.5
	(Renamed 12-3 in 1995)							
12-3	1995	6	5	0	100	3.0	12	12.8
	1996	6	1	0	16	1.0	14	12.4
	1997	6	2	0	33	3.5	12	12.0
	1998	6	1	0	17	4.0	12	12.0
312-4	1989	6	5	0	83	4.2	16	12.7
	1990	6	3	0	50	6.0	26	14.3
	1991	6	4	0	67	15.2	21	13.5
	1992	6	1	0	20	9.8	19	13.2
	1993	6	4	0	60	6.4	6	11.0
	1994	6	2	0	33	3.8	17	12.8
	(Renamed 12-4 in 1995)							
12-4	1995	6	2	0	40	5.8	17	12.8
	1996	6	2	0	33	5.5	14	12.4
	1997	6	0	0	0	ND	10	11.7
	1998	6	0	0	0	ND	5	10.8
312-5	1989	3	0	0	75	405	10	1:10.0
	1990	4	2	0	50	4.8	10	100.0
	1991	4	2	0	50	4.3	19	14.8
	1992	4	2	0	40	22.8	12	13.0
	1993	4	4	0	100	7.0	22	15.5
	1994	4	3	0	75	3.8	10	12.5
	(Renamed 2-5 in 1995)							

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice	
			M	F			Applications	Draw Odds
12-5	1995	6	2	0	40	4.8	9	11.5
	1996	6	2	0	33	1.0	3	10.5
	1997	6	2	0	33	2.0	16	12.7
	1998	6	1	0	17	5.0	3	10.5
312-6	1989	2	2	0	100	3.5	3	11.5
	1990	3	3	0	100	13.7	14	14.7
	1991	4	3	0	75	13.3	5	11.3
	1992	4	1	0	33	6.7	7	11.8
	1993	5	1	0	25	8.8	22	14.4
	1994	5 ^c	0	0	0	8.8	9	11.8
(Renamed 12-6 in 1995)								
12-6	1995	5	2	0	50	4.0	5	11.0
	1996	5	2	0	40	5.0	2	10.4
	1997	5	2	0	40	2.0	6	11.2
	1998	5 ^c	0	0	0	ND	1	10.2
312-7	1989	4	3	0	75	4.8	3	10.8
	1990	4	1	0	25	10.7	10	12.5
	1991	4	2	0	50	6.3	10	12.4
	1992	4	1	0	25	4.5	6	11.5
	1993	4	0	0	0	7.8	8	12.0
	1994	4	1	0	33	6.0	4	11.0
(Renamed 12-7 in 1995)								
12-7	1995	4	0	0	0	2.5	17	14.3
	1996	4	2	0	50	4.0	10	1:1.5
	1997	4	2	0	50	3.5	5	11.3
	1998	4	0	0	0	ND	7	11.8
312-8	1989	4	3	0	75	7.0	17	4.3
	1990	4	4	0	100	11.5	11	2:8
	1991	4	1	0	25	12.5	12	13.0
	1992	4	3	0	75	7.3	17	14.3
	1993	4	3	0	75	11.3	14	13.5
	1994	4	1	0	50	5.5	7	11.8
(Renamed 12-8 in 1995)								
12-8	1995	6	2	0	25	8.3	6	11.0
	1996	6	3	0	50	6.5	7	11.2
	1997	6	1	0	17	ND	5	1.08
	1998	6 ^c	1	0	17	5.0	4	10.7

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice		
			M	F			Applications	Draw Odds	
312-9	1989	6	6	0	100	5.0	61	110.2	
	1990	6	6	0	100	4.7	53	18.8	
	1991	6	6	0	100	5.8	57	19.5	
	1992	6	5	0	83	5.5	70	111.2	
	1993	7	7	0	100	2.4	74	110.6	
	1994	7	6	0	80	5.2	80	111.4	
(Renamed 12-9 in 1995)									
12-9	1995	9	8	0	88	3.8	60	16.7	
	1996	9	6	0	67	5.8	58	16.4	
	1997	9	7	0	88 ^c	6.0	78	18.7	
	1998	9	7	0	78	10.0	58	16.4	
312-10	1989	5	4	0	80	4.5	57	111.4	
	1990	5	4	0	80	8.4	43	18.6	
	1991	6	6	0	100	2.4	41	16.8	
	1992	6	5	0	83	4.4	54	19.0	
	1993	7	7	0	100	5.4	76	110.9	
	1994	7	7	0	100	7.5	73	110.4	
(Renamed 12-10 in 1995)									
12-10	1995	9	5	0	50	9.0	75	18.3	
	1996	9	7	0	78	4.4	54	1:6.0	
	1997	9	9	0	100	8.5	66	17.3	
	1998	9	8	0	89	4.5	40	14.4	
312-11	1989	4	2	0	50	4.5	18	14.5	
	1990	4	4	0	100	4.8	25	16.4	
	1991	4	3	0	75	15.8	19	14.8	
	1992	4	4	0	100	6.0	11	12.8	
	1993	4	3	0	75	5.5	23	15.8	
	1994	4	3	0	75	7.0	21		
	(Renamed 12-11 in 1995)								
		1995	6	6	0	100	8.0	21	13.5
		1996	6	5	0	83	9.2	28	14.7
		1997	6	3	0	50	3.7	42	17.0
	1998	6	4	0	67	5.5	34	15.7	
314	1990	3	3	0	100	2307	63	131.5	
	1991	3	3	0	100	12.0	71	135.5	
	1992	3	3	0	100	1207	70	135.0	
(Split into Hunts 314-1 and 314-2 in 1993)									
314-1	1993	3	3	0	100	12.0	39	113.0	
	1994	3	3	0	100	3.0	44	114.7	
(Renamed 14-1 in 1995)									

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice	
			M	F			Applications	Draw Odds
14-1	1995	5	5	0	100	9.0	66	113.2
	1996	5	5	0	100	6.3	68	113.6
	1997	5	5	0	100	2.3	92	118.4
	1998	5	5	0	100	9.0	73	114.6
314-2	1993	3	3	0	100	5.3	10	13.3
	1994	3	2	0	50	4.5	32	110.7
(Renamed 14-2 81 1995)								
14-2	1995	5	5	0	100	4.3	45	19.0
	1996	5	5	0	100	5.0	45	11.9
	1997	5	4	0	80	5.5	69	113.8
	1998	5	3	0	60	3.0	51	110.2
315-1	1989	4	4	0	100	3.5	69	117.3
	1990	4	3	0	75	5.0	76	119.0
	1991	4	3	0	75	9.5	83	120.8
	1992	4	4	0	100	3.7	64	116.0
	1993	5	5	0	100	5.0	56	111.2
	1994	5	4	0	80	12.8	71	114.2
(Renamed 15-1 in 1995)								
15-1	1995	7	5	0	72	7.4	69	19.9
	1996	7	6	0	86	5.0	62	18.9
	1997	7	3	0	43	5.3	76	110.8
	1998	7	7	0	100	4.3	60	18.6
315-2	1989	5	5	0	100	7.2	57	111.4
	1990	5	3	0	60	6.5	70	14.0
	1991	6	6	0	100	9.0	95	115.8
	1992	6	5	0	83	4.3	78	113.0
	1993	7	7	0	100	8.4	78	111.1
	1994	7	7	0	100	8.0	52	17.4
(Renamed 15-2 in 1995)								
15-2	1995	9	8	0	88	11.0	67	17.4
	1996	9	9	0	100	7.3	71	17.9
	1997	9	6	0	67	7.0	65	17.2
	1998	9	8	0	89	8.6	57	16.3
315-3	1989	5	3	0	60	13.2	35	16.8
	1990	5	3	0	60	6.8	35	17.5
	1991	5	5	0	100	7.8	45	19.0
	1992	5	3	0	67	6.7	25	15.0
	1993	5	3	0	67	3.7	34	16.8
	1994	5	5	0	100	1.0	20	14.0
(Renamed 15-3 in 1995)								
15-3	1995	5	3	0	40	11.2	46	19.2
	1996	5	3	0	60	8.0	21	14.2
	1997	5	4	0	80	7.5	24	14.8
	1998	5	4	0	80	6.8	26	15.2

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice	
			M	F			Applications	Draw Odds
315-4	1989	4	4	0	100	1.8	45	18.8
	1990	4	3	0	75	6.0	66	116.5
	1991	4	3	0	75	16.3	37	19.3
	1992	4	4	0	100	17.3	37	19.3
	1993	5	3	0	67	13.3	48	19.6
	1994	5	5	0	100	15.0	47	19.4
(Renamed 15-4 in 1995)								
15-4	1995	5	5	0	100	7.5	40	18.0
	1996	5	2	0	40	8.0	26	15.2
	1997	5	5	0	100	9.4	25	15.0
	1998	5	2	0	40	4.5	24	14.8
315-5	1989	6	6	0	100	5.0	51	19.0
	1990	6	6	0	100	7.7	54	110.8
	1991	7	7	0	100	6.7	65	112.7
	1992	7	7	0	100	4.0	70	110.0
	1993	8	8	0	100	13.5	83	110.4
	1994	8	7	0	87	8.3	58	17.3
(Renamed 15-5 in 1995)								
15-5	1995	10	10	0	100	5.3	89	18.9
	1996	10	10	0	100	7.3	73	17.3
	1997	10	8	0	80	8.5	98	19.8
	1998	10	9	0	90	9.3	56	15.6
315-6	1989	4	3	0	75	8.8	35	18.8
	1990	4	4	0	100	9.8	23	15.8
	1991	4	3	0	75	7.0	46	111.5
	1992	4	4	0	100	2.0	35	18.8
	1993	5	5	0	100	3.0	36	17.2
	1994	5	5	0	100	5.2	43	18.6
(Renamed 15-6 in 1995)								
15-6	1995	7	7	0	100	6.0	43	16.1
	1996	7	7	0	100	8.3	44	16.3
	1997	7	5	0	71	3.6	30	14.3
	1998	7	7	0	100	18.6	33	14.7
315-7	1989	4	4	0	100	4.0	35	18.8
	1990	4	4	0	100	6.0	35	18.8
	1991	5	5	0	100	18.2	37	17.4
	1992	5	5	0	100	6.6	54	110.8
	1993	6	6	0	100	13.2	41	16.8
	1994	6	6	0	100	5.0	38	16.3
(Renamed 15-7 in 1995)								
15-7	1995	8	6	0	72	7.1	54	16.8
	1996	8	6	0	75	14.6	40	15.0
	1997	8	6	0	75	7.5	28	13.5
	1998	8	7	0	88	7.2	31	13.9
316-1	1989	4	4	0	100	7.3	40	110.0

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice	Draw Odds
			M	F			Applications	
	1990	4	3	0	75	9.3	44	111.0
	1991	4	4	0	75	4.0	37	19.3
	1992	4	4	0	100	4.5	44	111.0
	1993	5	5	0	100	3.3	41	18.2
	1994	5	5	0	100	3.6	60	112.0
	(Renamed 16-1 in 1995)							
16-1	1995	7	6	0	84	5.7	49	17.0
	1996	7	5	0	71	8.4	41	15.9
	1997	7	4	0	57	11.75	57	18.1
	1998	7	4	0	57	5.5	51	17.3
316-2	1989	4	4	0	100	7.0	27	16.8
	1990	4	3	0	75	2.3	33	18.3
	1991	4	4	0	100	4.0	34	18.5
	1992	4	3	0	75	7.5	22	15.5
	1993	5	4	0	80	9.5	30	16.0
	1994	5	5	0	100	6.6	43	18.6
	(Renamed 16-2 in 1995)							
16-2	1995	7	6	0	86	8.7	41	15.9
	1996	7	4	0	57	1.8	24	13.4
	1997	7	6	0	86	10.8	37	15.3
	1998	7	7	0	100	6.7	28	14.0
316A	1989	4	4	0	100	4.8	46	111.5
	1990	4	4	0	100	14.0	56	114.0
	1991	4	4	0	100	8.0	53	113.3
	1992	4	4	0	100	8.0		
	(Split into Hunts 316A-1 and 316A-2 in 1993)							
316A-1	1993	3	3	0	100	4.0	20	16.7
	1994	3	3	0	100	5.7	34	111.3
	(Renamed 16A-1 in 1995)							
16A-1	1995	5	5	0	100	7.8	31	16.2
	1996	5	2	0	40	2.0	27	15.4
	1997	5	4	0	80	4.7	25	15.0
	1998	5	4	0	80	9.0	21	14.2
316A-2	1993	2	1	0	50	8.5	0	11.0
	1994	2	0	0	0	15.0	9	14.5
	(Renamed 16A-2 in 1995)							
16A-2	1995	2	^d	^d	^d	^d	7	13.5
	1996	2	0	0	0	ND	14	17.0
	1997	2	1	0	50	2.0	8	14.0
	1998	2	1	0	50	5.0	22	111.0
317-1	1989	4	1	0	25	6.8	17	14.3
	1990	4	2	0	50	8.0	7	11.8
	1991	4	2	0	50	9.3	8	12.0
	1992	4	3	0	67	5.3	9	12.3

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice Applications	Draw Odds	
			M	F					
17-1	1993	4	1	0	33	8.3	10	12.5	
	1994	4	0	0	0	19.5	5	11.3	
	(Renamed 17-1 in 1995)								
	1995	4	1	0	25	7.5	4	11.0	
	1996	4	0	0	0	ND	4	11.0	
	1997	4	0	0	0	ND	0	11.0	
	1998	4	0	0	0	ND	0	10.0	
317-2	1989	4	3	0	75	11.8	7	11.8	
	1990	4	3	0	75	3.3	13	13.3	
	1991	4	2	0	50	5.0	7	11.8	
	1992	4	3	0	75	8.3	10	12.5	
	1993	4	3	0	75	8.0	11	12.8	
	1994	4	3	0	67	6.0	8	12.0	
(Renamed 17-2 in 1995)									
17-2	1995	6	2	0	33	5.5	15	12.5	
	1996	6	2	0	50	2.5	2	10.3	
	1997	6	4	0	67	6.0	8	11.3	
	1998	6	0	0	0	ND	5	11.3	
317-3	1989	4	1	0	25	7.8	10	12.5	
	1990	4	1	0	25	12.8	12	13.0	
	1991	4	1	0	25	14.3	5	11.3	
	1992	4	2	0	50	5.3	12	13.0	
	1993	4	3	0	67	4.3	6	11.5	
	1994	4	2	0	67	4.0	16	14.0	
(Renamed 17-3 in 1995)									
17-3	1995	4	2	0	50	9.0	7	11.8	
	1996	4	0	0	0	ND	4	11.0	
	1997	4	1	0	25	4.0	2	10.5	
	1998	4	1	0	25	3.0	5	11.3	
317-4	1989	4	1	0	25	6.5	10	12.5	
	1990	4	3	0	75	1.3	12	13.0	
	1991	4	3	0	75	5.3	18	14.5	
	1992	4	4	0	100	7.6	28	17.0	
	1993	4	3	0	75	4.3	17	4.3	
	1994	4	3	0	100	6.0	13	13.2	
(Renamed 17-4 in 1995)									
17-4	1995	6	4	0	60	6.0	12	12.0	
	1996	6	2	0	33	1.5	17	12.8	
	1997	6	2	0	33	9.0	13	12.2	
	1998	6 (1)	1	0	17	4.0	5	10.8	
317-5	1989	5	1	0	20	17.3	13	12.6	
	1990	3	0	0	0	9.5	2	10.7	
	1991	5	1	0	20	10.6	4	10.8	
	1992	5	1	0	20	11.0	7	11.4	

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice		
			M	F			Applications	Draw Odds	
17-5	1993	5	3	0	67	16.5	4	10.8	
	1994	5	1	0	25	11.0	2	10.4	
	(Renamed 17-5 in 1995)								
	1995	5	1	0	25	9.5	3	10.6	
	1996	5	0	0	0	ND	5	11.0	
	1997	5	0	0	0	ND	0	11.0	
	1998	5	0	0	0	ND	3	10.6	
317-6	1989	5	3	0	60	7.2	9	11.8	
	1990	5	2	0	50	5.3	17	13.4	
	1991	5	3	0	60	11.5	8	11.6	
	1992	5	2	0	33	17.3	7	11.4	
	1993	5	3	0	50	7.3	13	12.6	
	1994	5	1	0	20	9.4	10	12.0	
(Renamed 17-6 in 1995)									
17-6	1995	5	1	0	25	10.3	10	12.0	
	1996	5	2	0	40	7.5	5	11.0	
	1997	5	2	0	40	3.5	5	11.0	
	1998 ^c	5	1	0	20	3.0	4	10.8	
317-7	1989	5	0	0	0	12.6	6	11.2	
	1990	5	2	0	40	5.3	5	13.0	
	1991	5	3	0	60	6.0	4	10.8	
	1992	5	1	0	20	9.8	14	12.8	
	1993	5	1	0	25	10.0	3	10.6	
	1994	5	3	0	50	5.0	7	11.4	
(Renamed 17-7 in 1995)									
17-7	1995	5	2	0	33	8.7	15	13.0	
	1996	5	2	0	40	1.5	8	11.6	
	1997	5	2	0	50	7.0	9	11.8	
	1998	5	1	0	20	3.0	4	10.8	
319-1	1989	2	0	0	0	7.5	6	13.0	
	1990	2	1	0	50	9.0	5	12.5	
	1991	2	2	0	100	4.0	15	17.5	
	1992	2	2	0	100	5.5	20	110.0	
	1993	2	2	0	100	16.5	13	16.5	
	1994	2	2	0	100	6.0	14	17.0	
(Renamed 19-1 in 1995)									
19-1	1995	4	3	0	75	8.5	17	14.3	
	1996	4	4	0	100	1.3	12	11.3	
	1997	4	4	0	100	11.5	133	13.3	
	1998	4	3	0	75	4.7	21	15.3	
319-2	1989	10	6	0	60	8.3	25	12.5	
	1990	10	5	0	50	9.3	22	12.2	
	1991	10	7	0	70	9.4	37	13.7	
	1992	10	7	0	70	7.0	31	13.1	
	1993	10	8	0	80	4.9	39	13.9	

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice Applications	Draw Odds
			M	F				
19-2	1994	10	6	0	56	7.0	20	12.0
	(Renamed 19-2 in 1995)							
	1995	10	5	0	55	4.3	54	15.4
	1996	10	5	0	50	4.4	32	13.2
	1997	10	5	0	50	7.4	23	12.3
	1998	10	7	0	70	3.0	16	11.6
320-1	1989	3	3	0	100	6.3	16	15.3
	1990	3	1	0	33	16.3	18	16.0
	1991	3	3	0	100	8.3	8	12.7
	1992	3	2	0	67	5.3	21	17.0
	1993	3	3	0	100	16.0	8	12.7
	1994	3	2	0	100	4.0	21	17.0
(Renamed 20-1 in 1995)								
20-1	1995	5	4	0	80	10.2	23	14.6
	1996	5	3	0	60	3.4	24	14.8
	1997	5	4	0	80	4.3	11	12.2
	1998	5	3	0	60	7.3	12	12.4
320-2	1989	3	3	0	100	4.3	9	13.0
	1990	3	2	0	67	4.3	25	18.3
	1991	3	3	0	100	9.7	15	15.0
	1992	3	3	0	100	7.0	19	16.3
	1993	4	2	0	50	6.3	15	13.8
	1994	4	0	0	0	15.0	14	13.5
(Renamed 20-2 in 1995)								
20-2	1995	1995	4	0	0	0	11.0	13.0
	1996	4	2	0	50	3.0	16	14.0
	1997	4	1	0	25	2.0	14	13.5
	1998	4	2	0	50	30.0	21	15.3
320-3	1988	2	0	0	0	0.0	4	12.0
	1989	2	1	0	50	6.5	7	13.5
	1990	2	1	0	50	3.0	5	12.5
	1991	2	1	0	50	10.0	7	13.5
	1992	2	1	0	50	14.5	3	11.3
	1993	2	0	0	0	8.0	8	14.0
	1994	2	2	0	100	6.0	5	12.5
	(Renamed 20-3 in 1995)							
20-3	1995	2	1	0	50	7.0	3	11.5
	1996	2	0	0	0	ND	6	13.0
	1997	2	1	0	50	5.0	3	11.5
	1998	2	2	0	100	6.0	6	13.0
320-4	1989	2	2	0	100	3.5	7	13.5
	1990	2	2	0	100	9.5	9	14.5
	1991	2	2	0	100	2.0	9	14.5

Table 2. Summary of Moose Harvest^a and Drawing Odds by Hunter Odds and by Hunt Area 1989-1998 (Continued).

Area	Year	No. Permits	Harvest		Hunter Success	Days ^b / Hunter	Total First Choice Applications	Draw Odds
			M	F				
	1992	2	2	0	100	5.0	6	13.0
	1993	3	2	0	67	16.7	7	12.3
	1994	3	3	0	100	7.5	4	11.3
	(Renamed 20-4 in 1995)							
20-4	1995	3	0	0	0	4.0	9	13.0
	1996	3	2	0	67	2.0	11	13.7
	1997	3	0	0	0	ND	6	11.7
	1998	3	1	0	33	3.0	4	11.3

^a Harvest statistics derived from hunter telephone survey (prior to 1996) or big game mandatory report.

^b Days per hunter is for successful hunters only beginning in 1996.

^c One permittee returned tag prior to season start.

^d Failure to make contact with either permittee during telephone survey of hunters; therefore, no harvest estimates were generated.

^e Some permits not sold.

Table 3. Summary of All Known Moose Mortalities in Unit 8, 1989-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1989		1				1
1990		1				1
1991		1				1
1992			1			1
1993						0
1994						0
1995			1			1
1996						0
1997						0
1998						0

Table 4. Summary of All Known Moose Mortalities in Unit 8A, 1989-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1989						0
1990						0
1991	1	1				2
1992		2	1			3
1993		1	1			2
1994	1					1
1995						0
1996						0
1997						0
1998						0

Table 5. Summary of All Known Moose Mortalities in Unit 10, 1989-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1989	2	8				10
1990	2	5				7
1991	3	5	1			9
1992		4	1	2		7
1993		1				1
1994						0
1995	1					1
1996		1			1	2
1997		1				1
1998						0

Table 6. Summary of All Known Moose Mortalities in Unit 10A, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988		1				1
1989						0
1990		2				2
1991	1	1				2
1992	3	4		1	1	9
1993	2	3	1			6
1994		1				1
1995	2					2
1996		1	1			2
1997		2				2
1998						0

Table 7. Summary of All Known Moose Mortalities in Unit 12, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988						0
1989	2	1	4			7
1990	1	5	1			7
1991	2	2	1			5
1992	2	4	2		1	9
1993	1	1	2			4
1994			1			1
1995		1	3		1	5
1996	2		2		3	7
1997		1	1		2	4
1998						0

Table 8. Summary of All Known Moose Mortalities in Unit 14, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988		2				2
1989		2				2
1990	1	1				2
1991		1				1
1992		7				7
1993		3				3
1994		2				2
1995		1	1	1		3
1996		1				1
1997						0
1998	2				1	3

Table 9. Summary of All Known Moose Mortalities in Unit 15, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988		2				2
1989	1	14	2			17
1990	5	4				9
1991	11	7	1			19
1992	3	5		3	2	13
1993	2	8			2	12
1994		7	1	1	2	11
1995	3	1	2	3	1	10
1996	2	2		3	1	8
1997	1	12	1	2		16
1998	3	2	3		2	10

Table 10. Summary of All Known Moose Mortalities in Unit 16, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988						0
1989	2	1	1			4
1990	7	4				11
1991		1				1
1992	2	7				9
1993	1	7	1			9
1994	1					1
1995		1				1
1996		2	1			3
1997		1				1
1998	1				1	2

Table 11. Summary of All Known Moose Mortalities in Unit 16A, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988						0
1989						0
1990	2	1				3
1991						0
1992						0
1993	1	5				6
1994		1				1
1995						0
1996		2				2
1997					1	1
1998						0

Table 12. Summary of All Known Moose Mortalities in Unit 17, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988						0
1989						0
1990						0
1991		6			1	7
1992						0
1993						0
1994					3	3
1995						0
1996						0
1997						0
1998					1	1

Table 13. Summary of All Known Moose Mortalities in Unit 19, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988						0
1989						0
1990						0
1991	1	1				2
1992						0
1993		2				2
1994		1				1
1995	1					1
1996						0
1997					1	1
1998						0

Table 14. Summary of All Known Moose Mortalities in Unit 20, 1988-present.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1988						0
1989						0
1990						0
1991						0
1992						0
1993						0
1994		1				1
1995	3					3
1996					1	1
1997		1			1	2
1998		1				1

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE: Idaho **JOB TITLE:** Moose Surveys and Inventories
PROJECT: W-170-R-23
SUBPROJECT: 3, McCall **STUDY NAME:** Big Game Population Status, Trends,
STUDY: I Utilization, and Associated Habitat
JOB: 6 Studies
PERIOD COVERED: July 1, 1998 to June 30, 1999

MOOSE - SOUTHWEST REGION (MCCALL)

ABSTRACT

Three moose were harvested in Hunt Areas 20A-1, 20A-2, and 20A-3 during the 1998 season. Hunter success was 43%. One moose was harvested by one of the two permit holders in Hunt Area 26 in 1998. No population trend or herd composition surveys were conducted in Units 19A, 20A, 25, or 26 during the reporting period.

UNITS 19A, 20A, 25, AND 26

CONTROLLED HUNT AREA 20A

MANAGEMENT DIRECTION

Management will be consistent with the statewide management direction delineated in the 1991-1995 Moose Management Plan (pages 15-17).

BACKGROUND

Moose observations have been increasing in Units 19A, 20A, 25, and 26. As a result a 2-permit hunt was initiated in Unit 20A in 1983. Further increases in moose sightings led to subdivision of the unit in 1995 into three hunt areas, 20A-1, 20A-2, and 20A-3, consisting of 2, 3, and 2 permits, respectively. Increasing moose observations in Unit 26 led to the establishment of a 2-permit hunt in 1997.

POPULATION SURVEYS

No moose population surveys were conducted during the reporting period.

HARVEST CHARACTERISTICS

Although the hunt area has been modified in Unit 20A, the hunting season framework has remained static (Table 1). Harvest data are generated through a mandatory hunter report requirement and a telephone survey. Unit 20A moose permit levels have increased from two to seven (Table 2). A total of two, one, and zero moose was harvested in Hunt Areas 20A-1, 20A-2, and 20A-3, respectively, in 1998. Hunter success was 43% for all three hunt areas combined. Two moose permits were available in Unit 26 in 1998. One permit holder harvested a moose for a 50% success rate.

MANAGEMENT IMPLICATIONS

Because reliable population data are not available and difficult to generate, permit levels have been conservative. The frequency and location of reports indicate pioneering populations exist in game management units adjacent to or near Units 20A and 26 (e.g., 19A, 24, 25). Two, 2-permit moose hunts were approved to begin in Units 19A (Hunt Area 19A) and 25 (Hunt Area 25) in 1999. All areas need intensive data collection to determine population levels, trends, and habitat selection.

Table 1. The 1998 season structure for controlled moose Hunt Areas 20A-1, 20A-2, 20A-3, and 26 in the Southwest Region (all hunts open for antlered moose only)

Hunt Areas	Season		
	Dates	Length	Permits
20A-1, 2, and 3	8/30-11/23	86 days	7
26	8/30-11/23	86 days	2

Table 2. Moose harvest and drawing odds by Hunt Area in Units 20A and 26, 1983-1998.

Area	Year	No. Permits	Harvest		Hunter Success	Total Days/ Hunter	First Choice Applicants	Drawing Odds
			M	F				
320A ^a	1983	2	1	0	50	6.5	28	1:14
	1984	4	3	0	75	5.3	49	1:12.25
	1985	2	2	0	100	0	29	1:14.5
	1986	2	2	0	100	2.5	14	1:7
	1987	2	1	0	50	7.0	9	1:4.5
	1988	2	2	0	100	3.5	14	1:7
	1989	2	1	0	50	11.0	9	1:4.5
	1990	2	2	0	100	2.5	21	1:10.5
	1991	2	2	0	100	7.0	22	1:11
	1992	2	1	0	50	13.5	18	1:9
	1993	2	1	0	50	8.0	18	1:9
	1994	2	1	0	50	1.5	41	1:20.5
20A-1	1995	2	2	0	100	2.0	13	1:6.5
	1996	2	1	0	50	ND	13	1:6.5
	1997	2	0	0	0	ND	9	1:4.5
	1998	2	2	0	100	1.5	2	1:1
20A-2	1995	3	3	0	100	2.3	9	1:3
	1996	3	2	0	67	ND	6	1:2
	1997	3	3	0	100	1.7	3	1:1
	1998	3	1	0	33	ND	4	1:1.3
20A-3	1995	2	2	0	100	7.5	16	1:8
	1996	2	1	0	50	ND	19	1:9.5
	1997	2	2	0	100	12.0	14	1:7
	1998	2	0	0	0	ND	13	1:6.5
26 ^b	1997	2	2	0	100	1.5	23	1:11.5
	1998	2	1	0	50	ND	19	1:9.5

^a Hunt Area 320A was partitioned into Hunt Areas 20A-1, 20A-2, and 20A-3 in 1995.

^b Hunt Area 26 was established in 1997.

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE: Idaho **JOB TITLE:** Moose Surveys and Inventories
PROJECT: W-170-R-23
SUBPROJECT: 4 **STUDY NAME:** Big Game Population Status, Trends
STUDY: I Utilization, and Associated Habitat
JOB: 6 Studies
PERIOD COVERED: July 1, 1998 to June 30, 1999

MOOSE - MAGIC VALLEY REGION

ABSTRACT

The frequency of observations suggest moose numbers are increasing in the Big Wood River and Trail Creek areas of Units 48 and 49, and all of Unit 56. No legal harvest was authorized in the Magic Valley Region in 1998 but a new hunt was established for 1999 in Unit 56.

UNITS 43, 44, 45, 46, 47, 48, 49, 52, 52A, 53, 54, 55, 56, 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

Transient moose have been recorded from throughout the Magic Valley Region for many years, but there have been no viable, resident populations. In 1981-1982, the Department identified that suitable, unoccupied moose habitat existed in Units 43 and 44 and requested the Sawtooth National Forest conduct an environmental analysis for the establishment of a viable moose population on the Fairfield Ranger District. Upon completion of the analysis in 1983, arrangements were made to translocate "problem" moose from urban areas in the Upper Snake and Southeast Regions to Units 43 and 44. During the period from March 1986 through June 1998, 31 moose (6 adult or yearling bulls, 16 adult or yearling females, 7 male calves, and 2 female calves) have been released.

Transient and translocated moose have been frequently killed illegally or harvested by Native Americans. Since reintroduction efforts began in 1986, 8 verified or suspected illegal kills have been documented in Units 44 and 48. During the 1980s, Indian harvest was prevalent in Unit 56 and was believed to be the primary factor preventing the establishment of a viable moose population. In recent years no Indian harvest has been documented.

POPULATION SURVEYS

No formal moose population surveys were conducted. In recent years observations suggest increasing numbers of moose along the Big Wood River in Unit 48 and in the Trail Creek drainage on the Units 48-49 border. The increase in moose numbers is believed to be the result of the releases in Unit 44 and natural movement of moose from Unit 50. The Upper Snake Region has released many “problem” moose in the Cooper Basin area of Unit 50. During the 1998-1999 reporting period, observations suggested there were 80+ moose in the Big Wood and Trail Creek areas. Populations in the Sublett area (Unit 56) appear to be static to increasing and observations are common.

HARVEST CHARACTERISTICS

Illegal kills have accounted for most of the verified moose mortality in the Magic Valley Region (Table 1). During the 1998-1999 reporting period, no reports of illegally taken moose were submitted. One adult bull did die when it fell into a spring box and drowned in Unit 56. In 1999 a new hunt with five permits was established in Unit 56 (includes Units 73 and 73A) to take advantage of the increasing moose population in this area.

TRAPPING AND TRANSPLANTING

No moose were released in the region during this reporting period. Of the two moose transplanted into the region in 1997 and fitted with radio-collars, one has been relocated once and had moved approximately 23 miles downstream from the release site and the other has been located numerous times on Bennett Mountain. It appears both animals have moved substantial distances from the release site and do not plan on returning to Units 43 or 44.

MANAGEMENT IMPLICATIONS

Efforts to reintroduce moose in Units 43 and 44 have been only marginally successful. Many of the moose released in Unit 44 have been illegally killed or have not remained in the area. We have attempted to transplant moose into Unit 43, but access during the winter (when most Upper Snake moose become available) is limited.

The Big Wood River population (Units 48, 49) is expanding and appears to have the best potential for growth. Adequate habitat exists in the Big Wood and moose have been transplanted to adjacent Units 36, 43, 44, and 50. Although several human-moose conflicts occurred in the Big Wood River Valley during the 1998-1999 winter, public support is strong for moose population expansion in the area.

Suitable, unoccupied moose habitat exists in other areas of the Magic Valley Region. During the upcoming reporting period, if animals become available, the Magic Valley Region will consider releasing moose into Unit 56 to augment the existing population.

Table 1. Summary of All Known Moose Mortalities in the Magic Valley Region, 1986-1997. (M= Male, F= Female, A= Adult, Y= Yearling, C= Calf).

Year	Unit	Mortality Agent					Total
		Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1986	44		1 FY				1
1988	56			1 MA	1 MA		2
1989	44		3 (FA, MA, C)	1 C			4
1990	44		1 FY				1
1991	44				1 FY		1
1992	53			1 MA			1
1993	44		1 FA				1
1995	56		1 FA			1 FA	2
1996	46, 48		2 (MY, MA)				2
1998	56					1MA	1

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE: Idaho **JOB TITLE:** Moose Surveys and Inventories
PROJECT: W-170-R-23
SUBPROJECT: 5 **STUDY NAME:** Big Game Population Status, Trends,
STUDY: I Utilization, and Associated Habitat
JOB: 6 Studies
PERIOD COVERED: July 1, 1998 to June 30, 1999

MOOSE - SOUTHEAST REGION

ABSTRACT

The total number of moose permits increased from 1997 to 1998, with 129 antlered-only and 56 antlerless-only permits (an increase of 5). Mandatory harvest reports identified a minimum of 103 antlered and 28 antlerless moose harvested.

UNITS 66A, 70, 71, 72, 74, 75, 76, 77, AND 78

**CONTROLLED HUNT AREAS 66A-1, 66A-2, 70, 71-1, 71-2, 72, 74, 75,
76-1, 76-2, 76-3, 76-4, 76-5, 76-6, 77, 78**

MANAGEMENT DIRECTION

Management direction for moose in the Southeast Region follows that for the state in general; that is, to provide "high-quality" hunting and other moose-related recreational opportunities. Consequently, permit levels are conservative, and hunter success is high relative to hunts for most other species. Emphasis is on providing each hunter with the opportunity to harvest a mature bull moose in antlered-only hunts. Additionally, the Southeast Region offers limited antlerless-only hunting opportunity, in part because of relatively high moose populations. Nonconsumptive uses 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 permit numbers where possible.

BACKGROUND

Prior to the 1950s, it was felt there were too few moose in the Southeast Region to justify any harvest. The first hunt for moose in the region was held in 1959 when 5 permits, good only for antlered moose, were issued for a portion of Unit 76. With continued growth of the population, harvest has increased to recent levels of 120 to 150 moose in 9 units. Illegal moose harvest may be substantial (Kuck 1980). The Department issued a small number of permits good for any moose in several units from 1975 to 1990. An average of 80% of that harvest was antlered moose. In 1991 antlerless-only hunts were instituted in Units 66A and 76. Since 1991 permits have been issued for antlered or antlerless only. Five antlerless-only permits were added to Unit 70 for 1998.

Although there are indications that the moose populations in the earliest-colonized areas have stabilized, areas on the periphery of the former range are still being colonized and populations apparently are increasing. Notably, moose appear to be expanding in Units 73 and 73A.

POPULATION SURVEYS

Observations of moose were collected incidental to the elk survey conducted in Unit 76 during February, and were recorded so that they could be entered into the sightability model. A total of 140 moose (51 cows, 51 bulls, 31 calves) were observed in 46 search units flown. After the survey was completed, a simple random survey estimate was performed. A total of 140 search units were stratified for moose density. An estimate of 583 ± 146 moose (212 ± 75 bulls, 215 ± 58 cows, 129 ± 37 calves) was generated using the Hiller 12E model with snow. Problems encountered precluded the use of the Wyoming moose model; however, the correction factor (23%) generated by the Hiller model is comparable to that of the moose model and the double-count method used in the past.

HARVEST CHARACTERISTICS

Hunting season length remained at 86 days in 1998 for antlered-only opportunity, while antlerless-only opportunity remained at 40 days. Harvest season dates were August 30 through November 23 for antlered opportunity and October 15 through November 23 for antlerless (Table 2). One hundred eighty-five permits (129 antlered and 56 antlerless) were issued in 1998. Five new antlerless permits were added in Unit 70. A telephone survey to estimate total harvest was not conducted. Minimum reported harvest was available through a mandatory report of successful hunters. Reported harvest totaled 131; 103 antlered and 28 antlerless moose (Table 3). It is probable that some harvest went unreported. Minimum overall hunter success rate for the region was 71%; 50% for antlerless-only permits and 80% for antlered-only permits (Table 3).

No estimate for hunter participation or effort was obtained for the 1998 harvest season.

Other sources of moose mortality are illegal, Indian harvest, natural, and other. Illegal kills are believed to be a significant source of mortality in the area (Table 4). Indian harvest is difficult to document or estimate.

CLIMATIC CONDITIONS

Winter 1998-1999 snow depths were near the 30-year average, with snow levels at 100-120% of average in most drainages. Average temperature during the winter was similar to 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 impact moose habitat in many parts of the region.

MANAGEMENT IMPLICATIONS

Aerial surveys, the mandatory hunter report, and telephone harvest survey provide the majority of information available for management. Use of sightability models for estimating populations such as Anderson (1994) and Unsworth et al. (1994) appear promising and efforts should continue to evaluate and validate their suitability. Given that population estimation is at yet an unsure science, permit numbers will be held at relatively conservative levels. Additionally, conservative permit levels allow for passive population expansion and growth.

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Table 1. Aerial surveys of moose in the Southeast Region.

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
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	54:100:34
76 1999	140	100:100:62	583 ∇ 146	99:100:60
66A 1995	159	69:100:49	285	67:100:43

Table 2. 1998 season structure for controlled moose hunts in the Southeast Region.

Hunt Area	Season		Open For
	Dates	Length	
66A-1	8/30-11/23	86 days	Antlered
66A-2	10/15-11/23	40 days	Antlerless
70	8/30-11/23	86 days	Antlered
71-1	8/30-11/23	86 days	Antlered
71-2	8/30-11/23	86 days	Antlered
72	8/30-11/23	86 days	Antlered
74	8/30-11/23	86 days	Antlered
75	8/30-11/23	86 days	Antlered
	10/15-11/23	40 days	Antlerless
76-1	8/30-11/23	86 days	Antlered
76-2	10/15-11/23	40 days	Antlerless
76-3	8/30-11/23	86 days	Antlered
76-4	10/15-11/23	40 days	Antlerless
76-5	8/30-11/23	86 days	Antlered
76-6	10/15-11/23	40 days	Antlerless
77	8/30-11/23	86 days	Antlered
78	8/30-11/23	86 days	Antlered

Table 3. Summary of moose harvest and drawing odds by hunt area, 1989-1998.

Area	Year	No. Permits	Harvest		% Hunter Success	Days/ Hunter	Total First Choice Applicants	Drawing Odds
			M	F				
66A-1	1989	10A	9	0	90	3.6	80	1:8
	1990	10A	8	0	80	8.0	104	1:10.4
	1991	15A	14	0	93	10.2	205	1:13.7
	1992	15A	15	0	100	7.4	175	1:11.7
	1993	25A	24	0	96	7.3	178	1:7.1
	1994	25A	22	0	90	5.8	194	1:7:8
	1995	30A	28	0	93	8.9	274	1:9.1
	1996 ^a	30A	24	0	80	NA	212	1:7.1
	1997 ^a	30A	26	0	87	NA	232	1:7.7
1998 ^a	30A	22	0	73	NA	212	1:7.1	
66A-2	1989	3ES	3	0	100	3.0	21	1:9
	1990	5ES	3	2	100	4.6	50	1:10
	1991	5AL	0	4	80	3.3	18	1:3.6
	1992	5AL	0	3	60	4.3	9	1:2.8
	1993	10AL	0	9	86	7.2	28	1:2.8
	1994	10AL	0	10	100	2.7	38	1:3:8
	1995	12AL	0	9	75	3.7	20	1:1.7
	1996 ^a	12AL	0	8	67	NA	19	1:1.6
	1997 ^a	12AL	0	7	58	NA	15	1:1.3
1998 ^a	12AL	0	8	67	NA	20	1:1.6	
70	1993	5A	3	0	60	7.5	19	1:3.8
	1994	5A	5	0	100	5.5	8	1:1:6
	1995	5A	4	0	80	11.6	36	1:7.2
	1996 ^a	5A	3	0	60	NA	10	1:2
	1997 ^a	5A	4	0	80	NA	29	1:5.8
	1998 ^a	5A	5	0	100	NA	16	1:3.2
71	1989	3A	3	0	100	9.0	6	1:2
	1990	5A	4	0	80	6.0	45	1:9
	1991	5A	5	0	100	8.5	28	1:5.6
	1992	5A	5	0	100	8.0	38	1:7.6
71-1	1993**	5A	5	0	100	7.5	31	1:6:2
	1994	5A	5	0	100	10.2	54	1:10:8
	1995	5A	5	0	100	2.8	33	1:6.6

Table 3. Summary of moose harvest and drawing odds by hunt area, 1989-1998 (continued).

Area	Year	No. Permits	Harvest		% Hunter Success	Days/ Hunter	Total First Choice Applicants	Drawing Odds
			M	F				
	1996 ^a	5A	4	0	80	NA	51	1:10
	1997 ^a	5A	3	0	60	NA	36	1:7.2
	1998 ^a	5A	4	0	80	NA	39	1:7.8
71-2	1993**	5A	5	0	100	13.2	8	1:1.6
	1994	5A	5	0	100	8.0	35	1:7:0
	1995	5A	5	0	100	9.0	16	1:3.2
	1996 ^a	5A	5	0	100	NA	22	1:4.4
	1997 ^a	5A	5	0	100	NA	16	1:3.2
	1998 ^a	5A	5	0	100	NA	15	1:3
72	1989	3A	3	0	100	3.3	8	1:3.7
	1990	5A	4	0	80	8.2	40	1:8
	1991	5A	4	0	80	7.8	19	1:3.8
	1992	5A	5	0	100	14.4	22	1:4.4
	1993	5A	5	0	100	2.3	29	1:5.8
	1994	5A	5	0	100	4.7	21	1:4:2
	1995	5A	5	0	100	5.2	32	1:6.4
	1996 ^a	5A	3	0	60	NA	27	1:5.3
	1997 ^a	5A	5	0	100	NA	28	1:5.6
	1998 ^a	5A	4	0	80	NA	34	1:6.8
74	1989	3A	2	0	67	10.3	5	1:1.7
	1990	5A	4	0	80	10.8	30	1:6
	1991	5A	2	0	40	8.8	23	1:4.6
	1992	5A	5	0	100	5.0	14	1:2.8
	1993	5A	5	0	100	4.5	38	1:7.6
	1994	5A	2	0	40	11.0	11	1:2:2
	1995	5A	5	0	100	5.2	16	1:3.2
	1996 ^a	5A	3	0	60	NA	22	1:4.4
	1997 ^a	5A	3	0	60	NA	18	1:3.6
	1998 ^a	5A	3	0	60	NA	25	1:5
75	1989	4A	3	0	75	14.0	20	1:5
	1990	5A	5	0	100	19.0	25	1:5
	1991	5A	5	0	100	13.0	27	1:5.4
	1992	5A	5	0	100	8.5	31	1:6.2
	1993	5A	3	0	60	8.3	22	1:4.4

Table 3. Summary of moose harvest and drawing odds by hunt area, 1989-1998 (continued).

Area	Year	No. Permits	Harvest		% Hunter Success	Days/ Hunter	Total First Choice Applicants	Drawing Odds
			M	F				
	1994	5A	4	0	80	14.0	30	1:6
	1995	5A	5	0	100	19.3	36	1:7.2
	1996 ^a	5A	3	0	60	NA	27	1:5.3
	1997 ^a	10A	7	0	70	NA	45	1:4.5
		5AL	0	5	100	NA	3	1:1
	1998 ^a	10A	9	0	90	NA	34	1:3.4
		5AL	0	2	40	NA	2	1:1
76-1	1989	26A	24	0	92	5.8	150	1:5.8
	1990	30A	25	0	83	7.9	174	1:5.8
	1991	30A	23	0	76	7.6	263	1:8.8
	1992	30A	24	0	80	5.9	256	1:8.5
	1993	30A	24	0	80	10.8	161	1:5.4
	1994	30A	26	0	88	5.8	200	1:6:7
	1995	20A	16	0	82	8.2	158	1:7.9
	1996 ^a	20A	18	0	90	NA	190	1:9.1
	1997 ^a	20A	16	0	80	NA	174	1:8.7
	1998 ^a	20A	16	0	80	NA	171	1:8.6
76-2	1989	12ES	8	3	92	2.8	56	1:4.7
	1990	10ES	5	5	100	5.2	52	1:5.2
	1991	10AL	1	8	90	2.3	21	1:2.1
	1992	10AL	0	7	70	4.3	29	1:2.9
	1993	10AL	0	10	100	3.4	18	1:1.8
	1994	10AL	0	10	100	3.0	27	1:2:7
	1995	20AL	0	15	75	4.5	37	1:1.9
	1996 ^a	20AL	1	15	80	NA	42	1:2.1
	1997 ^a	20AL	3	12	75	NA	23	1:1.2
	1998 ^a	20AL	3	11	70	NA	39	1:2
76-3	1989	10A	8	0	80	11.0	53	1:5.3
	1990	10A	10	0	100	8.9	43	1:4.3
	1991	15A	13	0	87	7.2	103	1:6.9
	1992	15A	15	0	100	5.6	65	1:4.3
	1993	15A	14	0	93	12.5	78	1:5.2
	1994	15A	14	0	93	13.2	60	1:4
	1995	15A	15	0	100	11.2	89	1:5.9

Table 3. Summary of moose harvest and drawing odds by hunt area, 1989-1998 (continued).

Area	Year	No. Permits	Harvest		% Hunter Success	Days/ Hunter	Total First Choice Applicants	Drawing Odds
			M	F				
	1996 ^a	15A	14	0	93	NA	80	1:5.3
	1997 ^a	15A	14	0	93	NA	79	1:5.3
	1998 ^a	15A	12	0		NA	73	1:4.9
76-4	1989	4ES	4	0	100	5.0	16	1:4
	1990	5ES	3	2	100	9.4	15	1:3
	1991	5AL	0	5	100	6.5	23	1:4.6
	1992	5AL	0	4	80	4.0	4	1:0.8
	1993	5AL	0	5	100	5.5	9	1:1.8
	1994	5AL	0	5	100	4.0	7	1:1.4
	1995	7AL	0	4	57	4.0	8	1:1.1
	1996 ^a	7AL	0	7	NA	NA	6	1:1
	1997 ^a	7AL	1	3	NA	NA	8	1:1.1
	1998 ^a	7AL	0	4	NA	NA	12	1:7.1
76-5	1989	19A	17	0	89	5.0	91	1:4.8
	1990	20A	17	0	85	6.1	74	1:3.7
	1991	20A	16	0	80	14.0	123	1:6.2
	1992	20A	14	0	70	8.2	85	1:4.3
	1993	20A	16	0	80	8.7	73	1:3.7
	1994	20A	15	0	75	7.9	80	1:4
	1995	25A	15	0	61	9.3	117	1:4.7
	1996 ^a	25A	17	0	NA	NA	121	1:4.8
	1997 ^a	15A	12	0	NA	NA	85	1:5.7
	1998 ^a	15A	9	0	NA	NA	46	1:3.1
76-6	1989	6ES	4	1	83	3.5	25	1:4.2
	1990	5ES	3	0	60	8.0	26	1:5.2
	1991	5AL	1	3	80	4.0	2	1:0.2
	1992	5AL	0	5	100	2.0	18	1:3.6
	1993	5AL	0	5	100	4.4	5	1:1
	1994	5AL	1	4	100	3.3	6	1:1.2
	1995	7AL	0	4	57	4.0	11	1:1.6
	1996 ^a	7AL	0	4	NA	NA	8	1:1.1
	1997 ^a	7AL	2	4	NA	NA	6	1:1
	1998 ^a	7AL	0	3	NA	NA	4	1:1
77	1989	3A	3	0	100	6.3	9	1:3

Table 3. Summary of moose harvest and drawing odds by hunt area, 1989-1998 (continued).

Area	Year	No. Permits	Harvest		% Hunter Success	Days/ Hunter	Total First Choice Applicants	Drawing Odds
			M	F				
	1990	5A	3	0	60	17.0	28	1:5.6
	1991	5A	5	0	100	9.3	16	1:3.2
	1992	5A	5	0	100	7.8	52	1:10.4
	1993	5A	4	0	80	17.0	5	1:1
	1994	5A	5	0	100	13.0	29	1:5.8
	1995	7A	6	0	86	18.6	21	1:3
	1996 ^a	7A	4	0	NA	NA	26	1:3.7
	1997 ^a	7A	6	0	NA	NA	20	1:2.9
	1998 ^a	7A	4	0	NA	NA	28	1:4
78	1989	4A	4	0	100	13.5	16	1:4
	1990	5A	4	0	80	13.0	32	1:6.4
	1991	5A	5	0	100	22.8	39	1:7.8
	1992	5A	5	0	100	25.5	39	1:7.8
	1993	5A	5	0	100	9.0	26	1:5.2
	1994	5A	5	0	100	15.6	32	1:6.4
	1995	7A	6	0	86	15.0	28	1:4
	1996 ^a	7A	6	0	NA	NA	58	1:8.3
	1997 ^a	7A	6	0	NA	NA	32	1:4.6
	1998 ^a	7A	7	0	100	NA	34	1:4.9

* A = Antlered Only, AL = Antlerless Only, ES = Either Sex

** Hunt 371 split into 2 hunts in 1993.

^a Harvest for 1996-1998 is based on mandatory reports only, data for 1984-1995 from telephone survey.

^b NA - Information Not Available

Table 4. Summary of reported nonhunting moose mortalities in the Southeast Region, 1991-1998.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1991-92	0	3	3	1	0	7
1992-93	0	0	1	0	0	1
1993-94	0	0	2	1	1	4
1994-95	0	8	1	0	0	9
1995-96	0	29	5	0	10	44
1996-97	1	2	5	0	1	9
1997-98	0	1	3	5	1	10

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Moose Surveys and</u>
PROJECT:	<u>W-170-R-23</u>		<u>Inventories</u>
SUBPROJECT:	<u>6</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Utilization, and</u>
JOB:	<u>6</u>		<u>Associated Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 1998 to June 30, 1999</u>		

MOOSE - UPPER SNAKE REGION

ABSTRACT

Nineteen controlled hunts with 229 permits were offered for antlered moose in the Upper Snake Region in 1998. A total of 199 antlered moose were harvested (87% hunter success) as determined by mandatory harvest reports. An additional four hunts with 47 permits were offered for antlerless moose in 1998, resulting in the harvest of 28 animals (60% hunter success). Drawing odds ranged from 1:1 in Hunt Area 63A-2 (antlerless only) to 11:1 in Hunt Area 60.

No population surveys were conducted specifically for moose during this reporting period. However, moose were counted incidentally during deer and elk sightability survey flights in Units 50, 66, and 69.

Five moose were captured and relocated within the region during this reporting period as a result of nuisance and/or depredation complaints.

**UNITS 59, 59A
CONTROLLED HUNT AREA 59**

Description: Hunt Area 59 - All of Units 59 and 59A.

BACKGROUND

Hunts Areas 59 and 59A were combined in 1993 and renamed Hunt Area 59. Sixteen antlered-only permits were offered in 1998 (Table 1). Prior to 1993, two hunts with a total of 12 antlered-only permits were offered in these units (Table 42). Old Hunt Area 59 had been open continuously since 1974 with permit levels fluctuating between four and eight with over 90% hunter success reported. Hunt Area 59A was closed in 1978 after one moose was harvested in the preceding four years. In 1983 this hunt was reopened and two permits were

issued annually through 1988 with 100% hunter success. Four permits were issued each season from 1989-1992 with 100% hunter success.

POPULATION SURVEYS

A moose trend count was flown in Units 59 and 59A on December 17 and 18, 1994. A Bell Model G47 Soloy helicopter was used to fly the survey. Counting conditions were good, with eight 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 Unit 59 and 50 in Unit 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 Unit 59 since 1984 (64 total moose), and Unit 59A had never been surveyed specifically for moose. However, during deer and elk sightability surveys conducted in 1991-1992 and 1993-1994, moose were counted on an incidental basis. In 1991-1992, 46 moose were counted in Unit 59 and 71 in Unit 59A. In 1993-1994 a total of 49 moose were observed in Unit 59 and 46 in Unit 59A (unclassified).

HARVEST CHARACTERISTICS

Table 2 summarizes controlled hunt harvest data from 1989 to present. However, no telephone survey of 1996-1998 moose permit holders was conducted. Therefore, harvest estimates were derived from mandatory harvest reports and are not directly comparable with previous telephone survey estimates. Sixteen permits for antlered moose were offered in 1998 and 15 animals were harvested for a 94% hunter success rate. Mean antler spread was 33.63 inches.

Statewide drawing odds have improved substantially in most units due to regulation changes implemented in 1986. In 1998 drawing odds were 9.5:1 in Hunt Area 59 (Table 2).

All known nonhunting moose mortalities for Units 59 and 59A from 1989 to 1998 are summarized in Table 3. Known illegal kill was a serious problem in the early 1980s when it nearly equaled controlled harvest, but has been of lesser importance based upon documented mortalities in recent years.

CLIMATIC CONDITIONS

The region experienced an unusually cool and wet spring. The cool rainy conditions ceased in mid-June and the summer and fall were warm and dry. Winter precipitation was near normal while temperatures were above average.

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.

DEPREDATIONS, TRAPPING, AND TRANSPLANTING

No depredations, trapping, or transplantation operations occurred during this reporting period.

MANAGEMENT IMPLICATIONS

General observations indicate the moose population in these units is increasing. Permit levels will be adjusted in response to data analysis.

UNITS 64, 65, AND 67 CONTROLLED HUNT AREAS 64-1, 64-2, 65, 67-1, 67-2

Description: Hunt Areas 64-1 and 64-2 - All of Unit 64.

Description: Hunt Area 65 - All of Unit 65.

Description: Hunt Area 67-1 - That portion of Unit 67 north and west of State Highway 31.

Description: Hunt Area 67-2 - That portion of Unit 67 south and east of State Highway 31.

BACKGROUND

All of Unit 64 except the Canyon Creek drainage, Unit 65, and Unit 67 north and west of State Highway 31 have been open to moose hunting since 1974. In 1983 this area (old Hunt Area 364) was split along unit boundaries into three separate hunts. Increasing moose populations allowed a steady increase in permit levels until 1987. A new Hunt Area, 67-2, was created in 1983, and allowed the harvest of moose in that portion of Unit 67 previously closed.

Hunting opportunity has increased in these units from one hunt with two permits during the early 1980s to five hunts with 56 permits (46 permits for antlered moose and 10 for antlerless) in 1998 (Table 4). In 1986 Hunt Areas 64 and 65 were opened for either-sex harvest. The elimination of the antlered-only restriction was the result of the 1984 moose census and depredation problems in Teton Basin. Either-sex permits were issued in order to maintain consistency with the Southeast Region which offered either-sex permits. The Department also had concerns that antlerless-only moose permits would not fill, and wanted to experimentally monitor the sex ratio of moose harvested with either-sex permits. In the first five years of either-sex permits, only 13 of the 128 (10.2%) moose harvested were female.

POPULATION SURVEYS

No population surveys were conducted during this reporting period. Historically, moose populations appeared to be increasing in these units prior to the winter of 1988-1989. Forage was impacted by two 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 the winter of 1992-1993 moose were first counted incidental to elk sightability surveys. Totals of 48, 26, and 90 moose were counted in Units 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 Units 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 Units 64, western 65, and 67, respectively.

HARVEST CHARACTERISTICS

Hunters harvested 36 antlered moose on 46 permits (78% hunter success rate) and 5 antlerless moose on 10 permits (50% hunter success) in 1998 (Table 5). However, no telephone survey of 1996-1998 moose permit holders was conducted. Therefore, 1996-1998 harvest estimates were derived from mandatory harvest reports and are not directly comparable with previous telephone survey estimates. Telephone survey results for years prior to 1996 are shown in Table 5. Drawing odds ranged from 1.4:1 in Hunt Area 64-2 (antlerless only) to 5.6:1 in Hunt Area 67-1 in 1998 (Table 5). Mean antler spreads were 40.67, 36.90, 35.75, and 38.54 for Hunt Areas 64-1, 65, 67-1, and 67-2, respectively. Table 6 summarizes all known nonhunting moose mortalities in Units 64, 65, and 67 from 1989 to 1998.

CLIMATIC CONDITIONS

The region experienced an unusually cool and wet spring. The cool rainy conditions ceased in mid-June and the summer and fall were warm and dry. Winter precipitation was near normal while temperatures were above average.

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 Units 65 and 67. In Unit 64 moose are found wintering primarily in stream bottom willow/aspen/dogwood communities.

DEPREDACTIONS, TRAPPING, AND TRANSPLANTING

Two nuisance complaints involving moose were received from Unit 65 in March 1999. Both situations were resolved by darting and relocating the problem animals to Unit 60A.

MANAGEMENT IMPLICATIONS

A 1989 aerial survey found approximately half of the number of moose censused in 1985. A shift in moose distribution resulting from the drought and severe winter conditions was partially responsible for the low count. Also, mortality during the 1988-1989 winter was above normal. Permit 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, permit levels increased in 1993, 1995, and again in 1997. Additionally, an antlerless-only hunt was initiated in Unit 64 in 1993 (Hunt Area 64-2).

UNITS 66, 69

CONTROLLED HUNT AREAS 66-1, 66-2, 69-1, 69-2, 69-3, 69-4

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

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

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

Description: 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.

Description: Hunt Area 69-3 - That portion of Unit 69 within the Antelope Creek and Granite Creek drainages, and that portion of Unit 66 within the Pritchard Creek and Garden Creek drainages.

Description: Hunt Area 69-4 - All of Unit 69.

BACKGROUND

Five hunts, with a total of 62 antlered-only permits, were offered in Units 66 and 69 in 1998. The moose population in these units increased at a fairly rapid rate during the late 1970s when populations elsewhere in the Upper Snake Region were decreasing or remaining static. Moose populations have continued to increase, particularly in the west half of Unit 69.

Hunts 366 and 369 were split in 1981 to create four hunts (366-1, 366-2, 369-1, and 369-2). This resulted in a 50% increase in permit levels from 1980 (16 to 24). A new hunt (369-3) was created in 1984 from adjacent portions of Hunts 366-1 and 369-2.

Hunt 369-1 was changed from antlered-only to either-sex in 1986 to address landowner concerns over depredations in grain fields. Either-sex permits 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-only hunt (369-4, current Hunt Area 69-4) was initiated. This hunt has 15 permits and includes all of Unit 69.

Season structure for hunts in these units is presented in Table 7.

POPULATION SURVEYS

No population surveys have been conducted in these units specifically to monitor moose populations. However, moose were counted incidentally during deer and elk sightability surveys in 1992, 1994, 1995, 1997, and 1999 (not all subunits were surveyed).

A total of 35 moose (most unclassified) were counted in Unit 66 in 1999. Other recent totals include 62 in 1997, 32 in 1995, 98 in 1994, and 26 in 1992. In Unit 69, 193 moose were tallied in 1999. This total included 10 bulls, 17 cows, 17 calves, and 149 unclassified moose. Other recent totals include 121, 168, and 231 in 1992, 1995, and 1997, respectively.

HARVEST CHARACTERISTICS

Table 8 summarizes controlled hunt harvest since 1989. However, no telephone survey of 1996-1998 moose permit holders was conducted. Harvest estimates for 1996-1998 were derived from mandatory harvest reports and are not directly comparable with previous telephone survey estimates. Six hunts with a total of 77 permits were offered in these two units in 1998. A total of 57 antlered moose were harvested on 62 permits (92% success). An additional 13 antlerless moose were harvested on the 15 permits offered in Hunt Area 69-4. Drawing odds have improved significantly as a result of regulation changes implemented in 1986 and are shown in Table 8. Mean antler spreads were 36.00, 38.99, 42.02, 40.22, and 37.80 for Hunt Areas 66-1, 66-2, 69-1, 69-2, and 69-3, respectively.

A summary of all known nonhunting mortalities is presented in Table 9.

CLIMATIC CONDITIONS

The region experienced an unusually cool and wet spring. The cool rainy conditions ceased in mid-June and the summer and fall were warm and dry. Winter precipitation was near normal while temperatures were above average.

HABITAT CONDITIONS

Hunt Area 66 is characterized by conifer/aspen habitats with narrow canyon bottom riparian areas which support moderate willow/dogwood communities. Hunt Area 69 is primarily aspen/sagebrush and private agricultural land. Moose may be migrating from adjacent areas to winter on the Tex Creek Management Area.

DEPREDACTIONS, TRAPPING, AND TRANSPLANTING

No depredation and/or nuisance complaints were received from Units 66 or 69 during this reporting period.

MANAGEMENT IMPLICATIONS

Past either-sex permits were not successful in harvesting female moose. Therefore, no either-sex permits have been offered in these units since 1990. Steadily increasing moose populations in these units resulted in an increase in permit levels in all of these hunts in 1993. Additionally, an antlerless-only hunt has been offered in Unit 69 since 1993.

UNITS 60, 60A, 61, 62, 62A CONTROLLED HUNT AREAS 60, 60A-1, 60A-2, 61-1, 61-2 61-3, 62-1, 62-2, 62A-1, 62A-2

Description: Hunt Area 60 - All of Unit 60.

Description: Hunt Areas 60A-1 and 60A-2 - That portion of Unit 60A south and east of the North Fork (Henry's Fork) Snake River and that portion within one mile north and west of the North Fork Snake River.

Description: Hunt Area 61-1 - That portion of Unit 61 west of East Dry Creek and the Yale-Kilgore Road.

Description: Hunt Area 61-2 - That portion of Unit 61 east of East Dry Creek and the Yale-Kilgore Road and west of U.S. Highway 191-20 and south and west of State Highway 87.

Description: Hunt Area 61-3 - That portion of Unit 61 north and east of State Highway 87 and north and west of U.S. Highway 191-20.

Description: Hunt Area 62 - All of Unit 62.

Description: Hunt Area 62A - All of Unit 62A.

BACKGROUND

Eight hunts (Table 10) with a total of 91 antlered-only and 10 antlerless-only permits were offered in 1998.

During the 1970s, the moose population in Fremont County was thought to be declining and experiencing high levels of illegal mortality and Indian harvest. As a result, in 1977 all moose hunts in Fremont County were closed. After a boundary change to include only Clark County, Hunt 361-1 was the only hunt open from 1977 to 1982.

The population had increased by 1983. 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 period. In response to the population recovery, eight controlled hunts were opened in 1983 in Fremont County.

A new hunt was established in Unit 60A in 1986. The hunt area consists of agricultural land and the riparian zone along the Henry's Fork of the Snake River. Many residences and farms occur in the area. The moose population within this corridor has been increasing. Annual depredation complaints of moose in agriculture fields and near towns and residences have been received resulting in expanded antlerless-only hunting opportunity. Permits 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 1988-1989 winter but have been steadily increasing since as populations have grown.

POPULATION SURVEYS

Most of the area was surveyed by airplane from November 1989 through February 1990. 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 two years of drought, and significant winter losses probably occurred. Survey results from the North Leigh Creek to Cave Falls Road portion of Unit 62 are shown in Table 12. The results from the remainder of Unit 62, Unit 62A, and the eastern portion of Unit 61 are included in Table 53. Survey results from the western portion of Unit 61 (from Monida Pass to East Camas Creek), Big Bend Ridge, and the desert east of the Red Road are shown in Tables 14 and 15, respectively.

A helicopter survey was conducted along the North Fork Snake River corridor between St. Anthony and the Highway 33 bridge in Hunt Area 60A-1 and 60A-2 in December 1991. Only the riparian corridor was searched, so this should be considered a minimum count. A total of 37 moose were observed, including 2 bulls, 21 cows, and 14 calves.

Moose have been counted incidental to deer and elk sightability surveys in Unit 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 1998 a total of 585 moose were counted incidental to an elk sightability survey. This total includes 80 bulls, 117 cows, 95 calves, and 292 unclassified animals for a bull:cow:calf ratio of 68:100:81. Other recent totals for Unit 60A include 340 in 1997, 219 in 1996, 272 in 1995, 360 in 1994, 187 in 1993, and 312 in 1991.

HARVEST CHARACTERISTICS

Table 15 summarizes controlled hunt harvest and drawing odds for these units. However, no telephone survey of 1996-1998 moose permit holders was conducted. Therefore, 1996-1998 harvest estimates were derived from mandatory harvest reports and are not directly comparable with previous telephone survey estimates. Ninety-one antlered-only moose permits were issued in 1998, resulting in the harvest of 82 animals (90% success) based on mandatory harvest reports. In addition two moose were harvested on the ten antlerless-only permits in Hunt Area 60A-2. Mean antler spreads for these hunts were 39.17, 37.83, 32.21, 34.57, 40.29, 36.01, and 36.86 for Hunt Areas 60, 60A-1, 61-1, 61-2, 61-3, 62, and 62A, respectively.

Beginning in 1984 all known nonhunting moose mortalities were categorized by mortality agent and unit. Table 16 summarizes these records for Units 60, 60A, 61, 62, and 62A from 1989 through 1998.

CLIMATIC CONDITIONS

The region experienced an unusually cool and wet spring. The cool rainy conditions ceased in mid-June and the summer and fall were warm and dry. Winter precipitation was near normal while temperatures were above average.

DEPREDATIONS, TRAPPING, AND TRANSPLANTING

No depredation and/or nuisance complaints were received from this group of units during this reporting period.

MANAGEMENT IMPLICATIONS

The increase in desert-wintering moose could lead to increased depredations during unusually severe winters. Mortality during the 1988-1989 winter resulted in significant population declines. However, moose populations have rebounded rapidly to levels at or above those present prior to the 1988-1989 die-off. Consequently, permit levels have been increasing accordingly.

**UNITS 50, 51, 58, 63, 63A
CONTROLLED HUNT AREAS 50, 63A-1, 63A-2**

Description: Hunt Area 50 - All of Unit 50.

Description: Hunt Areas 63A-1 and 63A-2 - All of Unit 63A.

BACKGROUND

In early 1980, six moose were released near the North Fork of the Big Lost River (Unit 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. An antlered-only hunt (50) was initiated in 1993.

A significant population of moose exists in Unit 63A. Moose utilize the riparian habitat along the North and South Forks of the Snake River and associated sloughs, and depredation complaints occur on a fairly regular basis.

Season structure for Hunt Areas 63A-1, 63A-2, and 50 are summarized in Table 17.

POPULATION SURVEYS

No population surveys were conducted during this reporting period. However, moose were counted incidentally during deer and elk sightability surveys in Units 50 and 51 in April and February 1999, respectively. A total of six moose were counted in Unit 50, including 2 cows and 4 unclassified animals. Eighteen moose were observed in Unit 51, including 7 bulls, 2 cows, 2 calves, and 7 unclassified animals.

HARVEST CHARACTERISTICS

Controlled hunt harvest and drawing odds are summarized in Table 18. Hunt Area 50 was initiated in 1993 and had two permits until 1997 when it was increased to four. Hunt 63A was initiated in 1987 with three antlered-only permits. Permit levels were increased to five in 1989 and eight in 1990. In 1991 permit levels were increased to 10 and split into two hunts, 63A-1 antlered only, and 63A-2 antlerless only, with five permits each. Permit levels have since been increased to 12 in Hunt Area 63A-1 and 10 in 63A-2.

All known nonhunting mortalities for these units since 1988 are summarized in Table 19.

CLIMATIC CONDITIONS

The region experienced an unusually cool and wet spring. The cool rainy conditions ceased in mid-June and the summer and fall were warm and dry. Winter precipitation was near normal while temperatures were above average.

HABITAT CONDITIONS

Habitats within Area 5 are quite varied. In Unit 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 Units 51 and 58 are limited to discontinuous willow riparian areas. Habitat in Unit 63 is almost entirely desert and is unsuitable for moose. Habitat in Unit 63A consists primarily of the Snake River riparian zone adjacent to private residential and agricultural lands.

DEPREDACTIONS, TRAPPING, AND TRANSPLANTING

During this reporting period three moose-related complaints were received. Complaints involved concerns for public safety or damage to haystacks and standing crops. Three moose were darted as a result of these complaints in Idaho Falls and were subsequently released in Unit 69 (two) and Unit 63A (one). Another complaint was handled with a combination of hazing and panels to keep a group of eight moose out of a haystack in the Mud Lake area (Unit 63) in December 1998.

MANAGEMENT IMPLICATIONS

A new hunt was initiated in Unit 50 in 1993. The river bottom population in Unit 63A appears to be increasing and is causing depredation problems. Permit increases were implemented beginning in 1993, and the antlerless hunt will be continued.

Table 1. 1998 Season Structure for Controlled Moose Hunt Area 59 in the Upper Snake Region.

Hunt Area	Season		Open For
	Dates	Length	
59	8/30–11/23	86 days	Antlered only

Table 2. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Area 59^a), 1989-1998.

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/Hunter	Total 1st Choice Applicants	Drawing Odds
			M	F				
59	1989	8	8	0	100	4.1	86	10.8:1
	1990	8	8	0	100	1.6	108	13.5:1
	1991	8	8	0	100	3.6	97	12.1:1
	1992	8	8	0	100	2.4	94	11.8:1
	1993	15	13	0	87	8.5	136	9.1:1
	1994	15	14	0	93	4.7	161	10.7:1
	1995	16	16	0	100	4.4	155	9.7:1
	1996 ^b	16	15	0	94	ND	117	7.3:1
	1997 ^b	16	14	0	88	ND	132	8.3:1
1998 ^b	16	15	0	94	ND	152	9.5:1	
59A	1989	4	4	0	100	5.8	56	14.0:1
	1990	4	4	0	100	3.0	13	3.3:1
	1991	4	4	0	100	2.8	43	10.8:1
	1992	4	4	0	100	3.0	23	5.8:1

^a Hunt Areas 59 and 59A combined and renamed Hunt Area 59 in 1993.

^b Harvest estimates derived from telephone survey through 1995 and from mandatory harvest reports from 1996-1998.

Table 3. Summary of All Known Nonhunting Moose Mortalities in Units 59 and 59A.

Year	Unit	Mortality Agent					Total
		Indian Harvest	Illegal Kill	Road Kill	Natural	Unknown and Other	
1989	59	1	0	0	0	0	1
	59A	0	0	0	0	0	0
		<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
1990	59	2	1	0	0	1	4
	59A	0	0	0	0	0	0
		<u>2</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>4</u>
1991	59	1	0	0	0	0	1
	59A	0	0	0	1	1	2
		<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>3</u>
1992	59	1	0	3	0	1	5
	59A	0	0	0	0	0	0
		<u>1</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>1</u>	<u>5</u>
1993	59	0	0	0	0	1	1
	59A	0	1	0	0	0	1
		<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>
1994	59	0	0	1	0	1	2
	59A	0	0	0	0	0	0
		<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>2</u>
1995	59	1	0	0	0	0	1
	59A	0	0	0	0	0	0
		<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
1996	59	0	0	0	0	0	0
	59A	0	0	0	0	0	0
		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
1997	59	0	0	0	0	0	0
	59A	0	0	0	0	0	0
		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
1998	59	0	0	2	0	0	2
	59A	0	0	0	0	0	0
		<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>

Table 4. 1998 Season Structure for Controlled Moose Hunt Areas 64-1, 64-2, 65, 67-1, and 67-2 in the Upper Snake Region.

Hunt Area	Season		
	Dates	Length	Open For
64-1	8/30–11/23	86 days	Antlered only
64-2	10/15–11/23	40 days	Antlerless only
65	8/30–11/23	86 days	Antlered only
67-1	8/30–11/23	86 days	Antlered only
67-2	8/30–11/23	86 days	Antlered only

Table 5. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 64-1, 64-2, 65, 67-1, 67-2), 1989-1998.

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/Hunter	Total 1st Choice Applicants	Drawing Odds
			M	F				
64 ^a	1989	15	13	2	100	7.8	124	8.3:1
	1990	15	13	2	100	4.3	121	8.1:1
	1991	8	8	0	100	3.3	124	15.5:1
64-1	1992	8	8	0	100	3.6	81	10.1:1
	1993	12	12	0	100	5.8	72	6.0:1
	1994	12	12	0	100	6.0	100	8.3:1
	1995	13	13	0	100	12.0	95	7.3:1
	1996 ^c	13	10	0	77	ND	101	7.8:1
	1997 ^c	14	11	0	79	ND	73	5.2:1
	1998 ^c	14	12	0	86	ND	84	6.0:1
	64-2 ^b	1993	5	1	4	100	2.0	2
1994		5	0	5	100	2.5	15	3.0:1
1995		5	0	5	100	3.3	10	2.0:1
1996 ^c		5	0	4	80	ND	4	1.0:1
1997 ^c		10	0	7	70	ND	11	1.1:1
1998 ^c		10	0	5	50	ND	14	1.4:1
65	1989	12	6	4	82	5.4	77	6.4:1
	1990	12	12	0	100	5.1	50	4.2:1
	1991	5	5	0	100	5.4	62	12.4:1
	1992	5	5	0	100	3.6	37	7.4:1
	1993	8	7	0	88	8.6	39	7.8:1
	1994	8	8	0	100	9.1	73	9.1:1
	1995	9	9	0	100	7.6	45	5.0:1
	1996 ^c	9	6	0	67	ND	51	5.7:1
	1997 ^c	12	10	0	83	ND	63	5.3:1
	1998 ^c	12	10	0	83	ND	38	3.2:1
67-1	1989	4	4	0	100	8.0	25	6.3:1
	1990	4	4	0	100	5.3	11	2.8:1
	1991	4	3	1	100	1.7	69	17.3:1
	1992	4	4	0	100	1.0	25	6.3:1
	1993	6	6	0	100	1.7	46	7.7:1
	1994	6	5	0	83	5.2	34	5.7:1
	1995	7	7	0	100	2.0	32	4.6:1
	1996 ^c	7	5	0	71	ND	50	7.1:1
	1997 ^c	10	8	0	80	ND	47	4.7:1
	1998 ^c	10	8	0	80	ND	56	5.6:1
67-2	1989	6	5	0	83	7.7	29	4.8:1
	1990	6	6	0	100	10.2	36	6.0:1

Table 5. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 64-1, 64-2, 65, 67-1, 67-2), 1989-1998 (Continued).

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/Hunter	Total 1st Choice Applicants	Drawing Odds
			M	F				
	1991	4	3	0	75	3.5	33	8.3:1
	1992	4	3	0	75	3.5	33	8.3:1
	1993	6	4	0	67	4.5	27	4.5:1
	1994	6	5	0	83	19.0	27	4.5:1
	1995	6	4	0	67	11.2	36	6.0:1
	1996 ^c	6	3	0	50	ND	48	8.0:1
	1997 ^c	10	6	0	60	ND	34	3.4:1
	1998 ^c	10	6	0	60	ND	37	3.7:1

^a Hunt 64 was split into Hunt Areas 64, 65, and 67-1 in 1983.

^b Open for antlerless moose only.

^c Harvest estimates derived from telephone surveys through 1995 and from mandatory harvest reports from 1996-1998.

Table 6. Summary of All Known Nonhunting Moose Mortalities in Units 64, 65, and 67, 1989-1998.

Year	Unit	Mortality Agent					Total
		Indian Harvest	Illegal Kill	Road Kill	Natural	Unknown and Other	
1989	64	0	0	0	0	0	0
	65	0	0	0	0	0	0
	67	0	0	0	0	0	0
		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
1990	64	0	0	1	0	0	1
	65	0	0	0	0	0	0
	67	0	0	1	0	0	1
		<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>
1991	64	0	1	0	0	0	1
	65	0	0	0	0	0	0
	67	0	0	3	1	1	5
		<u>0</u>	<u>1</u>	<u>3</u>	<u>1</u>	<u>1</u>	<u>6</u>
1992	64	0	2	0	0	1	3
	65	0	1	3	0	0	4
	67	0	3	2	0	1	6
		<u>0</u>	<u>6</u>	<u>5</u>	<u>0</u>	<u>2</u>	<u>13</u>
1993	64	0	1	0	0	0	1
	65	0	2	0	0	0	2
	67	0	0	0	0	0	0
		<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>
1994	64	0	6	1	0	2	9
	65	0	0	0	0	0	0
	67	0	1	2	1	0	4
		<u>0</u>	<u>7</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>13</u>
1995	64	0	0	0	0	2	2
	65	0	0	0	0	0	0
	67	0	0	2	0	0	2
		<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>2</u>	<u>4</u>
1996	64	0	0	4	0	0	4
	65	0	0	0	0	1	1
	67	0	0	3	0	0	3
		<u>0</u>	<u>0</u>	<u>7</u>	<u>0</u>	<u>1</u>	<u>8</u>

Table 6. Summary of All Known Nonhunting Moose Mortalities in Units 64, 65, and 67, 1989-1998 (Continued).

Year	Unit	Mortality Agent					Total
		Indian Harvest	Illegal Kill	Road Kill	Natural	Unknown and Other	
1997	64	0	0	1	1	1	3
	65	0	0	3	0	0	3
	67	0	0	2	0	1	3
		<u>0</u>	<u>0</u>	<u>6</u>	<u>1</u>	<u>2</u>	<u>9</u>
1998	64	0	0	2	0	0	2
	65	0	0	4	0	1	5
	67	0	0	3	0	2	5
		<u>0</u>	<u>0</u>	<u>9</u>	<u>0</u>	<u>3</u>	<u>12</u>

Table 7. 1998 Season Structure for Controlled Moose Hunt Areas 66-1, 66-2, 69-1, 69-2, 69-3, and 69-4 in the Upper Snake Region.

Hunt Area	Season		
	Dates	Length	Open For
66-1	8/30-11/23	86 days	Antlered only
66-2	8/30-11/23	86 days	Antlered only
69-1	8/30-11/23	86 days	Antlered only
69-2	8/30-11/23	86 days	Antlered only
69-3	8/30-11/23	86 days	Antlered only
69-4	10/15-11/23	40 days	Antlerless only

Table 8. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 66-1, 66-2, 69-1, 69-2, 69-3, 69-4), 1989-1998.

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/ Hunter	Total 1st Choice Applicants	Drawing Odds
			M	F				
66-1	1989	6	5	0	83	4.5	51	8.5:1
	1990	6	6	0	100	3.5	36	6.0:1
	1991	6	6	0	100	7.2	68	11.3:1
	1992	6	6	0	100	3.4	44	7.3:1
	1993	10	9	0	90	3.3	56	5.6:1
	1994	10	10	0	100	5.7	61	6.1:1
	1995	12	9	0	75	7.6	89	7.4:1
	1996 ^b	12	10	0	83	ND	58	4.8:1
	1997 ^b	14	12	0	86	ND	79	5.6:1
	1998 ^b	14	13	0	93	ND	64	4.6:1
66-2	1989	6	5	0	83	4.8	61	10.2:1
	1990	6	6	0	100	4.2	62	10.3:1
	1991	6	6	0	100	5.8	93	15.5:1
	1992	6	6	0	100	7.6	68	11.3:1
	1993	10	9	0	90	14.1	78	7.8:1
	1994	10	8	0	80	4.9	72	7.2:1
	1995	12	12	0	100	4.6	92	7.7:1
	1996 ^b	12	10	0	83	ND	84	7.0:1
	1997 ^b	14	13	0	93	ND	67	4.8:1
	1998 ^b	14	13	0	93	ND	72	5.1:1
69-1	1989	10	10	0	100	4.6	91	9.1:1
	1990	10	9	0	90	3.8	118	11.8:1
	1991	10	9	0	90	4.2	108	10.8:1
	1992	10	10	0	100	2.9	106	10.6:1
	1993	10	10	0	100	8.9	90	9.0:1
	1994	10	9	0	90	4.3	73	7.3:1
	1995	11	11	0	100	5.8	108	9.8:1
	1996 ^b	11	11	0	100	ND	117	10.6:1
	1997 ^b	13	13	0	100	ND	155	11.9:1
	1998 ^b	13	13	0	100	ND	139	10.7:1
69-2	1989	6	6	0	100	8.0	35	5.8:1
	1990	6	6	0	100	7.5	51	8.5:1
	1991	6	6	0	100	8.8	82	13.7:1
	1992	6	6	0	100	4.8	48	8.0:1
	1993	10	10	0	100	8.6	71	7.1:1
	1994	10	10	0	100	4.5	93	9.3:1
	1995	11	11	0	100	2.8	90	8.2:1
	1996 ^b	11	10	0	91	ND	106	9.6:1
1997 ^b	14	14	0	100	ND	129	9.2:1	

Table 8. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 66-1, 66-2, 69-1, 69-2, 69-3, 69-4), 1989-1998 (Continued).

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/Hunter	Total 1st Choice Applicants	Drawing Odds
			M	F				
69-3	1998 ^b	14	11	0	79	ND	148	10.6:1
	1989	6	6	0	100	5.5	31	5.2:1
	1990	6	6	0	100	5.2	30	5.0:1
	1991	6	6	0	100	13.2	32	5.3:1
	1992	6	5	0	83	4.0	41	6.8:1
	1993	6	6	0	100	8.4	19	3.2:1
	1994	6	6	0	100	2.7	58	9.7:1
	1995	7	7	0	100	9.7	39	5.6:1
	1996 ^b	7	7	0	100	ND	31	4.4:1
	1997 ^b	7	6	0	86	ND	43	6.1:1
69-4 ^a	1998 ^b	7	7	0	100	ND	21	3.0:1
	1993	10	0	10	100	4.0	18	1.8:1
	1994	10	0	9	90	1.9	38	3.8:1
	1995	10	0	10	100	6.3	32	3.2:1
	1996 ^b	10	0	8	80	ND	35	3.5:1
	1997 ^b	15	0	13	87	ND	45	3.0:1
	1998 ^b	15	0	13	87	ND	41	2.7:1

^a Open for antlerless moose only.

^b Harvest estimates derived from telephone survey through 1995 and from mandatory harvest reports from 1996-1998.

Table 9. Summary of All Known Nonhunting Moose Mortalities in Units 66 and 69.

Year	Unit	Mortality Agent					Total
		Indian Harvest	Illegal Kill	Road Kill	Natural	Unknown and Other	
1989	66	0	0	0	1	0	1
	69	0	1	0	0	0	1
		<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>2</u>
1990	66	0	2	0	0	0	2
	69	0	0	0	0	3	3
		<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>5</u>
1991	66	0	0	0	0	0	0
	69	0	3	0	0	4	7
		<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>7</u>
1992	66	0	1	0	0	1	2
	69	0	0	0	0	0	0
		<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>
1993	66	0	1	0	0	0	1
	69	0	1	0	0	0	1
		<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>
1994	66	0	0	0	0	0	0
	69	0	1	2	0	0	3
		<u>0</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>3</u>
1995	66	0	2	1	0	0	3
	69	0	1	1	1	0	3
		<u>0</u>	<u>3</u>	<u>2</u>	<u>1</u>	<u>0</u>	<u>6</u>
1996	66	0	1	0	0	0	1
	69	0	0	0	0	1	1
		<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>
1997	66	0	3	0	0	0	3
	69	0	1	0	2	0	3
		<u>0</u>	<u>4</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>6</u>
1998	66	0	0	0	0	0	0
	69	0	1	0	0	0	1
		<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>

Table 10. 1998 Season Structure for Controlled Moose Hunt Areas 60, 60A-1, 60A-2, 61-1, 61-2, 61-3, 62, 62A in the Upper Snake Region.

Hunt Area	Season		
	Dates	Length	Open For
60	8/30–11/23	86 days	Antlered only
60A-1	8/30–11/23	86 days	Antlered only
60A-2	10/15–11/23	40 days	Antlerless only
61-1	8/30–11/23	86 days	Antlered only
61-2	8/30–11/23	86 days	Antlered only
61-3	8/30–11/23	86 days	Antlered only
62	8/30–11/23	86 days	Antlered only
62A	8/30–11/23	86 days	Antlered only

Table 11. Aerial Survey of Moose in Hunt Area 62.

Inclusive Location	1990 to 1991		Total	1991 to 1992		Total
	Bulls:Cows:Calves			Bulls:Cows:Calves		
Middle to North Leigh Creek	67:100:83		15	---		0
Wiggleton Hollow to Johns Creek	56:100:56		19	---		7
North Fork Badger Creek to Bitch Creek	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 Road	36:100:43		80	---		28
Total			218			81

Table 12. Aerial Survey of Moose in Hunt Areas 61 (Eastern portion), 62, and 62A.

Inclusive Location	1990 to 1991		1991 to 1992	
	Bulls:Cows:Calves	Total	Bulls:Cows:Calves	Total
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
Total		101		77

Table 13. Aerial Survey of Moose in Hunt Area 61 (Western portion).

Inclusive Location	1990 to 1991		1991 to 1992	
	Bulls:Cows:Calves	Total	Bulls:Cows:Calves	Total
Cave Falls Road to Fish Creek Road	---	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 Henry's Lake Flat	42:100:52	59	---	19
Henry's Lake	22:100:56	16	---	19
Henry's Fork to Hatchery Butte west of Warm River	32:100:60	102	---	14
Total		224		94

Table 14. Aerial Survey of Moose in Hunt Areas 60 and 60A.

Inclusive Location	1990 to 1991		1991 to 1992	
	Bulls:Cows:Calves	Total	Bulls:Cows:Calves	Total
Big Bend Ridge	14:100:105	88	22:100:122	68
Desert, east of Sand Creek	---	6	---	8
Desert, Red Road to Sand Creek Road	100:100:100	85 ^a	65:100:41	50
Junipers and Hook of Sands	118:100:44	103 ^a	33:100:67	18
Chokecherry Ridge and Second Sands	69:100:45	63 ^a	72:100:36	48
Total		345^a		192

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

Table 15. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 60, 60A-1, 60A-2, 61-1, 61-2, 61-3, 62, 62A), 1989-1998.

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/ Hunter	Total 1st Choice Applicants	Drawing Odds
			M	F				
60	1989	15	14	0	93	4.3	168	11.2:1
	1990	15	15	0	100	6.1	134	8.9:1
	1991	10	10	0	100	6.1	182	18.2:1
	1992	10	9	1	100	2.3	160	16.0:1
	1993	15	14	0	93	3.8	82	5.5:1
	1994	15	15	0	100	3.3	138	9.2:1
	1995	16	16	0	100	5.4	131	8.2:1
	1996 ^c	16	14	0	88	ND	143	8.9:1
	1997 ^c	16	13	0	81	ND	163	10.2:1
	1998 ^c	16	15	0	94	ND	178	11.1:1
60A-1	1991	6	5	0	83	36.0	29	4.8:1
	1992	6	6	0	100	3.4	17	2.8:1
	1993	6	6	0	100	6.8	37	6.2:1
	1994	6	6	0	100	3.8	29	4.8:1
	1995	6	6	0	100	1.5	29	4.8:1
	1996 ^c	6	6	0	100	ND	28	4.7:1
	1997 ^c	6	5	0	83	ND	28	4.7:1
	1998 ^c	6	6	0	100	ND	35	5.8:1
60A-2	1991	10	1	9	100	2.4	30	3.0:1
	1992	10	0	9	90	1.9	27	2.7:1
	1993	10	0	8	80	2.6	7	1.0:1
	1994	10	0	10	100	2.6	18	1.8:1
	1995	10	0	8	80	2.5	6	1.0:1
	1996 ^c	10	0	7	70	ND	17	1.7:1
	1997 ^c	10	0	6	60	ND	10	1.0:1
	1998 ^c	10	0	2	20	ND	11	1.1:1
61-1	1989	12	11	0	92	4.4	166	13.8:1
	1990	12	12	0	100	5.2	148	12.3:1
	1991	8	8	0	100	9.6	162	20.3:1
	1992	8	7	1	100	2.7	117	14.6:1
	1993	15	15	0	100	5.6	102	6.8:1
	1994	15	15	0	100	3.1	141	9.4:1
	1995	16	15	0	100	5.5	150	9.4:1
	1996 ^c	16	14	0	88	ND	132	8.3:1
	1997 ^c	20	20	0	100	ND	155	7.8:1
	1998 ^c	20	18	0	90	ND	130	6.5:1
61-2	1989	8	5	0	63	11.1	64	8.0:1
	1990	8	6	0	75	6.6	46	5.8:1
	1991	4	4	0	100	2.7	77	19.3:1

Table 15. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 60, 60A-1, 60A-2, 61-1, 61-2, 61-3, 62, 62A), 1989-1998 (Continued).

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/ Hunter	Total 1st Choice Applicants	Drawing Odds	
			M	F					
61-3 ^a	1992	4	4	0	100	3.0	47	11.8:1	
	1993	8	8	0	100	9.8	29	3.6:1	
	1994	8	7	0	88	4.9	65	8.1:1	
	1995	9	8	0	89	5.1	68	7.6:1	
	1996 ^c	9	9	0	100	ND	60	6.6:1	
	1997 ^c	10	8	0	80	ND	61	6.1:1	
	1998 ^c	10	7	0	70	ND	64	6.4:1	
	1989	2	2	0	100	2.5	17	8.5:1	
	1990	2	2	0	100	20.5	16	8.0:1	
	1991	4	4	0	100	6.8	35	8.8:1	
	1992	4	4	0	100	4.0	44	11.0:1	
	1993	10	10	0	100	4.2	62	6.2:1	
	1994	10	10	0	100	4.6	91	9.1:1	
	1995	11	11	0	100	6.0	105	9.5:1	
	62-1	1996 ^c	11	11	0	100	ND	90	8.2:1
1997 ^c		15	13	0	87	ND	111	7.4:1	
1998 ^c		15	15	0	100	ND	96	6.4:1	
1989		5	5	0	100	2.4	46	9.2:1	
1990		5	5	0	100	2.8	34	6.8:1	
1991		2	2	0	100	3.0	40	20.0:1	
1992		2	2	0	100	1.5	20	10.1:1	
62-2		1989	5	5	0	100	3.0	32	6.4:1
		1990	5	5	0	100	6.6	43	8.6:1
		1991	2	2	0	100	7.5	32	16.0:1
62 ^c	1992	2	2	0	100	3.0	16	8.0:1	
	1993	10	10	0	100	9.5	83	8.3:1	
	1994	10	10	0	100	8.2	89	8.9:1	
	1995	11	10	0	91	4.9	123	11.2:1	
	1996 ^c	11	7	0	64	ND	79	7.2:1	
	1997 ^c	12	10	0	83	ND	103	8.6:1	
	1998 ^c	12	10	0	83	ND	74	6.2:1	
	62A-1 ^b	1989	5	5	0	100	6.8	23	4.6:1
1990		5	5	0	100	4.4	45	9.0:1	
1991		2	2	0	100	1.0	19	9.5:1	
1992		2	2	0	100	1.5	15	7.5:1	
62A-2 ^b	1989	5	5	0	100	3.6	46	9.2:1	
	1990	5	5	0	100	5.4	58	11.6:1	
	1991	3	3	0	100	0.0	73	24.3:1	
	1992	3	3	0	100	1.7	38	12.7:1	
62A ^d	1993	10	9	0	90	9.5	106	10.6:1	

Table 15. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 60, 60A-1, 60A-2, 61-1, 61-2, 61-3, 62, 62A), 1989-1998 (Continued).

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/ Hunter	Total 1st Choice Applicants	Drawing Odds
			M	F				
	1994	10	10	0	100	1.7	114	11.4:1
	1995	11	11	0	100	5.0	119	10.8:1
	1996 ^e	11	9	0	82	ND	129	11.7:1
	1997 ^e	12	12	0	100	ND	142	11.8:1
	1998 ^e	12	11	0	92	ND	104	8.7:1

^a Hunt 61-3 was created from a portion of Area 61-2.

^b Follows 1983 number designation. No boundary changes occurred, but hunt numbers were reversed after season closures.

^c 62-1 and 62-2 combined and renamed 62.

^d 62A-1 and 62A-2 combined and renamed 62A.

^e Harvest estimates derived from telephone survey through 1995 and from mandatory harvest reports from 1996-1998.

Table 16. Summary of All Known Nonhunting Moose Mortalities in Units 60, 60A, 61, 62, and 62A.

Year	Unit	Mortality Agent					Total
		Indian Harvest	Illegal Kill	Road Kill	Natural	Unknown and Other	
1989	60	0	1	2	0	0	3
	60A	0	0	1	0	2	3
	61	1	0	4	0	2	7
	62	0	0	1	0	0	1
	62A	0	0	2	0	0	2
		<u>1</u>	<u>1</u>	<u>10</u>	<u>0</u>	<u>4</u>	<u>16</u>
1990	60	0	0	2	0	2	4
	60A	0	0	1	3	4	8
	61	1	1	7	0	2	11
	62	0	0	2	0	0	2
	62A	0	0	1	0	0	1
		<u>1</u>	<u>1</u>	<u>13</u>	<u>3</u>	<u>8</u>	<u>26</u>
1991	60	0	0	1	0	3	4
	60A	0	0	2	3	4	9
	61	0	2	6	0	4	12
	62	0	1	3	0	0	4
	62A	0	0	1	0	0	1
		<u>0</u>	<u>3</u>	<u>13</u>	<u>3</u>	<u>11</u>	<u>30</u>
1992	60	0	2	8	0	1	11
	60A	0	1	4	0	5	10
	61	1	0	14	0	1	16
	62	0	0	0	0	3	3
	62A	1	0	3	0	0	4
		<u>2</u>	<u>3</u>	<u>29</u>	<u>0</u>	<u>10</u>	<u>44</u>
1993	60	0	0	0	0	1	1
	60A	0	0	0	0	0	0
	61	1	1	3	0	0	5
	62	0	0	0	0	0	0
	62A	0	0	1	0	0	1
		<u>1</u>	<u>1</u>	<u>4</u>	<u>0</u>	<u>1</u>	<u>7</u>
1994	60	0	0	5	0	4	9
	60A	0	1	2	0	0	3
	61	0	0	19	1	1	21
	62	0	0	2	0	0	2
	62A	0	0	2	0	2	4
		<u>0</u>	<u>1</u>	<u>30</u>	<u>1</u>	<u>7</u>	<u>39</u>

Table 16. Summary of All Known Nonhunting Moose Mortalities in Units 60, 60A, 61, 62, and 62A (Continued).

Year	Unit	Mortality Agent					Total
		Indian Harvest	Illegal Kill	Road Kill	Natural	Unknown and Other	
1995	60	0	0	2	0	0	2
	60A	0	0	1	0	2	3
	61	0	0	6	1	2	9
	62	0	0	2	0	0	2
	62A	0	0	0	0	1	1
		<u>0</u>	<u>0</u>	<u>11</u>	<u>1</u>	<u>5</u>	<u>17</u>
1996	60	0	0	4	0	3	7
	60A	1	0	0	0	1	2
	61	1	0	7	0	5	13
	62	0	0	4	0	2	6
	62A	0	0	4	0	2	6
		<u>2</u>	<u>0</u>	<u>19</u>	<u>0</u>	<u>13</u>	<u>34</u>
1997	60	0	0	8	0	0	8
	60A	0	0	0	1	0	1
	61	0	1	7	3	2	13
	62	0	0	4	0	1	5
	62A	1	1	2	2	0	6
		<u>1</u>	<u>2</u>	<u>21</u>	<u>6</u>	<u>3</u>	<u>33</u>
1998	60	0	0	1	0	0	1
	60A	0	1	1	0	0	2
	61	0	0	5	0	4	9
	62	0	0	3	1	0	4
	62A	0	0	1	0	0	1
		<u>0</u>	<u>1</u>	<u>11</u>	<u>1</u>	<u>4</u>	<u>17</u>

Table 17. 1998 Season Structure for controlled Moose Hunt Areas 50, 63A-1, and 63A-2 in the Upper Snake Region.

Hunt Area	Season		
	Dates	Length	Open For
50	8/30–11/23	86 days	Antlered only
63A-1	8/30–11/23	86 days	Antlered only
63A-2	10/15–11/23	40 days	Antlerless only

Table 18. Summary of Moose Harvest and Drawing Odds by Hunt Area (Hunt Areas 50, 63A-1, and 63A-2), 1989-1998.

Hunt Area	Year	No. Permits	Harvest		Hunter Success	Days/Hunter	Total 1st Choice Applicants	Drawing Odds
			M	F				
50	1993	2	2	0	100	10.5	13	6.5:1
	1994	2	2	0	100	3.0	20	10.0:1
	1995	2	2	0	100	5.5	26	13.0:1
	1996 ^c	2	2	0	100	ND	20	10.0:1
	1997 ^c	4	3	0	75	ND	38	9.5:1
	1998 ^c	4	3	0	75	ND	41	10.3:1
63A	1989	5	5	0	100	8.6	20	4.0:1
	1990	8	8	0	100	4.8	44	5.5:1
63A-1	1991	5	5	0	100	6.5	43	8.6:1
	1992	5	5	0	100	5.7	47	9.4:1
	1993	10	9	0	90	13.4	42	4.2:1
	1994	10	9	0	90	4.5	45	4.5:1
	1995	10	9	0	90	4.8	68	6.8:1
	1996 ^c	10	8	0	80	ND	36	3.6:1
	1997 ^c	10	10	0	100	ND	66	6.6:1
	1998 ^c	10	6	0	60	ND	49	4.9:1
63A-2 ^b	1991	5	1	4	100	2.7	21	4.2:1
	1992	5	0	5	100	2.6	14	2.8:1
	1993	10	0	8	80	6.5	8	1.0:1
	1994	10	0	9	90	5.9	9	1.0:1
	1995	10	0	8	80	1.6	20	2.0:1
	1996 ^c	10	0	9	90	ND	15	1.5:1
	1997 ^c	12	0	9	75	ND	12	1.0:1
	1998 ^c	12	0	8	67	ND	6	1.0:1

^a Open for either-sex harvest.

^b Open for antlerless moose only.

^c Harvest estimates derived from telephone survey through 1995 and from mandatory harvest reports from 1996-1998.

Table 19. Summary of All Known Nonhunting Moose Mortalities in Units 50 and 63A.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Unknown and Other	
1989	0	0	0	1	1	2
1990	2	1	1	0	1	5
1991	0	1	0	0	1	2
1992	0	0	1	0	1	2
1993	0	2	2	0	1	5
1994	0	1	1	3	0	5
1995	1	0	0	0	0	1
1996	0	0	0	0	0	0
1997	0	0	1	0	0	1
1998	0	0	4	0	0	4

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE: Idaho **JOB TITLE:** Moose Surveys and Inventories
PROJECT: W-170-R-23
SUBPROJECT: 7 **STUDY NAME:** Big Game Population Status, Trends,
STUDY: I Utilization, and Associated Habitat
JOB: 6 Studies
PERIOD COVERED: July 1, 1998 to June 30, 1999

MOOSE - SALMON REGION

ABSTRACT

Because of increasing reports of moose sightings and extensive signs of moose activity, controlled Hunt 21 was initiated in 1990, Hunt 29 in 1991, and Hunt 30 in 1993. Three additional permits were offered in Hunts 21 and 29 in 1995. During 1998, 11 of 12 permittees were successful in harvesting a moose.

UNITS 21, 21A, 29, 30, 30A, AND 37A

CONTROLLED HUNT AREAS 21, 29, AND 30

BACKGROUND

Habitats in these units 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 units 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 the Salmon Region, creating productive commercial forest lands. As a consequence timber harvest is a dominant activity in at least the North Fork Salmon River drainage. Logging roads are common.

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 the Idaho population. Cross-border movements are no doubt common in this area. No information exists on historical moose numbers other than a rise in moose sightings in recent years, primarily in the North Fork Salmon River drainage. As a result Hunt 21 was initiated in 1990 with three permits (Table 61). A similar increase in moose sightings resulted in the initiation of Hunt 29 in 1991 and Hunt 30 in 1993.

POPULATION SURVEYS

Because of the dense cover, low moose densities, and solitary habits of moose, formal population surveys are ineffective in this area.

HARVEST CHARACTERISTICS

Telephone Survey

Of 82 permits offered since 1990, 76 hunters (93%) have taken a moose (Table 2).

Mandatory Check

All successful moose hunters are required to check their antlers with the Department of Fish and Game. The beam spread on moose taken from these hunts during 1998 ranged from 21 to 41 inches with an average spread of 34 inches.

Check Stations

No check stations are operated specifically to check moose hunters.

Nonhunting Mortalities

One cow and female calf were killed by fence injuries, and an adult bull was illegally taken by a hunter (Tables 62-64).

CLIMATIC CONDITIONS

Summer 1998 was wet, producing lush, abundant forage. Very little snow fell until late January 1998; total snowpacks through the remainder of the winter were somewhat below average. Winter temperatures were mild, seldom dropping below zero Fahrenheit. Animals therefore entered the winter in excellent body condition, then encountered a mild winter, which should have produced excellent overwinter survival.

HABITAT CONDITIONS

The intensive logging operations in the primary moose range of Units 21 and 21A have generally enhanced moose habitat by encouraging forb and shrub production in cutover areas. However, this could eventually be counterbalanced by the negative effects of increased road access and loss of mature, densely-canopied forest stands used by moose for winter cover.

TRAPPING AND TRANSPLANTING

No moose trapping or transplanting operations were conducted in the Salmon Region during 1998 (Table 6).

MANAGEMENT IMPLICATIONS

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

Opportunities exist to expand moose populations in Units 36 and 36B via further trapping and transplanting.

Table 1. 1997 Season Structure for controlled Moose Hunts in the Salmon Region.

Hunt No.(s)	Season		Open For
	Dates	Length	
21	8/30-11/23	86 days	Antlered only
29	8/30-11/23	86 days	Antlered only
30	8/30-11/23	86 days	Antlered only

Table 2. Summary of Moose Harvest and Drawing Odds by Hunt Area.

Area	Year	No. Permits	Harvest		Hunter Success	Days/Hunter	Total First Choice Applicants	Drawing Odds
			M	F				
21	1990	3	2	0	67	11.5	12	1: 4.0
	1991	3	3	0	100	9.3	11	1: 3.7
	1992	3	3	0	100	5.3	16	1: 5.3
	1993	3	3	0	100	12.5	26	1: 8.7
	1994	3	2	0	67	7.0	10	1: 3.3
	1995	4	3	0	75	18.0	30	1: 7.5
	1996	4	4	0	100	8.5	22	1: 5.5
	1997	4	4	0	100	6.0	17	1: 4.2
	1998	4	4	0	100	4.5	18	1: 4.5
29	1991	3	3	0	100	0.0	27	1: 9.0
	1992	3	3	0	100	9.7	16	1: 5.3
	1993	3	3	0	100	21.3	18	1: 6.0
	1994	3	3	0	100	2.0	30	1:10.0
	1995	5	4	0	80	4.5	62	1:12.4
	1996	5	5	0	100	7.4	41	1: 8.2
	1997	5	5	0	100	6.6	45	1: 9.0
	1998	5	4	0	80	-	44	1: 8.8
30	1993	3	3	0	100	6.0	10	1: 3.3
	1994	3	3	0	100	6.0	14	1: 4.7
	1995	3	3	0	100	2.0	31	1:10.3
	1996	3	2	0	67	-.-	19	1: 6.3
	1997	3	3	0	100	3.0	27	1: 9.0
	1998	3	3	0	100	8.3	30	1: 10

Table 3. Summary of All Known Moose Mortalities in Units 21 and 21A.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1981-90	No recorded mortalities					
1990-91	2	0	0	0	0	2
1991-92	3	0	0	0	0	3
1992-93	3	0	1	0	0	4
1993-94	0	1	0	0	0	1
1994-95	0	0	1	0	0	1
1995-96	0	0	0	1	0	1
1996-97	0	0	0	0	0	0
1997-98	0	0	0	1	0	1
1998-99	0	0	0	0	0	0

Table 4. Summary of All Known Moose Mortalities in Units 29 and 37A.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1981-90	0	0	0	1	1	2
1990-91	0	0	0	1	0	1
1991-92	3	0	0	0	0	3
1992-93	3	0	0	0	0	3
1993-94	0	0	0	1	0	1
1994-95	0	1	0	0	0	1
1995-96	0	0	0	0	0	0
1996-97	0	0	0	0	0	0
1997-98	0	1	0	0	0	1
1998-99	0	0	0	0	0	0

Table 5. Summary of all known moose mortalities in Units 30 and 30A.

Year	Mortality Agent					Total
	Indian Harvest	Illegal Kill	Road Kill	Natural	Other	
1990-91	0	0	1	0	0	1
1991-92	0	0	0	0	0	0
1992-93	0	1	0	0	0	1
1993-94	0	0	0	0	0	0
1994-95	0	0	0	1	0	1
1995-96	0	0	0	1	0	1
1996-97	0	0	0	0	2	2
1997-98	0	0	1	0	0	1
1998-99	0	1	0	0	2	3

Table 6. Summary of Moose Transplants in the Salmon Region.

Date	Capture Site	Release Site	Adults		Calves		Total
			M	F	M	F	
02/93	Units 60, 60A, 62 Misc. Locations	36-Valley Creek	1	2	0	0	3
		36-Decker Flat	0	2	1	0	3
		36-Gold Creek	0	2	0	0	2

Submitted by:

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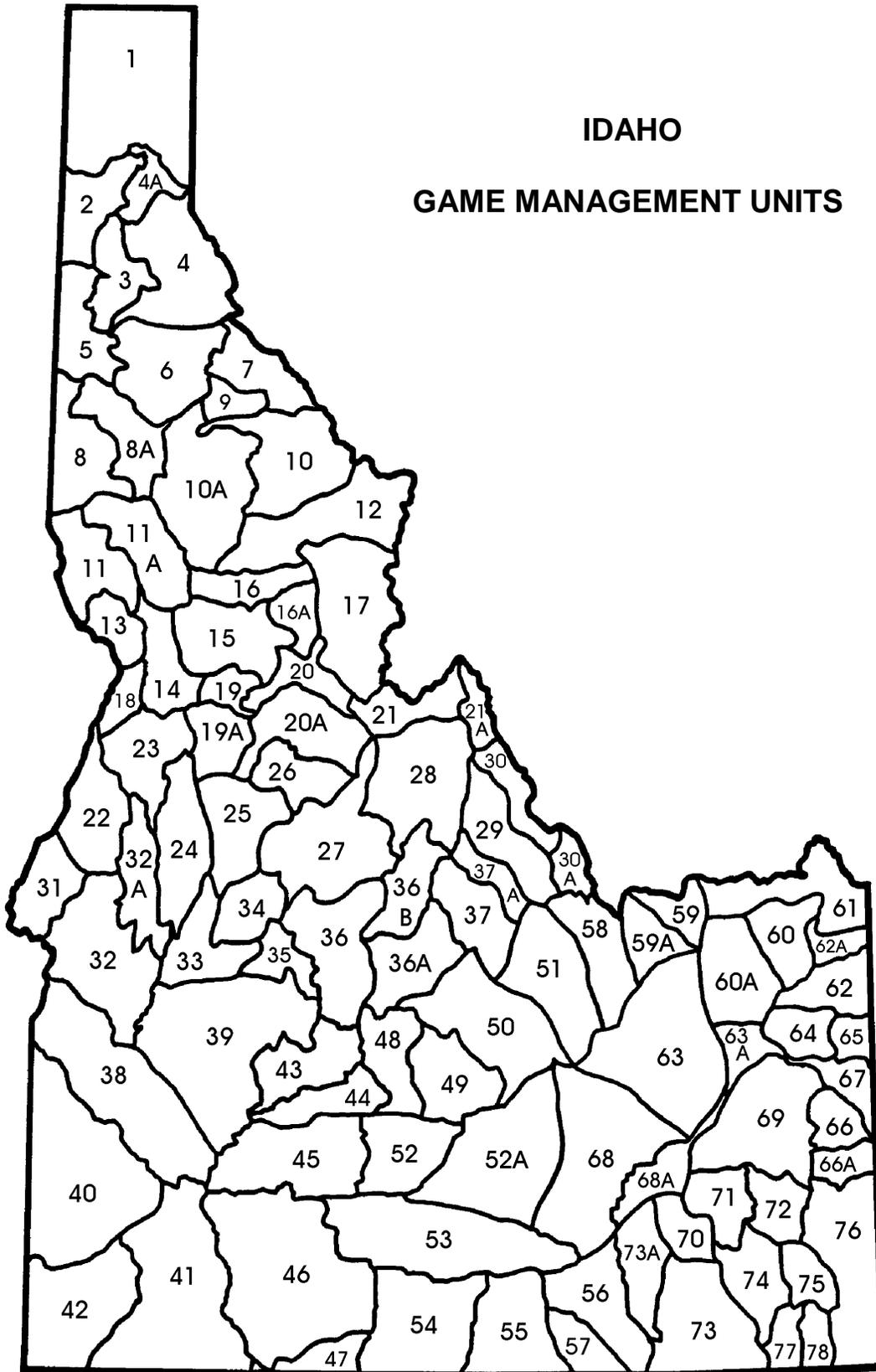
Approved by: IDAHO DEPARTMENT OF FISH AND GAME

Wayne Melquist
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Nongame Wildlife Manager
Federal Aid Coordinator

Tom Parker
Tom Parker, Acting Chief
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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.

