

**IDAHO DEPARTMENT OF FISH AND GAME**

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**Statewide Surveys and Inventories**

**Project W-170-R-23**

**Job Progress Report**



**MOUNTAIN LION**

Study I, Job 8

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## TABLE OF CONTENTS

<b>STATEWIDE</b> .....	1
SUMMARY .....	1
<b>PANHANDLE REGION</b> .....	3
ABSTRACT .....	3
DAU 1-1 (GMUs 1, 2, 3, 4, 4A, 5, 6, 7, 9) .....	3
MANAGEMENT DIRECTION .....	4
BACKGROUND .....	4
HARVEST CHARACTERISTICS .....	4
CLIMATIC CONDITIONS .....	6
DEPREDATIONS .....	6
MANAGEMENT IMPLICATIONS .....	6
<b>CLEARWATER REGION</b> .....	14
ABSTRACT .....	14
DAU 2-1 (GMUs 8, 8A, 10, 10A, 11, 11A) .....	14
MANAGEMENT DIRECTION .....	14
BACKGROUND .....	15
HARVEST CHARACTERISTICS .....	15
CLIMATIC CONDITIONS .....	16
DEPREDATIONS .....	16
MANAGEMENT IMPLICATIONS .....	16
DAU 2-2 (GMUs 12, 13, 14, 15, 16, 18) .....	17
MANAGEMENT DIRECTION .....	17
BACKGROUND .....	17
HARVEST CHARACTERISTICS .....	17
CLIMATIC CONDITIONS .....	18
DEPREDATIONS .....	18
MANAGEMENT IMPLICATIONS .....	18
DAU 2-3 (GMUs 16A, 17, 19, 20) .....	19
MANAGEMENT DIRECTION .....	19
BACKGROUND .....	19
HARVEST CHARACTERISTICS .....	19
CLIMATIC CONDITIONS .....	20
DEPREDATIONS .....	20
MANAGEMENT IMPLICATIONS .....	20
<b>SOUTHWEST REGION</b> .....	29
ABSTRACT .....	29
SOUTHWEST REGIONAL STATUS .....	29

## TABLE OF CONTENTS

(Continued)

AREA 3-1 (GMUs 22, 24, 31, 32, 32A).....	30
HARVEST CHARACTERISTICS.....	30
CLIMATIC CONDITIONS .....	30
AREA 3-2 (GMUs 19A, 23, 25, 33, 34, 35, 39).....	30
HARVEST CHARACTERISTICS.....	30
DEPREDATIONS.....	31
CLIMATIC CONDITIONS .....	31
AREA 3-3 (GMUs 20A, 26) .....	31
BACKGROUND .....	31
POPULATION SURVEY .....	31
HARVEST CHARACTERISTICS.....	32
CLIMATIC CONDITIONS .....	32
AREA 3-4 (GMUs 40, 41, 42).....	32
BACKGROUND .....	32
POPULATION SURVEYS.....	33
HARVEST CHARACTERISTICS.....	33
CLIMATIC CONDITIONS .....	33
<b>MAGIC VALLEY REGION.....</b>	<b>44</b>
ABSTRACT .....	44
AREA 4-1 (GMUs 43, 44, 45).....	44
MANAGEMENT DIRECTION.....	44
BACKGROUND .....	45
HARVEST CHARACTERISTICS.....	45
DEPREDATIONS.....	45
MANAGEMENT IMPLICATIONS .....	45
AREA 4-2 (GMUs 46, 47, 54, 55).....	46
MANAGEMENT DIRECTION.....	46
BACKGROUND .....	46
HARVEST CHARACTERISTICS.....	47
DEPREDATIONS.....	47
MANAGEMENT IMPLICATIONS .....	47
AREA 4-3 (GMUs 56, 57).....	48
MANAGEMENT DIRECTION.....	48
BACKGROUND .....	48
HARVEST CHARACTERISTICS.....	48
DEPREDATIONS.....	48
MANAGEMENT IMPLICATIONS .....	49
AREA 4-4 (GMUs 49, 50, 51).....	49
MANAGEMENT DIRECTION.....	49
BACKGROUND .....	49

## TABLE OF CONTENTS

(Continued)

HARVEST CHARACTERISTICS.....	49
DEPREDATIONS.....	50
MANAGEMENT IMPLICATIONS .....	50
<b>SOUTHEAST REGION.....</b>	<b>56</b>
ABSTRACT .....	56
AREA 5-1 (GMUs 66A, 70, 71, 72, 73, 73A, 74, 75, 76, 77, 78).....	56
MANAGEMENT DIRECTION .....	56
BACKGROUND .....	56
HARVEST CHARACTERISTICS.....	57
CLIMATIC CONDITIONS .....	57
DEPREDATIONS.....	58
MANAGEMENT IMPLICATIONS .....	58
LITERATURE CITED.....	58
<b>UPPER SNAKE REGION.....</b>	<b>63</b>
ABSTRACT .....	63
AREA 6-1 (GMUs 58, 59, 59A).....	63
MANAGEMENT DIRECTION .....	63
BACKGROUND .....	63
HARVEST CHARACTERISTICS.....	64
CLIMATIC CONDITIONS .....	65
DEPREDATIONS.....	65
MANAGEMENT IMPLICATIONS .....	65
AREA 6-2 (GMUs 50, 51).....	65
MANAGEMENT DIRECTION .....	65
BACKGROUND .....	66
HARVEST CHARACTERISTICS.....	66
CLIMATIC CONDITIONS .....	67
DEPREDATIONS.....	67
MANAGEMENT IMPLICATIONS .....	67
AREA 6-3 (GMUs 64, 65, 66, 67, 69 (part)).....	67
MANAGEMENT DIRECTION .....	67
BACKGROUND .....	68
HARVEST CHARACTERISTICS.....	68
CLIMATIC CONDITIONS .....	69
DEPREDATIONS.....	69
MANAGEMENT IMPLICATIONS .....	69
AREA 6-4 (GMUs 60, 61, 62, 62A).....	69
MANAGEMENT DIRECTION.....	69
BACKGROUND .....	70

**TABLE OF CONTENTS**  
(Continued)

MANAGEMENT IMPLICATIONS .....	70
<b>SALMON REGION</b> .....	<b>75</b>
ABSTRACT .....	75
AREA 3-3 (GMU 27).....	75
MANAGEMENT DIRECTION .....	75
BACKGROUND .....	76
HARVEST CHARACTERISTICS.....	76
CLIMATIC CONDITIONS .....	77
DEPREDATIONS.....	77
MANAGEMENT IMPLICATIONS .....	77
AREA 7-1 (GMUs 21, 21A, 28, 36, 36B).....	78
MANAGEMENT DIRECTION .....	78
BACKGROUND .....	78
HARVEST CHARACTERISTICS.....	78
CLIMATIC CONDITIONS .....	79
DEPREDATIONS.....	79
MANAGEMENT IMPLICATIONS .....	80
AREA 7-2 (GMUs 29, 30, 30A, 36A, 37, 37A) .....	80
MANAGEMENT DIRECTION .....	80
BACKGROUND .....	80
HARVEST CHARACTERISTICS.....	81
CLIMATIC CONDITIONS .....	81
DEPREDATIONS.....	81
MANAGEMENT IMPLICATIONS .....	82

## LIST OF TABLES

### PANHANDLE REGION

Table 1.	Mountain lion harvest in DAU 1-1, 1984-1998 seasons.....	8
Table 2.	Age structure of female mountain lion harvest in DAU 1-1, 1985-1998 seasons. Age information was collected beginning 1985. ....	9
Table 3.	Age structure of male mountain lion harvest in DAU 1-1, 1985-1997 seasons. Age information was collected beginning 1985. ....	10
Table 4.	Age classes of 1998-1999 mountain lion harvest by Game Management Unit. ....	11
Table 5.	Mountain lion harvest by method in DAU 1-1 during 1998-1999 season. ....	12
Table 6.	Distribution of mountain lion harvest by month, sex and unit for DAU 1-1 during 1998-1999 season. ....	13

### CLEARWATER REGION

Table 1.	Mountain lion harvest in Area 2-1, in the Clearwater Region, 1990-1998. ....	22
Table 2.	Mountain lion harvest by age class*, sex, and year in DAU 2-1, 1990-1998. ....	22
Table 3.	Mountain lion harvest by method and sex in DAU 2-1 <sup>c</sup> , 1990-1998. ....	23
Table 4.	Mountain lion harvest by weapon and sex in DAU 2-1, 1990-1998. ....	23
Table 5.	Mountain lion harvest in Area 2-2 <sup>c</sup> , in the Clearwater Region, 1990-1998. ....	23
Table 6.	Mountain lion harvest by age class*, sex, and year in DAU 2-2, 1990-1998. ....	24
Table 7.	Mountain lion harvest by method and sex in DAU 2-2, 1990-1998. ....	24
Table 8.	Mountain lion harvest by weapon and sex in DAU 2-2, 1990-1998. ....	25
Table 9.	Mountain lion harvest in Area 2-3, in the Clearwater Region, 1990-1998. ....	25
Table 10.	Mountain lion harvest by age class*, sex, and year in DAU 2-3, 1990-1998. ....	26
Table 11.	Mountain lion harvest by method and sex in DAU 2-3, 1990-1998. ....	26
Table 12.	Mountain lion harvest by weapon and sex in DAU 2-3, 1990-1998. ....	27
Table 13.	Mountain lion harvest in the Clearwater Region by DAU for 1991-1998. ....	27
Table 14.	Mountain lion harvest by Game Management Unit in the Clearwater Region from 1991-1998. ....	28

### SOUTHWEST REGION

Table 1.	Mountain lion harvest by method in the Southwest Region during 1998-1999. ....	34
Table 2.	Season structure for mountain lion in Area 3-1 in the Southwest Region. ....	34
Table 3.	Mountain lion harvest in Area 3-1, 1994-1998 in the Southwest Region. ....	35
Table 4.	Mountain lion harvest by sex and unit in Area 3-1 for the Southwest Region during 1998-1999. ....	35
Table 5.	Mountain lion harvest by age and sex classes by unit in Area 3-1 for the Southwest Region during 1998-1999. The percentage figures in this table are based on extremely small sample sizes and must be interpreted with caution. ....	36
Table 6.	Season structure for mountain lion in Area 3-2 in the Southwest Region. ....	37

**LIST OF TABLES**  
(Continued)

Table 7. Mountain lion harvest in Area 3-2, 1994-1998 in the Southwest Region. .... 37

Table 8. Mountain lion harvest by sex and unit in Area 3-2 for the Southwest Region during 1998-1999..... 38

Table 9. Mountain lion harvest by age and sex classes by unit in Area 3-2 for the Southwest Region during 1998-1999. The percentage figures in this table are based on extremely small sample sizes and must be interpreted with caution. .... 39

Table 10. Season structure for mountain lion in Area 3-3 in the Southwest Region. .... 39

Table 11. Mountain lion harvest in Area 3-3, 1994-1998 in the Southwest Region. .... 40

Table 12. Mountain lion harvest by sex and unit in Area 3-3 for the Southwest Region during 1998-1999..... 40

Table 13. Mountain lion harvest by age and sex classes by unit in Area 3-3 for the Southwest Region during 1998-1999. The percentage figures in this table are based on extremely small sample sizes and must be interpreted with caution. .... 41

Table 14. Season structure for mountain lion in Area 3-4 in the Southwest Region. .... 41

Table 15. Mountain lion harvest in Area 3-4, 1994-1998 in the Southwest Region. .... 42

Table 16. Mountain lion harvest by sex and unit in Area 3-4 for the Southwest Region during 1998-1999..... 42

Table 17. Mountain lion harvest by age and sex classes by unit in Area 3-4 in the Southwest Region during 1998-1999. The percentage figures in this table are based on extremely small sample sizes and must be interpreted with caution. .... 43

**MAGIC VALLEY REGION**

Table 1. Mountain lion harvest in Area 4-1, Magic Valley Region, 1991-1998. .... 51

Table 2. Mountain lion harvest in Area 4-2, Magic Valley Region, 1991-1998. .... 51

Table 3. Mountain lion harvest in Area 4-3, Magic Valley Region, 1991-1998. .... 52

Table 4. Mountain lion harvest in Unit 49 (Area 4-4), Magic Valley Region, 1991-1998..... 52

Table 5. Mountain lion harvest by sex, unit and month for the Magic Valley Region during 1998-1999..... 53

Table 6. Mountain lion harvest by age and sex classes by unit in the Magic Valley Region during 1998-1999. .... 54

Table 7. Mountain lion harvest by method in the Magic Valley Region during 1998-1999..... 55

**SOUTHEAST REGION**

Table 1. Mountain lion harvest in Area 5-1, 19890-1998 in the Southeast Region..... 59

Table 2. Mountain lion harvest by sex and unit for the Southeast Region during 1998-1999..... 60

**LIST OF TABLES**  
(Continued)

Table 3. Mountain lion harvest by age and sex classes by unit in the Southeast Region during 1998-1999..... 61  
Table 4. Mountain lion harvest by method in the Southeast Region during 1998-1999. .... 62

**UPPER SNAKE REGION**

Table 1. Legal mountain lion harvest in Area 6-1, 1994-1998 in the Upper Snake Region. .... 71  
Table 2. Legal mountain lion harvest in Area 6-2, 1994-1998 in the Upper Snake Region. .... 71  
Table 3. Legal mountain lion harvest in Area 6-3, 1994-1998 in the Upper Snake Region. .... 71  
Table 4. Legal mountain lion harvest by sex and unit for the Upper Snake Region during 1998-1999..... 72  
Table 5. Legal mountain lion harvest by age and sex classes by unit in the Upper Snake Region during 1998-1999..... 73  
Table 6. Legal mountain lion harvest by method in the Upper Snake Region during 1998-1999..... 74

**SALMON REGION**

Table 1. Mountain lion harvest in Area 3-3 in the Salmon Region. .... 83  
Table 2. Mountain lion harvest in Area 7-1 in the Salmon Region. .... 83  
Table 3. Mountain lion harvest in Area 7-2 in the Salmon Region. .... 83  
Table 4. Mountain lion harvest by age and sex classes by unit in the Salmon Region during 1998-1999..... 84  
Table 5. Mountain lion harvest by sex and unit for the Salmon Region during 1998-1999..... 85  
Table 6. Mountain lion harvest by method in the Salmon Region during 1998-1999. .... 86

## LIST OF FIGURES

Figure 1. Idaho big game management units and mountain lion data analysis units.....	2
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**PROGRESS REPORT  
SURVEYS AND INVENTORIES**

<b>STATE:</b>	<u>Idaho</u>	<b>JOB TITLE:</b>	<u>Mountain Lion Surveys</u>
<b>PROJECT:</b>	<u>W-170-R-23</u>		<u>and Inventories</u>
<b>SUBPROJECT:</b>	<u>1-7</u>	<b>STUDY NAME:</b>	<u>Big Game Population Status,</u>
<b>STUDY:</b>	<u>I</u>		<u>Trends, and Associated Habitat</u>
<b>JOB:</b>	<u>8</u>		<u>Studies</u>
<b>PERIOD COVERED:</b>	<u>July 1, 1998 to June 30, 1999</u>		

**MOUNTAIN LION – STATEWIDE**

**SUMMARY**

The Department uses the Mandatory Check and Report system to collect data on harvested mountain lions. The Mandatory Check program requires successful hunters to check the hide and skull of their mountain lion at a Department office or checkpoint within 5 days of the kill date.

In 1998 resident hunters purchased 1,410 mountain lion tags and nonresidents bought 351 tags. The Department sold 14,786 Sportsman-Pak licenses, which also include a mountain lion tag.

The total number of mountain lions checked at Department regional offices or official checkpoints was 769. One hundred forty-nine (149) of these mountain lions were taken on guided hunts. Hunters using trailing dogs took 605 mountain lions; 103 mountain lions were taken by hunters incidental to some other activity. Most mountain lion hunters used a rifle – 424, while 220 used a pistol and 116 used archery equipment.

A total of 2,129 hound hunter permits was sold to resident hunters by the Department in 1998; nonresidents purchased 76 permits.

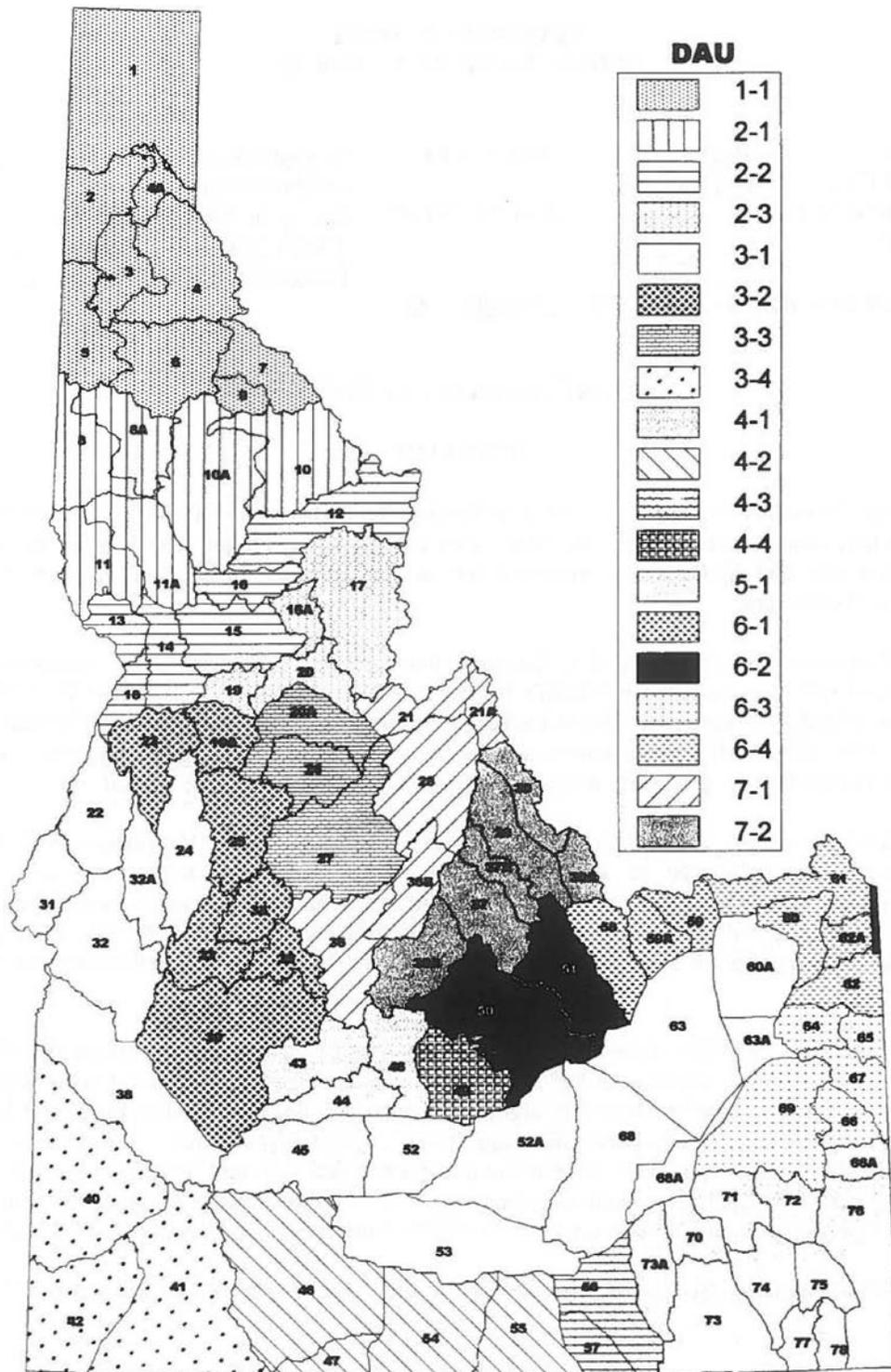


Figure 1. Idaho big game management units and mountain lion data analysis units.

**PROGRESS REPORT  
SURVEYS AND INVENTORIES**

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<b>PERIOD COVERED:</b>	<u>July 1, 1998 to June 30, 1999</u>		

**MOUNTAIN LION - PANHANDLE REGION**

**ABSTRACT**

The 1998-1999 reported mountain lion harvest of 172 was exceeded only by the 1997-1998 mountain lion harvest. Harvest characteristics indicate a strong population despite not meeting the management plan criterion of less than 40% females in the harvest. There is some evidence to suggest a slight decline in the male segment of the population.

**DAU 1-1 (GMUS 1, 2, 3, 4, 4A, 5, 6, 7, 9)**

Unit 1 is the largest producer of mountain lions in this DAU, with 38% of the harvest taking place in this unit. The Selkirk, Purcell, and West Cabinet Ranges all provide good white-tailed deer habitat, important to the relative density of mountain lions in DAU 1-1. Substantial portions of Unit 1 have low motorized access levels to help protect grizzly bears.

Twenty-four percent of the 1998-1999 harvest occurred in Units 2, 3, and 5. This portion of the DAU has considerable urban, rural residential, and agricultural activity. White-tailed deer are common, but only marginal elk populations exist.

Land in Units 4 and 4A is primarily in federal ownership. The early deer season in Unit 4 allows mountain lion hunting with hounds during November. Units 4 and 4A accounted for 19% of the 1998-1999 harvest.

Nineteen percent of the mountain lions taken in the Panhandle are killed in the St. Maries, St. Joe, and Little North Fork of the Clearwater River drainages, in Units 6, 7, and 9. Units 7 and 9 are remote, with poor access during winter.

## MANAGEMENT DIRECTION

### Management Objectives

In the goals of the 1991-1995 Mountain Lion Management Plan, DAU 1-1 is to be managed to provide an increasing population of mountain lions. Available evidence indicates these management objectives were attained, and although no new mountain lion management plan is yet in place, current objectives are to stabilize and, in some areas, slightly decrease the mountain lion populations.

The Department will continue to gather harvest data via the mandatory check. Regulations will allow the use of trailing dogs and continue to protect young mountain lions and females accompanied by young of the year. Pursuit (no-harvest) seasons are not currently offered because these seasons have been changed to regular hunting seasons as the need arose for increased harvest.

## BACKGROUND

### Historical Information

Prior to the 1995-1996 hunting season, DAU 1-1 was comprised of three separate Areas: 1-1 (Units 1, 2, 3, and 5); 1-2 (Units 4 and 4A); and 1-3 (Units 6, 7, and 9). Concurrent with the establishment of DAU 1-1, seasons in some units were extended to establish a single, DAU-wide season framework and to provide a larger annual sample size, although over a broader area.

### Season Structure

The 1998-1999 season was 182 days in length, opening September 15 and closing March 15 in all units. There was no change from the 1997-1998 season. The use of hounds is not allowed during the general deer and elk rifle seasons.

## HARVEST CHARACTERISTICS

The 1998-1999 mountain lion kill in DAU 1-1 was 172, the second highest recorded since 1983 (Table 1). The harvest density (one mountain lion per 45 square miles) is comparable to that to the east, in Montana's Region 1 (1 mountain lion per 41 square miles, J. Brown pers. commun. 1999) and 2 (1 mountain lion per 39 square miles, J. Firebaugh, pers. commun. 1999). The highest harvest density in DAU 1-1 occurs in Unit 2, closely followed by Units 1, 4, and 6 (Figure 1). The lowest harvest density occurs in Unit 9, which generally has no mountain lion harvest due to its remote location.

## Sex Ratio

The percentage of females in the harvest, generally considered an indicator of mortality rates, decreased steadily from the early 1980s through the early 1990s. Since then there has been a slightly increasing trend (Figure 2). The three-year unweighted average of 41% females is near the maximum threshold (40%) in the 1991-1995 Mountain Lion Management Plan.

## Age Structure

Age is indexed by measuring the distance from the jaw bone to the dentine/enamel ridge of the top canine (the “tooth drop”). Between 1991 and 1993 the proportion of the female kill in the youngest age class (K-3 years) declined substantially, while the proportion in the middle age class (4-7 years) increased (Table 3) despite no change in hunting seasons. The number of females in the oldest age class (8+ years) has averaged 4.2 per year since 1994. From 1989 through 1992 an average of 0.8 old females per year were taken. Thus, the shift to a younger population occurred not as the result of fewer old females, but despite an increase in old females.

The 1973 and 1974 statewide harvest data is indicative of a depressed population (Powers 1986). Forty-three percent of the females taken those two years were in the K-3 age class, a sharp contrast with the 23% evident in the 1998-1999 harvest. By 1986, with the mountain lion population increasing, 35% of the females were in the K-3 age category, still well above that of today.

Analysis of the male age structure of the population (Table 4) suggests this segment may have been increasing rapidly as early as 1988. The 1998-1999 data shows a substantial drop in the number and percentage of old males in the harvest, and a higher number of K-3 males taken. These conditions are consistent with a population becoming affected by higher mortality. Within DAU 1-1, Units 2 and 4 have the youngest age structure, while Unit 6 has the oldest (Table 5).

## Hunting Characteristics

The average successful mountain lion hunter during the 1998-1999 season was unguided (88%) and used hounds (83%) and a rifle (70%) to take a mountain lion (Table 6). During the past five years, mountain lions taken with the aid of a guide averaged 41% females, essentially the same as unguided hunters (43% females). However, guiding did produce older female mountain lions. Female tooth drop averaged 4.9 mm for cats taken with guides, significantly higher than the 4.1 mm for cats taken without guides (T test  $P= 0.02$ , 308df). Male tooth drop averaged 5.3 mm for cats taken with guides, not significantly different than the 5.1 mm for cats taken without the aid of guides (T test  $P= 0.45$ , 411 df).

### Harvest Distribution By Date

During October and November, general elk and deer hunting seasons preclude mountain lion hunting with hounds. Thirteen percent of the 1998-1999 kill occurred prior to December 1, primarily mountain lions taken incidental to elk and deer hunting. Seventy-nine percent of the mountain lion kill took place December through February, with the March kill accounting for the remaining 8% (Table 7). The proportion of females in the harvest peaked at 50% during January and February.

### Incidental Kill

Twenty-three of the 172 mountain lions harvested (13%) in this DAU were taken by hunters not actively pursuing mountain lions at the time. During the past five years, incidental kills averaged 52% females, significantly higher than the 40% females reported by hunters pursuing mountain lions with hounds (G test of independence,  $P > 0.01$ ). Females killed incidentally had smaller tooth drops (mean 3.8 mm) than females taken with the use of hounds (mean 4.4 mm, T test,  $P < 0.01$ , 441 df). Incidentally-killed males also had smaller tooth drops (mean 5.0 mm) than those killed with the use of hounds (mean 5.4 mm, T test,  $P = 0.03$ , 602 df).

### Other Mortalities

During this reporting period there were 5 other mountain lion mortalities in addition to the 172 harvested cats. They were reported as two depredation kills, one road kill, one illegal kill, and one natural mortality.

## CLIMATIC CONDITIONS

The winter of 1998-1999 was "normal" with lower than normal snow accumulation at low elevations, but much higher accumulations than normal above 3,600 feet.

## DEPREDATIONS

The reporting rate of mountain lions killed by Wildlife Services has been highly variable over the years, so year-to-year comparisons have little value. There were two mountain lions taken as a result of depredations during this reporting period, both taken in Unit 1.

## MANAGEMENT IMPLICATIONS

The management of mountain lions has changed dramatically during the past 30 years. Through 1971 it was classified as a predator, with a continuous open season and no bag limit, and, in many years, a bounty was paid for dead mountain lions. With reclassification as a

game animal in 1971, more conservative management was initiated to increase the mountain lion population.

The 1972 season for DAU 1-1 was open only September through December, with one mountain lion allowed per year. During the late 1970s and early 1980s, seasons remained relatively short, with some units virtually closed. Unit 4, for example, was open for only 7 days in 1970, from November 26 through December 2. Seasons have closed generally at the end of December, or in mid-January during most of the 1980s and 1990s. Beginning in 1993 seasons were extended several times, so that DAU 1-1 currently closes March 31.

The Department's 1981-1985 Mountain Lion Management Plan (page 30) noted "The distribution and numbers of mountain lions in Idaho appear to have increased in the last ten years." This same statement was made in the 1986-1990 Mountain Lion Management Plan (page 3). The same statement can be made with confidence again in 1999.

The Population Direction Goal for this area in the most recent Mountain Lion Management Plan (1991-1995) calls for an "increase." It appears safe to say that the increase envisioned during the 1991 planning process has been realized, and exceeded. At the same time, calf:cow ratios for elk have dropped substantially during the past six to eight years, and the lack of a population increase following reduced elk populations after the severe winter of 1996-1997 has resulted in a general desire by big game hunters to reduce mountain lion populations.

It is desirable to reduce the mountain lion population of DAU 1-1 to a level somewhere between that of 1991 and 1999. While there are no specific population estimates possible for either time period, harvest data suggests there was substantial growth between those periods and, therefore, ample room for manipulation. A one-third reduction from the existing population should be within this range.

The age structure information of the male segment of the kill provides some evidence that the existing framework may be beginning to hold down population growth. It is unclear whether the population has declined.

Table 1. Mountain lion harvest in DAU 1-1, 1984-1998 seasons.

Harvest Season	Female	Male	Unknown	Total	Percent Female
1984	18	17	0	35	51%
1985	15	18	0	33	45%
1986	17	14	0	31	55%
1987	21	17	2	40	55%
1988	19	26	0	45	42%
1989	28	22	0	50	56%
1990	19	31	0	50	38%
1991	34	39	2	75	47%
1992	24	33	1	58	42%
1993	20	45	0	65	31%
1994	36	58	0	94	38%
1995	73	70	1	144	51%
1996	52	84	1	137	38%
1997	81	112	1	194	42%
1998	76	96	0	172	44%

Table 2. Age structure of female mountain lion harvest in DAU 1-1, 1985-1998 seasons. Age information was collected beginning 1985.

Harvest Season	Harvest by Age Class				Percent in Each Age Class		
	Unknown	K-3 <sup>a</sup>	4-7 <sup>b</sup>	8+ <sup>c</sup>	K-3	4-7	8+
1985	0	7	6	2	47%	40%	13%
1986	3	7	7	0	50%	50%	0%
1987	0	6	12	3	29%	57%	14%
1988	1	5	11	4	25%	55%	20%
1989	2	11	13	2	42%	50%	8%
1990	0	6	13	0	32%	68%	0%
1991	3	5	25	2	16%	78%	6%
1992	2	8	14	0	36%	64%	0%
1993	2	3	15	0	17%	83%	0%
1994	5	7	21	4	22%	66%	13%
1995	3	20	48	5	27%	66%	7%
1996	6	9	32	4	20%	71%	9%
1997	10	18	49	4	25%	69%	6%
1998	11	15	46	4	23%	71%	6%

<sup>a</sup> < than 4 mm from jaw bone to first enamel (tooth drop).

<sup>b</sup> 4-7 mm from jaw bone to first enamel.

<sup>c</sup> > 7 mm from jaw bone to first enamel.

Table 3. Age structure of male mountain lion harvest in DAU 1-1, 1985-1997 seasons. Age information was collected beginning 1985.

Harvest Season	Harvest by Age Class				Percent in Each Age Class		
	Unknown	K-3	4-7	8+	K-3	4-7	8+
1985	1	3	10	4	18%	59%	24%
1986	2	3	7	2	25%	58%	17%
1987	1	4	10	2	25%	63%	13%
1988	3	3	19	2	13%	79%	8%
1989	0	3	16	3	14%	73%	14%
1990	2	3	22	4	10%	76%	14%
1991	2	4	24	9	11%	65%	24%
1992	6	3	20	5	11%	71%	18%
1993	2	4	31	8	9%	72%	19%
1994	4	7	39	8	13%	72%	15%
1995	3	5	54	9	7%	79%	13%
1996	2	11	56	14	14%	69%	17%
1997	5	11	83	12	10%	78%	11%
1998	9	17	64	6	20%	74%	7%

Table 4. Age classes of 1998-1999 mountain lion harvest by Game Management Unit.

Unit	Sex	Number by Age Class				Percentage by Age Class		
		Unknown	K-3	4-7	8+	K-3	4-7	8+
1	M	4	5	17	2	21%	71%	8%
	F	6	5	24	2	16%	77%	6%
2	M	0	4	6	1	36%	55%	9%
	F	1	5	4	0	56%	44%	0%
3	M	0	1	5	0	17%	83%	0%
	F	0	0	4	0	0%	100%	0%
4	M	0	3	12	0	20%	80%	0%
	F	1	4	9	1	29%	64%	7%
4A	M	2	0	0	0			
	F	0	0	1	0	0%	100%	0%
5	M	0	4	4	1	44%	44%	11%
	F	0	0	1	0	0%	100%	0%
6	M	1	0	10	2	0%	83%	17%
	F	3	1	9	1	9%	82%	9%
7	M	2	0	3	0	0%	100%	0%
	F	0	0	1	0	0%	100%	0%
9	M	0	0	0	0			
	F	0	0	0	0			
DAU 1-1	M	9	17	57	6	21%	71%	8%
	F	11	15	53	4	21%	74%	6%

Table 5. Mountain lion harvest by method in DAU 1-1 during 1998-1999 season.

Method	Males	Females	Unknown	Total
<b>Weapon</b>				
Rifle	69	52	0	121
Bow	10	10	0	20
Muzzleloader	0	2	0	2
Pistol	17	11	0	28
Unknown	0	0	0	0
<b>Guided</b>				
Yes	10	9	0	20
No	86	67	0	153
<b>Method</b>				
Still	3	2	0	5
Incidental	12	11	0	23
Predator Call	0	1	0	1
Hounds	81	61	0	142
Other/Unknown	0	1	0	1

Table 6. Distribution of mountain lion harvest by month, sex and unit for DAU 1-1 during 1998-1999 season.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
1	M	1	0	0	14	9	8	3	35
	F	0	0	1	11	6	12	0	30
2	M	0	0	0	3	7	1	0	11
	F	0	1	0	2	7	0	0	10
3	M	1	1	1	1	0	2	0	6
	F	0	0	0	0	3	1	0	4
4	M	0	1	1	4	3	6	0	15
	F	1	2	0	3	6	2	1	15
4A	M	0	0	0	0	1	1	0	2
	F	0	0	0	0	1	0	0	1
5	M	1	2	1	1	3	0	1	9
	F	0	0	0	0	0	1	0	1
6	M	0	2	2	2	2	3	2	13
	F	0	2	0	2	2	5	3	14
7	M	0	1	0	0	0	1	3	5
	F	0	0	0	0	0	0	1	1
9	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
Total	M	3	7	5	25	25	22	9	96
	F	1	5	1	18	25	21	5	76
	Total	4	12	6	43	50	43	14	172

**PROGRESS REPORT  
SURVEYS AND INVENTORIES**

**STATE:** Idaho                      **JOB TITLE:** Mountain Lion Surveys  
**PROJECT:** W-170-R-23                      and Inventories  
**SUBPROJECT:** 2                      **STUDY NAME:** Big Game Population Status,  
**STUDY:** I                      Trends, and Associated Habitat  
**JOB:** 8                      Studies  
**PERIOD COVERED:** July 1, 1998 to June 30, 1999

**MOUNTAIN LION - CLEARWATER REGION**

**ABSTRACT**

During the 1998-1999 season, hunters in the Clearwater Region harvested 228 mountain lions, 52% of which were females. This was a decrease in harvest of 10% from the 1995-1997 average of 253 mountain lions harvested annually. DAU 2-1 received an 18% decrease in harvest (121), while DAU 2-2 received a decrease of 24% in harvest (91), and DAU 2-3 remained about the same harvest (17). The most common age class harvested in all DAUs was the 4-7 age class, accounting for 54% in DAU 2-1, 71% in DAU 2-2, and 63% in DAU 2-3. During the 1998-1999 season the majority of mountain lions were harvested using hounds (74%), followed by incidental harvest (19%). Most mountain lions were harvested with a rifle. The decrease in overall harvest may indicate a decrease in population size, or merely reflect the snow conditions. This was the first time in 5 years a reduction in harvest was recorded.

**DAU 2-1 (GMUS 8, 8A, 10, 10A, 11, 11A)**

**MANAGEMENT DIRECTION**

Management Objectives

The 1991-1995 Mountain Lion Management Plan identifies the following statewide management goals:

- Maintain population levels.
- Reduce harvest rates to 250 animals statewide.
- Reduce the female component of the harvest from the current statewide average of 45% to 25-30%.

In addition, there is a goal to increase population levels in Units 8, 8A, and 10A, and to maintain the population level in Unit 10. These objectives have changed recently, at least temporarily, as we have seen an apparent increase in mountain lion numbers. Consequently, the region has established more liberal seasons to harvest the increasing number of mountain lions and to control some of the problems and potential problems associated with high mountain lion numbers. The Clearwater Region currently is harvesting 228 mountain lions, which is close to the 1991-1995 Management Plan objective of 250 mountain lions harvested per year statewide.

## BACKGROUND

### Historical Information

DAU 2-1 units are generally readily accessible to hunters during winter and support productive mountain lion populations. Healthy white-tailed deer and elk populations, as well as some mule deer, provide a substantial prey base. Habitats in this area include dense, coniferous forest in Units 10 and 10A; coniferous forests interspersed with farmland in Units 8, 8A, and 11A; and Snake River canyon lands and higher elevation coniferous forests in Unit 11.

### Season Structure

Within DAU 2-1, the 1996-1997 mountain lion take season extended from September 15, 1996 through March 31, 1997, a 2-week extension from the 1994-1995 season. The dog-training season for mountain lions was eliminated. The 1998-1999 season was similar.

## HARVEST CHARACTERISTICS

### Sex Ratio

During the 1998-1999 hunting season, DAU 2-1 hunters killed 121 mountain lions, including 66 females and 55 males (Table 1). This was about the same as the previous 3-year average of 123. Females comprised 55% of the harvest, about the same as the previous 3-year average.

### Age Structure

The 1998-1999 harvest was dominated by 4-7 year age class mountain lions (54%), with 32% k-3, and 14% in the 8+ year age class (Table 2). This is relatively consistent with previous years, except that more young mountain lions and fewer older ones are being harvested, a possible indication of slightly reducing populations.

### Harvest Trend

During the 1998-1999 hunting season, hunters in DAU 2-1 harvested 121 mountain lions, which is about the same as the previous 3-year average (Tables 1 and 13). This may have been a result of leveling populations in these units.

### Harvest By Method And Weapon

Hound hunting was the most common method used to harvest mountain lions in this DAU, accounting for 76% of the harvest. Incidental harvest accounted for 15% of the mountain lions reported during the 1998-1999 season, a decrease for the first time in many years - possibly a result of leveling or decreasing mountain lion numbers (Table 3). As in the past, harvest using rifle was the most common weapon used (Table 4).

## CLIMATIC CONDITIONS

The Clearwater Region received record high precipitation at higher elevations during the winter of 1998-1999. Snow provided good tracking conditions throughout the region, and hunting continued all winter and spring due to low snow accumulations at lower elevations.

## DEPREDATIONS

Mountain lion depredations are usually very minor in this DAU. However, during the 1998-1999 season, 24 depredation complaints were filed with the Department for this DAU. In GMUs 8A, 11A, and 10A in particular, the Department has been receiving more reports of encounters and observations recently, most of these reports are concerns for human safety.

## MANAGEMENT IMPLICATIONS

Due to the increase in sightings and reports of encounters over the last 3-5 years in this DAU, hunting seasons were liberalized. Harvest continued to increase and, during the 1997-1998 season, harvest reached an all-time high in this DAU. It is likely that due to the dense white-tailed deer populations throughout much of this DAU, the mountain lion population expanded its range into the lower elevations and preyed on the whitetail. This would also account for increased observations in the lower elevation whitetail habitat in this DAU, particularly GMUs 8A and 10A. The 1998-1999 season was the first in the last decade that the mountain lion harvest decreased in this DAU.

Harvest in GMU 10A increased 250% from 1990-1998, and is the unit that has maintained the highest annual harvest for the last 5 years. During the last few seasons GMU 10A provided about one-third of the Region's total mountain lion harvest, but decreased this year for the first time this decade (Table 14). Continued monitoring is needed to determine if the decrease is due to a population change or the weather.

## DAU 2-2 (GMUS 12, 13, 14, 15, 16, 18)

### MANAGEMENT DIRECTION

#### Management Objectives

The 1991-1995 Mountain Lion Management Plan identifies the following statewide management goals:

- Maintain population levels.
- Reduce harvest rates to 250 animals statewide.
- Reduce the female component of the harvest from the current statewide average of 45% to 25-30%.

These objectives have changed recently, at least temporarily, as an apparent increase in mountain lion numbers has occurred. Consequently, the region has established more liberal seasons to harvest the increasing number of mountain lions and to control some of the problems and potential problems associated with high mountain lion numbers. The Clearwater Region last year harvested 228 mountain lions, which was almost as high as the statewide harvest objective of 250.

### BACKGROUND

Winter access varies among DAU 2-2 units. In general, lower elevations of most units are readily accessible to hunters during winter. Parts of all these units can be more difficult to access because of snow, mud, or steep rugged habitat. Deer and elk populations throughout most of the DAU are thriving, providing substantial prey base. Habitats range from dense coniferous forest and mountainous terrain with high precipitation, to lower elevations along the Snake and Salmon Rivers where bunch grass communities prevail in a drier climate.

#### Season Structure

Within DAU 2-2, the 1998-1999 take season was not changed from last year. DAU 2-2 did not have a dog-training season and there were no female harvest quotas.

### HARVEST CHARACTERISTICS

#### Sex Ratio

During the 1998-1999 hunting season, DAU 2-2 hunters harvested 91 mountain lions, 52% of which were females (Table 5). The proportion of females was higher than the previous 3-year average.

### Age Structure

As usual, the 1998-1999 harvest was dominated by 4-7 year age class mountain lions (71%), which was about average. Thirteen percent of the harvest was in the k-3 age class, and 16% was in the 8+ age class (Table 6). This is a common harvest composition, but a little light in the younger age class.

### Harvest Trend

During the 1998-1999 hunting season, Area 2-2 hunters harvested 91 mountain lions, which represents a decrease of 22% over the previous 3-year average (Table 5). Harvest in this DAU varies dramatically between years, usually a result of weather conditions. However, this year's harvest was the lowest since 1994. Still, hunters have indicated a perceived increase in mountain lion numbers in some of these units. The increase seems to follow the pattern in Area 2-1 where increased harvest occurred in GMUs with many whitetails, such as GMU 15 (Table 14).

### Harvest By Method And Weapon

Hunters in DAU 2-2 used hounds to harvest mountain lions 70% of the time, and incidental to other activities 26% of the time (Table 7). The weapon used most often was the rifle (Table 8).

## CLIMATIC CONDITIONS

The Clearwater Region received record high precipitation during the winter of 1997-1998 at higher elevations. Hunters were able to access diverse habitat throughout the season but were restricted to low elevations.

## DEPREDATIONS

There were 4 reported cases of mountain lion depredations in this DAU, which is typical of this DAU.

## MANAGEMENT IMPLICATIONS

There was a 22% decrease in harvest over the previous 3-year average, and harvest levels were about the same as 1994. The season has again been liberalized 2 weeks for the 1997-1998 season to offer sportsmen a greater opportunity to harvest a mountain lion. Incidental harvest increased during 1998; therefore, the decreased winter harvest may have been weather related.

## DAU 2-3 (GMUS 16A, 17, 19, 20)

### MANAGEMENT DIRECTION

#### Management Objectives

The 1991-1995 Mountain Lion Management Plan identifies the following statewide management goals:

- Maintain population levels.
- Reduce harvest rates to 250 animals statewide.
- Reduce the female component of the harvest from the current statewide average of 45% to 25-30%.

These objectives have changed recently, at least temporarily, as an apparent increase in mountain lion numbers has occurred. Consequently, the region has established more liberal seasons to harvest the increasing number of mountain lions and to control some of the problems and potential problems associated with high mountain lion numbers. The Clearwater Region currently is harvesting just under 250 mountain lions, which was the statewide harvest objective.

### BACKGROUND

Units within DAU 2-3 occur within wilderness and large roadless areas that afford limited access for hunters during the mountain lion season. Habitats within this DAU include dense, coniferous forests within rugged mountainous terrain, as well as Ponderosa pine savanna habitat with open understory, and steep open bunch grass hillsides and brushfields along the Selway and Salmon River breaks. Although some white-tailed deer habitat occurs in these units, the predominant ungulates are elk and mule deer.

#### Season Structure

Within DAU 2-3, the 1998-1999 mountain lion take season extended from September 15 through March 31. DAU 2-3 does not have a dog training season, and there were no female harvest quotas.

### HARVEST CHARACTERISTICS

#### Sex Ratio

During the 1998-1999 hunting season, DAU 2-3 hunters killed 17 mountain lions, including 6 females (Table 9). This was an increase in harvest from the previous 3-year average. Few mountain lions are typically harvested from these units because of the remote character and

difficult access facing hunters. Therefore, because of low harvest numbers, sex ratios are not clearly trend sensitive.

### Age Structure

The sample size is typically too small to reflect accurately the age structure of the population; however, 10 of 17 mountain lions harvested were in the 4-7 year age class, 0 in the K-3, and 6 in the 8+ age class (Table 10).

### Harvest Trend

Mountain lion harvest continues to remain stable and fluctuates about 3-10 animals per year, probably a result of different weather conditions (Table 9). Because these are such large units with ample prey base, the mountain lion population is clearly much greater than harvest indicates. This suggests an underharvested population, but evidently self-regulating.

### Harvest By Method And Weapon

Harvest in DAU 2-3 was 94% (15 of 16) by the use of hounds, the remainder incidental (1) (Table 11). The most common weapons used were rifle, pistol, and bow (Table 12).

## CLIMATIC CONDITIONS

The Clearwater Region received record amounts of precipitation during the winter of 1996-1997, below average in 1997-1998, and above average in higher elevations in 1998-1999.

## DEPREDATIONS

Because units in this DAU occur predominately in the wilderness, depredations are not usually a concern.

## MANAGEMENT IMPLICATIONS

Because this DAU occupies such a large area and covers high quality big game range, the population of mountain lions can obviously sustain higher levels of harvest than what currently occurs. However, because incidental harvest has not increased in these units, apparently the random occurrence of hunters who would shoot a mountain lion if they saw one, but aren't seeing any, may indicate that the population is remaining stable. The difference may lie within the prey base. Because mountain lions may be exploiting the whitetail prey base in other DAUs, their populations could increase beyond levels preying on just mule deer and elk. Because whitetails are not widespread within these wilderness units, mountain lion populations could not increase as dramatically as they would in areas that had increasing whitetail

populations. This theory suggests that encounters with mountain lions would occur more frequently in whitetail habitat because more people also recreate and work in those habitats. That appeared to be what occurred over the last few years in those units with high numbers of whitetails and easy hunter access (Table 14).

Table 1. Mountain lion harvest in Area 2-1, in the Clearwater Region, 1990-1998.

Year	Males	Females	Total	Percent Female
1990	25	17	42	40
1991	25	18	43	42
1992	31	27	58	47
1993	46	28	74 <sup>a</sup>	38
1994	45	29	74 <sup>b</sup>	39
1995	45	61	106	58
1996	59	57	116	49
1997	75	72	147	49
1998	55	66	121	54.5
1995-1997 Average	59.7	63.3	123	51.5

<sup>a</sup> In 1993, one mountain lion was checked with sex unknown.

<sup>b</sup> In 1994, one mountain lion was checked with sex unknown.

<sup>c</sup> GMUs 8, 8A, 10, 10A, 11, 11A.

Table 2. Mountain lion harvest by age class\*, sex, and year in DAU 2-1, 1990-1998.

Year	Sex	Age Class						Total
		K-3 (%)		4-7 (%)		8+ (%)		
1990	M	3	(7)	20	(49)	1	(2)	24
	F	6	(15)	11	(27)	0	(0)	17
1991	M	5	(13)	16	(41)	3	(8)	24
	F	6	(15)	9	(23)	0	(0)	15
1992	M	6	(12)	19	(37)	2	(4)	27
	F	6	(12)	18	(35)	0	(0)	24
1993	M	4	(7)	29	(50)	3	(5)	36
	F	5	(9)	15	(26)	1	(2)	21
1994	M	2	(10)	9	(45)	1	(5)	12
	F	3	(15)	4	(20)	1	(5)	8
1995	M	6	(6)	32	(32)	4	(4)	42
	F	11	(11)	41	(41)	7	(7)	59
1996	M	7	(6)	42	(36)	9	(8)	58
	F	18	(16)	36	(31)	3	(3)	57
1997	M	16	(11)	39	(28)	19	(14)	74
	F	16	(11)	45	(32)	5	(4)	66
1998	M	14	(13)	25	(24)	10	(9)	49
	F	20	(19)	32	(0)	5	(5)	57

\*Many age classes were improperly recorded and therefore not included. Any age class less than 0 or greater than 15 were considered invalid.

Table 3. Mountain lion harvest by method and sex in DAU 2-1<sup>c</sup>, 1990-1998.

Method	1990		1991		1992		1993		1994		1995		1996		1997		1998		T <sup>b</sup>
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Hounds	22	11	18	14	24	19	26	17	29	14	33	39	53	44	58	50	31	40	91
Incidental	1	2	5	2	3	5	14	6	13	10	10	19	6	13	15	21	7	12	18
Still Hunt	1	1	0	1	1	0	0	0	1	2	2	3	0	0	1	1	3	5	8
Unknown	0	2	2	0	3	3	6	5	2	3	0	0	0	0	1	0	0	0	0
Pred. Call	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	2
Other	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	25	17	25	18	31	27	46	28	45	29	45	61	59	57	75	72	42	58	119

<sup>a</sup> Computer Tally.

<sup>b</sup> Hand Tally.

<sup>c</sup> GMUs 8, 8A, 10, 10A, 11, 11A.

Table 4. Mountain lion harvest by weapon and sex in DAU 2-1, 1990-1998.

Weapon	1990		1991		1992		1993		1994		1995		1996		1997		1998 <sup>a</sup>		T <sup>b</sup>
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Bow	7	1	8	4	6	12	8	5	11	1	5	5	9	8	7	9	5	5	11
Pistol	2	3	4	4	6	4	5	6	9	6	10	16	11	6	20	9	11	17	28
Rifle	16	12	9	10	16	8	26	13	23	19	30	39	37	32	46	52	26	36	75
Muzzle	0	0	2	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	1
Unknow n	0	1	2	0	3	3	6	4	2	3	0	0	2	1	2	1	0	0	6
Total	25	17	25	18	31	27	46	28/	45	29	45	61	59	57	75	72	42	58	115

<sup>a</sup> Computer Tally

<sup>b</sup> Hand Tally

Table 5. Mountain lion harvest in Area 2-2<sup>c</sup>, in the Clearwater Region, 1990-1998.

Year	Males	Females	Total	Percent Female
1990	24	18	42	43
1991	41	28	70 <sup>a</sup>	40
1992	52	26	78	33
1993	64	51	116 <sup>b</sup>	44
1994	46	34	80	43
1995	56	53	109	49
1996	66	55	121	45
1997	65	55	120	46
1998	43	48	91	53
1995-1998 Average	62.3	54.3	116.7	46.5

<sup>a</sup> In 1991, one mountain lion was checked with sex unknown.

<sup>b</sup> In 1993, one mountain lion was checked with sex unknown.

<sup>c</sup> GMUs 8, 8A, 10, 10A, 11, 11A.

Table 6. Mountain lion harvest by age class\*, sex, and year in DAU 2-2, 1990-1998.

Year	Sex	K-3 (%)		4-7 (%)		8+ (%)		Total
1990	M	3	(8)	17	(46)	2	(5)	22
	F	2	(5)	12	(32)	1	(3)	15
1991	M	3	(4)	26	(39)	11	(16)	40
	F	9	(13)	18	(27)	0	(0)	27
1992	M	2	(3)	37	(57)	6	(9)	45
	F	6	(9)	13	(20)	1	(2)	20
1993	M	5	(5)	45	(42)	10	(9)	60
	F	14	(13)	32	(30)	2	(2)	48
1994	M	2	(5)	20	(48)	2	(5)	24
	F	5	(12)	12	(28)	1	(2)	18
1995	M	5	(5)	37	(36)	8	(8)	50
	F	17	(17)	28	(27)	7	(7)	52
1996	M	2	(2)	45	(38)	18	(15)	65
	F	5	(4)	33	(28)	16	(13)	54
1997	M	6	(5)	46	(38)	13	(11)	65
	F	9	(8)	41	(34)	5	(4)	55
1998	M	6	(7)	23	(27)	10	(12)	39
	F	5	(6)	37	(44)	4	(5)	46

\*Many age classes were improperly recorded and therefore not included. Any age class less than 0 or greater than 15 were considered invalid.

Table 7. Mountain lion harvest by method and sex in DAU 2-2, 1990-1998.

Method	1990		1991		1992		1993		1994		1995		1996		1997 <sup>a</sup>		1998		T <sup>b</sup>
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Hounds	17	8	35	18	40	13	54	38	35	19	41	40	63	46	55	41	31	31	64
Incidental	1	3	4	4	4	5	7	11	6	11	15	8	3	6	9	11	11	10	24
Still Hunt	5	2	1	5	0	1	1	1	1	0	0	5	0	2	0	3	0	3	3
Unknown	1	4	1	1	7	7	2	1	4	3	0	0	0	0	1	0	0	1	0
Pred. Call	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Totals	24	18	41	28	52	26	64	51	46	34	56	53	66	55	65	55	42	45	91

<sup>a</sup> Computer Tally.

<sup>b</sup> Hand Tally.

Table 8. Mountain lion harvest by weapon and sex in DAU 2-2, 1990-1998.

Weapon	1990		1991		1992		1993		1994		1995		1996		1997		1998 <sup>a</sup>		T <sup>b</sup>
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Bow	4	3	12	1	6	2	11	7	3	6	7	67	7	3	6	2	4	4	10
Pistol	6	3	6	7	22	6	21	21	18	7	13	19	24	22	26	17	12	16	29
Rifle	13	7	21	19	17	11	30	21	21	18	36	28	34	29	32	36	25	25	50
Muzzle	0	0	1	0	0	0	0	1	0	0	0	0	1	1	0	0	1	0	1
Unknow n	1	5	1	1	7	7	4	6	0	0	0	0	0	0	1	0	0	0	0
Total	24	18	41	28	52	32	66	56	42	31	56	53	66	55	65	55	42	45	90

<sup>a</sup> Computer Tally.

<sup>b</sup> Hand Tally.

Table 9. Mountain lion harvest in Area 2-3, in the Clearwater Region, 1990-1998.

Year	Males	Females	Total	Percent Female
1990	10	6	16	38
1991	10	4	14	29
1992	16	5	21	24
1993	8	10	18	56
1994	6	5	11	45
1995	7	6	13	46
1996	4	4	8	50
1997	12	7	19	37
1998	11	6	17	35
1995-1998 Average	7.7	5.7	13.3	43

<sup>a</sup> In 1991, one mountain lion was checked with sex unknown.

<sup>b</sup> In 1993, one mountain lion was checked with sex unknown.

Table 10. Mountain lion harvest by age class\*, sex, and year in DAU 2-3, 1990-1998.

Year	Sex	K-3 (%)		4-7 (%)		8+ (%)		Total
1990	M	4	(25)	6	(38)	0	(0)	10
	F	1	(6)	5	(31)	0	(0)	6
1991	M	1	(7)	4	(28)	5	(36)	10
	F	2	(14)	2	(14)	0	(0)	4
1992	M	0	(0)	6	(32)	8	(42)	14
	F	0	(0)	4	(1)	1	(5)	5
1993	M	2	(14)	4	(29)	1	(7)	7
	F	2	(14)	5	(36)	0	(0)	7
1994	M	0	(0)	2	(40)	2	(40)	4
	F	0	(0)	1	(20)	0	(0)	1
1995	M	1	(9)	4	(36)	1	(9)	6
	F	1	(9)	3	(27)	1	(9)	5
1996	M	0	(0)	4	(50)	0	(0)	4
	F	1	13	3	(37)	0	(0)	4
1997	M	1	(5)	7	(37)	4	(21)	12
	F	2	(11)	5	(26)	0	(0)	7
1998	M	0	(0)	5	(31)	5	(31)	10
	F	0	(0)	5	(31)	1	(4)	6

\*Many age classes were improperly recorded and therefore not included. Any age class less than 0 or greater than 15 were considered invalid.

Table 11. Mountain lion harvest by method and sex in DAU 2-3, 1990-1998.

Method	1990		1991		1992		1993		1994		1995		1996		1997		1998 <sup>a</sup>		T <sup>b</sup>
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Hounds	6	2	6	3	11	5	6	7	2	2	7	2	4	2	11	4	9	5	15
Incidental	0	0	1	1	2	0	1	2	4	2	0	3	0	2	1	2	3	0	1
Still Hunt	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Unknown	3	4	3	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Pred. Call	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1	0	0
Totals	10	6	10	4	16	5	8	10	6	5	7	6	4	4	12	7	13	5	16

<sup>a</sup> Computer Tally.

<sup>b</sup> Hand Tally.

Table 12. Mountain lion harvest by weapon and sex in DAU 2-3, 1990-1998.

Weapon	1990		1991		1992		1993		1994		1995		1996		1997		1998 <sup>a</sup>		T <sup>b</sup>
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Bow	1	1	1	1	0	1	2	0	1	1	2	1	4	2	4	1	4	0	5
Pistol	1	0	1	2	9	3	2	3	1	0	4	1	4	1	7	2	1	2	4
Muzzle	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	3	4	3	0	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0
Rifle	2	1	4	1	6	1	3	6	5	3	1	4	0	1	1	4	5	3	7
Total	7	6	10	4	16	5	8	10	8	5	7	6	8	4	12	7	10	5	16

<sup>a</sup> Computer Tally.

<sup>b</sup> Hand Tally.

Table 13. Mountain lion harvest in the Clearwater Region by DAU for 1991-1998.

Year	DAU 2-1			DAU 2-2			DAU 2-3			Region		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
1991	25	18	43	42	28	70	10	4	14	77	50	127
1992	31	29	60	53	26	79	15	5	20	99	60	159
1993	46	27	73	64	51	115	8	10	18	118	88	206
1994	45	29	74	46	33	79	6	5	11	97	67	164
1995	44	63	107	56	52	108	8	6	14	108	121	229
1996	59	57	116	66	55	121	4	4	8	129	116	245
1997	75	72	147	65	55	120	12	7	19	152	134	286
1998 <sup>a</sup>	55	66	121	43	48	91	11	6	17	109	120	229

<sup>a</sup> Hand Tally.

Table 14. Mountain lion harvest by Game Management Unit in the Clearwater Region from 1991-1998.

Unit	1991	1992	1993	1994	1995	1996	1997	1998 <sup>a</sup>
8	1	3	3	2	1	3	8	5
8A	9	4	6	13	11	17	15	21
10	13	23	30	20	16	21	20	19
10A	16	18	25	29	58	60	87	66
11	4	8	8	5	14	14	11	3
11A	0	0	1	5	7	1	6	6
12	18	18	24	10	16	18	23	21
13	2	6	10	4	10	9	8	4
14	12	17	24	10	17	16	16	18
15	24	21	35	26	41	51	42	17
16	9	13	12	16	16	18	18	20
16A	2	3	3	1	3	0	1	1
17	5	15	11	7	8	5	12	14
18	5	4	10	13	8	9	13	11
19	3	1	3	0	1	2	0	1
20	3	1	1	3	2	1	6	1
Total	126	155	206	164	229	245	286	228

<sup>a</sup> Hand Tally.

**PROGRESS REPORT  
SURVEYS AND INVENTORIES**

<b>STATE:</b>	<u>Idaho</u>	<b>JOB TITLE:</b>	<u>Mountain Lion Surveys</u>
<b>PROJECT:</b>	<u>W-170-R-23</u>		<u>and Inventories</u>
<b>SUBPROJECT:</b>	<u>3</u>	<b>STUDY NAME:</b>	<u>Big Game Population Status,</u>
<b>STUDY:</b>	<u>I</u>		<u>Trends, and Associated Habitat</u>
<b>JOB:</b>	<u>8</u>		<u>Studies</u>
<b>PERIOD COVERED:</b>	<u>July 1, 1998 to June 30, 1999</u>		

**MOUNTAIN LION - SOUTHWEST REGION**

**ABSTRACT**

Mandatory check reports during the 1998-1999 mountain lion season indicated a harvest of 127 mountain lions (70 male and 57 female) within the Southwest Region. Five units (Units 24, 39, 40, 41, and 42) in the Southwest Region closed before March 31 because the female harvest quota was met.

**SOUTHWEST REGIONAL STATUS**

Mandatory check reports during the 1998-1999 mountain lion season indicated a harvest of 127 mountain lions (70 male and 57 female) within the Southwest Region. This is lower than the harvest in 1997-1998. Units 24, 25, 31, 32, 39, 40, 41, and 42 were 8 of 37 units in the state using a quota system as a mountain lion management strategy. Five units (24, 39, 40, 41, and 42) closed because the female quota was met.

Several incidents with mountain lions were reported in 1998-1999. Several other mountain lions were reported in residential areas of Boise, the foothills near Boise, and near Lake Lowell (Nampa area).

Mountain lion harvest in the Southwest Region decreased from 139 to 127 mountain lions from the 1997-1998 to the 1998-1999 season. Rifles were the most common weapon used to harvest mountain lions (Table 1). Guides were used by 23% of the successful mountain lion hunters (Table 1). Incidental and still hunters harvested 16% of the mountain lions (Table 1).

## AREA 3-1 (GMUS 22, 24, 31, 32, 32A)

### HARVEST CHARACTERISTICS

#### Season Structure

General season length for the Southwest Region units within Areas 3-1 is 198 days (Table 2).

#### Mandatory Check

All successful mountain lion hunters must present the hide and skull of harvested mountain lions to a conservation officer or regional office within 5 days of the date of kill for tagging the hide and canine tooth measurement for age estimation. Information is recorded on sex, age, weapon type, hunt type (guided, unguided, hounds, still, incidental), and date of kill.

Harvest decreased from 1997 to 1998 (Table 3). The proportion of females in the harvest increased to 57%. Twenty-two of the 28 harvested mountain lions were taken during December, January, and February (Table 4). The largest portion of harvested mountain lions are in the 4- to 6-year-old age class (Table 5).

Units 24, 31, and 32 are under a quota system management with a quota of 3, 4, and 4 female mountain lions, respectively. The quota was met in Unit 24, but Units 31 and 32 were not closed by the quota. The female quota system appears to have been successful during the past two seasons in reducing female harvest and shifting more harvest to the male segment of the population while still allowing for adequate sport hunting opportunity.

### CLIMATIC CONDITIONS

The 1998-1999 winter period provided mixed mountain lion hunting conditions. Precipitation was average, and snow depths did not restrict access for significant parts of the season.

## AREA 3-2 (GMUS 19A, 23, 25, 33, 34, 35, 39)

### HARVEST CHARACTERISTICS

#### Season Structure

General season length for the Southwest Region units within Area 3-2 is 198 days (Table 6).

#### Mandatory Check

All successful mountain lion hunters must present the hide and skull of harvested mountain lions to a conservation officer or regional office within 5 days of the date of kill for tagging

the hide and canine tooth measurement for age estimation. Information is recorded on sex, age, weapon type, hunt type (guided, unguided, hounds, still, incidental), and date of kill.

Harvest remained about the same, from 74 to 73 from 1997 to 1998 (Table 7). The number of females in the harvest increased only slightly, from 25 to 26, and the proportion of females in the harvest remained about one-third. Sixty of the 73 harvested mountain lions were taken during December, January, and February (Table 8). The majority of harvested mountain lions were in the 4- to 6-year-old age class (Table 9).

Units 25 and 39 are under a quota system management with a quota of 4 and 7 female mountain lions, respectively. The quota was not met in Unit 25, but Unit 39 was closed by the quota. The female quota system appears to have been successful in reducing female harvest and shifting more harvest to the male segment of the population while still allowing for adequate sport hunting opportunity.

## DEPREDATIONS

There were several reports of mountain lions in residential areas in and around Boise

## CLIMATIC CONDITIONS

The 1998-1999 winter period provided average mountain lion hunting conditions. Precipitation was average, and snow depths did not restrict access for significant parts of the season.

## AREA 3-3 (GMUS 20A, 26)

### BACKGROUND

Area 3-3 contains good mountain lion populations that are not heavily harvested because of limited access.

Research data suggests that mountain lion populations in Area 3-3 are stable and self-regulating, and could withstand higher harvest. Because of limited access and rugged topography, long seasons can be allowed without reducing the population. However, Area 3-3 serves as a security area and population reservoir for emigration to surrounding areas to maintain mountain lion numbers in some heavily harvested populations in Area 3-2.

### POPULATION SURVEY

Due to the difficulty in estimating mountain lion population size, population trend and condition are inferred from age data collected through the mandatory check and report of all hunters killing a mountain lion.

## HARVEST CHARACTERISTICS

### Season Structure

The season structure for Area 3-3 is given in Table 10.

### Mandatory Check

All successful mountain lion hunters must present the hide and skull of harvested mountain lions to a conservation officer or regional office within 5 days of the date of kill for tagging the hide and canine tooth measurement for age estimation. Information is recorded on sex, age, weapon type, hunt type (guided, unguided, hounds, still, incidental), and date of kill.

The total harvest in Area 3-3 decreased from 6 to 2 from 1997 to 1998 (Table 11). The month of harvest, sex, and age of the harvested mountain lions is listed in Tables 12-13.

## CLIMATIC CONDITIONS

The 1997-1998 winter period provided good mountain lion hunting conditions. Snow depths did restrict access for part of the season.

### **AREA 3-4 (GMUS 40, 41, 42)**

#### BACKGROUND

Area 3-4 encompasses the southwestern and south-central parts of Idaho. Habitats are generally dry and range from desert to distinctly dry forest. The common characteristic of Area 3-4 is that elk are either absent or very scarce, and deer are the major big game prey species for mountain lions.

Access to mountain lions in winter is intermediate between that in Areas 3-2 and 3-3. The general scarcity of trees and presence of cliffs and other rocky features make mountain lions more difficult to capture because they are forced to seek shelter in rocks more often than in other areas of Idaho. Weather conditions, especially wind-blown snow, are not as conducive to good trailing as they are in other parts of Idaho. Access roads often do not traverse big game winter ranges, and most mountain lion habitat is not close to major human population centers. All of these factors make mountain lion hunting less productive and less popular in Area 3-4 than in Area 3-2.

## POPULATION SURVEYS

Due to the difficulty in estimating mountain lion population size, population trend and condition are inferred from age data collected through the mandatory check and report of all hunters killing a mountain lion.

## HARVEST CHARACTERISTICS

### Season Structure

The season structure for Area 3-4 is given in Table 14.

### Mandatory Check

All successful mountain lion hunters must present the hide and skull of harvested mountain lions to a conservation officer or regional office within 5 days of the date of kill for tagging the hide and canine tooth measurement for age estimation. Information is recorded on sex, age, weapon type, hunt type (guided, unguided, hounds, still, incidental), and date of kill.

The total harvest increased in 1998-1999 (Table 15). The month of harvest, sex, and age of the harvested mountain lions is listed in Tables 16-17.

## CLIMATIC CONDITIONS

The 1998-1999 winter period provided good mountain lion hunting conditions. Snow depths did not restrict access.

Table 1. Mountain lion harvest by method in the Southwest Region during 1998-1999.

Method	Males	Females	Total
<b>Weapon</b>			
Rifle	32	33	65
Bow	10	8	18
Mzldr.	0	0	0
Pistol	27	14	41
Other	1	0	1
<b>Guided</b>			
Yes	17	12	29
No	53	43	96
<b>Method</b>			
Still	3	2	5
Incid.	6	9	15
Pred. Call	1	4	5
Hounds	60	39	99
Other	0	1	1

Table 2. Season structure for mountain lion in Area 3-1 in the Southwest Region.

Season Type	Units	Season		Open for
		Dates	Length (Days)	
General <sup>a</sup>	22, 32A,	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>
General <sup>a</sup>	24 (This unit will remain open until a total of 3 females has been harvested or March 31, whichever occurs first.)	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>
	31, 32 (These units will remain open until a total of 4 females has been harvested in this group of units or March 31, whichever occurs first.)	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>

<sup>a</sup> Dogs may be used during these seasons when no firearm season (excluding muzzleloader and controlled hunts during September and from November 24-December 31) for deer or elk is open in the area to be hunted.

<sup>b</sup> Neither spotted mountain lion young nor female mountain lions accompanied by young may be taken.

Table 3. Mountain lion harvest in Area 3-1, 1994-1998 in the Southwest Region.

Year	Males	Females	Total	Percent Female
1994	8	8	16	50
1995	15	14	29	48
1996	15	8	23	35
1997	26	12	38	32
1998	12	16	28	57
1994-1998 Average	15	12	27	44

Table 4. Mountain lion harvest by sex and unit in Area 3-1 for the Southwest Region during 1998-1999.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
22	M	0	1	0	1	0	0	0	2
	F	0	0	0	1	0	0	0	1
24	M	0	0	0	0	0	0	0	0
	F	3	1	0	0	0	0	0	4
31	M	0	0	0	4	0	2	0	6
	F	0	0	0	2	0	1	0	3
32	M	0	0	0	1	1	0	0	2
	F	0	1	0	0	0	1	0	2
32A	M	1	0	0	0	3	1	0	5
	F	0	0	2	0	3	1	0	6
Total	M	1	1	0	6	4	3	0	15
	F	3	2	2	3	3	3	0	16

Table 5. Mountain lion harvest by age and sex classes by unit in Area 3-1 for the Southwest Region during 1998-1999. The percentage figures in this table are based on extremely small sample sizes and must be interpreted with caution.

Unit	Sex	Age Class		
		K-3 (%)	4-6 (%)	7+ (%)
22	M	0	1 (50)	1 (50)
	F	1 (100)	0	0
24	M	0	0	0
	F	1 (25)	3 (75)	0
31	M	1 (25)	2 (50)	1 (25)
	F	0	4 (80)	1 (20)
32	M	0	2 (100)	0
	F	1 (50)	0	1 (50)
32A	M	2 (40)	3 (60)	0
	F	1 (20)	3 (60)	1 (20)
Total	M	3 (23)	8 (62)	2 (15)
	F	4 (31)	6 (46)	3 (23)

Table 6. Season structure for mountain lion in Area 3-2 in the Southwest Region.

Season Type	Units	Season		Open for
		Dates	Length (Days)	
General <sup>a</sup>	19A	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>
	23, 33, 34, 35	9/15/98-2/28/99	198	Any mountain lion <sup>b</sup>
General <sup>a</sup>	25 (This unit will remain open until a total of 4 females has been harvested or March 31, whichever occurs first.)	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>
General <sup>a</sup>	39 (This unit will remain open until 7 females have been harvested or March 31, whichever occurs first.)	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>

<sup>a</sup> Dogs may be used during these seasons when no firearm season (excluding muzzleloader and controlled hunts during September and from November 24-December 31) for deer or elk is open in the area to be hunted.

<sup>b</sup> Neither spotted mountain lion young nor female mountain lions accompanied by young may be taken.

Table 7. Mountain lion harvest in Area 3-2, 1994-1998 in the Southwest Region.

Year	Males	Females	Total	Percent Female
1994	27	14	41	34
1995	39	20	59	34
1996	17	9	26	35
1997	49	25	74	34
1998	47	26	73	36
1994-98 Average	36	19	55	35

Table 8. Mountain lion harvest by sex and unit in Area 3-2 for the Southwest Region during 1998-1999.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
19A	M	0	0	0	1	0	0	1	2
	F	0	0	0	0	0	0	0	0
23	M	1	0	1	1	4	0	1	8
	F	0	0	0	4	0	2	1	7
25	M	0	0	0	1	1	2	0	4
	F	0	0	0	0	2	0	1	3
33	M	0	0	0	4	3	4	2	13
	F	0	0	0	1	2	2	2	7
34	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
35	M	1	0	0	2	1	1	0	5
	F	0	0	0	1	0	1	0	2
39	M	0	1	0	10	4	0	0	15
	F	0	1	0	4	2	0	0	7
Total	M	2	1	1	19	13	7	4	47
	F	0	1	0	10	6	5	4	26

Table 9. Mountain lion harvest by age and sex classes by unit in Area 3-2 for the Southwest Region during 1998-1999. The percentage figures in this table are based on extremely small sample sizes and must be interpreted with caution.

Unit	Sex	Age Class		
		K-3 (%)	4-6 (%)	7+ (%)
19A	M	0	0	0
	F	0	2 (100)	0
23	M	0	2 (29)	5 (71)
	F	0	4 (67)	2 (33)
25	M	0	3 (75)	1 (25)
	F	0	2 (67)	1 (33)
33	M	2 (15)	8 (62)	3 (23)
	F	1 (14)	6 (86)	0
34	M	0	0	0
	F	0	0	0
35	M	1 (20)	3 (60)	1 (20)
	F	0	2 (100)	0
39	M	0	6 (50)	6 (50)
	F	1 (20)	4 (80)	0
Total	M	3 (7)	22 (54)	16 (39)
	F	2 (8)	20 (80)	3 (12)

Table 10. Season structure for mountain lion in Area 3-3 in the Southwest Region.

Season Type	Units	Season		Open for
		Dates	Length (Days)	
General <sup>a</sup>	20A, 26	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>

<sup>a</sup> Dogs may be used during these seasons when no firearm season (excluding muzzleloader and controlled hunts during September and from November 24-December 31) for deer or elk is open in the area to be hunted.

<sup>b</sup> Neither spotted mountain lion young nor female mountain lions accompanied by young may be taken.

Table 11. Mountain lion harvest in Area 3-3, 1994-1998 in the Southwest Region.

Year	Males	Females	Total	Percent Female
1994	2	1	3	33
1995	6	4	10	40
1996	2	1	3	33
1997	3	3	6	50
1998	0	3	3	100
1994-98 Average	3	2	5	40

Table 12. Mountain lion harvest by sex and unit in Area 3-3 for the Southwest Region during 1998-1999.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
20A	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
26	M	0	0	0	0	0	0	0	0
	F	0	0	2	0	0	0	0	2
Total	M	0	0	0	0	0	0	0	0
	F	0	0	2	0	0	0	0	2

Table 13. Mountain lion harvest by age and sex classes by unit in Area 3-3 for the Southwest Region during 1998-1999. The percentage figures in this table are based on extremely small sample sizes and must be interpreted with caution.

Unit	Sex	Age Class		
		K-3 (%)	4-6 (%)	7+ (%)
20A	M	0	0	0
	F	0	0	0
26	M	0	0	
	F	0	2 (100)	0
Total	M	0	0	0
	F	0	2 (100)	0

Table 14. Season structure for mountain lion in Area 3-4 in the Southwest Region.

Season Type	Units	Season		Open for
		Dates	Length (Days)	
General <sup>a</sup>	40 (This unit will remain open until a total of 5 females has been harvested in this unit or March 31, whichever occurs first.)	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>
General <sup>a</sup>	41, 42 (These units will remain open until a total of 5 females has been harvested in this group of units or March 31, whichever occurs first.)	9/15/98-3/31/99	198	Any mountain lion <sup>b</sup>

<sup>a</sup> Dogs may be used during these seasons when no firearm season (excluding muzzleloader and controlled hunts during September and from November 24-December 31) for deer or elk is open in the area to be hunted.

<sup>b</sup> Neither spotted mountain lion young nor female mountain lions accompanied by young may be taken.

Table 15. Mountain lion harvest in Area 3-4, 1994-1998 in the Southwest Region.

Year	Males	Females	Total	Percent Female
1994	3	3	6	50
1995	8	2	10	20
1996	10	10	20	50
1997	4	10	14	71
1998	9	8	17	47
1994-1998 Average	7	7	14	50

Table 16. Mountain lion harvest by sex and unit in Area 3-4 for the Southwest Region during 1998-1999.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
40	M	0	0	0	6	0	0	0	6
	F	0	0	0	3	2	0	0	5
41	M	0	0	0	0	1	0	0	1
	F	0	0	0	0	0	2	0	2
42	M	0	0	0	0	1	1	0	2
	F	0	0	1	0	0	0	0	1
Total	M	0	0	0	6	2	1	0	9
	F	0	0	1	3	2	2	0	8

Table 17. Mountain lion harvest by age and sex classes by unit in Area 3-4 in the Southwest Region during 1998-1999. The percentage figures in this table are based on extremely small sample sizes and must be interpreted with caution.

Unit	Sex	Age Class		
		K-3 (%)	4-6 (%)	7+ (%)
40	M	1 (20)	2 (40)	2 (40)
	F	2 (40)	2 (40)	1 (20)
41	M	0	0	0
	F	0	1 (100)	0
42	M	0	0	1 (100)
	F	0	1 (100)	0
Total	M	1 (17)	2 (33)	3 (50)
	F	2 (29)	4 (57)	1 (14)

**PROGRESS REPORT  
SURVEYS AND INVENTORIES**

**STATE:** Idaho                      **JOB TITLE:** Mountain Lion Surveys  
**PROJECT:** W-170-R-23                      and Inventories  
**SUBPROJECT:** 4                      **STUDY NAME:** Big Game Population Status,  
**STUDY:** I                      Trends, and Associated Habitat  
**JOB:** 8                      Studies  
**PERIOD COVERED:** July 1, 1998 to June 30, 1999

**MOUNTAIN LION - MAGIC VALLEY REGION**

**ABSTRACT**

Mandatory reports indicated a hunter harvest of 35 mountain lions in the Magic Valley Region during the 1998-1999 season, an increase of 194% from 1991 when only 18 mountain lions were taken in the region. Four mountain lions were hunter harvested in Area 4-1, 18 in Area 4-2, 9 in Area 4-3, and 4 in the Unit 49 portion of Area 4-4. Three other mountain lions were killed in the region during 1998-1999; two were taken in response to depredation problems and one was found dead by a rancher. The female quota was reached in only one group of units (56 and 57) on December 28, 1998.

The best hunting conditions occurred during December and January during which 63% of the harvest occurred. Fourteen of 35 (40%) mountain lions checked in 1998-1999 were females. Hound hunting accounted for 28 (80%) of the hunter-harvested mountain lions in the region.

**AREA 4-1 (GMUS 43, 44, 45)**

**MANAGEMENT DIRECTION**

Management Objectives

- Stabilize harvest rates.
- Reduce the female component of the harvest to 25-35%.

## BACKGROUND

### Historical Information

Units 43, 44, and 45 have accounted for 14% of the mountain lion harvest in the Magic Valley Region over the last 8 years (Table 1). Prior to 1994 most of the mountain lion depredations on livestock occurred in these units.

### Season Structure

General	9/15-3/31	43, 44, (49)	3-female quota
		45, (52, 52A, 53)	3-female quota

Note: Units in parenthesis are not in the 1991-1995 Mountain Lion Management Plan management area, but are grouped for female quota purposes. Unit 49 data is presented under Area 4-4.

## HARVEST CHARACTERISTICS

Four harvested mountain lions (all males) were checked from area 4-1; 1 from Unit 44, 2 from Unit 45, and 1 from Unit 52A (Table 5). The harvest in Area 4-1 in 1998-1999 was similar to the 8-year average (Table 1). None of the mountain lions were in the young age class, 1 was in the mid age class, and three were in the old age class (Table 6). Mountain lions were harvested in January, February, and March (Table 5). Access to most low elevation areas was not restricted by snow throughout the winter. Three of the 4 mountain lions harvested in this area were taken with hounds (Table 7). The remaining 1 was taken with a predator call.

## DEPREDATIONS

No depredations were reported in this unit.

## MANAGEMENT IMPLICATIONS

A 3-female quota was implemented for the 3 combined units for the 1994-1995 season to help meet the objective of controlling female harvest. The quota was met for the 1994-1995 season but not for the 1995-1996 season. The grouping of units for female quotas was changed for the 1996-1997 season to help increase mountain lion harvest. Unit 49 was added to Units 43 and 44 while Unit 45 was added to a new group which included Units 52, 52A, and 53. Three-female quotas were implemented for both harvest groups. The female quota for the 1998-1999 season was not met in any of the groups of units in this harvest area. Harvest is influenced largely by snow conditions. Units 43, 44, and 49 typically have very limited access after mid-December. The other four units generally have good access throughout the winter.

## AREA 4-2 (GMUS 46, 47, 54, 55)

### MANAGEMENT DIRECTION

#### Management Objectives

- Decrease or stabilize populations.
- Reduce the female component of the harvest to 25-35%.

### BACKGROUND

#### Historical Information

Units 46, 47, 54, and 55 have accounted for about 65% of the mountain lion harvest in the Magic Valley Region during the last 8 years (Table 2). Unit 54 has consistently had the highest harvest of any GMU in the region. Until 1996, when mountain lion seasons were lengthened throughout the Magic Valley Region, Units 46, 47, and 54 had the most liberal seasons, staying open through February.

A 1-female harvest quota was placed on Unit 55 beginning in 1989. The quota was implemented to address concerns raised by Idaho State University's ongoing research project. The quota was filled in 1990-1991 (November 6), 1992-1993 (December 31), and 1993-1994 (November 18) but not in 1989-1990 or 1991-1992. The Unit 55 quota was increased to 3 females in 1994-1995 and the season was closed on January 15 and in 1995-1996 was closed on February 6. In the 1996-1997 season Units 55, 56, and 57 were grouped together to increase harvest (7-female quota). The 1997-1998 season again regrouped and increased the female quota for additional harvest (Unit 55-6 females and Units 56 and 57-3 females). Season and quotas remained the same for the 1998-1999 season.

#### Season Structure

General	9/15-3/31	46, 47	3-female quota
		54	6-female quota
		55	6-female quota

#### Management Studies

Idaho State University personnel continued their research on mountain lions in Units 55, 56, and 57. This study has been ongoing since 1986. Research summaries are presented in annual progress reports from Idaho State University.

## HARVEST CHARACTERISTICS

The reported harvest of 18 mountain lions in 1998-1999 was 31% lower than the previous year and 17% below the 8-year average. Unit 54 has traditionally accounted for the highest percentage of the harvest in these units, but in 1998-1999 Unit 55 accounted for 55% of the harvest. In 1998-1999, 2 mountain lions were taken in Unit 47, 6 in Unit 54, and 10 in Unit 55. Females accounted for 55% of the 1998-1999 harvest, which is well above the 8-year average of 40% (Table 2). Of the 18 mountain lions harvested in these units, 28%, 50%, and 17% were in the K-3 years, 4-6 years, and 7+ years age classes, respectively (Table 6). Fifty-five percent (10/18) of the harvest occurred during December and January when tracking conditions were best (Table 5). Hound hunting accounted for 16 of the 18 mountain lions (89%) harvested in this area (Table 7).

## DEPREDATIONS

Historically mountain lion depredations had been uncommon in these units compared to the northern Magic Valley Region units. However, following the decline in mule deer numbers in 1993, mountain lion depredations on domestic livestock increased. From 1993-1995, 8 mountain lions were killed by sheepherders or Wildlife Services personnel. From 1996-1998, 4 mountain lions depredating on domestic sheep were killed in Unit 54 by Noh Sheep Co. and resulted in a claim settlement of \$1,425 in 1996-1997. During the 1998-1999 reporting period, 1 mountain lion depredation on 8 sheep was reported in Unit 54. Laird Noh's sheepherder killed one male mountain lion and no damage claim was filed.

## MANAGEMENT IMPLICATIONS

Mountain lion populations appeared to have increased for the four years prior to the 1997-1998 season, as evidenced by increased harvest, increased depredation complaints, and an increase in mountain lion observations by the public. However, mountain lion populations since then appear to be declining, as indicated by the reduced harvest and fewer observations by the public. In addition, none of the units in this group met the female quotas during this reporting period compared to three units meeting the female quota the previous year.

Because of continuing depredations and the public perception of high mountain lion numbers, liberal harvest strategies will be continued for the 1999-2000 season.

## AREA 4-3 (GMUS 56, 57)

### MANAGEMENT DIRECTION

#### Management Objectives

- Reduce or stabilize the mountain lion population.
- Reduce the female harvest to 25-35% of the total harvest.

### BACKGROUND

#### Historical Information

Unit 57 has been open to general mountain lion hunting since 1981. Unit 56 was closed to take seasons in 1981 and 1982 and from 1986-1992. Pursuit seasons were provided in Unit 56 in both 1991 and 1992. Based on comments from houndsmen and field personnel, Unit 56 was determined to have an adequate mountain lion population to sustain limited harvest. A 1-female quota was placed on Unit 56 and adjacent Unit 57 for the 1992-1994 seasons to minimize harvest. The quota was raised to 2 females for the 1994-1995 and 1995-1996 seasons based on ongoing research and hunter observations. In 1996-1997 Units 56 and 57 were grouped with Unit 55 for female quota purposes and the female quota was set at 7, a net increase of 2 from the combined unit quotas in 1995-1996. In 1997-1998 Units 56 and 57 were grouped separately from Unit 55 for female quota purposes and the quotas were set at 3 and 6, respectively. No changes were made to the season length or female quota for 1998-1999.

#### Season Structure

General	9/15-3/31	56, 57	3-female quota
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### HARVEST CHARACTERISTICS

A harvest of 9 mountain lions was reported for these units in 1998-1999, the second highest harvest since 1991 (Table 3). Thirty-three percent of reported harvest was females (Table 5). Of the 9 mountain lions harvested, 2 were in the K-3 year age class, 4 were in the 4-6 year age class, and 3 were in the 7+ age class (Table 6). Seventy-eight percent of the mountain lions were taken in December (Table 5). Eight of 9 of the mountain lions harvested were taken with hounds (Table 7). The 3-female quota was met on 12/28/98.

### DEPREDATIONS

No depredations were reported in these units.

## MANAGEMENT IMPLICATIONS

Mountain lion numbers appear to be good and are reflected in the increased harvest level in 1998-1999. These units will remain grouped together and will maintain a 3-female quota for the 1999-2000 season.

### AREA 4-4 (GMUS 49, 50, 51)

#### MANAGEMENT DIRECTION

##### Management Objectives

- Stabilize harvest rates.
- Reduce the female component of the harvest to 25-35% of the total harvest.

#### BACKGROUND

##### Historical Information

Unit 49 was closed to mountain lion hunting from 1976-1988. An increase in mountain lion observations by Department and ADC field personnel, deer and elk hunters, and bobcat trappers prompted the season to be opened in 1988-1989. Mountain lion depredations on livestock in this unit have been infrequent. For the 1994-1995 and 1995-1996 seasons, Unit 49 was combined with Units 50 and 51 with a 3-female quota. Since the 1996-1997 season, Unit 49 has been combined with Units 43 and 44 with a 3-female quota.

##### Season Structure

General	9/15-3/31	49 (43, 44)	3-female quota
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Note: Units in parenthesis are not grouped with Unit 49 in the 1991-1995 Mountain Lion Management Plan management area, but are grouped for female quota purposes. Data presented are only for units in management area 4-4.

#### HARVEST CHARACTERISTICS

Four mountain lions were harvested in Unit 49 during the 1998-1999 season (Table 4). Seventy-five percent of the mountain lions harvested were taken in December and January (Table 5). None of the mountain lions harvested were in the K-3 age class, 3 were in the 4-6 year age class, and 1 was in the 7+ age class. The 3-female quota was never reached in this group of units in the 1998-1999 season. Units 50 and 51 are managed by the Upper Snake Region and are reported on elsewhere in this report.

## DEPREDATIONS

No depredations were reported in this unit.

## MANAGEMENT IMPLICATIONS

Harvest in Unit 49 has typically been light with only 13 mountain lions taken since 1991. The 1998-1999 season had the second highest harvest since 1992. Snow conditions and access continue to play a substantial roll in mountain lion harvest in this unit. Unit 49 will continue to be grouped with Units 43 and 44 for the purpose of establishing female quotas.

Table 1. Mountain lion harvest in Area 4-1, Magic Valley Region, 1991-1998.

Year	Males	Females	Total	Percent Female
1991	3	4	7	57
1992	1	1	2	50
1993	1	1	2	50
1994	2	3	5	60
1995	5	2	7	29
1996	2	1	3	33
1997	3	5	8	62
1998	4	0	4	0
1991-1998 Average	2.6	2.1	4.7	45

Table 2. Mountain lion harvest in Area 4-2, Magic Valley Region, 1991-1998.

Year	Males	Females	Total	Percent Female
1991	6	4	10	40
1992	13	8	21	38
1993	10	8	18	44
1994	14	8	22	36
1995 <sup>a</sup>	18	9	27	33
1996	20	10	30	33
1997 <sup>b</sup>	13	13	26	46
1998 <sup>c</sup>	8	10	18	55
1991-1998 Average	12.7	8.7	21.5	40

<sup>a</sup> Does not include a male harvested in July by WS in response to livestock depredation.

<sup>b</sup> Does not include a female harvested in June by a shepherd in response to a livestock depredation.

<sup>c</sup> Does not include two males harvested by a shepherd and WS in response to a livestock depredation.

Table 3. Mountain lion harvest in Area 4-3, Magic Valley Region, 1991-1998.

Year	Males	Females	Total	Percent Female
1991	1	0	1	0
1992	0	0	0	0
1993	4	0	4	0
1994	4	0	4	0
1995	8	0	8	0
1996	5	5 <sup>a</sup>	10	50
1997	2	3	5	60
1998	6	3	9	33
1991-1998 Average	3.7	1.4	5.1	27

<sup>a</sup> Does not include female harvested in September by WS in response to a livestock depredation.

Table 4. Mountain lion harvest in Unit 49 (Area 4-4), Magic Valley Region, 1991-1998.

Year	Males	Females	Total	Percent Female
1991	0	0	0	0
1992	0	0	0	0
1993	1	0	1	0
1994	2	0	2	0
1995 <sup>a</sup>	1	0	1	0
1996	2	3	5	60
1997	0	0	0	0
1998	3	1	4	25
1991-1998 Average	1.1	0.5	33	31

<sup>a</sup> Includes illegally taken male in Unit 49.

Table 5. Mountain lion harvest by sex, unit and month for the Magic Valley Region during 1998-1999.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
43	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
44	M	0	0	0	0	1	0	0	1
	F	0	0	0	0	0	0	0	0
45	M	0	0	0	0	1	1	0	2
	F	0	0	0	0	0	0	0	0
46	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
47	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	1	0	1	2
49	M	0	0	0	1	1	1	0	3
	F	0	0	0	1	0	0	0	1
52A	M	0	0	0	0	0	0	1	1
	F	0	0	0	0	0	0	0	0
54 <sup>a</sup>	M	0	0	1	1	1	0	0	3
	F	0	0	0	1	1	1	0	3
55	M	0	0	1	2	2	0	0	5
	F	0	0	0	0	1	4	0	5
56	M	0	0	1	2	0	0	0	3
	F	0	0	0	3	0	0	0	3
57	M	0	1	0	2	0	0	0	3
	F	0	0	0	0	0	0	0	0
Total	M	0	1	3	8	6	2	1	21
	F	0	0	0	5	3	5	1	14

Table 6. Mountain lion harvest by age and sex classes by unit in the Magic Valley Region during 1998-1999.

Unit	Sex	Age Class			Unknown(%)
		K-3 (%)	4-6 (%)	7+ (%)	
43	M	0	0	0	0
	F	0	0	0	0
44	M	0	0	1	0
	F	0	0	0	0
45	M	0	1(50)	1(50)	0
	F	0	0	0	0
46	M	0	0	0	0
	F	0	0	0	0
47	M	0	0	0	0
	F	0	2(100)	0	0
49	M	0	2(50)	1(25)	0
	F	0	1(25)	0	0
52A	M	0	0	1(100)	0
	F	0	0	0	0
54a	M	2(34)	1(17)	0	0
	F	1(17)	0	2(34)	0
55b	M	0	4(40)	0	1(10)
	F	2(20)	2(20)	1(10)	0
56	M	0	1(17)	2(33)	0
	F	1(17)	2(33)	0	0
57	M	1(33)	1(33)	1(33)	0
	F	0	0	0	0

<sup>a</sup> Doesn't include one mountain lion (male, age 7) taken by sheepherders in July 1998 in response to a livestock depredation.

<sup>b</sup> Doesn't include one mountain lion (male, age K-3) taken by WS in May 1999 in response to a livestock depredation.

Table 7. Mountain lion harvest by method in the Magic Valley Region during 1998-1999.

Method	Males	Females	Total
<b>Weapon</b>			
Rifle	10	6	16
Bow	3	2	5
Muzzleloader	0	0	0
Pistol	6	5	11
Other/Unknown	2	1	3
<b>Guided</b>			
Yes	2	1	3
No	17	13	30
Other/Unknown	2	0	2
<b>Method</b>			
Still	0	0	0
Bait	0	0	0
Incidental	1	1	2
Predator Call	3	0	3
Hounds	15	12	27
Other/Unknown	2	1	3

**PROGRESS REPORT  
SURVEYS AND INVENTORIES**

<b>STATE:</b>	<u>Idaho</u>	<b>JOB TITLE:</b>	<u>Mountain Lion Surveys</u>
<b>PROJECT:</b>	<u>W-170-R-23</u>		<u>and Inventories</u>
<b>SUBPROJECT:</b>	<u>5</u>	<b>STUDY NAME:</b>	<u>Big Game Population Status,</u>
<b>STUDY:</b>	<u>I</u>		<u>Trends, and Associated Habitat</u>
<b>JOB:</b>	<u>8</u>		<u>Studies</u>
<b>PERIOD COVERED:</b>	<u>July 1, 1998 to June 30, 1999</u>		

**MOUNTAIN LION - SOUTHEAST REGION**

**ABSTRACT**

During the report period, the Southeast Region removed the female harvest quota first initiated in 1991.

Ninety-four mountain lions (51 males and 43 females) were reported harvested in the Southeast Region during the report period. Twelve other mountain lion mortalities were documented.

**AREA 5-1 (GMUS 66A, 70, 71, 72, 73, 73A, 74, 75, 76, 77, 78)**

**MANAGEMENT DIRECTION**

From 1991 through 1995 Southeast Region management followed that of the 1991-1995 Mountain Lion Management Plan: maintain populations and reduce/stabilize the harvest rate, especially on the female component. Specific quantitative statewide objectives are to reduce and stabilize current harvest to within 25% of 250 on a 3-year running average, and to reduce the female component of the harvest to 25-35%. Since 1996 the Idaho Fish and Game Commission and the Department, responding to increased mountain lion sightings, increasing livestock depredations, and deer hunter concerns, has authorized more liberal seasons in Southeast Idaho.

**BACKGROUND**

The mountain lion was first classified as a big game species in Idaho in 1972. Mountain lion tags have been required since 1975. Mountain lion numbers are believed to have been low in the Southeast Region during the 1950s and 1960s when annual harvest in eastern Idaho averaged from 2-4 animals. Population information is nearly nonexistent; however, increased sightings, increased depredations, and increased harvest suggest the population has increased

over recent historic levels. Populations of the primary prey species, mule deer, fluctuate annually and currently are at moderate levels. A large livestock industry in southeastern Idaho and the concern for depredations has and will probably continue to influence mountain lion populations and management.

From 1991-1997 the region was divided into a west district (Units 70, 71, 73, 73A, 74) and an east district (Units 66A, 72, 75, 76, 77, 78), with a female harvest quota for each district. Quotas varied from 2 per district to 7 in the west and 6 in the east. A district will remain open until the female quota has been reached, or the end of the season, whichever occurs first. If the female quota is reached prior to the closing date, pursuit-only is allowed until the close of the season.

In December 1995 a mountain lion study was initiated to gather information regarding relative abundance, movements, survival, and age structure. This study has since been taken over by a graduate student at Idaho State University (Holmes et al. 1998). The study area selected for mountain lion capture and radio collaring includes Units 70 and 73A. This area was chosen for logistical reasons, high reported mountain lion densities, and access to local houndsmen. Nineteen mountain lions have been captured and transmittered, including 5 males (4 in 0-3 mm tooth drop measurement class, 1 in 7+ mm class) and 14 females (8 in 0-3 mm tooth drop measurement class, 5 in 4-6 mm class, and 1 in 7+ mm class). Thirteen mortalities of radio-collared mountain lions have been documented to date: 2 unknown, 1 road kill, 2 depredation kill, and 8 legal harvest.

## HARVEST CHARACTERISTICS

Harvest data are from the mandatory check requirements. Fifty-one male and 43 female mountain lions were reported harvested in the Southeast Region during the 1998-1999 season (Table 1). Tooth drop measurements were obtained from 84 of the mountain lions (Table 3): 32 in group I (1-3 years), 40 in group II (4-6 years), and 12 in group III (7+ years). Sixty-seven mountain lions were taken with hounds, 5 by calling, and 9 incidental to other hunting (Table 4). Other mortalities included 4 road kills, 1 self defense, 1 killed by another mountain lion, 1 killed by dogs, and 2 found dead of unknown causes.

## CLIMATIC CONDITIONS

Presence or absence of snow for tracking can have a significant effect on mountain lion harvest in some areas. Lower snow depths can permit access to more areas that can be searched for tracks. Conversely, adequate snow levels make tracking more efficient.

Snow pack measurements taken during 1998-1999 were 100-120% of normal for the 30-year average in both the Snake River (northern portion of the region) and Great Basin (southern portion) watersheds.

## DEPREDACTIONS

Two mountain lions were taken by Department personnel on depredation complaints, and 1 was taken by a rancher near his livestock.

## MANAGEMENT IMPLICATIONS

During the period 1981 through 1990, the annual harvest of mountain lions in the region averaged 6.5, ranging between 0 and 17. Seventeen mountain lions were reported harvested in 1990, prompting the establishment of a female quota beginning in 1991. As the quotas were gradually increased during the 1990s, the harvest increased. The 1991 through 1997 average annual harvest was 18.7. A record high harvest of 22 mountain lions were checked in 1996. Concern about impacts to deer herds from predation prompted a conservative increase in the quota the following year; harvest doubled to 44. Following removal of the quota the next year, 1998-1999, harvest increased to 94.

Male/female ratios in the harvest have generally ranged around 2/1. For the first half of the current season that average held; however, during the second half of the season the ratio was reversed, with approximately 2 females per male being taken.

## LITERATURE CITED

Holmes, B. R., J. W. Laundre', D. P. Streubel, and C. Anderson. 1998. Population Characteristics and Habitat Use of Mountain Lion (*Puma concolor*) in Southeast Idaho. Cumulative Progress Report No.1. Idaho State Univ., Pocatello, Idaho. 37 pp.

Table 1. Mountain lion harvest in Area 5-1, 1989-1998 in the Southeast Region.

Year	Males	Females	Total	Percent Female
1989	7	3	10	30
1990	9	8	17	47
1991	8	*5	13	38
1992	5	4	9	44
1993	7	*5	12	42
1994	12	4	16	25
1995	9	*6	15	40
1996	13	*9	22	41
1997	29	*15	44	34
1998	51	43	94	46
1989-1998 Average	14	10	24	39

\* The harvest quota was exceeded when multiple females from the same group of units were reported on the same day.

Table 2. Mountain lion harvest by sex and unit for the Southeast Region during 1998-1999.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
66A	M	0	0	1	0	0	0	0	1
	F	0	0	0	0	0	0	0	0
70	M	0	0	1	1	0	1	0	3
	F	0	0	0	1	0	0	0	1
71	M	0	1	0	0	0	0	0	1
	F	0	1	0	0	0	0	0	1
72	M	0	0	0	1	0	1	0	2
	F	0	0	0	0	0	0	0	0
73	M	0	0	2	4	6	0	0	12
	F	0	0	0	1	9	3	0	13
73A	M	0	0	0	2	2	0	0	4
	F	0	0	1	3	3	0	0	7
74	M	0	0	1	2	3	4	0	10
	F	0	1	0	2	2	0	0	5
75	M	0	0	1	1	0	0	0	2
	F	0	0	2	1	0	1	0	4
76	M	0	0	2	0	1	2	0	5
	F	0	0	1	2	1	0	0	4
77	M	0	0	1	1	0	1	0	3
	F	0	0	1	0	5	0	0	5
78	M	0	0	4	2	2	0	0	8
	F	0	0	1	0	2	0	0	3
Total	M	0	1	13	14	14	9	0	51
	F	0	2	6	9	22	4	0	43

Table 3. Mountain lion harvest by age and sex classes by unit in the Southeast Region during 1998-1999.

Unit	Sex	Age Class					
		K-3 (%)	4-6 (%)	7+ (%)	UNK (%)		
66A	M	1 (100)	0	0	0	0	
	F	0	0	0	0	0	
70	M	2 (50)	0	1 (25)	1 (25)	0	
	F	0	1 (25)	0	0	0	
71	M	0	0	0	0	1 (100)	
	F	1 (50)	0	0	0	0	
72	M	0	1 (100)	0	0	0	
	F	0	0	0	0	0	
73	M	5 (19)	6 (23)	1 (4)	1 (4)	1 (4)	
	F	2 (22)	0	3 (33)	0	0	
73A	M	1 (10)	1 (10)	1 (10)	1 (10)	1 (10)	
	F	3 (33)	0	1 (10)	1 (10)	3 (33)	
74	M	3 (19)	5 (31)	2 (13)	1 (6)	1 (6)	
	F	4 (25)	0	0	1 (6)	1 (6)	
75	M	2 (33)	0	0	0	0	
	F	1 (17)	3 (50)	0	0	0	
76	M	0	3 (43)	1 (14)	0	0	
	F	0	3 (43)	1 (14)	0	0	
77	M	0	3 (33)	0	0	0	
	F	2 (22)	4 (44)	0	0	0	
78	M	2 (18)	4 (36)	0	2 (18)	0	
	F	1 (9)	2 (18)	0	0	0	
Total	M	16 (17)	23 (24)	6 (6)	6 (6)	6 (6)	
	F	16 (17)	17 (18)	6 (6)	6 (6)	4 (4)	

Table 4. Mountain lion harvest by method in the Southeast Region during 1998-1999.

Method	Males	Females	Total
<b>Weapon</b>			
Rifle	15	17	32
Bow	14	8	22
Muzzleloader	0	0	0
Pistol	17	13	30
Other	1	0	1
<b>Guided</b>			
Yes	4	4	8
No	43	34	77
Unknown	8	0	8
<b>Method</b>			
Still	0	2	2
Bait	2	0	2
Incidental	3	6	9
Predator Call	2	3	5
Hounds	40	27	67
Other	5	0	5

**PROGRESS REPORT  
SURVEYS AND INVENTORIES**

**STATE:** Idaho                      **JOB TITLE:** Mountain Lion Surveys  
**PROJECT:** W-170-R-23                      and Inventories  
**SUBPROJECT:** 6                      **STUDY NAME:** Big Game Population Status,  
**STUDY:** I                      Trends, and Associated Habitat  
**JOB:** 8                      Studies  
**PERIOD COVERED:** July 1, 1998 to June 30, 1999

**MOUNTAIN LION - UPPER SNAKE REGION**

**ABSTRACT**

Fifteen mountain lions were reported harvested in the Upper Snake Region during the 1998-1999 season. In addition to the legal harvest, 1 mountain lion was a road kill. Harvest was determined from hunter reports as required by Fish and Game Commission regulation. No estimate of hunter effort is available nor hunter participation in the dog training season. Officer field contacts have found only light dog training activity in Units 51, 58, and 59A and no known dog training activity in Units 60, 61, 62, and 62A. Relatively mild wintering conditions during the early part of the winter resulted in dispersed wintering big game. The female mountain lion quota was met in Area 6-2. The Department received one report of a mountain lion killing a game farm elk. No report on mountain lion depredations was received from Wildlife Services.

**AREA 6-1 (GMUS 58, 59, 59A)**

**MANAGEMENT DIRECTION**

**MANAGEMENT OBJECTIVES**

1. Provide additional dog training seasons during this planning period.
2. Implement some controlled hunts during this planning period.

**BACKGROUND**

**Historical Information**

These units have relatively few mountain lions and provide limited hunter and dog training opportunity. Mountain lion viewing is also limited because the mountain lions primarily use

the more rugged terrain which receive relatively light recreational use. However, when a mountain lion or mountain lion sign is seen, it adds to the observers recreational experience and reports of the observation is repeated many times by residents of this sparsely populated area. The hunting season had traditionally been September 15 through January 31; however, the 1996-1997 season was extended to March 31 to provide more hunter opportunity on perceived increased mountain lion numbers. These dates have been maintained since the 1996-1997 season. Occasional livestock depredation is reported. Problems are taken care of by USDA's Wildlife Services.

### Season Structure

General either sex take season<sup>a, b</sup> September 15, 1998-March 31, 1999

<sup>a</sup> Either sex, except neither spotted mountain lion young nor female mountain lion accompanied by young may be taken.

<sup>b</sup> These units will remain open until a total of two female mountain lions have been harvested or March 31, whichever occurs first.

### Dog Training Season

A dog training season shall open upon the closure of these units to harvest when a harvest quota is met. If opened, the training season in this group of units shall close March 31.

## HARVEST CHARACTERISTICS

### Sex Ratio

One female mountain lion was legally harvested from Area 6-1 during the 1998-1999 season (Table 1). Harvest from this area has been too light and variable to make meaningful sex ratio comparisons with previous years.

### Age Structure

The female mountain lion that was legally harvested from Unit 59A was an adult (Table 5).

### Harvest Trend

Over the past five years legal mountain lion harvest from Area 6-1 has ranged from 1 to 6 and the average is 2.8 (Table 1). The 1998-1999 harvest of 1 mountain lion is below average for legally harvested mountain lions reported from this DAU over the last 5 years. Legal female mountain lion harvest has varied from 0 to 100% of the total harvest over the last 5 years.

### Kill Distribution By Date

The mountain lion was harvested in November (Table 4).

### Incidental Kill

There was no other mountain lion kill reported from Area 6-1.

## CLIMATIC CONDITIONS

Winter conditions were relatively mild resulting in big game remaining disbursed. Low snow accumulation during the early part of winter made locating mountain lion tracks difficult.

## DEPREDATIONS

There were no mountain lion depredations reported during this reporting period.

## MANAGEMENT IMPLICATIONS

There are relatively few mountain lions in Area 6-1 and mountain lion hunting activity remains light. The most hunter interest seems to occur after the female quota for more popular hunting units is reached, closing those units to hunting.

No data are collected on dog training seasons. However, local officers and residents feel dog training activity is light. This may be because of low mountain lion numbers or little dog owner/trainer interest.

Unit 59 was opened to hunting and dog training in 1994 because I-15 provides a better hunt area boundary than Medicine Lodge Creek. Mountain lion numbers in this unit are low and, therefore, provide only limited hunter and dog training opportunity.

There is no need for a controlled hunt in this area because harvest is light, ranging from 1 to 6 mountain lions per season.

## AREA 6-2 (GMUS 50, 51)

### MANAGEMENT DIRECTION

#### Management Objectives

1. Provide additional dog training seasons during this planning period.
2. Implement some controlled hunts during this planning period.

## BACKGROUND

Unit 50 supports a moderate number of mountain lions, while Unit 51 has a low mountain lion population. The mountain lion take season in Unit 51 was lengthened to coincide with the take season in Unit 50. The season was extended from January 31 to March 31 in 1996-1997 to provide more hunter opportunity on perceived increased mountain lion numbers; these dates have been retained since the 1996-1997 season. A female quota of 3 was implemented for the 1990-1991 season to discourage harvest of female mountain lions; this quota was increased to 4 in 1998. Unit 49, which had been reported with Area 6-2 for 1994 through 1995, was placed in the DAU with Units 43 and 44 in 1996.

### Season Structure

General Either Sex Take Season<sup>a, b</sup>                      September 15, 1998-March 31, 1999

<sup>a</sup> Either sex, except neither spotted mountain lion young nor female mountain lion accompanied by young may be taken.

<sup>b</sup> The units will remain open until 4 female mountain lions have been harvested or March 31, whichever occurs first.

### Dog training season

A dog training season shall open upon the closure of this group of units to harvest where the harvest quota is met. If opened, the training season will close March 31.

## HARVEST CHARACTERISTICS

### Sex Ratio

One male mountain lion and 4 female mountain lions were harvested in Area 6-2 during the 1998-1999 season (Table 2). The sex ratio was 80% female, which was also above the 5-year average of 45%. The take season was closed in February when the female mountain lion quota was filled.

### Age Structure

All age classes of mountain lion were represented in the harvest (Table 5). One mountain lion was K to 3 years old, 2 were 4 to 7 years old, and 2 were 8+ years old.

### Harvest Trend

Five mountain lions were legally harvested from Area 6-2 during the 1998-1999 season. Two mountain lions were taken from Unit 50 and 3 from Unit 51 (Table 4). This harvest was below the 5-year average harvest of 5.8 (Table 2).

### Kill Distribution By Date

One mountain lion was harvested in September, 1 in October, 2 in December, and 1 in January (Table 4).

### Incidental Kill

There was no other mountain lion harvest reported from Area 6-2.

## CLIMATIC CONDITIONS

Snow accumulation was greater than normal for Unit 50 but below normal for Unit 51; big game remained relatively dispersed. Temperatures remained near normal throughout winter.

## DEPREDATIONS

There were no mountain lion depredations reported during this reporting period.

## MANAGEMENT IMPLICATIONS

The take season closed in February 1999 when the 4-female mountain lion quota was reached. Unit 50 has the best mountain lion population in the Upper Snake Region and has provided the most consistent hunter opportunity. This is probably because it is the closest unit in the region to the core of Idaho's mountain lion habitat. Unit 51 has similar habitat and big game numbers as Unit 50, but it is farther from core mountain lion habitat. Consequently, Unit 51 appears to have fewer mountain lions than Unit 50.

Management direction for Area 6-2 continues to be directed toward minimizing harvest of female mountain lions.

## **AREA 6-3 (GMUS 64, 65, 66, 67, 69 (PART))**

### MANAGEMENT DIRECTION

#### Management Objectives

1. Provide additional dog training seasons during this planning period.

2. Implement some controlled hunts during this planning period.

## BACKGROUND

### Historical Information

There are relatively few mountain lions in these units. Suitable mountain lion habitat is limited to the Snake River Mountain Range, which is isolated from other mountain lion habitat by agricultural lands and urban areas. The area receives high recreational use throughout the summer and winter; consequently, nonconsumptive values have been high for mountain lion occupying this area. Historically there were very few depredation or landowner complaints on mountain lions in these units. However, after implementing a dog training season in 1991, depredation and landowner complaints occurred annually. Therefore, the Department approved a mountain lion take season for these units in 1994. Area 6-3 was expanded to include Unit 66 and that part of Unit 69 within the Antelope and Garden Creek Drainage and the female quota increased from 2 to 3 in 1996-1997, and increased again to 4 for 1997-1998 and increased to 5 for the 1998-1999 season.

### Season Structure

General either sex take season <sup>a</sup>	September 15, 1998-December 31, 1998
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<sup>a</sup> These units will remain open until a total of 5 female mountain lions have been harvested in this group of units or December 31, whichever occurs first.

Dog Training Season	None
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## HARVEST CHARACTERISTICS

### Sex Ratio

Nine male mountain lions were legally taken from Area 6-3 during the 1998 reporting period (Table 3).

### Age Structure

Three of the legal mountain lions harvested were K-3 years old, 3 were 4-7 years old, and 2 were over 8 years old (Table 5). Tooth drop measurement was not obtained from 1 mountain lion harvested from Unit 67 because the head was destroyed when it was shot. The road-killed mountain lion from Unit 65 was a young mountain lion with 0 mm tooth drop and faint spotting still visible on the flanks and belly.

### Kill Distribution By Date

Of the legal harvest, 1 mountain lion was harvested in October and 8 in December (Table 4).

### Incidental Kill

In addition to the legal harvest, one female mountain lion was killed by a vehicle on Highway 31 in the vicinity of Mike Harris Canyon, Unit 65.

## CLIMATIC CONDITIONS

Snow accumulation was light and winter conditions remained relatively mild throughout the season. Hunter access was not hampered by snow depth. Big game winter mortality was light.

## DEPREDATIONS

The Department received one report of a mountain lion killing a game farm elk in Unit 64.

## MANAGEMENT IMPLICATIONS

Area 6-3 is a relatively small area of mountain lion habitat that is isolated from other mountain lion habitat by agricultural and urban development. Motorized access is abundant, and snow accumulation does not restrict access most winters. It also lies close to several relatively large urban areas in which reside several houndsmen. These factors make the area very vulnerable to overharvest of the mountain lion population. The female quota directs harvest toward male mountain lion, but does not prevent overharvest.

Nine male mountain lions and 1 female mountain lion were taken from this relatively small isolated population during the 1998 reporting period. Nine of these were legal harvest and 1 road kill. It is doubtful that this level of harvest and incidental kill can be sustained. Therefore, harvest and houndsmen activity in Area 6-3 should be monitored closely to see how the mountain lion population and distribution responds. If harvest drops or houndsmen complain of a lack of mountain lion, or the nonhunting public complains, it will be necessary to restrict the take season. This could be done by implementing a controlled hunt as provided for in the mountain lion plan.

## **AREA 6-4 (GMUS 60, 61, 62, 62A)**

### MANAGEMENT DIRECTION

There is very little mountain lion habitat in these units and mountain lion sightings are rare. No open mountain lion season is anticipated in these management units during this planning period.

## BACKGROUND

Occasionally mountain lion travel through these units, but there does not appear to be an established population. There are no wintering concentrations of big game in these units. A dog training season was established in these units in 1996-1997 to provide hound hunting opportunity and collect information from hound hunters on mountain lion use of the area.

### Season Structure

General take season	None
Dog Training Season	January 1, 1999-March 31, 1999

### Season Participation

No data are collected on dog training season participation. However, Department personnel are unaware of any mountain lion hound hunter activity during the season.

## MANAGEMENT IMPLICATIONS

The mountain lion plan provides for no mountain lion hunting or dog training in these units. There does not appear to be an established mountain lion population in this area, although transient mountain lions occasionally migrate through and temporally stay in the area for a short time. There are no winter concentrations of big game in the area, which could be the reason no mountain lion population has established. Snow depths usually prevent dog training activity after November 1. Therefore, the value to the mountain lion hunting public of retaining this area open to dog training is questionable.

Table 1. Legal mountain lion harvest in Area 6-1, 1994-1998 in the Upper Snake Region.

Year	Males	Females	Total	Percent Female
1994	1	0	1	0
1995	2	2	4	50
1996	1	1	2	50
1997	6	0	6	0
1998	0	1	1	100
1994-1998 Average	2.0	0.8	2.8	29

Table 2. Legal mountain lion harvest in Area 6-2, 1994-1998 in the Upper Snake Region.

Year	Males	Females	Total	Percent Female
1994 <sup>a</sup>	5	0	5	0
1995	2	3	5	60
1996 <sup>a</sup>	5	3	8	38
1997	3	3	6	50
1998	1	4	5	80
1994-1998 Average	3.2	2.6	5.8	45

<sup>a</sup> Unit 49 added to Area 6-2 in 1994 and removed again in 1996.

Table 3. Legal mountain lion harvest in Area 6-3, 1994-1998 in the Upper Snake Region.

Year	Males	Females	Total	Percent Female
1994	4	1	5	20
1995	5	1	6	17
1996	2	2	4	50
1997	7	3	10	43
1998	9	0	9	0
1994-1998 Average	5.4	1.4	6.8	21

Table 4. Legal mountain lion harvest by sex and unit for the Upper Snake Region during 1998-1999.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
50	M	0	0	0	0	0	0	0	0
	F	0	1	0	0	1	0	0	2
51	M	0	0	0	1	0	0	0	1
	F	1	0	0	1	0	0	0	2
58	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
59	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
59A	M	0	0	0	0	0	0	0	0
	F	0	0	1	0	0	0	0	1
64	M	0	0	0	1	0	0	0	1
	F	0	0	0	0	0	0	0	0
65	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
66	M	0	0	0	2	0	0	0	2
	F	0	0	0	0	0	0	0	0
67	M	0	1	0	5	0	0	0	6
	F	0	0	0	0	0	0	0	0
69	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
Total	M	0	1	0	9	0	0	0	10
	F	0	2	1	1	1	0	0	5

Table 5. Legal mountain lion harvest by age and sex classes by unit in the Upper Snake Region during 1998-1999.

Unit	Sex	Age Class		
		K-3 (%)	4-7 (%)	8+ (%)
50	M	0(0)	0(0)	0(0)
	F	1(50)	0(0)	1(50)
51	M	0(0)	0(0)	1(33)
	F	0(0)	2(66)	0(0)
58	M	0(0)	0(0)	0(0)
	F	0(0)	0(0)	0(0)
59	M	0(0)	0(0)	0(0)
	F	0(0)	0(0)	0(0)
59A	M	0(0)	0(0)	0(0)
	F	0(0)	0(0)	1(100)
64	M	0(0)	1(100)	0(0)
	F	0(0)	0(0)	0(0)
65	M	0(0)	0(0)	0(0)
	F	0(0)	0(0)	0(0)
66	M	0(0)	0(0)	2(100)
	F	0(0)	0(0)	0(0)
67	M	3(60)	2(40)	0(0)
	F	0(0)	0(0)	0(0)
69	M	0(0)	0(0)	0(0)
	F	0(0)	0(0)	0(0)
Total	M	3(21)	3(21)	3(21)
	F	1(7)	2(14)	2(14)

Table 6. Legal mountain lion harvest by method in the Upper Snake Region during 1998-1999.

Method	Males	Females	Total
<b>Weapon</b>			
Rifle	3	1	4
Bow	3	1	4
Mzldr.	0	0	0
Pistol	4	3	7
Other	0	0	0
<b>Guided</b>			
Yes	0	1	1
No	10	4	14
<b>Method</b>			
Still	0	1	1
Bait	0	0	0
Incid.	2	1	3
Pred. Call	0	0	0
Hounds	8	3	11
Other	0	0	0

**PROGRESS REPORT  
SURVEYS AND INVENTORIES**

<b>STATE:</b>	<u>Idaho</u>	<b>JOB TITLE:</b>	<u>Mountain Lion Surveys</u>
<b>PROJECT:</b>	<u>W-170-R-23</u>		<u>and Inventories</u>
<b>SUBPROJECT:</b>	<u>7</u>	<b>STUDY NAME:</b>	<u>Big Game Population Status,</u>
<b>STUDY:</b>	<u>I</u>		<u>Trends, and Associated Habitat</u>
<b>JOB:</b>	<u>8</u>		<u>Studies</u>
<b>PERIOD COVERED:</b>	<u>July 1, 1998 to June 30, 1999</u>		

**MOUNTAIN LION - SALMON REGION**

**ABSTRACT**

Hunters have taken 320 mountain lions (212 males, 108 females) in the Salmon Region in the past five seasons. Seventy-four mountain lions (39% females) were harvested in 1998-1999. Only 4% of the harvest were young (age 0-3) animals. Age 8+ mountain lions comprised 44% of the 1998-1999 harvest.

Over the past three seasons, December and January accounted for about 75% of the harvest in the accessible areas (DAUs 7-1 and 7-2). About 40-50% occurred during December and 30-35% in January. In contrast, most of the backcountry harvest (DAU 3-3) occurred during January; only about 10% occurred during September through December. In the Salmon Region, 90% of the mountain lions were taken using hounds. Only 8% of the harvest occurred as incidental take during deer and elk seasons.

The average annual mountain lion harvest from the Salmon Region has been increasing, more than doubling from the 1970s through the 1990s. The increased harvest probably reflects mountain lion population increases as a result of prey (primarily elk) population increases. At the same time, the age composition of the harvest has been improving, suggesting that mountain lion populations are more than keeping pace with the increased harvest. Wolves reintroduced into the Salmon Region during 1995 and 1996 could eventually have some impact on mountain lion populations, particularly in localized areas.

**AREA 3-3 (GMU 27)**

**MANAGEMENT DIRECTION**

Follow statewide management direction in the 1991-1995 Mountain Lion Species Management Plan, which is to maintain populations, reduce and stabilize the harvest, and reduce the female component to 25-35% of the harvest.

## BACKGROUND

### Historical Information

Unit 27 encompasses most of the drainages of the Middle Fork of the Salmon River. Virtually all of the unit is part of the Frank Church River of No Return Wilderness. Road access is limited and the terrain is generally quite rugged. Human use of the area is primarily recreational - summer river rafting and fall/winter hunting. Elevations vary from 3,000 feet to 10,000 feet and include very rugged river breaks and cliffs, sagebrush grasslands, mixed conifer forests, and subalpine habitats.

Unit 27 supports good mountain lion populations that are lightly harvested because of the limited access and difficult terrain. Both deer and elk are abundant prey species with bighorn sheep and mountain goats locally common. During January 1995 and January 1996, wolves were reintroduced into DAU 3-3. Packs are beginning to establish within the DAU.

Depredation problems are insignificant in Unit 27.

### Season Structure

Unit 27 has traditionally had a long (September through March) mountain lion take season but no dog-training season. The 1998-1999 season was September 15 through March 31 for a total season length of 198 days. Dogs may be used when a firearm season for deer or elk is not open (after November 18.) Neither spotted young nor female mountain lions accompanied by young may be taken.

## HARVEST CHARACTERISTICS

### Sex Ratio

Over the long term, females comprised 36% of the 1994-1999 mountain lion check (Table 1). However, this information should be treated with caution because sample sizes are very small (n= 61).

### Age Structure

All of the mountain lions harvested during 1998-1999 were adults (Table 4). Over the long term, about 5% of the females and 57% of the males are in the oldest age class (age 8+ ). Subadults comprise about 2% of the male harvest and 19% of the female harvest.

### Harvest Trend

The 1998-1999 harvest of 19 mountain lions matched the 1997-1998 harvest, which was the highest in at least 25 years. The average harvest for Unit 27 has increased from 4-5 mountain lions per year in the 1970s and 1980s to 10.3 mountain lions per year in the 1990s.

### Kill Distribution By Date

Most of the Unit 27 harvest (about two-thirds over the long term) occurs during January (Table 5). Less than 10% of the harvest occurs during the September 15-November 18 deer and elk season. February and March account for about 25% of the harvest.

### Incidental Kill

Eighty-seven percent of the mountain lions harvested in Unit 27 are taken with the assistance of hounds (Table 6). Only 6% of the harvest is incidental to fall deer and elk hunting.

## CLIMATIC CONDITIONS

Late summer precipitation produced high forage quality and excellent ungulate body condition entering the 1998-1999 winter. December and January snowfall was above normal, contributing to good hunting conditions during the peak mountain lion hunting period. The remainder of the 1998-1999 winter was milder and drier than usual.

## DEPREDACTIONS

No mountain lion depredations were reported in 1998-1999.

## MANAGEMENT IMPLICATIONS

Mountain lion harvest is on an increasing trend. The 1997-1998 and 1998-1999 harvests of 19 animals were the highest in at least 25 years. The increased harvest probably reflects mountain lion population increases as a result of prey (primarily elk) population increases, but may also reflect increased effort on the part of some outfitters. The sex and age composition of the Unit 27 harvest suggest a light harvest rate - older animals and males represent the majority of the harvest. Percent females in the harvest for Unit 27 is currently just above the goal range of 25-35%. Over the long term, newly reintroduced wolves could have some impact on mountain lion populations, at least on a local level.

## AREA 7-1 (GMUS 21, 21A, 28, 36, 36B)

### MANAGEMENT DIRECTION

Follow statewide management direction in the 1991-1995 Mountain Lion Species Management Plan, which is to maintain populations, reduce and stabilize the harvest, and reduce the female component to 25-35% of the harvest.

### BACKGROUND

#### Historical Information

Area 7-1 is comprised primarily of the drainages to the west of the upper Salmon River. Elevations vary from 3,000 feet to 11,000 feet and include sagebrush grasslands, river breaks, mixed conifer forests, and subalpine habitats.

Area 7-1 supports good mountain lion populations that are generally accessible during winter. Both deer and elk are abundant prey species with bighorn sheep and mountain goats locally common. Management Area 7-1 mountain lion populations are partly sustained by immigration from adjacent, lightly hunted wilderness populations (Management Area 3-3). "Joint use" outfitter areas in Units 21, 21A, 28, 29, and 30 led to hunter congestion and harvest problems and therefore were eliminated in 1991. The quota on female harvest in Unit 28 was cumbersome to administer and unnecessary, and was therefore eliminated during 1994-1995. During the winters of 1994-1995 and 1995-1996, wolves were reintroduced in the adjoining DAU 3-3. Some of these animals have begun to form packs residing within DAU 7-1. Depredation problems are not a major concern in Area 7-1.

#### Season Structure

During 1996-1997, the general mountain lion season in Area 7-1 was extended by 15 days from January 31 to February 15, making the total season length (starting September 15) 154 days. Dogs may be used when a firearm season for deer or elk is not open. Neither spotted young nor female mountain lions accompanied by young may be taken. The dog training season (no harvest allowed) is from February 16 through March 31 (44 days) in all Area 7-1 units.

### HARVEST CHARACTERISTICS

#### Sex Ratio

During 1998-1999, 41% of the mountain lions harvested were females (Table 2). However, over the longer term, females comprised 35% of the 1994-1999 mountain lion check (n= 189).

### Age Structure

Two subadult mountain lions (5% of the total harvest) and 18 old mountain lions (44% of the total) were harvested during 1998-1999 (Table 4). Over the long term, harvest age structure has been stable to improving, with about one-fourth of the female harvest and 10% of the male harvest in the subadult age class. Approximately 20% of the females and 40% of the males taken are old animals (age 8+ ).

### Harvest Trend

The 1998-1999 harvest of 41 mountain lions marked a new harvest record and the fifth consecutive year of high mountain lion harvests (35-41 animals). The average harvest for these units has increased from 11.9 mountain lions per year in the 1970s to 18.3 during the 1980s and 31.2 mountain lions per year in the 1990s. The two-week extension added to the season in 1996-1997 has resulted in an average take of mountain lions during the February 1-15 time period.

### Kill Distribution By Date

About three-fourths of the Area 7-1 mountain lion harvest occurs during December and January (Table 5). About 10% occurs from September through November, and about 10% in the first half of February.

### Incidental Kill

Eighty-eight percent of the Salmon Region mountain lions harvested during 1998-1999 were taken with the assistance of hounds (Table 6). Eight mountain lions were taken incidental to fall deer and elk hunting.

## CLIMATIC CONDITIONS

Late summer precipitation produced high forage quality and excellent ungulate body condition entering the 1998-1999 winter. December and January snowfall was above normal, contributing to good hunting conditions during the peak mountain lion hunting period. The remainder of the 1998-1999 winter was milder and drier than usual.

## DEPREDATIONS

One young emaciated female mountain lion wandered to the outskirts of the town of Salmon in Unit 28 and was dispatched.

## MANAGEMENT IMPLICATIONS

Mountain lion harvest in Area 7-1 has been on an increasing trend since the mandatory check was initiated in 1973. The increased harvest probably reflects mountain lion population increases as a result of prey (primarily elk) population increases. The sex and age composition of the Area 7-1 harvest suggest that harvest rate has not increased - older animals and males represent a stable to increasing proportion of the harvest. Percent females in the harvest is currently within the goal range of 25-35%. Over the long term, newly reintroduced wolves could have some impact on mountain lion populations, at least on the local level.

### AREA 7-2 (GMUS 29, 30, 30A, 36A, 37, 37A)

#### MANAGEMENT DIRECTION

Follow statewide management direction in the 1991-1995 Mountain Lion Species Management Plan, which is to maintain populations, reduce and stabilize the harvest, and reduce the female component to 25-35% of the harvest.

#### BACKGROUND

##### Historical Information

Area 7-2 is comprised primarily of the drainages to the east of the upper Salmon River. Elevations vary from 4,000 feet to 12,000 feet and include high desert communities, mixed conifer forests, and subalpine habitats. This DAU receives much less precipitation, and therefore has less forest, than other Salmon Region DAUs.

Area 7-2 supports low to moderate mountain lion densities that are generally readily accessible during winter. Both deer and elk are common prey species with bighorn sheep and mountain goats locally common. Depredation problems are an uncommon concern in Area 7-2.

##### Season Structure

During 1996-1997 the general mountain lion season in Area 7-2 was extended by 15 days from January 31 to February 15, making the total season length (starting September 15) 154 days. Dogs may be used when a firearm season for deer or elk is not open. Neither spotted young nor female mountain lions accompanied by young may be taken.

The dog training season (no harvest allowed) is from February 16 through March 31 (44 days) in all Area 7-2 units.

## HARVEST CHARACTERISTICS

### Sex Ratio

During 1998-1999, 36% of the mountain lions harvested were females (Table 3). Over the longer term, females comprised 27% of the 1994-1999 mountain lion check (n= 70).

### Age Structure

One subadult mountain lion was harvested from area 7-2 during 1998-1999 (Table 4). Three mountain lions (21% of the harvest) were in the old age category (age 8+ ). Over the past five years, the female harvest has averaged 35% old animals and the male harvest has been 50% old animals. The 1993-1998 harvest age structure shifted toward older animals compared to the 1988-1992 period.

### Harvest Trend

The 1998-1999 harvest of 14 mountain lions was comparable to recent years. The average harvest for these units has increased from about 5 mountain lions per year in the 1970s and 1980s to 10.9 mountain lions per year in the 1990s.

### Kill Distribution By Date

About three-fourths of the Area 7-2 mountain lion harvest occurs during December and January (Table 5). About 10% occurs from September through November, and about 10% in the first half of February.

### Incidental Kill

Eighty-eight percent of the Salmon Region mountain lions harvested during 1998-1999 were taken with the assistance of hounds (Table 6). Eight mountain lions were taken incidental to fall deer and elk hunting.

## CLIMATIC CONDITIONS

Late summer precipitation produced high forage quality and excellent ungulate body condition entering the 1998-1999 winter. December and January snowfall was above normal, contributing to good hunting conditions during the peak mountain lion hunting period. The remainder of the 1998-1999 winter was milder and drier than usual.

## DEPREDATIONS

One young male mountain lion was shot after killing domestic sheep in Unit 29.

## MANAGEMENT IMPLICATIONS

Mountain lion harvest in Area 7-2 has been on an increasing trend. The increased harvest probably reflects mountain lion population increases as a result of prey (primarily elk) population increases. The sex and age composition of the Area 7-2 harvest suggest that harvest rate has not increased - older animals and males represent an increasing proportion of the harvest. Percent females in the harvest for Area 7-2 is currently well within the goal range of 25-35%.

Table 1. Mountain lion harvest in Area 3-3 in the Salmon Region.

Year	Males	Females	Total	Percent Female
1994	3	2	5	40
1995	5	1	6	17
1996	6	6	12	50
1997	13	6	19	32
1998	12	7	19	37
1994-1998				
Average	8	4	12	36

Table 2. Mountain lion harvest in Area 7-1 in the Salmon Region.

Year	Males	Females	Total	Percent Female
1994	24	13	37	35
1995	27	11	38	29
1996	28	7	35	20
1997	19	19	38	50
1998	24	17	41	41
1994-1998				
Average	24	13	38	35

Table 3. Mountain lion harvest in Area 7-2 in the Salmon Region.

Year	Males	Females	Total	Percent Female
1994	11	5	16	31
1995	10	3	13	23
1996	11	2	13	15
1997	10	4	14	29
1998	9	5	14	36
1994-1998				
Average	10	4	14	27

Table 4. Mountain lion harvest by age and sex classes by unit in the Salmon Region during 1998-1999.

Unit	Sex	Age Class		
		K-3 (%)	4-6 (%)	7+ (%)
21	M	0	3	2
	F	0	2	1
21A	M	0	0	4
	F	1	0	1
27	M	0	4	8
	F	0	5	2
28	M	0	5	3
	F	0	3	1
29	M	0	4	0
	F	0	0	0
30	M	0	1	0
	F	0	0	0
30A	M	0	0	0
	F	0	1	0
36	M	0	0	0
	F	0	0	1
36A	M	0	0	2
	F	1	1	1
36B	M	0	2	4
	F	1	3	1
37	M	0	0	0
	F	0	0	0
37A	M	0	1	0
	F	0	1	0
Total	M	0 (0)	21 (48)	23 (52)
	F	3 (15)	11 (55)	6 (20)

Table 5. Mountain lion harvest by sex and unit for the Salmon Region during 1998-1999.

Unit	Sex	Month							Total
		Sept	Oct	Nov	Dec	Jan	Feb	Mar	
21	M	0	0	0	2	3	0	0	5
	F	0	0	0	1	1	2	0	4
21A	M	0	0	0	3	1	0	0	4
	F	0	0	0	0	2	0	0	2
27	M	0	0	0	0	5	6	1	12
	F	1	0	0	1	3	0	2	7
28	M	0	2	0	2	2	2	0	8
	F	0	0	0	5	0	0	0	5
29	M	0	0	1	1	2	1	0	5
	F	0	0	0	0	0	0	0	0
30	M	0	0	0	0	1	0	0	1
	F	0	0	0	0	0	0	0	0
30A	M	0	0	0	0	0	0	0	0
	F	0	0	1	0	0	0	0	1
36	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	1	0	1
36A	M	0	0	0	1	0	1	0	2
	F	0	0	0	1	1	1	0	3
36B	M	0	0	0	5	2	0	0	7
	F	0	0	0	2	2	1	0	5
37	M	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0
37A	M	0	0	0	0	1	0	0	1
	F	0	0	1	0	0	0	0	1
Total	M	0	2	1	14	17	10	1	45
	F	1	0	2	10	9	5	2	29

Table 6. Mountain lion harvest by method in the Salmon Region during 1998-1999.

Method	Males	Females	Total
<b>Weapon</b>			
Rifle	16	15	31
Bow	11	8	19
Muzzleloader	0	0	0
Pistol	16	6	22
Other	0	0	0
<b>Guided</b>			
Yes	23	13	36
No	22	16	38
<b>Method</b>			
Still	0	1	1
Bait	0	0	0
Incidental	2	6	8
Predator Call	0	0	0
Hounds	43	22	65
Other	0	0	0

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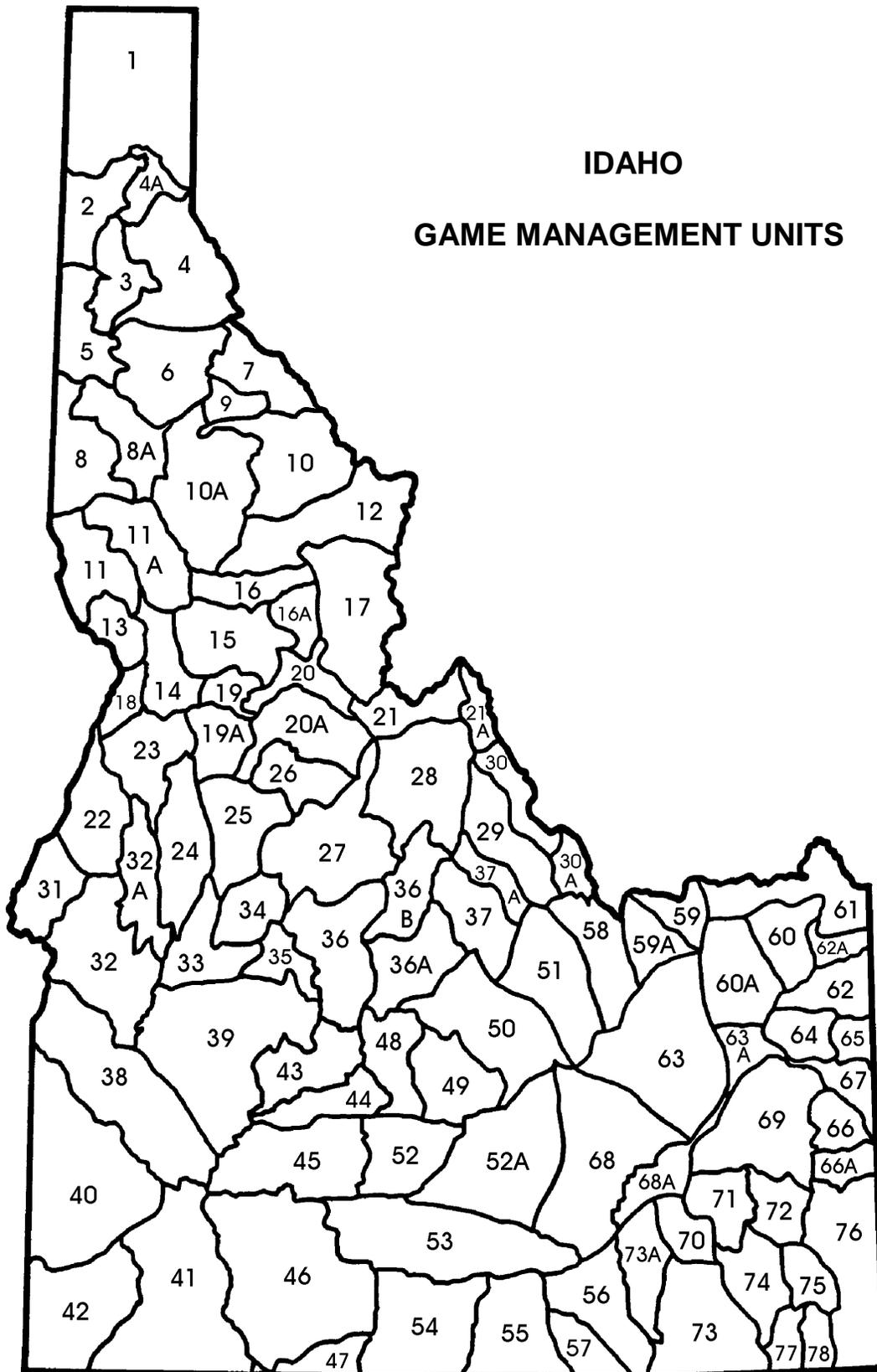
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# IDAHO

## 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.

