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Progress Report



MOUNTAIN LION

Study I, Job 8

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**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Mountain Lion Surveys and</u>
PROJECT:	<u>W-170-R-28</u>		<u>Inventories</u>
SUBPROJECT:	<u>1-7</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>8</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2003 to June 30, 2004</u>		

STATEWIDE

Abstract

A new Mountain Lion Management Plan was completed in 2002. This year's PR format is different than previous years to reflect those changes. Big Game Management Units (GMU) have been rearranged into 18 Data Analysis Units (DAU) (Figure 1). Objectives and analysis based on age criteria have been outlined. Tooth pulling for aging was again required in 2003. Many teeth are unable to be properly aged due to broken roots or other problems. Improving age data and related management objectives is an ongoing lion management goal of the Department.

The Idaho Department of Fish and Game requires hunters to check their harvested lions at a Department office or checkpoint within ten days of the kill date so the hide can be tagged and a tooth removed for aging.

Despite the longer and more lenient seasons, lion harvest has declined statewide since 1997 when 798 were harvested. However in 2003, good snow conditions during the early part of the season provided improved tracking opportunities. A total of 569 mountain lions were checked in 2003, which was an increase of 12% from the 506 lions harvested in 2002, but about the same as was harvested in 2001. Resident hunters and non-resident hunters harvested 419 and 152 mountain lions, respectively. Female mountain lions comprised 44% of the harvest. Hunters using guides harvested 127 of the 569 lions, a 28% increase from 2002. Hunters using hounds harvested 76% of the lions, 12% were harvested incidental to some other hunting activity, still hunters took 8%, and 1% were by predator calling.

In 2003, tag sales continued to increase; resident hunters purchased 19,832 mountain lion tags, up 75 from 19,757 purchased in 2002. The majority of those tags were issued as part of the resident Sportsman Package. Additionally, 31 tags valid for a second mountain lion in portions of Units 10 and 16, and all of Units 12, 16A, 17, 19, 20, 20A, 26, and 27 were also sold.

Non-residents purchased 725 mountain lion tags in 2003, 18% fewer than in 2002. Of these, 192 were regular tags (sold for \$235), 20 tags were for a second lion (\$31.50) valid in only some units, and the majority of tags sold (513) were reduced price mountain lion tags, available for \$31.50 to non-resident purchasers of a deer or elk tag valid in the Lolo, Selway, or Middle Fork

zones. Most non-resident lion hunters hunted in those three zones. Four non-resident deer tags were used to tag a lion in 2003.

A total of 3,033 hound-hunting permits were issued in 2003, an increase of 25 since 2002. Of these, 2,904 were sold to residents and 129 to non-resident hunters. Only 75 statewide permits are available for non-residents. The remainders were from the Lolo, Selway, and Middle Fork zones.

Lion Management Zones

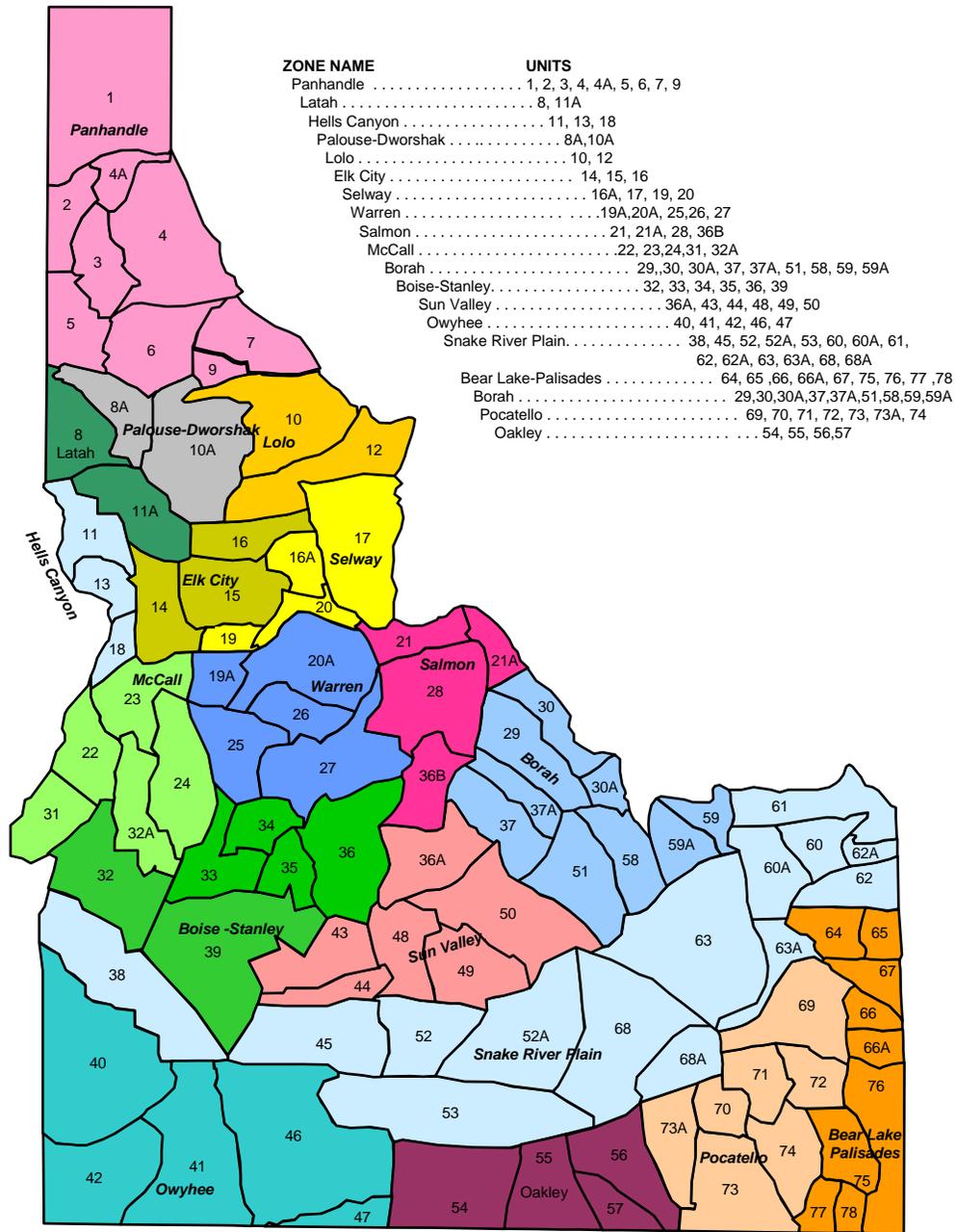


Figure 1. Statewide Mountain Lion Management Zones (DAUs).

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Mountain Lion Surveys and</u>
PROJECT:	<u>W-170-R-28</u>		<u>Inventories</u>
SUBPROJECT:	<u>1</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>8</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2003 to June 30, 2004</u>		

PANHANDLE REGION

Abstract

The 2003-2004 mountain lion season produced a Regional harvest of 112 mountain lions. Female mountain lion harvest consisted of 44% of the Regional harvest. Additional harvest data and a more complete age dataset to utilize population reconstruction methods may be required to determine lion population trends in the area.

Panhandle DAU (GMUs 1, 2, 3, 4, 4A, 5, 6, 7, 9)

Lion hunting with the aid of hounds is not allowed during general big game seasons for deer and elk. Deer and elk seasons run almost continuously from October 10 through December 1 in most units. However, there is no deer or elk general season in Units 4, 7, or 9 after November 3. Unit 9 is rarely accessible due to deep ridge-top snow on the boundary of the unit, thereby limiting access to the area.

Management Objectives

Management objectives for the Panhandle DAU are illustrated in Table 1. The 2002-2010 Mountain Lion Species Management Plan states that initial harvest goals will be based on maintaining harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 big game seasons (Figure 1) for each DAU, except in areas where other factors or circumstances justify a higher or lower goal (e.g., harvest seasons are deliberately liberalized to reduce the lion population or where the deliberate reduction of a lion population or maintenance at a lower level makes it untenable to continue to reach the harvest levels attained between 1990-1992).

The Department will continue to gather harvest data via the mandatory check. Regulations will allow the use of training dogs and continue to protect young mountain lions and females accompanied by young-of-the-year.

Historical Information

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 the Panhandle DAU 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 lion harvest in the Panhandle DAU closed March 31.

Prior to the 1995-1996 hunting season, this DAU 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). Table 2 lists historical lion harvest by GMU. Concurrent with the establishment of the Panhandle DAU, 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 2003-2004 season was 170 days, opening August 30 and closing February 15 in all GMUs. This represents a six week reduction in harvest opportunity from the prior season. The use of hounds is not allowed during the general deer and elk rifle seasons. The establishment of pursuit season (no lion harvest) from February 16 to March 31 was inadvertently left out of the rules and, thus, not allowed during the 2003-2004 season.

Harvest Characteristics

The 2003-2004 mountain lion harvest in the Panhandle DAU was 112, 85% of the previous five-year average (Table 3). This represents a slight increase in harvest from the previous year, following five years of a declining harvest, which peaked in 1997 at 194. During the 2003-2004 season, no mountain lions were harvested in Unit 9, which is consistent with the past due to its remote location and poor access.

Sex Ratio

The percentage of females in the harvest, generally considered an indicator of mortality rates, decreased steadily from the early 1980s through 1993. Since 1993, there has been a generally increasing trend (Figure 2), and the three-year un-weighted average is 50% females in the harvest (Table 3). There is currently no established threshold for this measurement, but the current value is beyond the maximum threshold (40%) in the 1991-1995 Mountain Lion Management Plan. These data are consistent with those expected from a mountain lion population with high adult mortality.

Age Structure

Prior to 1998, age was indexed by measuring the distance from the jawbone to the dentine/enamel ridge of the top canine (the “tooth drop”). These data were found to be unreliable, and since 1998, premolars have been sectioned and aged. The dataset for this measurement is currently not large enough to report even a short-term trend. However, as the dataset increases through time, it will be used as another indicator of population health. The age-specific data may also be used to reconstruct the population and may, thereby, be used to calculate population trend. Age data from the 2000, 2001 and 2002 harvest seasons indicate that sub-adult lions (less than three years old) made up 55%, 64%, and 65% of the harvest, respectively (Figure 3). During the 2002 harvest seasons, there were no male lions harvested that were \geq eight years old (Figure 4).

Hunting Characteristics

Eighty-one percent of successful mountain lion hunters during the 2003-2004 season used hounds (Figure 5) and used a rifle (75%) to take a mountain lion (Table 3).

Incidental Kill

Seven of the 112 mountain lions harvested (6%) in this DAU during the 2003-2004 season were taken incidentally, primarily by hunters pursuing other big game animals (Figure 5).

Climatic Conditions

Mountain lion harvest is very dependent on snow conditions: 1) to localize big game animals onto winter range, and 2) to provide adequate tracking conditions. During the 2003-2004 season, the month of December (historically the most important month of the mountain lion harvest season) had “normal” snowfall and accumulation throughout the DAU. Significant snowfall did not occur over much of the remainder of winter.

Depredations

There were no reports of lions killed as a result of depredations during this reporting period (Table 4). 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.

Management Implications

Until specific harvest goals for each DAU can be established using the new aging methodology, the current mountain lion plan indicates that initial harvest goals will be based to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for 1990-1992, except in areas where other factors or circumstances justify a higher or lower goal. The three-year average for this DAU from 1990-1992 is 61 mountain lions. The current harvest exceeds the 1990-1992 average by 83%. However, the pattern in the percentage of

females in the harvest, combined with a young age structure, make lion population trend and status difficult to assess for the Panhandle DAU.

During the annual season setting process (February-March 2003), concerns by Regional lion hunters, particularly hound-hunters, about the declining harvest and lack of older-aged male lions in the harvest resulted in a shortening of the 2003-2004 season by 45 days (Table 5). It is anticipated that a significantly greater reduction in season length will be required to reduce harvest levels and impact population age structures if it is determined that that is the desired management direction.

Table 1. Mountain lion plan harvest objectives for the Panhandle DAU.

DAU	Management goals	Current status
Panhandle	Minimum 3-year average harvest of 61 lions	112
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	33%
	Catch-Per-Unit Effort - To be established	No data

Table 2. Mountain lion deprecations by GMU in the Panhandle Region, 1998-2003.

Year	Unit									Total
	1	2	3	4	4A	5	6	7	9	
1998	0	2	0	0	0	0	0	0	0	2
1999	0	0	0	0	0	0	0	0	0	0
2000	0	2	0	0	0	0	0	0	0	2
2001	0	1	0	1	0	0	0	0	0	2
2002	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0

Table 3. Mountain lion harvest by GMU in the Panhandle Region, 1993-2003.

Year	Unit									Total
	1	2	3	4	4A	5	6	7	9	
1993	28	5	2	9	5	7	6	3	0	65
1994	39	1	6	12	3	5	18	11	0	95
1995	65	8	11	13	5	5	29	6	2	144
1996	58	5	9	25	2	13	16	9	0	137
1997	59	15	15	36	1	12	37	17	1	193
1998	66	21	10	33	3	10	27	6	0	176
1999	51	12	16	16	9	16	19	12	0	151
2000	54	13	16	20	3	8	16	11	0	141
2001	48	4	7	11	2	12	23	3	0	110
2002	22	2	4	15	1	7	20	8	0	79
2003	38	3	8	26	1	7	20	9	0	112

Table 4. 2003-2004 mountain lion harvest season structure by GMU in the Panhandle Region.

Season	Season length (days)	Units	Female quota
Aug 30 - Feb 15	170	1, 2, 3, 4, 4A, 5, 6, 7, 9	None

Table 5. Mountain lion harvest by weapon and sex for the Panhandle DAU, 1993-2003.

Year	Sex	Weapon					Total
		Rifle	Archery	Muzzleloader	Handgun	Unknown	
1993	M	23	7	2	10	1	43
	F	15	0	0	4	0	19
1994	M	36	7	0	11	4	58
	F	24	2	3	6	1	36
1995	M	43	15	0	11	0	69
	F	56	8	1	6	1	72
1996	M	55	11	0	14	0	80
	F	36	4	3	11	0	54
1997	M	74	10	3	18	0	105
	F	59	6	4	9	0	78
1998	M	70	10	0	17	0	97
	F	53	11	2	12	1	79
1999	M	53	5	2	6	6	72
	F	62	3	0	13	1	79
2000	M	52	5	3	14	1	75
	F	53	4	0	9	0	66
2001	M	41	6	0	10	1	58
	F	37	6	0	9	0	52
2002	M	26	3	3	4	0	36
	F	35	1	0	6	1	43
2003	M	48	4	0	10	1	63
	F	37	3	2	6	0	48

Total Harvest, 1993-2003 Units 1, 2, 3, 4, 4A, 5, 6, 7, 9

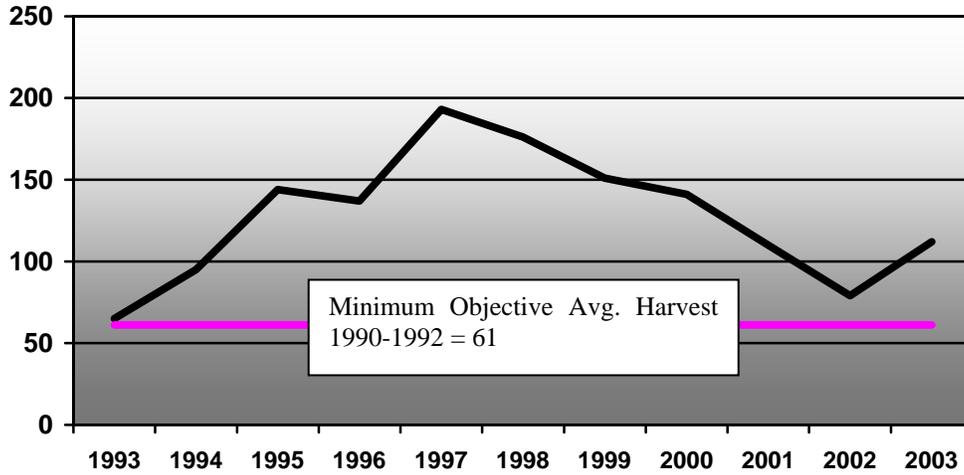


Figure 1. Mountain lion harvest for the Panhandle DAU, 1993-2003.

DAU Harvest by Sex, 1993-2003

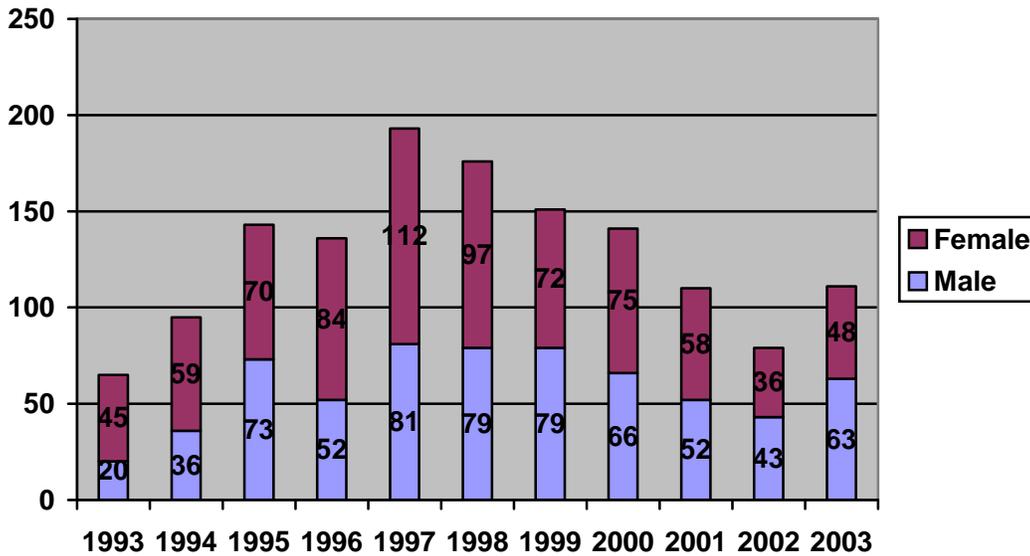
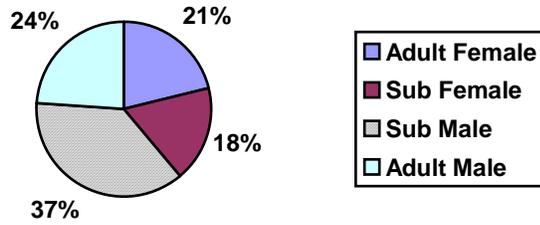
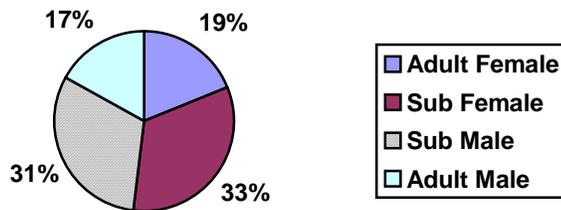


Figure 2. Harvest by sex for the Panhandle DAU, 1993-2003.

2000



2001



2002

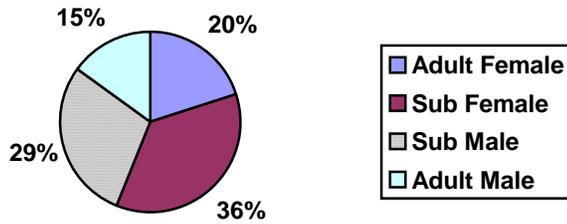


Figure 3. Sex and age composition of harvest for the Panhandle DAU, 2000-2002.

2002-2003

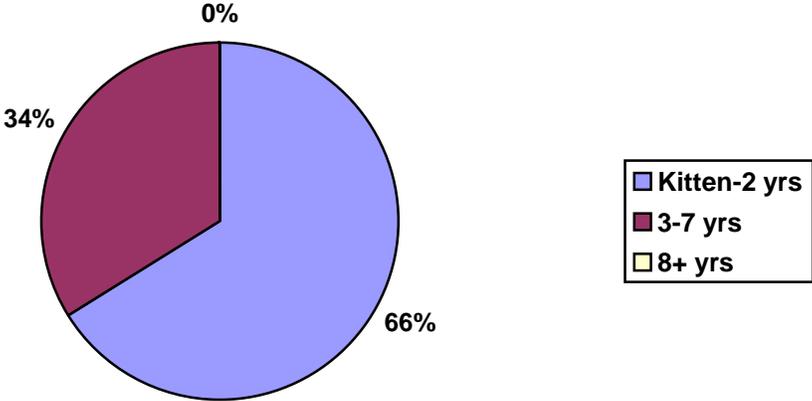


Figure 4. Average age composition of male harvest for the Panhandle DAU, 2002-2003.

**Method of Take, 2002-2003
Units 1, 2, 3, 4, 4A, 5, 6, 7, 9**

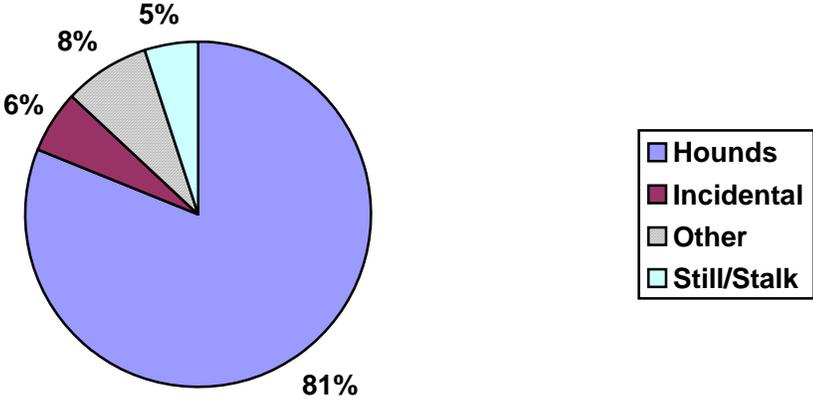


Figure 5. Harvest by method for the Panhandle DAU, 2002-2003.

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Mountain Lion Surveys and</u>
PROJECT:	<u>W-170-R-28</u>		<u>Inventories</u>
SUBPROJECT:	<u>2</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>8</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2003 to June 30, 2004</u>		

CLEARWATER REGION

Abstract

During the 2003-2004 hunting season, hunters in the Clearwater Region harvested 150 mountain lions (47% females). This was a decline from the 2000-2002 average of 179 lions harvested but an increase from last season (135 lions). Compared to the 2002-2003 season, declines occurred only in the Latah DAU (-1 lion) and the Palouse-Dworshak DAU (-5 lions), whereas increases occurred in the Lolo DAU (+10 lions), Hells Canyon DAU (+5 lions), Elk City DAU (+2 lions) and Selway DAU (+4 lions). During the 2003-2004 season, most mountain lions were harvested using hounds, followed by incidental harvest. Most mountain lions were harvested with a rifle.

Latah DAU (GMUs 8, 11A)

Management Objectives

The 2002-2010 Mountain Lion Management Plan directs the Department to maintain lions at or near their current distribution throughout the state. Harvest goals will be based on trends in past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a three-year average. Initial harvest goals for this DAU will be designed to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 mountain lion seasons.

Historical Information

Latah DAU units are generally accessible to hunters during winter but support low numbers of mountain lions. Healthy white-tailed deer and elk populations, as well as some mule deer, provide a prey base. Habitats in this area are dominated by privately-owned farmlands in upland prairies that are interspersed with coniferous forests leading to the Clearwater River and its tributaries. Canyon breaks leading to the Clearwater River provide quality habitat for many species of wildlife.

Season Structure

Within the Latah DAU, the 2003-2004 mountain lion take season extended from September 15 through March 31 (Table 1). There is no dog-training season for mountain lions in this DAU.

Harvest Characteristics

Mountain lion harvest in Latah DAU management units has historically been light (Table 2), averaging eight lions per year from 2000 to 2002 (Figure 1). Only five lions were taken in the 2003-2004 season. This level was higher than the 1990-1992 minimum harvest objective of three.

Age Structure

The number of mountain lions harvested in the Latah DAU is typically too small to accurately reflect the age structure of the population. Age structure of the harvest shifted toward a greater proportion of sub-adult males from 2000 to 2002 (Figure 2). Composition of males harvested from 2000-2002 was predominantly young (kitten-2 yrs) (73%) and middle-aged lions (3-7 yrs) (Figure 3).

Sex Ratio

During the 2003-2004 hunting season, Latah DAU hunters killed five mountain lions (two females, three males) (Figure 4). The number and percentage of females harvested has been variable but low in recent years.

Harvest By Method and Weapon

Harvest with the use of hounds in the Latah DAU accounted for the majority of lions taken during 2001-2003 (40% of the total); however, nearly one-third of successful hunters killed lions incidental to other hunting activities (Figure 5). Hunters used rifles to harvest all lions (Table 3).

Climatic Conditions

The Clearwater Region experienced weather conditions in 2003-2004 that were considered below normal. Snow-pack in the Clearwater Basin was 89% of average (October-March), while the Salmon River Basin averaged 78% for the same time period. Snowfall was earlier than usual in the Region, but most accumulation at the lower elevations did not persist. This allowed big game populations to forage and move easily and probably had a positive effect on big game over-winter survival while negatively impacting lion hunting opportunities.

Depredations

Mountain lion depredations are usually very minor in the Latah DAU. From 1998 to 2003, only one lion was killed in response to a depredation complaint in this DAU (Table 4).

Management Implications

Current status relative to management goals is summarized in Table 5. Due to the increase in sightings and reports of encounters during the mid-1990s in this DAU, hunting seasons were liberalized. Harvest continued to increase and, during the 1997 and 1998 seasons, reached an all-time high for 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 in response to the growth of this prey population. This would account for increased observations of mountain lions in this DAU during the mid-1990s. Despite the longer season, harvest has remained below the 1997 and 1998 peaks.

Palouse-Dworshak DAU (GMUs 8A, 10A)

Management Objectives

The 2002-2010 Mountain Lion Management Plan directs the Department to maintain lions at or near their current distribution throughout the state. Harvest goals will be based on trends in past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a three-year average. Initial harvest goals for this DAU will be designed to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 mountain lion seasons.

Historical Information

Three-quarters of the Palouse-Dworshak DAU is comprised of timberlands owned by Potlatch Corporation, Idaho Department of Lands (IDL), and the U.S. Forest Service (USFS). Timber harvest activity has created vast acreages of early successional habitat benefiting several ungulate prey species. The remaining one-fourth of the DAU is open or agricultural lands providing high quality forage for deer and elk at certain times of the year. The area is bisected by canyons leading to the Palouse and Potlatch rivers (Unit 8A), Clearwater River, and lower North Fork of the Clearwater River (Unit 10A). Both units share a common border along the lower end of Dworshak Reservoir. Access is very good throughout the DAU where high open and closed road densities contribute to good opportunities for hunting mountain lions.

Season Structure

Within the Palouse-Dworshak DAU, the 2003-2004 mountain lion take season extended from August 30 through March 31 (Table 1). However, in Unit 8A, the first two weeks (August 30 to September 14) were offered as an archery-only season. There is no dog-training season for mountain lions in this DAU, and there were no female harvest quotas.

Harvest Characteristics

Mountain lion harvest in the Palouse-Dworshak DAU from 2000 to 2002 averaged 50 lions per year (Figure 6); 43 lions were harvested in 2003-2004 (Table 2). This level continues to exceed

the 1990-1992 minimum harvest objective of 21 and has been highly variable, probably due to varied hunting conditions between years.

Age Structure

The age structure of the lion harvest has been relatively stable from 2000 to 2002 with the majority of the harvest comprised of sub-adult females and sub-adult males (Figure 7). Composition of males harvested from 2000 through 2002 was nearly two-thirds young lions (kitten-2 yrs) and one-third middle-aged lions (3-7 yrs) (Figure 8).

Sex Ratio

During the 2003-2004 hunting season, Palouse-Dworshak DAU hunters killed 43 mountain lions (18 females, 25 males) (Figure 9). The number of females harvested recently peaked at 53 in 1997 and has been lower since that time. The percentage of females has averaged about 50%.

Harvest By Method and Weapon

Harvest in the Palouse-Dworshak DAU from 2001 to 2003 was dominated by hunters using hounds (71% of the total); however, 20% of successful hunters killed lions incidental to other hunting activities (Figure 10). The most common weapons used were rifle, bow, and handgun, respectively (Table 3).

Climatic Conditions

The Clearwater Region experienced weather conditions in 2003-2004 that were considered below normal. Snow-pack in the Clearwater Basin was 89% of average (October-March), while the Salmon River Basin averaged 78% for the same time period. Snowfall was earlier than usual in the Region, but most accumulation at the lower elevations did not persist. This allowed big game populations to forage and move easily and probably had a positive effect on big game over-winter survival while negatively impacting lion hunting opportunities.

Depredations

Mountain lion depredations are usually very minor in the Palouse-Dworshak DAU. From 1998 to 2003, two lions were killed in response to depredation complaints in this DAU (Table 4).

Management Implications

Current status relative to management goals is summarized in Table 5. Due to the increase in sightings and reports of encounters during the mid-1990s in this DAU, hunting seasons were liberalized. Harvest continued to increase and, during the 1997-1998 season, harvest reached an all-time high. 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 lower elevations and took advantage of the abundant whitetail population. This could potentially account for increased observations of mountain lions in lower elevation whitetail habitat in this DAU during the mid-

1990s. Despite a longer season, harvest has remained below the 1997 peak and currently has stabilized at about one-half of that level.

Harvest increased dramatically from 1991 to 1997 in Unit 10A, where the highest annual harvest has occurred every year since 1994. Although lion harvest has declined from a peak in 1997, the unit retains a relatively high harvest level. It is unclear whether the current status is a result of a population change or hunting conditions. However, hunters are indicating that lion observations are becoming less frequent.

Lolo DAU (GMUs 10, 12)

Management Objectives

The 2002-2010 Mountain Lion Management Plan directs the Department to maintain lions at or near their current distribution throughout the state. Harvest goals will be based on trends in past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a three-year average. Initial harvest goals for this DAU will be designed to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 mountain lion seasons.

Historical Information

Lion hunter access to the Lolo DAU is extremely limited during the winter months, except along State Highway 12 from Lowell to Lolo Pass. Much of these two units are difficult to access because of snow, mud, and steep, rugged terrain. Deer and elk populations throughout most of the DAU provide a substantial prey base; however, elk numbers have declined over the past ten years. Habitats include dense coniferous forest and mountains with relatively high precipitation. Land ownership is almost entirely public (USFS).

Season Structure

Within the Lolo DAU, the 2003-2004 take season began at the end of August and extended through March 31 with a two-lion bag limit for the entire DAU (Table 1). Use of electronic calls for hunting lions was legal in Unit 12. This DAU did not have a dog-training season, and there were no female harvest quotas.

Harvest Characteristics

The remote nature and difficult access in this DAU result in a moderate harvest level (Table 2). An average harvest of 34 lions occurred from 2000 to 2002. During the 2003-2004 hunting season, Lolo DAU hunters harvested 30 mountain lions which exceeds the 1990-1992 minimum harvest objective of 20 (Figure 11). Availability of mountain lions appears to be declining, probably as a result of the effects of substantial decreases in elk numbers over the past few years and continued lion hunting pressure as a result of the two-lion bag limit and reduced non-resident tag costs.

Age Structure

The numbers of mountain lions harvested is typically too small to accurately reflect the age structure of the population for this DAU. However, age structure of the harvest, though variable, has remained relatively stable with a greater proportion of sub-adults harvested from 2000 to 2002 (Figure 12). According to an evaluation of lion harvest data by Anderson and Lindzey (2001), a relatively higher proportion of adults in the harvest may indicate that high harvest rates have begun to affect the lion population age structure with a shift in availability away from sub-adult lions. This does not yet appear to be the case in this DAU. Composition of males harvested from 2000-2002 was predominantly young (kitten-2 yrs) (60%) and middle-aged lions (3-7 yrs) (36%), with adults noticeably lacking (4%) (Figure 13).

Sex Ratio

During the 2003-2004 hunting season, Lolo DAU hunters killed 30 mountain lions, 21 of which were females (70%) (Figure 14). While the number of females was lower than the 1994-2002 average, the percentage of females was the highest in the past ten years (1993-2002 average = 50%).

Harvest By Method and Weapon

Hunters in the Lolo DAU used hounds to harvest mountain lions 83% of the time and harvested lions incidental to other activities 12% of the time (Figure 15). The weapon used most often was the rifle, followed by handgun and bow (Table 3).

Depredations

There were no reported cases of mountain lions killed in response to depredations in 2003-2004, which is typical of this DAU (Table 4).

Climatic Conditions

The Clearwater Region experienced weather conditions in 2003-2004 that were considered below normal. Snow-pack in the Clearwater Basin was 89% of average (October-March), while the Salmon River Basin averaged 78% for the same time period. Snowfall was earlier than usual in the Region, but most accumulation at the lower elevations did not persist. This allowed big game populations to forage and move easily and probably had a positive effect on big game over-winter survival while negatively impacting lion hunting opportunities.

Management Implications

Current status relative to management goals is summarized in Table 5. Mountain lion harvest in the Lolo DAU has declined abruptly during the past three years. This may be an indication that efforts to increase lion harvest over the past few years by liberalizing seasons has been effective and that lion numbers have adjusted to decreased prey availability. Some of the decline may also

be related to the effects of weather on hunting success because many other units in the region also experienced decreased harvest in recent years.

Hells Canyon DAU (GMUs 11, 13, 18)

Management Objectives

The 2002-2010 Mountain Lion Management Plan directs the Department to maintain lions at or near their current distribution throughout the state. Harvest goals will be based on trends in past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a three-year average. Initial harvest goals for this DAU will be designed to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 mountain lion seasons.

Historical Information

Wildlife habitat in Hells Canyon units varies greatly across the DAU. Steep, dry, river-canyon grasslands give way to higher elevation forests with greater precipitation. Road density is moderate, and access is restricted in many areas. This DAU contains large tracts of both privately and publicly-owned land. Unit 11 is mostly private land except for the Craig Mountain Wildlife Management Area (66,000 acres). Unit 13 is primarily under private ownership and is managed mostly for agriculture and livestock production. Unit 18 is two-thirds public land, mostly in the Hells Canyon Wilderness and National Recreation Area. All three units have borders along the Snake and Salmon rivers. Healthy mule deer and elk populations, as well as some white-tailed deer, provide a prey base for mountain lions.

Season Structure

Within the Hells Canyon DAU, the 2003-2004 mountain lion take season extended from September 15 through March 31 (Table 1). There was no dog-training season for mountain lions nor were there any female harvest quotas for this DAU.

Harvest Characteristics

Mountain lion harvest in the Hells Canyon DAU has historically been moderate (Table 2). From 2000 to 2002, harvest averaged 25 lions per year and never exceeded 35 (Figure 16). This level surpassed the 1990-1992 minimum harvest objective of 15 each year. Twenty-four mountain lions were harvested in the 2003-2004 season.

Age Structure

The number of mountain lions harvested in the Hells Canyon DAU is generally too small to accurately reflect the age structure of the population. Age structure of the harvest shifted toward a greater proportion of sub-adult females and males from 1999 to 2001; however, in 2002, it fell back to the 2000 level (Figure 17). A higher proportion of male lions were harvested from 2000

to 2002 that were young (kitten-2 yrs) (59%) than middle-aged (3-7 yrs) (33%) or older (8%) (Figure 18).

Sex Ratio

During the 2003-2004 hunting season, Hells Canyon DAU hunters killed 24 mountain lions (ten females, 14 males) (Figure 19). The number of females harvested has been variable. The percentage of females has remained at or above 50% most years.

Harvest By Method and Weapon

Seventy-nine percent of the lion harvest in the Hells Canyon DAU from 2001 to 2003 was accomplished with the use of hounds; 16% was from activities incidental to hunting (Figure 20). The most commonly used weapons were the rifle and handgun (Table 3).

Climatic Conditions

The Clearwater Region experienced weather conditions in 2003-2004 that were considered below normal. Snow-pack in the Clearwater Basin was 89% of average (October-March), while the Salmon River Basin averaged 78% for the same time period. Snowfall was earlier than usual in the Region, but most accumulation at the lower elevations did not persist. This allowed big game populations to forage and move easily and probably had a positive effect on big game over-winter survival while negatively impacting lion hunting opportunities.

Depredations

Mountain lion depredations are a rare occurrence in the Hells Canyon DAU. From 1998 to 2003, no lion depredation harvest occurred in this DAU (Table 4).

Management Implications

Current status relative to management goals is summarized in Table 5. Little change in lion harvest has occurred in this DAU since 1998. Harvest has remained low except when favorable weather conditions have provided increased lion harvest opportunities.

Elk City DAU (GMUs 14, 15, 16)

Management Objectives

The 2002-2010 Mountain Lion Management Plan directs the Department to maintain lions at or near their current distribution throughout the state. Harvest goals will be based on trends in past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a three-year average. Initial harvest goals for this DAU will be designed to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 mountain lion seasons.

Historical Information

Land ownership in the Elk City Zone is 80% public and 20% private. Privately-owned portions are at lower elevations along the Clearwater and Salmon rivers. Approximately eight percent of the DAU falls within the Gospel Hump Wilderness. Most of the area is characterized by productive coniferous forests with intermixed grasslands. Logging and mining efforts have resulted in high open and closed road densities contributing to significant big game vulnerability during hunting season. Deer and elk populations throughout most of the DAU are thriving, providing a substantial prey base.

Season Structure

Within the Elk City DAU, the take season for mountain lions extended from September 15 through March 31 (Table 1). This DAU did not have a dog-training season, and there were no female harvest quotas. The northern portion of Unit 15 has been closed to mountain lion harvest since 1999 for research purposes. Only the portion of Unit 16 north of the Selway River was open for a two-lion bag limit for the 2003-2004 season.

Harvest Characteristics

Hunter access can be difficult in some portions of this DAU. During the 2003-2004 hunting season, Elk City DAU hunters harvested 32 mountain lions for the second consecutive season in which harvest has been below the 1990-1992 minimum harvest objective of 40 lions (Figure 21). Lion harvest peaked in 1996 and has been at a lower level since that time (Table 2). Some of the decline can be attributed to the lion harvest closure in the northern portion of Unit 15 in 1999.

Age Structure

Age structure of the harvest shifted toward a greater proportion of sub-adult females and sub-adult males from 1999 to 2001, but declined slightly in 2002 (Figure 22). Composition of males harvested from 1999-2001 was predominantly young lions (kitten-2 yrs) (52%) and middle-aged lions (3-7 yrs) (48%), with no adults reported (Figure 23).

Sex Ratio

During the 2002-2003 hunting season, Elk City DAU hunters killed 32 mountain lions, 14 of which were females (44%) (Figure 24). The number of females harvested was the lowest in the past ten years.

Harvest By Method and Weapon

Hunters in the Elk City DAU used hounds to harvest mountain lions 75% of the time, harvested incidental to other activities 15% of the time, and 7% by still hunting or stalking (Figure 25). The weapon used most often was the rifle, followed by handgun and muzzleloader (Table 3).

Climatic Conditions

The Clearwater Region experienced weather conditions in 2003-2004 that were considered below normal. Snow-pack in the Clearwater Basin was 89% of average (October-March), while the Salmon River Basin averaged 78% for the same time period. Snowfall was earlier than usual in the Region, but most accumulation at the lower elevations did not persist. This allowed big game populations to forage and move easily and probably had a positive effect on big game over-winter survival while negatively impacting lion hunting opportunities.

Depredations

There were six mountain lions killed in response to depredation complaints from 1998 to 2002 (Table 4). However, none were reported for the 2003-2004 season.

Management Implications

Current status relative to management goals is summarized in Table 5. A decline in total mountain lion harvest in the Elk City DAU was to be expected after the northern portion of Unit 15 was closed in 1999. However, an additional drop in DAU harvest occurred in 2003. This may have been related to unfavorable weather conditions or the desire by hunters to pursue lions in areas known for greater lion densities.

Selway DAU (GMUs 16A, 17, 19, 20)

Management Objectives

The 2002-2010 Mountain Lion Management Plan directs the Department to maintain lions at or near their current distribution throughout the state. Harvest goals will be based on trends in past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a three-year average. Initial harvest goals for this DAU will be designed to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 mountain lion seasons.

Historical Information

Units within the Selway DAU are, in part, comprised of the Selway-Bitterroot, Frank Church River-of-No-Return, and Gospel Hump Wilderness areas 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 bunchgrass hillsides and brush fields 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 the Selway DAU, the 2003-2004 mountain lion take season extended from August 30 through March (Table 1). This DAU does not have a dog-training season, and there were no female harvest quotas.

Harvest Characteristics

Mountain lion harvest in the Selway DAU was higher in 2000 and 2001 (33 and 39, respectively) than during most years in the recent past, likely a result of the increased bag limit and season length, increased non-resident hound permits, outfitter efforts, and low snow pack (Figure 26). However, harvest declined substantially in 2002, climbing only slightly in 2003 (Table 2). Current harvest is equal to the 1990-1992 minimum harvest objective of 16. Because these are such large units with ample prey base, the mountain lion population is likely much greater than harvest indicates. This suggests an under-harvested but evidently self-regulating population. The major obstacle to harvest in this DAU is difficult hunter access.

Age Structure

The number of mountain lions harvested is typically too small to accurately reflect the age structure of the population. Although age structure of the harvest shifted toward a greater proportion of both sub-adult and adult females from 1999 to 2001, values for 2002 were lower (Figure 27). Composition of males harvested from 2000 to 2002 was higher for middle-aged lions (3-7 yrs) than for young lions (kitten-2 yrs) (Figure 28).

Sex Ratio

During the 2003-2004 hunting season, Selway DAU hunters killed 16 mountain lions, including five females (Figure 29). The number and percentage of females harvested has remained low over the past three years at levels similar to 1993-1999 averages. Few mountain lions are typically harvested from these units because of their remote nature and the difficult access facing hunters.

Harvest By Method and Weapon

Harvest with the use of hounds in the Selway DAU accounted for the majority of lions taken from 2001 to 2003 (85% of the total) (Figure 30). The most common weapons used were handgun, rifle, and bow, respectively (Table 3).

Depredations

Because units in this DAU are comprised predominately of wilderness, depredations are not usually a concern. No depredations were reported during 2003-2004 (Table 4).

Climatic Conditions

The Clearwater Region experienced weather conditions in 2003-2004 that were considered below normal. Snow-pack in the Clearwater Basin was 89% of average (October-March), while the Salmon River Basin averaged 78% for the same time period. Snowfall was earlier than usual in the Region, but most accumulation at the lower elevations did not persist. This allowed big game populations to forage and move easily and probably had a positive effect on big game over-winter survival while negatively impacting lion hunting opportunities.

Management Implications

Current status relative to management goals is summarized in Table 5. The Selway DAW occupies a vast, remote area with high quality big game range. Consequently, the effects of hunting on mountain lion populations in the DAW is generally considered to be light except in those few areas with good road access or in areas where outfitters concentrate their hunting efforts.

Literature Cited

Anderson, C. and F. Lindzey. 2001. Abstract in the Proceedings of the 8th annual conference of The Wildlife Society, Reno, Nevada, USA.

Table 1. 2003-2004 mountain lion harvest season structure by GMU in the Clearwater Region.

Season	Season length (days)	Units	Female quota
Sept 15 - Mar 31	198	8, 11, 11A, 13, 14, 15, 16, 18	None
Aug 30 - Mar 31	214	8A, 10, 10A, 12, 16A, 17, 19, 20	None

Table 2. Mountain lion harvest by GMU in the Clearwater Region, 1994-2003.

Unit	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
8	2	1	3	8	9	6	2	7	2	1
8A	13	11	17	17	20	14	12	11	14	11
10	22	16	20	23	21	16	20	11	12	12
10A	30	59	64	87	69	34	55	25	34	32
11	5	14	14	11	3	4	10	5	7	7
11A	5	7	1	6	5	2	4	5	4	4
12	10	16	19	24	18	25	34	17	8	18
13	4	10	9	8	5	4	7	7	3	7
14	10	17	16	16	18	28	13	14	12	12
15	26	42	51	44	21	9	15	19	10	9
16	16	16	18	18	20	13	17	12	9	11
16A	1	3	0	1	0	1	3	4	2	2
17	7	8	5	13	17	7	13	19	7	8
18	13	8	9	13	11	10	17	9	9	10
19	0	1	2	0	1	2	8	2	1	0
20	3	2	1	6	2	2	15	8	2	6
Total	167	231	249	295	240	177	245	175	136	150

Table 3. Mountain lion harvest by weapon and sex for Clearwater Region DAUs, 1999-2003.

DAU	Year	Sex	Weapon					Total
			Rifle	Archery	Muzzleloader	Handgun	Unknown	
Latah	1999	M	1	0	2	1	0	4
		F	4	0	0	0	0	4
	2000	M	3	0	0	0	0	3
		F	2	0	0	0	1	3
	2001	M	7	0	0	0	0	7
		F	3	0	0	2	0	5
	2002	M	3	0	0	2	0	5
		F	1	0	0	0	0	1
	2003	M	3	0	0	0	0	3
F		2	0	0	0	0	2	
Palouse-Dworshak	1999	M	14	4	1	6	0	25
		F	18	1	0	4	0	23
	2000	M	19	3	1	10	0	33
		F	24	3	4	3	0	34
	2001	M	11	4	1	3	0	19
		F	9	2	1	5	0	17
	2002	M	20	2	0	2	0	24
		F	16	6	0	2	0	24
	2003	M	21	4	0	0	0	25
F		15	0	0	3	0	18	
Lolo	1999	M	7	4	0	13	0	24
		F	9	1	0	6	0	16
	2000	M	13	6	0	10	0	29
		F	15	4	0	5	0	24
	2001	M	6	5	0	4	1	16
		F	4	4	0	4	0	12
	2002	M	5	2	0	1	0	8
		F	6	2	0	4	0	12
	2003	M	4	1	0	4	0	9
F		17	3	0	1	0	21	
Hells Canyon	1999	M	3	1	0	2	0	6
		F	8	1	0	3	0	12
	2000	M	7	1	1	4	0	13
		F	16	2	0	3	0	21
	2001	M	5	0	1	1	1	8
		F	8	1	0	4	0	13
	2002	M	9	0	0	0	0	9
		F	9	0	0	1	0	10
	2003	M	9	0	0	5	0	14
F		9	0	0	1	0	10	
Elk City								

Table 3. Continued.

DAU	Year	Sex	Weapon				Total	
			Rifle	Archery	Muzzleloader	Handgun		Unknown
	1999	M	11	3	1	9	0	24
		F	16	3	1	6	0	26
	2000	M	11	0	0	13	0	24
		F	14	1	0	6	0	21
	2001	M	13	4	0	7	0	24
		F	11	1	0	8	0	20
	2002	M	12	1	0	0	0	13
		F	13	0	1	3	0	17
	2003	M	15	0	0	3	0	18
		F	11	0	1	2	0	14
Selway	1999	M	1	1	0	4	0	6
		F	4	0	0	2	0	6
	2000	M	4	4	0	12	1	21
		F	6	1	0	11	0	18
	2001	M	1	3	0	6	0	10
		F	8	2	0	13	0	23
	2002	M	4	1	0	2	0	7
		F	3	2	0	0	0	5
	2003	M	2	1	0	8	0	11
		F	0	3	0	2	0	5

Table 4. Mountain lion depredations by GMU in the Clearwater Region, 1999-2003.

Unit	Year				
	1999	2000	2001	2002	2003
8	0	0	0	0	0
8A	0	0	0	0	0
10	0	0	0	0	0
10A	0	0	1	0	1
11	0	0	0	0	0
11A	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	1	0	0	0	0
15	0	1	0	0	0
16	2	2	0	0	0
16A	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
Total	3	3	1	0	1

Table 5. Mountain lion plan harvest objectives for Clearwater Region DAUs.

DAU	Management goals	Current status
Latah	Minimum 3-year average harvest of 3 lions	8
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	27%
	Catch-per-Unit Effort - To be established	No data
Palouse-Dworshak	Minimum 3-year average harvest of 21 lions	50
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	38%
	Catch-per-Unit Effort - To be established	No data
Lolo	Minimum 3-year average harvest of 20 lions	34
	Sex/age composition - To be established	Decreasing
	Percent males 3+ years - To be established	40%
	Catch-per-Unit Effort - To be established	No data
Hells Canyon	Minimum 3-year average harvest of 15 lions	25
	Sex/age composition - To be established	Increasing
	Percent males 3+ years - To be established	41%
	Catch-per-Unit Effort - To be established	No data
Elk City	Minimum 3-year average harvest of 40 lions	40
	Sex/age composition - To be established	Decreasing
	Percent males 3+ years - To be established	48%
	Catch-per-Unit Effort - To be established	No data
Selway	Minimum 3-year average harvest of 16 lions	28
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	59%
	Catch-per-Unit Effort - To be established	No data

**Total Harvest, 1994-2003
Units 8, 11A**

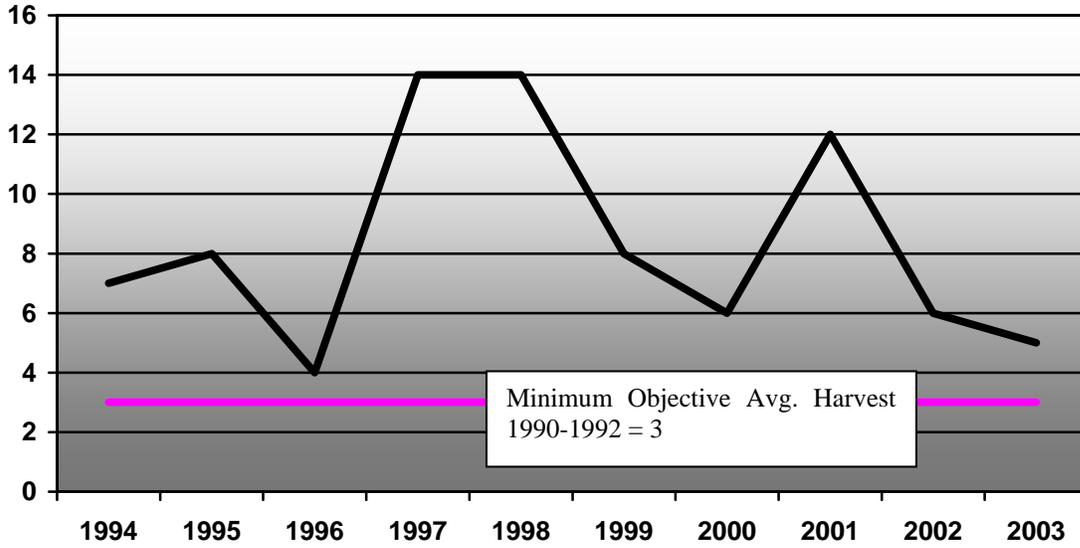
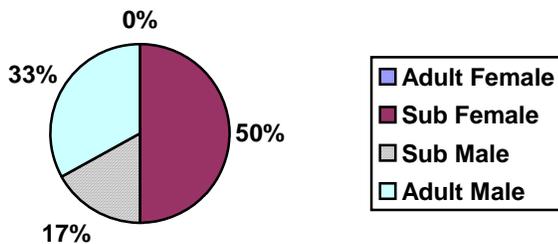
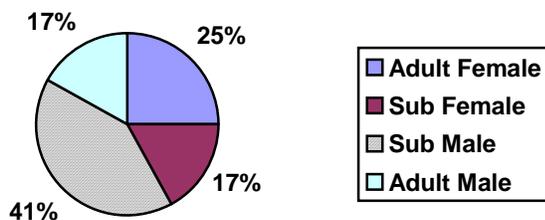


Figure 1. Mountain lion harvest for the Latah DAU in the Clearwater Region, 1994-2003.

2000



2001



2002

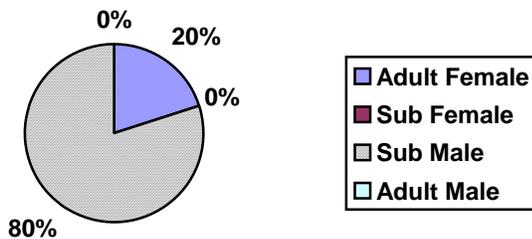


Figure 2. Sex and age composition of harvest for the Latah DAU, 2000-2002.

2000-2002

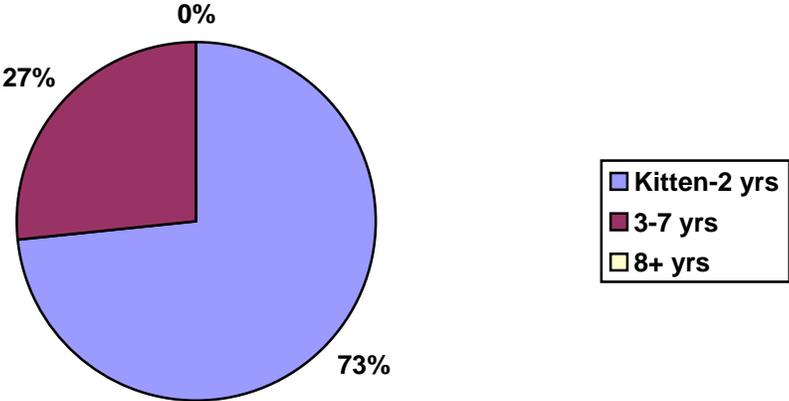


Figure 3. Average age composition of male harvest for the Latah DAU, 2000-2002.

DAU Harvest by Sex, 1994-2003

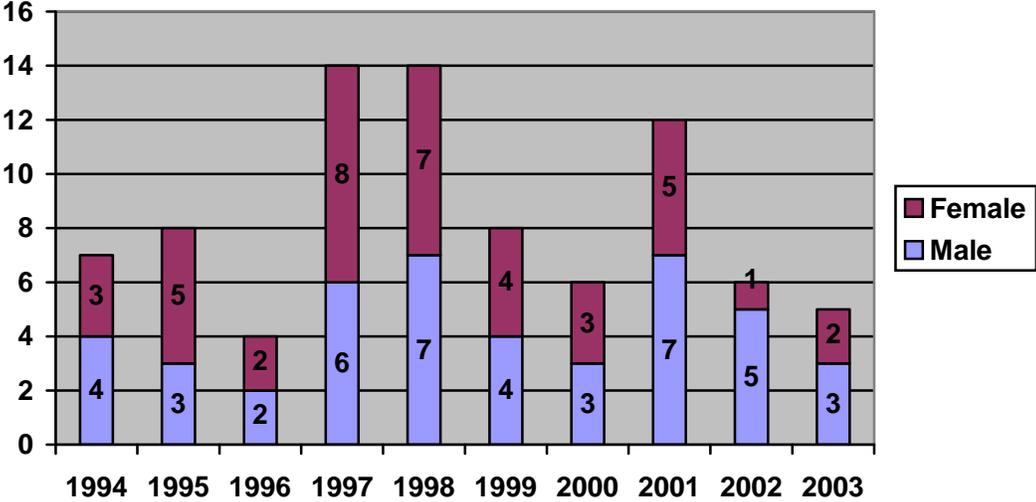


Figure 4. Harvest by sex for the Latah DAU, 1994-2003.

**Method of Take, 2001-2003
Units 8, 11A**

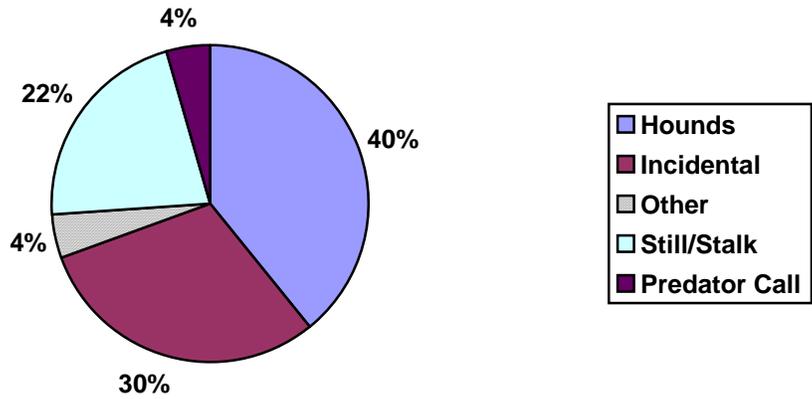


Figure 5. Harvest by method for the Latah DAU, 2001-2003.

**Total Harvest, 1994-2003
Units 8A, 10A**

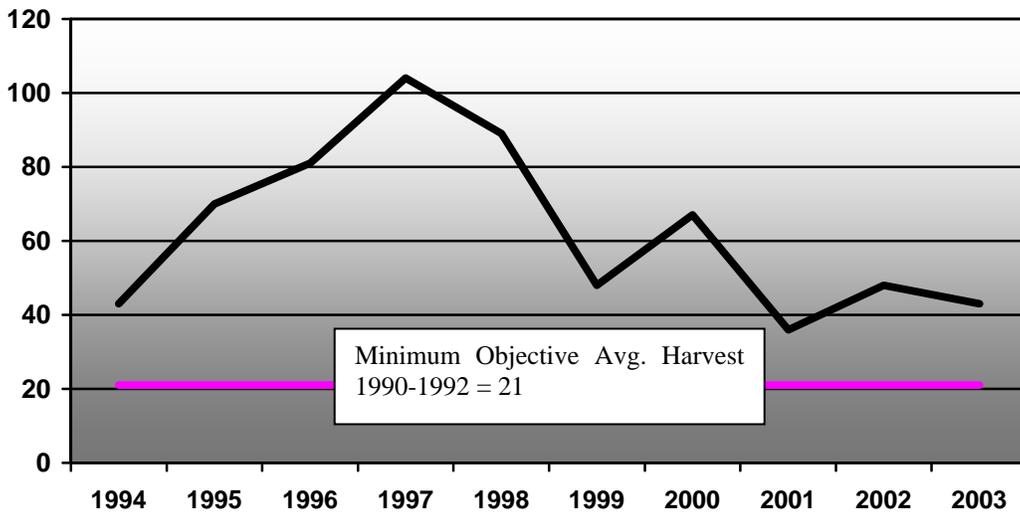
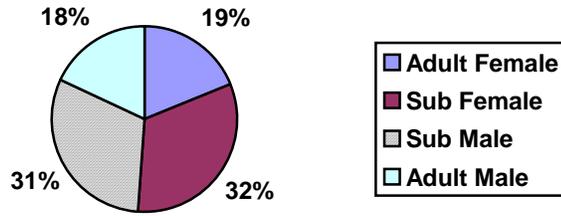
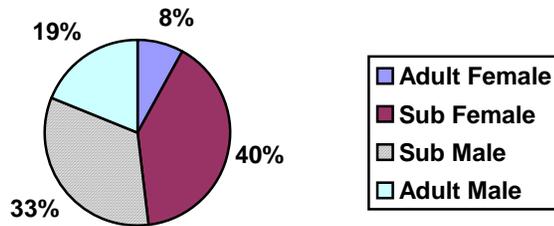


Figure 6. Mountain lion harvest for the Palouse-Dworshak DAU, 1994-2003.

2000



2001



2002

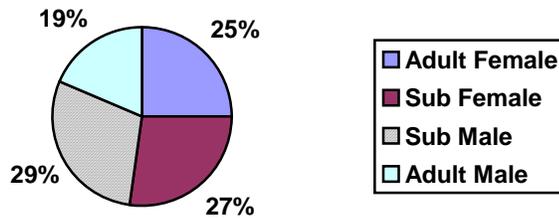


Figure 7. Sex and age composition of harvest for the Palouse-Dworshak DAU, 2000-2002.

2000-2002

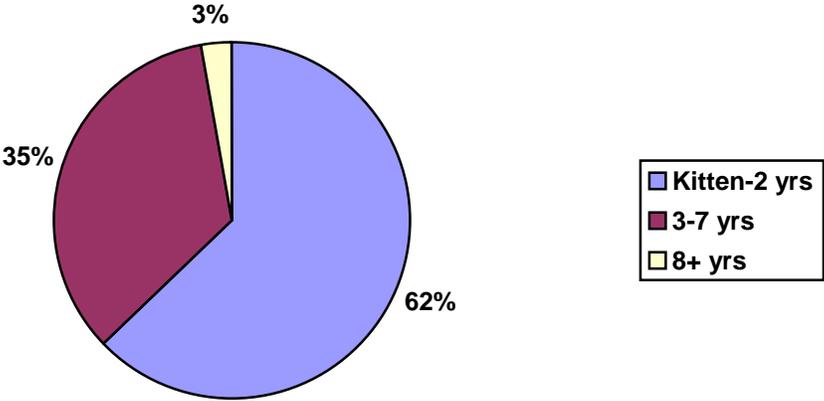


Figure 8. Average age composition of male harvest for the Palouse-Dworshak DAU, 2000-2002.

DAU Harvest by Sex, 1994-2003

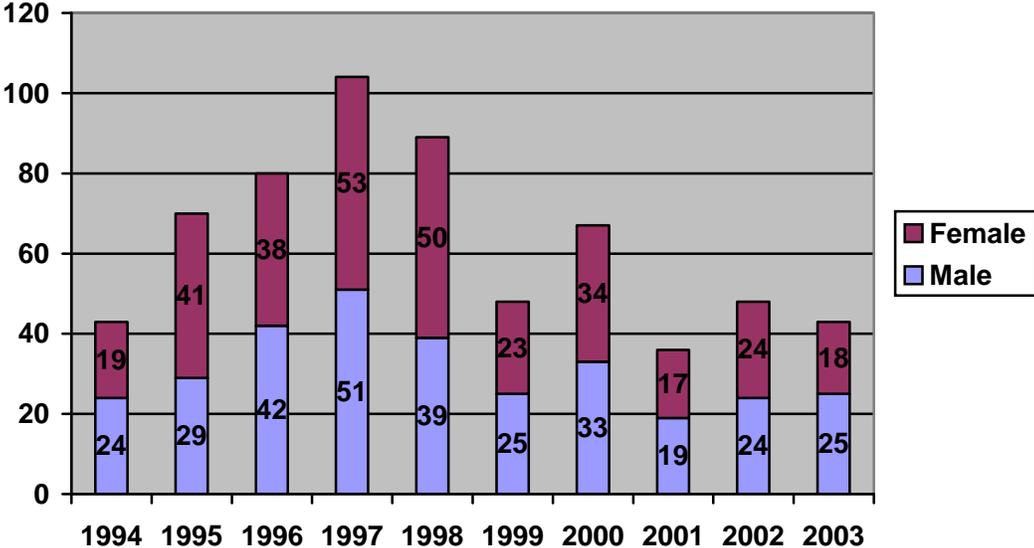


Figure 9. Harvest by sex for the Palouse-Dworshak DAU, 1994-2003.

**Method of Take, 2001-2003
Units 8A, 10A**

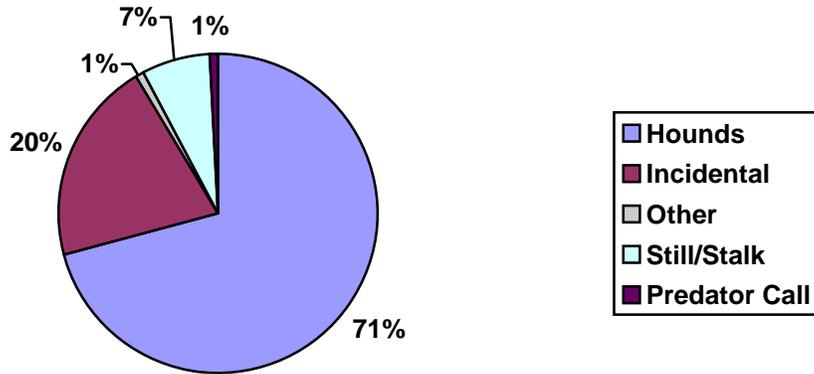


Figure 10. Harvest by method for the Palouse-Dworshak DAU, 2001-2003.

**Total Harvest, 1994-2003
Units 10, 12**

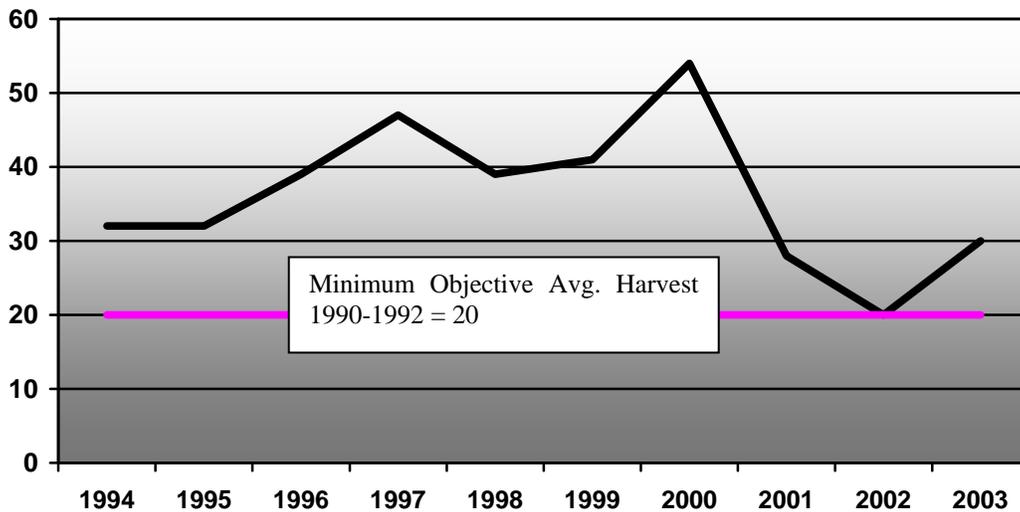
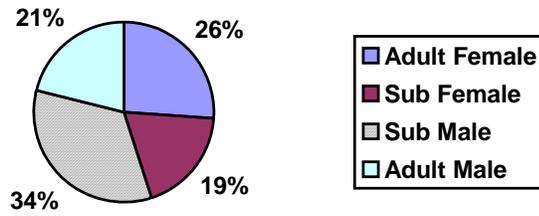
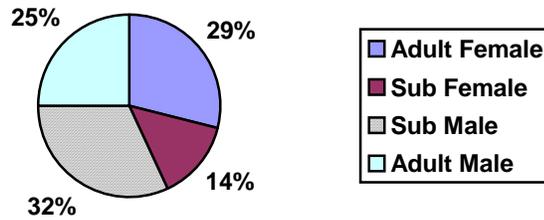


Figure 11. Mountain lion harvest for the Lolo DAU, 1994-2003.

2000



2001



2002

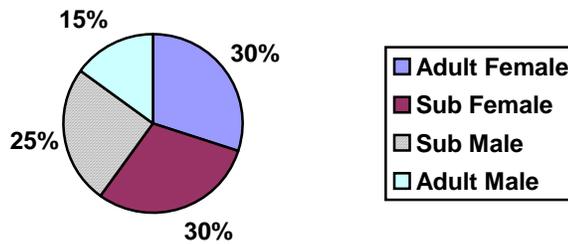


Figure 12. Sex and age composition of harvest for the Lolo DAU, 2000-2002.

2000-2002

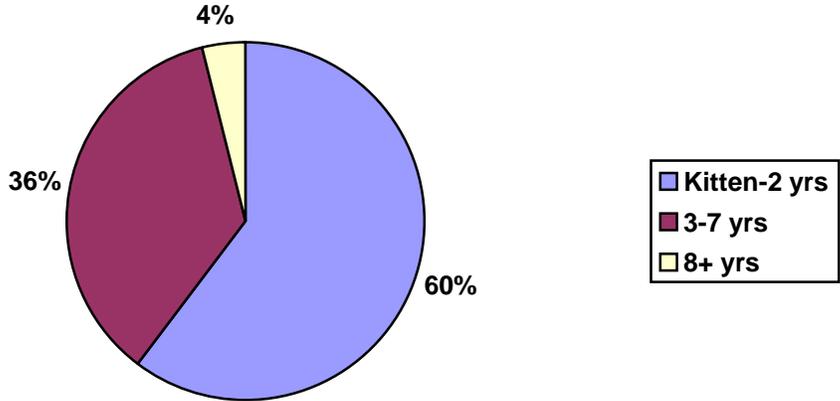


Figure 13. Average age composition of male harvest for the Lolo DAU, 2000-2002.

DAU Harvest by Sex, 1994-2003

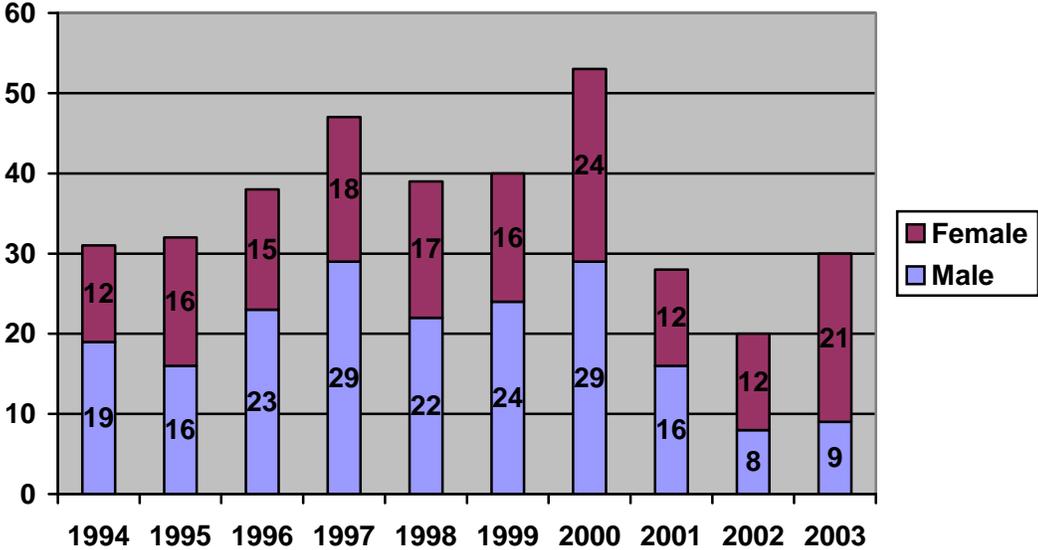


Figure 14. Harvest by sex for the Lolo DAU, 1994-2003.

**Method of Take, 2001-2003
Units 10, 12**

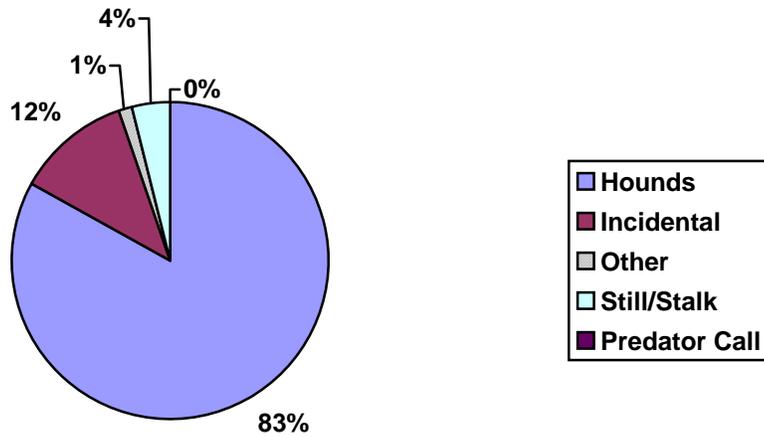


Figure 15. Harvest by method for the Lolo DAU, 2001-2003.

**Total Harvest, 1994-2003
Units 11, 13, 18**

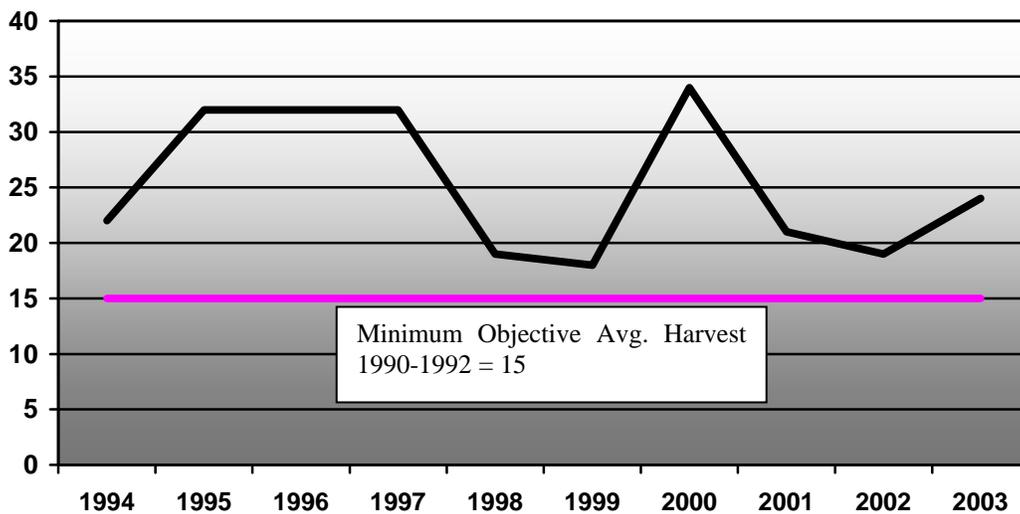
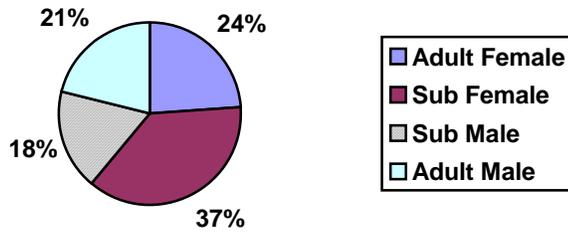
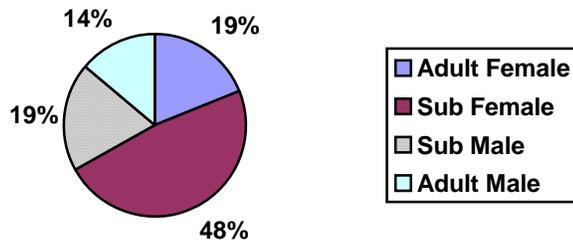


Figure 16. Mountain lion harvest for the Hells Canyon DAU, 1994-2003.

2000



2001



2002

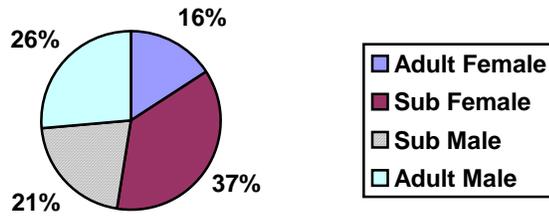


Figure 17. Sex and age composition of harvest for the Hells Canyon DAU, 2000-2002.

2000-2002

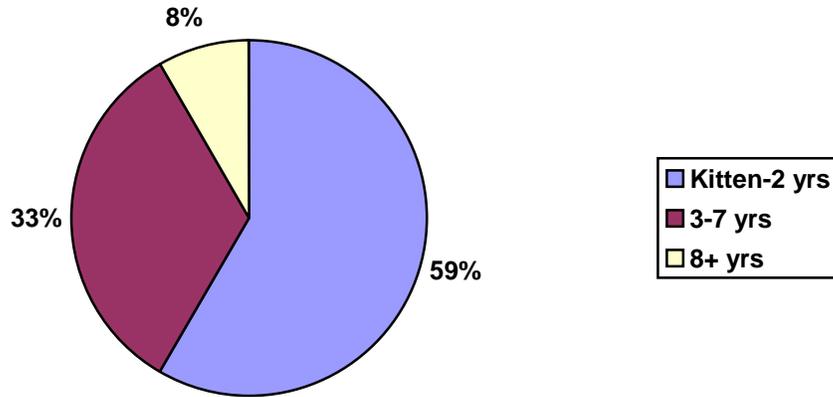


Figure 18. Average age composition of male harvest for the Hells Canyon DAU, 2000-2002.

DAU Harvest by Sex, 1994-2003

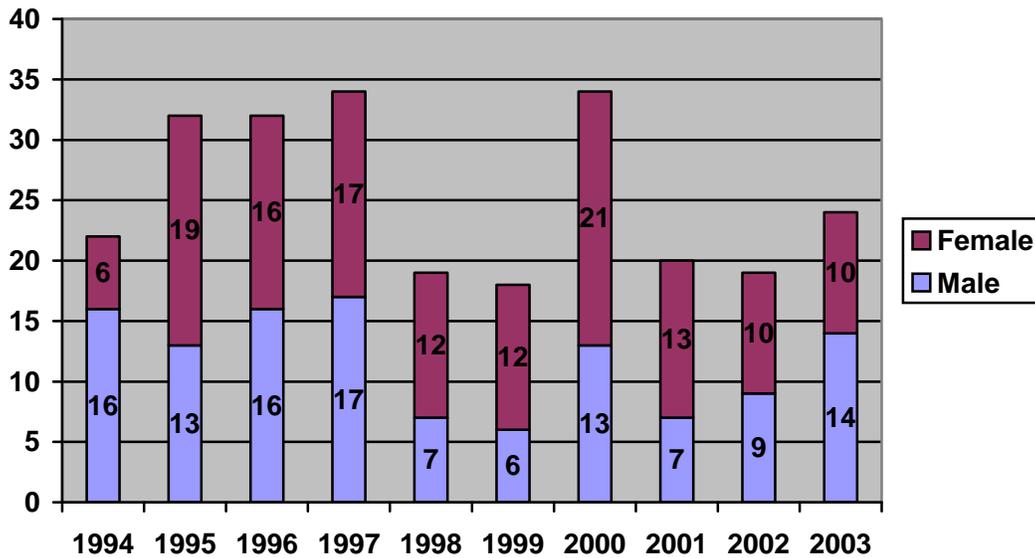


Figure 19. Harvest by sex for the Hells Canyon DAU, 1994-2003.

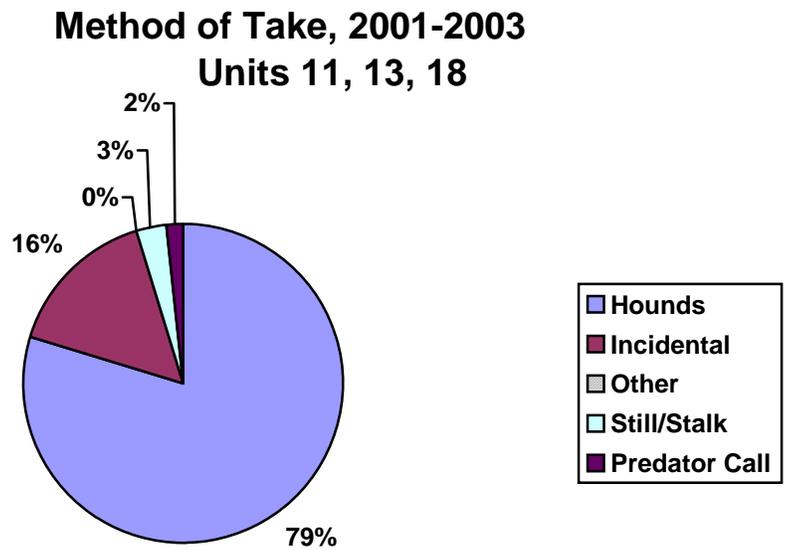


Figure 20. Harvest by method for the Hells Canyon DAU, 2001-2003.

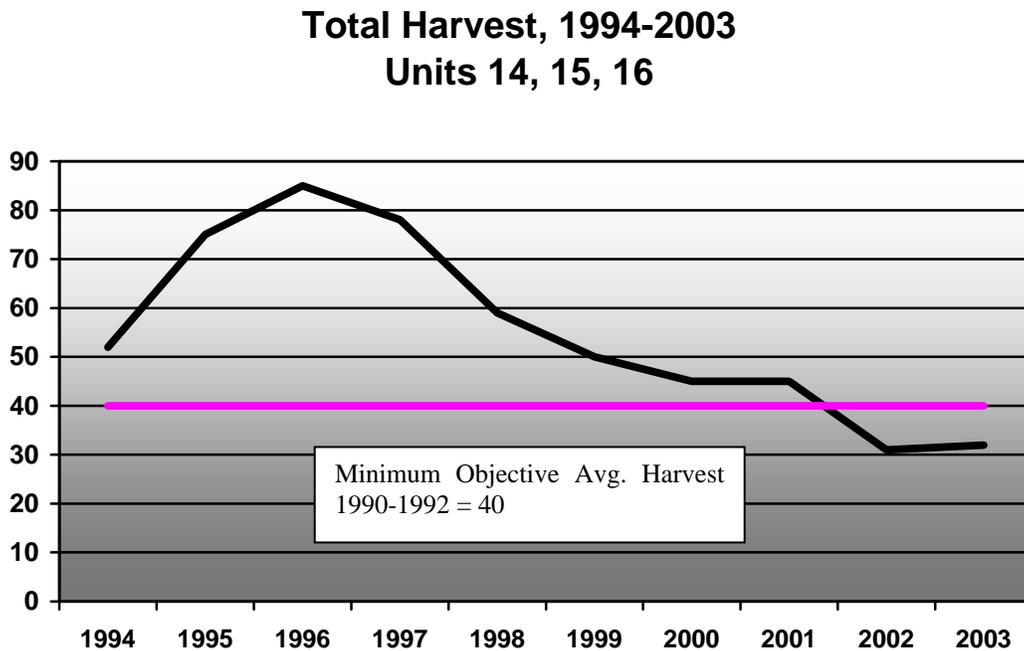
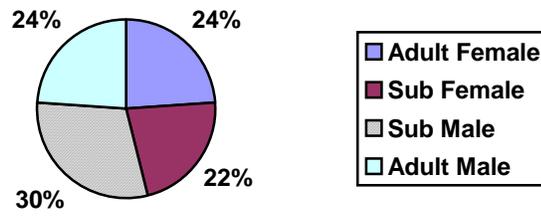
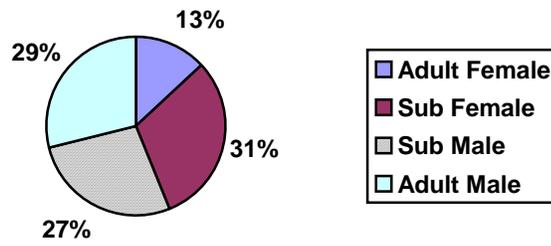


Figure 21. Mountain lion harvest for the Elk City DAU, 1994-2003.

2000



2001



2002

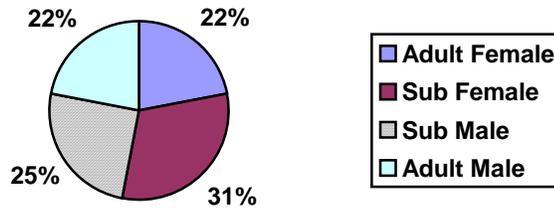


Figure 22. Sex and age composition of harvest for the Elk City DAU, 2000-2002.

2000-2002

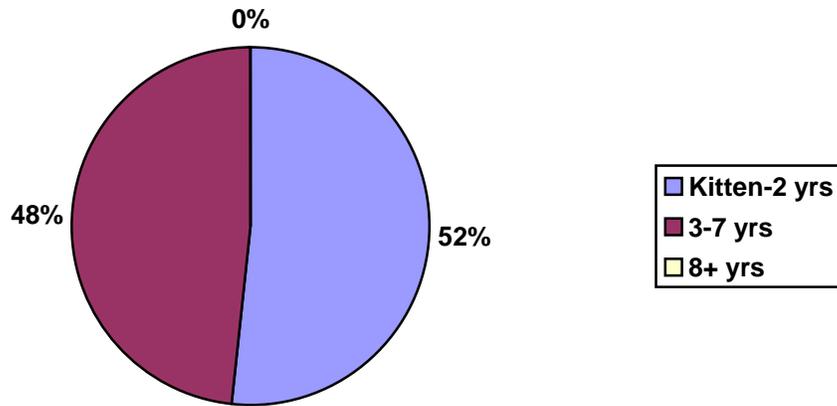


Figure 23. Average age composition of male harvest for the Elk City DAU, 2000-2002.

DAU Harvest by Sex, 1994-2003

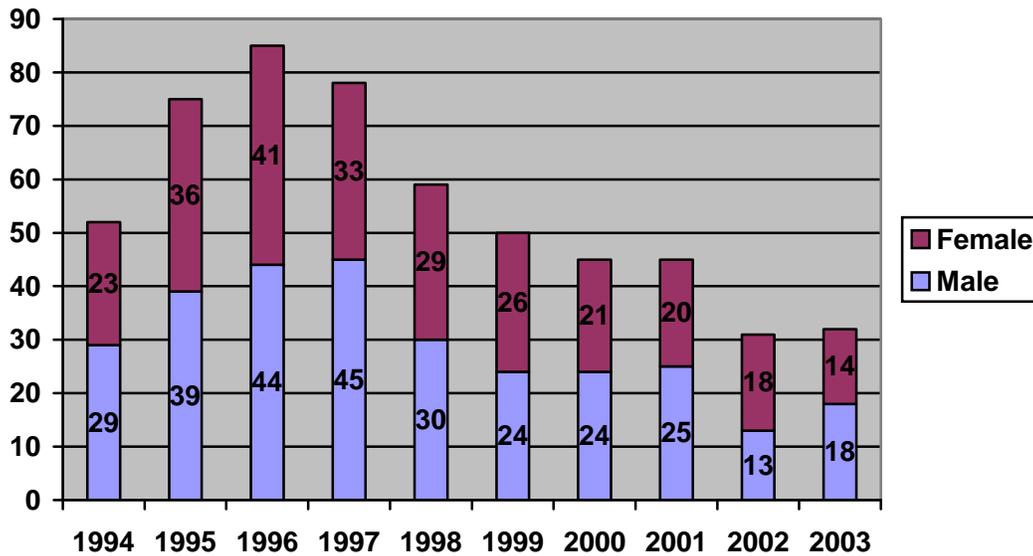


Figure 24. Harvest by sex for the Elk City DAU, 1994-2003.

**Method of Take, 2001-2003
Units 14, 15, 16**

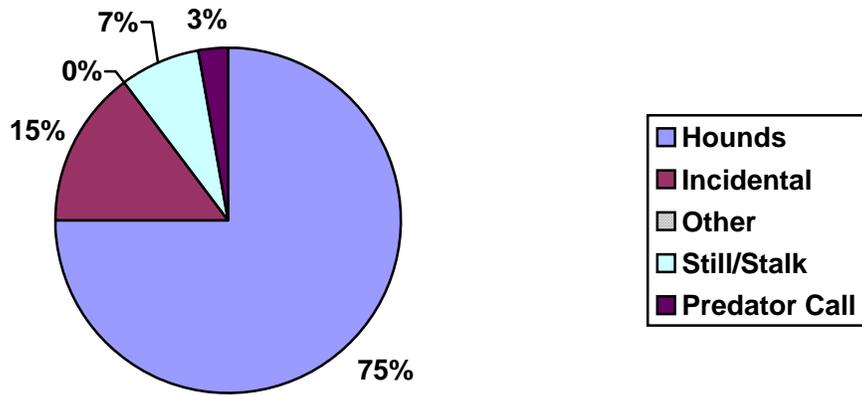


Figure 25. Harvest by method for the Elk City DAU, 2001-2003.

**Total Harvest, 1994-2003
Units 16A, 17, 19, 20**

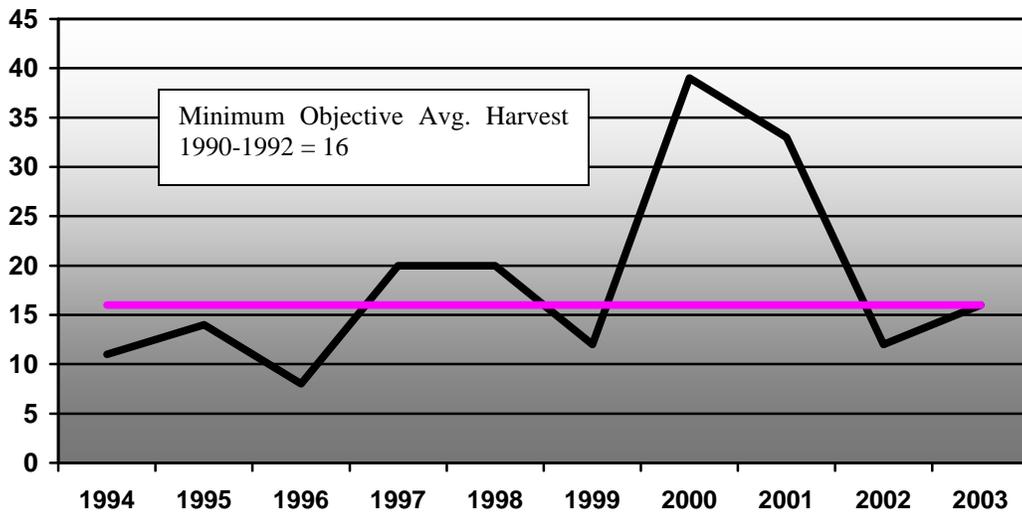
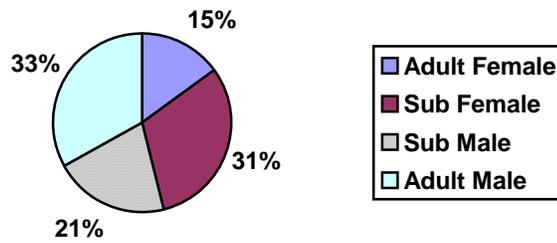
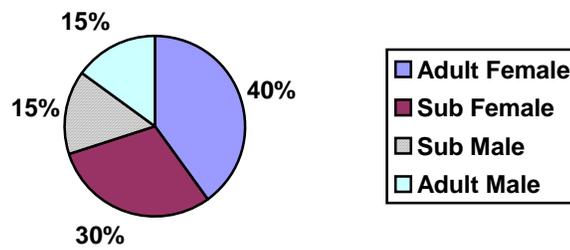


Figure 26. Mountain lion harvest for the Selway DAU, 1994-2003.

2000



2001



2002

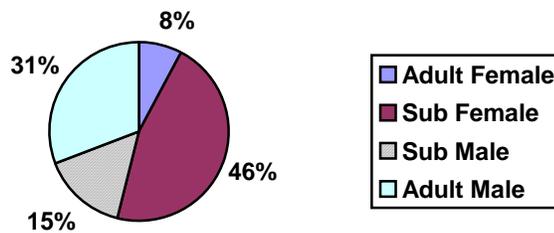


Figure 27. Sex and age composition of harvest for the Selway DAU, 2000-2002.

2000-2002

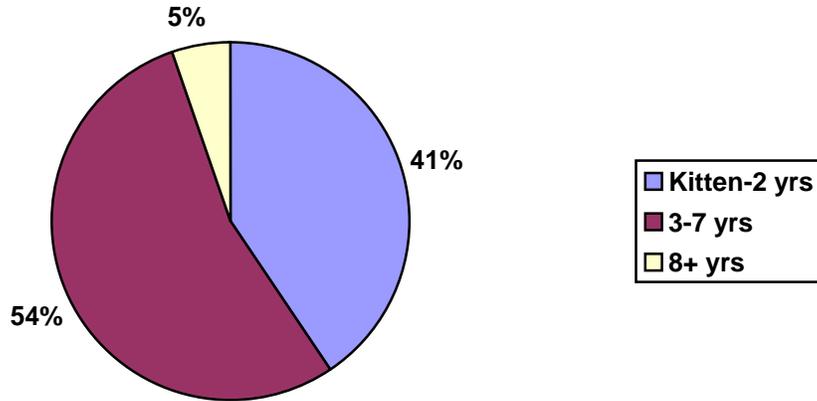


Figure 28. Average age composition of male harvest for the Selway DAU, 2000-2002.

DAU Harvest by Sex, 1994-2003

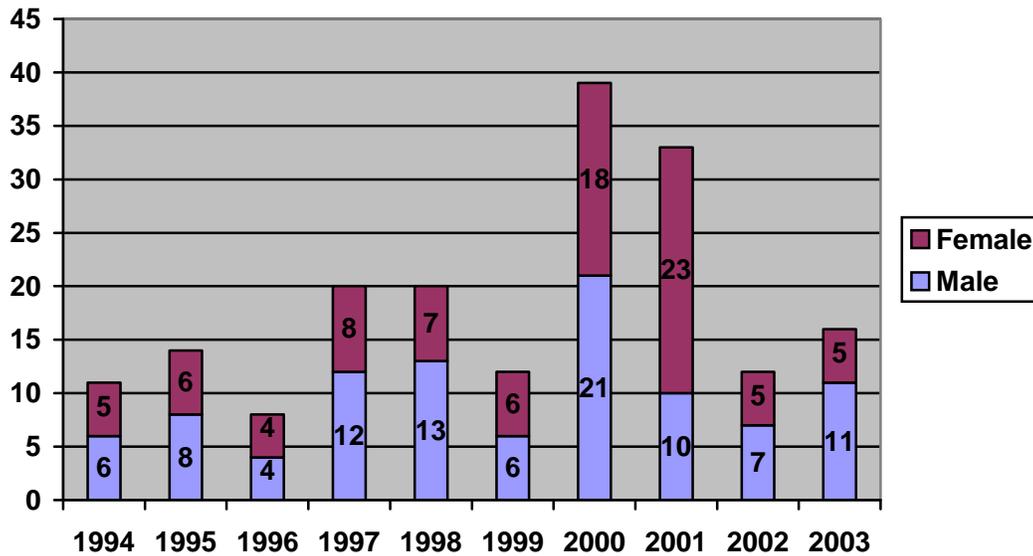


Figure 29. Harvest by sex for the Selway DAU, 1994-2003.

**Method of Take, 2001-2003
Units 16A, 17, 19, 20**

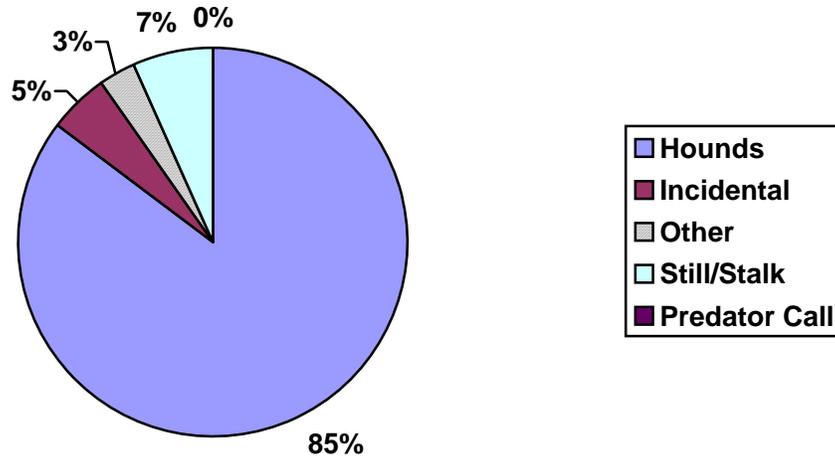


Figure 30. Harvest by method for the Selway DAU, 2001-2003.

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Mountain Lion Surveys and</u>
PROJECT:	<u>W-170-R-28</u>		<u>Inventories</u>
SUBPROJECT:	<u>3</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>8</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2003 to June 30, 2004</u>		

SOUTHWEST REGION

Abstract

Mandatory harvest reports indicated 134 mountain lions were harvested in the Southwest Region during the 2003-2004 season. The 2003-2004 harvest was 21% greater than that reported in 2003-2003. Fifteen units in the Southwest Region have a female harvest quota; after a female harvest quota is met in these units, harvest closes to further female take but remains open to male harvest for the duration of the season. The female harvest quota was met in Units 31 and 32 and Unit 39 during the 2003-2004 season.

Warren DAU (GMUs 19A, 20A, 25, 26, 27)

Management Objectives

Management direction listed in the 2002-2010 Mountain Lion Species Management Plan directs the Department to maintain lions at or near their current distribution throughout the state. Harvest goals will be based on trends in past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a three-year average. Initial harvest goals for this DAU will be designed to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 mountain lion seasons (Table 1). Wildlife managers may recommend female or total quotas to regulate harvest at desired levels through the annual regulation setting process.

Historical Information

The Warren DAU is characterized by limited access and rugged topography, with most of it occurring within the Frank Church River-of-No-Return Wilderness boundaries. Research data indicate mountain lion populations in this area are self-regulating, contributing emigrating animals to surrounding GMUs. Wolves were reintroduced as predators in this DAU in 1995. The coexistence of these species has not been determined to date. The current structure of long seasons and two-lion bag limits in Units 20A, 26, and 27 were implemented in response to sportsmen's concerns about declining ungulate recruitment (Table 2). The use of dogs is allowed in mountain lion take seasons after October 31.

Harvest Characteristics

All successful mountain lion hunters must present the hide and skull of harvested mountain lions to a conservation officer or regional office within ten days of the date of kill for tagging the hide and extracting a premolar for age determination. Information is also recorded on sex, weapon type, hunt method, and date of kill.

A total of 19 mountain lions (four male and 15 female) were harvested in the Warren DAU during the 2003-2004 season. The 2003-2004 harvest was 10% less than that reported in 2002-2003 but was still 21% above the minimum objective average harvest (Table 3, Figure 1).

Age data indicate the majority of aged lions in the harvest were sub-adult males and females (Figure 2). However, many teeth were broken and unable to be aged, and it is suspected that these broken teeth may come from older adult animals that may be harder to extract teeth from. Three-year average age data indicate that 56% of the harvest was comprised of the three- to seven-year-old age class (Figure 3). Again, these age data may be suspect, and better tooth collection methods need to be incorporated.

The use of hounds and is the predominant method of harvest for mountain lions in this DAU (Figure 4). The majority (68%) of mountain lions were taken with a rifle (Table 4). The proportion of females in the harvest was 79% in 2003 (Figure 5).

Climatic Conditions

The 2003-2004 winter period provided good mountain lion hunting conditions.

Depredations

No lion depredations or incidents were documented during the reporting period (Table 5).

Management Implications

The remote nature of this DAU makes it unlikely that sport harvest can regulate lion population numbers. The establishment of wolf packs will likely have the greatest effect on lion populations in this area. Monitoring of this effect is needed. Population objectives and hunter desires were reviewed, updated, and incorporated into the 2002-2010 Mountain Lion Species Management Plan. Tooth collection efforts need to be improved to bolster age data and allow for development of age and sex composition goals for the harvest.

McCall DAU (GMUs 22, 23 24, 31, 32A)

Management Objectives

Management direction listed in the 2002-2010 Mountain Lion Species Management Plan directs the Department to maintain lions at or near their current distribution throughout the state. Harvest goals will be based on trends in past harvest data, mountain lion population dynamics,

harvest vulnerability, and the desired level and composition of harvest over a three-year average. Initial harvest goals for this DAU will be designed to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 mountain lion seasons (Table 1). Wildlife managers may recommend female or total quotas to regulate harvest at desired levels through the annual regulation setting process.

Historical Information

Lions were considered rare in these GMUs in the late 1970s and early 1980s. Like lion populations in other parts of the state, those in the McCall DAU began increasing dramatically in the early 1990s. Subsequently, lion sightings, depredation occurrences, and sportsmen concerns increased. Conservative seasons adopted in the 1980s were modified to the more liberal seasons currently in place (Table 2). Female lion harvest quotas were implemented in these highly accessible units to allow ample sport harvest opportunity, yet protect the lion populations from over-harvest. The use of dogs is allowed in mountain lion take seasons provided there is no open firearm season for deer and elk. In GMUs with female lion harvest quotas, a male-only take season begins when the female quota is met.

Harvest Characteristics

All successful mountain lion hunters must present the hide and skull of harvested mountain lions to a conservation officer or regional office within ten days of the date of kill for tagging the hide and extracting a premolar for age determination. Information is also recorded on sex, weapon type, hunt method, and date of kill.

Mandatory harvest reports indicated 40 mountain lions (21 male and 19 female) were harvested in the McCall DAU during the 2003-2004 season. The 2003-2004 harvest was 54% more than that reported in 2002-2003 and was 100% above the minimum objective average harvest (Table 3, Figure 6).

Age data indicate the majority of aged lions in the harvest were sub-adult males and females (Figure 7). However, many teeth were broken and unable to be aged, and it is suspected that these broken teeth may come from older adult animals that may be harder to extract teeth from. Three-year average age data indicate that over 53% of the harvest was comprised of the three- to seven-year-old age class (Figure 8). Again, these age data may be suspect, and better tooth collection methods need to be incorporated.

The use of hounds is the predominant method of harvest for mountain lions in this DAU (Figure 9). The majority (70%) of mountain lions were taken with a rifle (Table 4). The proportion of females in the harvest was 48% in 2003 (Figure 10). The female lion harvest quota was met in Unit 31 in this DAU in 2003. Unit 23 had the most noticeable increase in harvest in 2003 when compared to 2002 (Table 3).

Climatic Conditions

The 2003-2004 winter provided good mountain lion hunting conditions.

Depredations

Most lion depredations are handled by USDA-APHIS Wildlife Services in accordance with the interagency MOU between Wildlife Services and the Department. No lion depredations or incidents were recorded during this reporting period (Table 5). An improved system for recording and tracking lion depredations and incidents has been implemented and should improve the reliability of this data.

Management Implications

Female lion harvest quotas, implemented to skew lion harvest toward the male component, seem to be working in this DAU. Due to the high accessibility to lion habitat in this DAU, harvest restrictions, such as female harvest quotas, are necessary to maintain viable populations and subsequent hunter satisfaction. The dramatic increase in harvest in 2003 reflected better mountain lion hunting conditions rather than dramatic changes in population parameters. Population objectives and hunter desires were reviewed, updated, and incorporated into the 2002-2010 Mountain Lion Species Management Plan. Tooth collection efforts need to be improved to bolster age data and allow for development of age and sex composition goals for the harvest.

Boise-Stanley DAU (GMUs 32, 33, 34, 35, 36, 39)

Management Objectives

Management objectives for the Boise-Stanley DAU include maintaining approximately the current level of harvest and opportunity while continuing to allow a variety of techniques, including incidental harvest by deer and elk hunters and harvest by houndsmen. Female harvest quotas are currently in place in these units to guard against over-harvest of the reproductive portion of the population, but harvest of males-only is permitted through the end of the season after a female harvest quota has been met (Table 2). The harvest objective for this group of units is to maintain a three-year running average harvest of ≥ 30 lions per year (Table 1), the lowest level harvested during the mid-1990s (Figure 11).

This group of units is diverse in both topography and ease of access. Topography ranges from the city of Boise, the state's largest urban center, to agriculture, to sagebrush and grassland foothills, to forested and alpine mountainous terrain. Because of the proximity of these units to the state's largest human population center, much of this DAU is heavily roaded and well traveled; however, the DAU also contains significant expanses of sparsely-roaded topography. Just as topography and ease of access is diverse in this DAU, so are hunter preferences. While many deer and elk hunters would prefer to see all predator populations minimized, these units are very popular among houndsmen. Our management objectives reflect a balance of these desires by allowing generous harvest opportunity while protecting the lion population from over-harvest and maintaining a reasonable percentage of the population in the older age classes.

The number of complaints of mountain lions around Boise and the surrounding suburban areas, and in close proximity to human inhabitations elsewhere in the DAU, seem to have increased in

recent years. This perceived trend is likely a result of changes in mountain lion numbers and/or distribution in response to thriving deer and elk populations in these areas. Regional staff began tracking public reports of mountain lion sightings and encounters throughout the Region two years ago. All reports are carefully evaluated and responded to as circumstances merit. Any mountain lion captured in a developed area or any mountain lion that exhibits behavior that suggests it poses a threat to public safety will be permanently removed from the wild.

Historical Information

Lions occurred in lower densities in these GMUs in the late 1970s and early 1980s. Dispersing lions from the more remote wilderness units and roadless areas were thought to supply units in this DAU with huntable lion populations. Like lion populations in other parts of the state, lion numbers in the Boise-Stanley DAU began increasing dramatically in the early 1990s, likely in response to increasing deer and/or elk populations in much of the area. Subsequently, lion sightings, depredation occurrences, and sportsmen concerns increased. Conservative seasons adopted in the 1980s were modified to the more liberal seasons currently in place (Table 2). Female lion harvest quotas were implemented in the more accessible units of this DAU to allow ample sport harvest opportunity but ensure the lion populations would not be over-harvested. Only Unit 36, which occurs at higher elevation in mountainous terrain and has comparatively few wintering ungulates to maintain lions during winter months, does not have a female quota. The use of dogs is allowed in mountain lion take seasons provided there is no open firearm season for deer and elk. In GMUs with female lion harvest quotas, a male-only take season begins when the female quota is met.

Harvest Characteristics

All successful mountain lion hunters must present the hide and skull of harvested mountain lions to a conservation officer or regional Fish and Game office within ten days of the date of kill for tagging the hide and extracting a premolar for age determination. Information is also recorded on sex, weapon type, hunt method, and date of kill.

Hunters harvested 51 mountain lions in the Boise-Stanley DAU, including 24 females and 27 males. Harvest was 9% higher during the 2003-2004 season than during the prior season, but 16% lower than the 2001-2002 season (Table 3, Figure 11). The three-year average harvest of 54 lions per year exceeded the minimum harvest objective (Table 1).

The proportion of females in the harvest increased from 43% and 38% in 2001 and 2002, respectively, to 47% in 2003 (Figure 12). Houndsmen accounted for 76% of the mountain lions harvested in the DAU over the last three years, whereas, 16% of the lions taken were killed by hunters incidental to a deer or elk hunt (Figure 13). The majority (57%) of mountain lions were taken with a rifle (Table 4).

Age structure information (Figure 14) has fluctuated widely over the last three years and must be interpreted with caution, particularly in 2000, before the tooth extraction protocol became mandatory for all harvested lions. The lack of mature (>7 years) male lions harvested from 2000-2002 (Figure 15) is cause for concern. This young age structure may reflect heavy hunting

pressure in these units that are closest to the state's largest human population center. However, the age structure may also be affected by tooth breakage during extraction that makes it impossible to determine the age of some submitted samples. Age information for lions harvested during the 2003-2004 season was not yet available for this report.

The quota of ten female mountain lions harvested from Unit 39 was met on December 29. The season closed to the take of females but remained open to male harvest.

Climatic Conditions

The 2003-2004 winter provided mixed mountain lion hunting conditions. Precipitation was over 100% of average in most places with above average snow depths in early January, but there was little new snowfall later in the season.

Depredations

Most lion depredations are handled by USDA-APHIS Wildlife Services in accordance with the interagency MOU between Wildlife Services and the Department. Depredation records were not available for this reporting period. Lion incident reports have been carefully recorded during the last three years. One lion was killed by Wildlife Services in response to a depredation on livestock (goat) just north of Boise (Table 5).

Incident Reports

In 2001, Regional staff began recording and tracking reports of sightings of mountain lions in developed areas and reports of lions exhibiting bold or aggressive behavior. Approximately 30 observations of mountain lions within developed areas were reported by the public in this DAU during the reporting period. Most reports originated from sightings along Warm Springs Avenue, within city limits, on the northeast end of Boise over a period of several months. A young male lion (est. 10-14 months) was captured after being hit by a vehicle in the area and was destroyed. Evidence indicates there was at least one more lion in the general area, but reported sightings dwindled after the capture.

Management Implications

Quotas on female lion harvest, implemented to skew lion harvest toward the male component, seem to be working in most of the units in this DAU. Harvest restrictions, such as female harvest quotas, may be necessary in the more heavily hunted units to maintain viable populations and subsequent hunter satisfaction. Removal or extension of quotas in these units will allow for short-term increases in hunter opportunity but will most likely result in lion hunter dissatisfaction if continued for any length of time. Few older male lions have been taken from these units in recent years. Department staff will monitor reports of lions in developed areas and bold or aggressive behavior and respond when appropriate to remove lions that may pose a threat to public safety.

Owyhee DAU (GMUs 40, 41, 42, 46, 47)

Management Objectives

The management direction for this DAU is to maintain a viable mountain lion population throughout the area but encourage sport harvest of mountain lions in those units where there is a concern about the impacts of lion predation on California bighorn sheep herds. Generous seasons are offered (Table 2), particularly in Units 41 and 42, where we have the greatest concern about the impacts of mountain lions on bighorn sheep. Female harvest quotas are currently in place in each of these units to guard against over-harvest of the reproductive portion of the population, but harvest of males-only is permitted through the end of the season after a female harvest quota has been met. A harvest of ten females has only been achieved once during the last decade in Unit 40, and the ten-female quota has never been reached in Units 41 and 42. The harvest objective for this group of units is to maintain a three-year running average harvest of ≥ 20 lions per year (Table 1), the lowest level harvested during the late-1990s (Figure 16).

Historical Information

The Owyhee DAU encompasses the southwest portion of Idaho. The habitat is largely open sagebrush desert with interspersed canyon lands ranging to dry forested mountains. The general scarcity of trees and presence of cliffs, caves, and other rocky features make mountain lions more difficult to capture with hounds because lions are forced to seek shelter in rocks more often than in other areas of Idaho. Few roads traverse big game winter ranges, and most mountain lion habitat is not close to major human population centers. Another characteristic that sets the Owyhee DAU apart from other areas in the Southwest Region is that elk are either absent or relatively scarce, and deer are the primary big game prey species for mountain lions in most of the DAU. Downward trends in California bighorn sheep populations in the Jacks Creek drainages in Unit 41 and the Owyhee River drainage in Unit 42 prompted the initiation of research on bighorn sheep survival in the Little Jacks and Big Jacks Creek drainages in 2002. Preliminary results suggest mountain lions may be playing a significant role in the decline of sheep in this system.

A spike in female lion harvest in the mid-1990s, due in part to increased success of professionally guided sportsmen, led to the current season framework that includes female lion harvest quotas (Table 2). The use of dogs is allowed in mountain lion take seasons provided there is no open firearm season for deer and elk. In GMUs with female lion harvest quotas, a male-only take season begins when the female quota is met. Because of the concern about the impacts of lion predation on bighorn sheep, the Idaho Fish and Game Commission passed regulations to legalize the use of electronic calls as an aid to harvest mountain lions in Units 41 and 42 in 2000. The intent of this action was to encourage hunters to try this method to harvest lions in an area that is very inhospitable to pursuit dogs. The regulation remains in place, but to date, the method has not proven to be useful enough to maintain hunter interest. No lions checked from these units have been taken with the use of electronic calls.

Harvest Characteristics

All successful mountain lion hunters must present the hide and skull of harvested mountain lions to a conservation officer or regional Fish and Game office within ten days of the date of kill for tagging the hide and extracting a premolar for age determination. Information is also recorded on sex, weapon type, hunt method, and date of kill.

Hunters harvested 33 mountain lions (14 females and 19 males) in the Owyhee DAU during the 2003-2004 season. Harvest increased 18% from 2002 to 2003, but was 33% below the harvest in 2000 (Table 3, Figure 16), the year the female harvest quota in Unit 40 was increased from ten to 15 by the Fish and Game Commission mid-season because the quota was reached early in the winter. The three-year running average harvest of 30 lions per year remains well above the DAU minimum harvest objective of 20 lions per year (Table 1).

Harvest levels during the 2003-2004 season may have been influenced by high prices for bobcat pelts. Some suspicions and rumors in the field suggest that some mountain lions are being captured accidentally in bobcat traps and being dispatched and not reported or potentially being checked in as legal harvest. There is no evidence to validate this possibility, but at least three non-target mountain lions were turned in to the Department from this DAU.

The proportion of females in the harvest has declined from 55% in 2000 to 50% in 2001 to 44% in 2002 to 42% in 2003 (Figure 17). Female lion harvest quotas were not met in any unit in this DAU during the last three seasons.

Houndsmen accounted for 67% of the mountain lions harvested in the DAU over the last three years, whereas 20% of the lions taken were killed by hunters incidental to a deer or controlled elk hunt (Figure 18). Most of the kills over hounds occurred in Unit 40. The majority (64%) of mountain lions were taken with a rifle (Table 4).

Age structure information (Figure 19) has fluctuated widely over the last three years and must be interpreted with caution, particularly in 2000, before the tooth extraction protocol became mandatory for all harvested lions. The small percentage of male lions harvested from 1999-2001 that exceeded seven years of age (Figure 20) is cause for concern, but may be more of a reflection of small sample size, given the harvest in these units and tooth breakage made it impossible to determine the age of some submitted samples. In addition, in the remote units in this DAU in particular, it is likely that many older lions are simply inaccessible to houndsmen during the winter. Age information for lions harvested during the 2003-2004 season was not yet available for this report.

Climatic Conditions

The 2003-2004 winter provided good mountain lion hunting conditions overall. Precipitation was over 100% of average in most places with above average snow depths in early January, but there was little new snowfall late in the season.

Depredations

Mountain lion depredations are rarely reported in this area (Table 5), probably due to its remote nature and lack of domestic sheep grazing activities.

Incident Reports

In 2001, Regional staff began recording and tracking reports of sightings of mountain lions in developed areas and reports of lions exhibiting bold or aggressive behavior. No aggressive incidents were recorded from this DAU during the reporting period.

Management Implications

Quotas on female lion harvest, implemented to skew lion harvest toward the male component, probably have little effect in most of the units in this DAU because the female quota is rarely reached. A female harvest quota is probably necessary only in Unit 40 to maintain viable populations and subsequent hunter satisfaction. Removal or extension of quotas in this unit will allow for short-term increases in hunter opportunity but will most likely result in mountain lion hunter dissatisfaction if continued for any length of time. High bobcat pelt prices may be resulting in unreported incidental mortality of mountain lions in this DAU.

Table 1. Mountain lion plan harvest objectives for Southwest Region DAUs.

DAU	Management goals	Current status
Warren	Minimum 3-year average harvest of 15 lions	23
	Sex/age composition - To be established	Unknown
	Percent males 3+ years - To be established	72%
	Catch-Per-Unit Effort - To be established	No data
McCall	Minimum 3-year average harvest of 20 lions	37
	Sex/age composition - To be established	Unknown
	Percent males 3+ years - To be established	53%
	Catch-Per-Unit Effort - To be established	No data
Boise-Stanley	Minimum 3-year average harvest of 30 lions	53
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	58%
	Catch-Per-Unit Effort - To be established	No data
Owyhee	Minimum 3-year average harvest of 20 lions	30
	Sex/age composition - To be established	Unknown
	Percent males 3+ years - To be established	63%
	Catch-Per-Unit Effort - To be established	No data

Table 2. 2003-2004 mountain lion harvest season structure by GMU in the Southwest Region.

Season	Season length (days)	Units	Female quota
August 30 - March 31	214	19A, 36	None
		22	6
		23	8
		24	5
		25	8
		31, 32	7
		32A	5
		33, 34, 35	15
		39	10
		40	10
		46, 47	3
		August 30 - April 30	244
August 30 - June 30	305	41, 42	10

^a Two lion bag limit.

Table 3. Mountain lion harvest by GMU in the Southwest Region, 1994-2003.

Unit	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
19A	2	1	4	2	3	5	10	5	5	1
20A	0	1	3	1	1	4	6	4	2	1
22	7	16	14	18	5	6	6	19	5	6
23	12	23	19	24	19	11	14	14	8	16
24	3	3	6	3	4	8	8	2	4	5
25	3	6	3	9	10	10	7	9	5	7
26	2	7	3	5	3	5	4	2	6	4
31	1	4	1	5	11	7	10	9	3	7
32	0	1	3	1	4	2	6	9	3	8
32A	4	8	6	15	15	6	9	2	6	6
33	11	13	4	15	20	12	17	12	18	10
34	0	1	2	0	0	1	0	1	2	0
35	4	4	0	7	7	5	6	9	1	6
38	0	0	0	0	1	0	0	0	0	0
39	13	13	19	20	23	23	36	32	22	27
40	4	8	14	11	11	13	33	17	19	17
41	1	0	2	2	3	3	6	6	2	6
42	1	0	3	1	3	2	3	1	0	7
Total	68	109	106	139	143	123	181	153	111	134

Table 4. Mountain lion harvest by weapon and sex for Southwest Region DAUs, 1999-2003.

DAU	Year	Sex	Weapon					Total
			Rifle	Archery	Muzzleloader	Handgun	Unknown	
Warren	1999	M	13	1	1	4	0	19
		F	13	4	0	5	0	22
	2000	M	10	2	1	0	0	13
		F	14	1	0	5	1	21
	2001	M	8	3	1	2	0	14
		F	11	3	0	2	0	16
	2002	M	6	2	3	2	0	13
		F	4	2	0	1	0	7
	2003	M	3	1	0	0	0	4
F		10	1	0	4	0	15	
McCall	1999	M	14	4	1	3	0	22
		F	9	0	0	6	1	16
	2000	M	15	3	0	7	0	25
		F	14	2	0	6	0	22
	2001	M	14	4	1	8	1	28
		F	13	1	0	4	0	18
	2002	M	11	0	0	2	0	13
		F	11	0	0	2	0	13
	2003	M	14	1	0	6	0	21
F		14	1	0	4	0	19	
Boise-Stanley	1999	M	11	7	1	9	0	28
		F	10	3	0	3	0	16
	2000	M	13	8	1	16	0	38
		F	13	6	0	9	0	28
	2001	M	20	3	0	12	0	35
		F	17	2	0	7	0	26
	2002	M	14	5	0	8	2	29
		F	8	3	0	6	1	18
	2003	M	15	2	1	9	0	27
F		14	2	0	7	1	24	
Owyhee	1999	M	7	0	0	6	0	13
		F	6	0	0	3	0	9
	2000	M	11	0	1	8	0	20
		F	14	1	0	8	0	23
	2001	M	7	1	0	7	0	15
		F	9	0	0	5	0	14
	2002	M	12	0	1	2	0	15
		F	12	0	0	0	0	12
	2003	M	12	2	0	4	1	19
F		9	2	0	3	0	14	

Table 5. Mountain lion depredations by GMU in the Southwest Region, 1999-2003.

Unit	Year				
	1999	2000	2001	2002	2003
19A	0	0	0	0	0
20A	0	0	0	0	0
22	0	0	0	0	0
23	1	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
31	0	0	0	0	0
32	0	0	0	0	0
32A	0	0	0	0	0
33	0	0	0	0	0
34	0	0	0	0	0
35	0	0	0	0	0
38	0	0	0	0	0
39	1	0	1	0	1
40	0	1	0	0	0
41	0	0	0	0	0
42	0	0	0	0	0
Total	2	1	1	0	1

Total Harvest, 1994-2003
Units 19A, 20A, 25, 26, 27

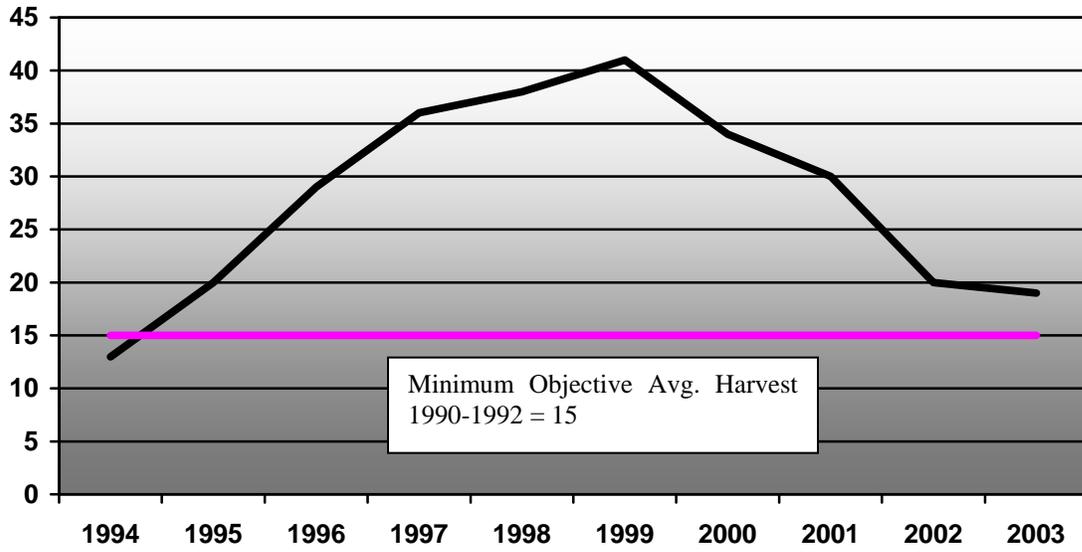
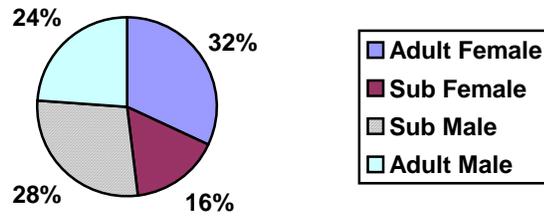
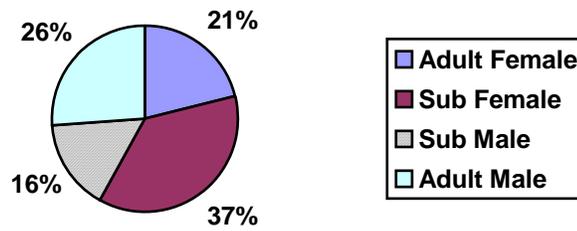


Figure 1. Mountain lion harvest for the Warren DAU, 1994-2003.

2000



2001



2002

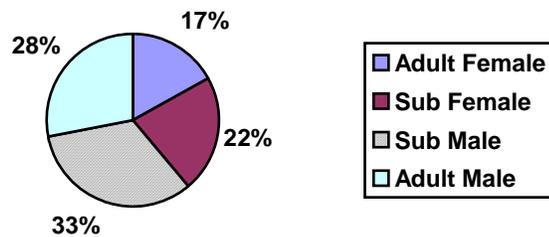


Figure 2. Sex and age composition of harvest for the Warren DAU, 2000-2002.

2000-2002

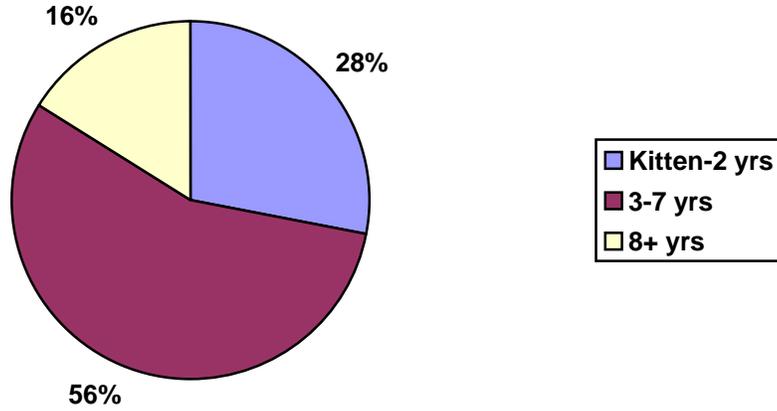


Figure 3. Average age composition of male harvest for the Warren DAU, 2000-2002.

**Method of Take, 2001-2003
Units 19A, 20A, 25, 26, 27**

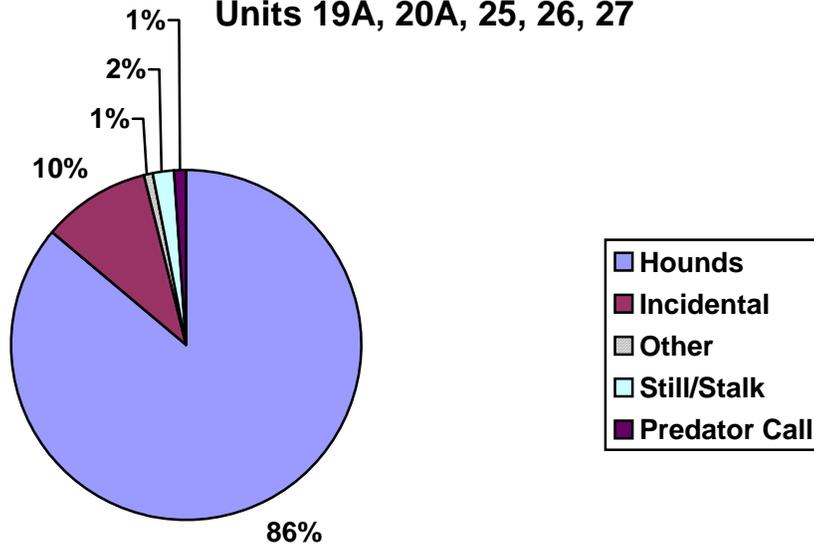


Figure 4. Harvest by method for the Warren DAU, 2001-2003.

DAU Harvest by Sex, 1994-2003

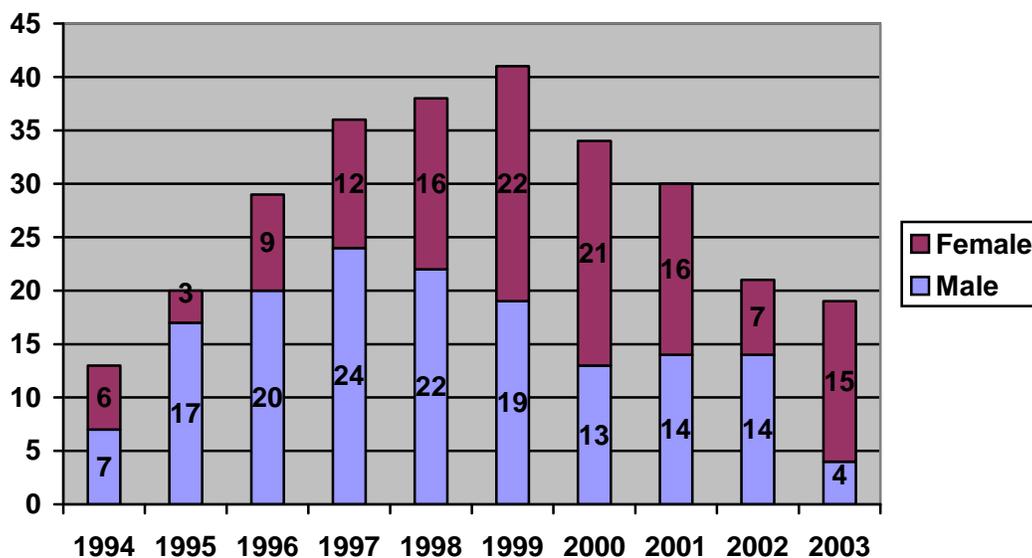


Figure 5. Harvest by sex for the Warren DAU, 1994-2003.

Total Harvest, 1994-2003 Units 22, 23, 24, 31, 32A

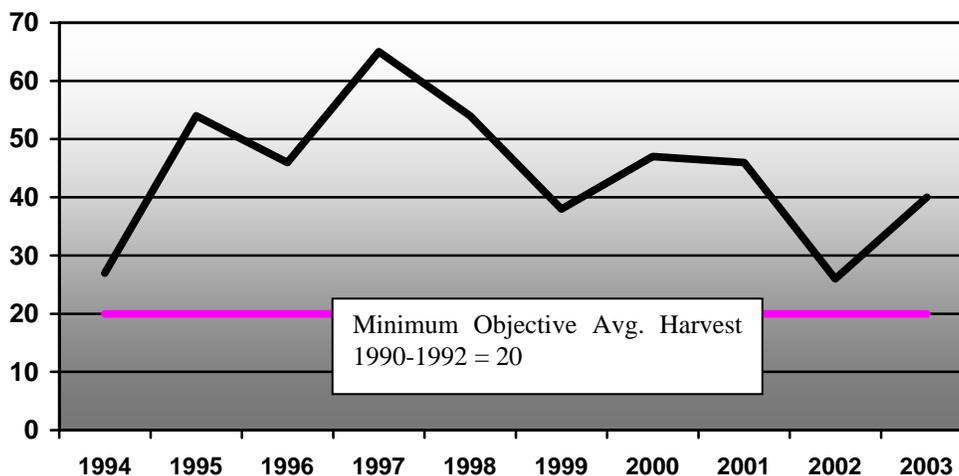
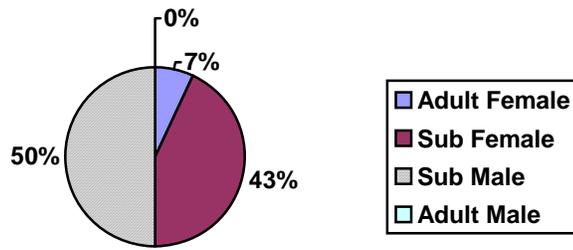
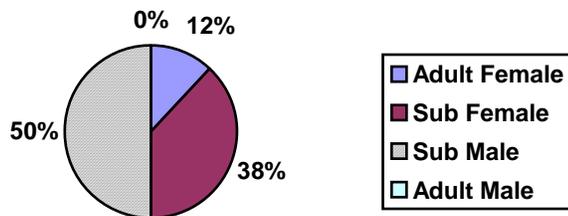


Figure 6. Mountain lion harvest for the McCall DAU, 1994-2003.

2000



2001



2002

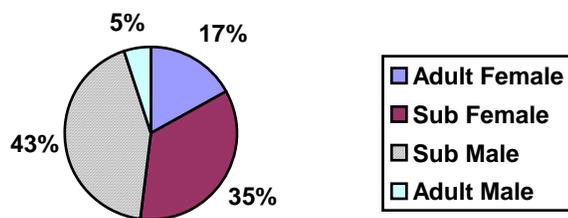


Figure 7. Sex and age composition of harvest for the McCall DAU, 2000-2002.

2000-2002

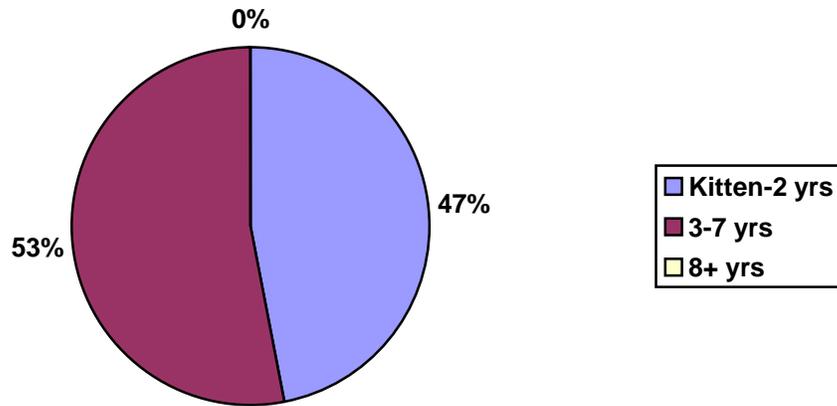


Figure 8. Average age composition of male harvest for the McCall DAU, 2000-2002.

**Method of Take, 2001-2003
Units 22, 23, 24, 31, 32A**

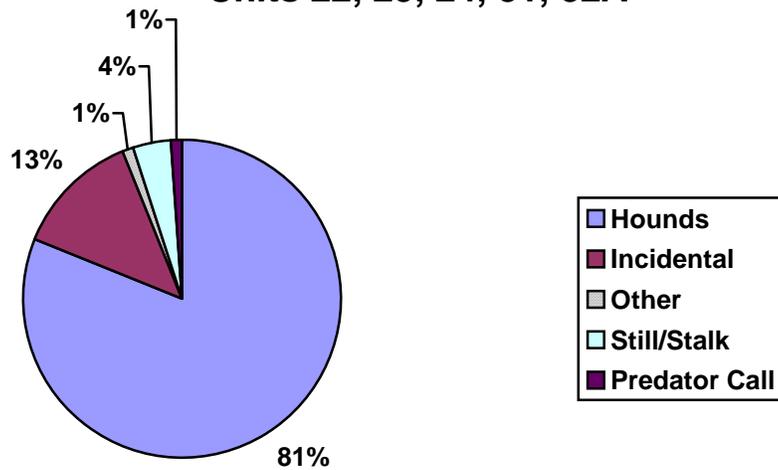


Figure 9. Harvest by method for the McCall DAU, 2001-2003.

DAU Harvest by Sex, 1994-2003

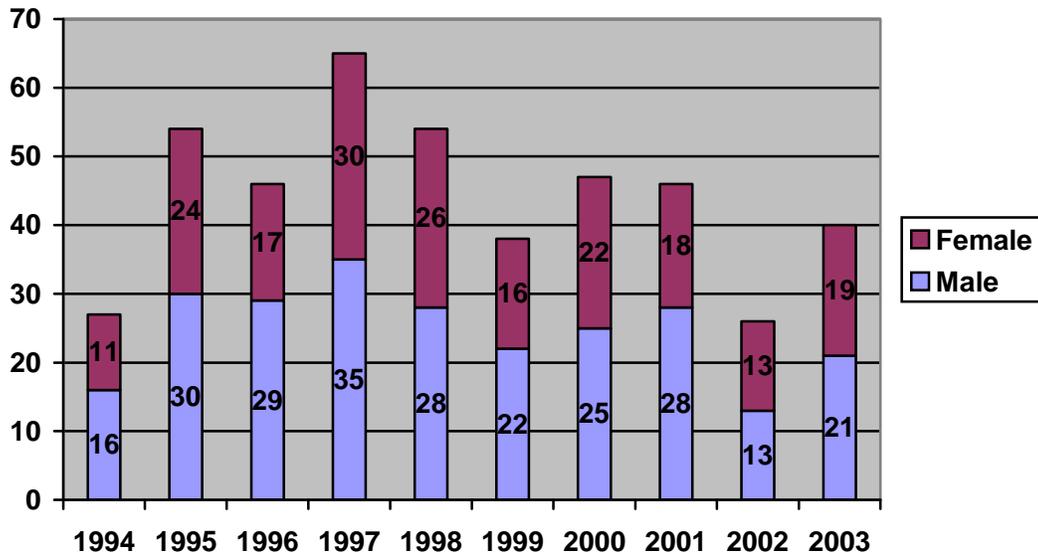


Figure 10. Harvest by sex for the McCall DAU, 1994-2003.

Total Harvest, 1994-2003 Units 32, 33, 34, 35, 36, 39

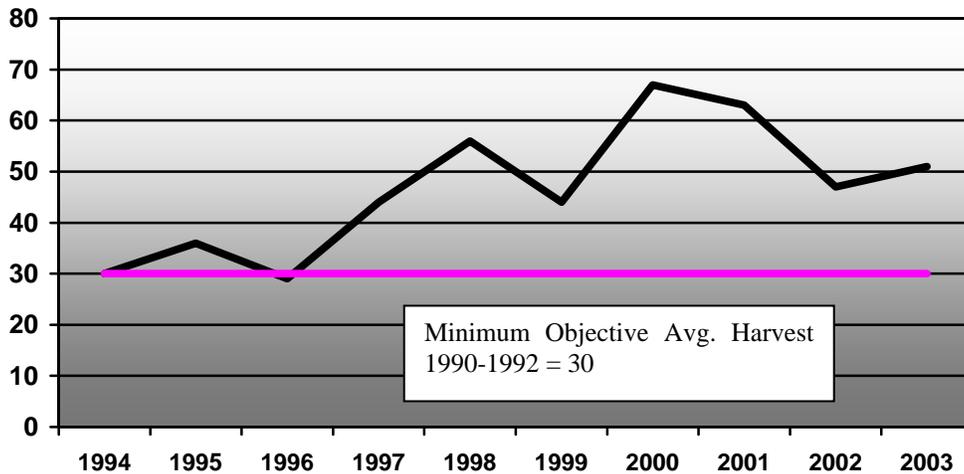


Figure 11. Mountain lion harvest for the Boise-Stanley DAU, 1994-2003.

DAU Harvest by Sex, 1994-2003

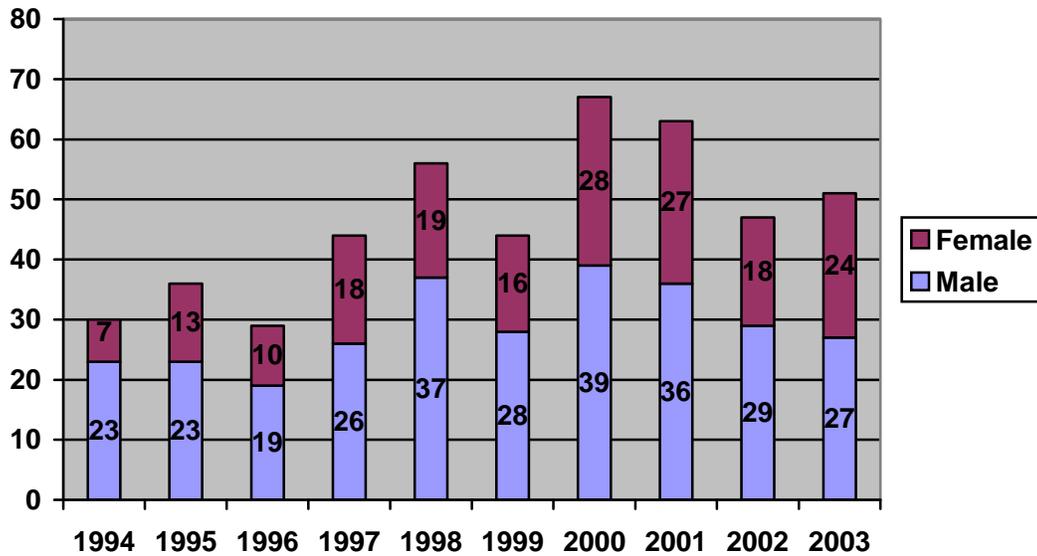


Figure 12. Harvest by sex for the Boise-Stanley DAU, 1994-2003.

Method of Take, 2001-2003 Units 32, 33, 34, 35, 36, 39

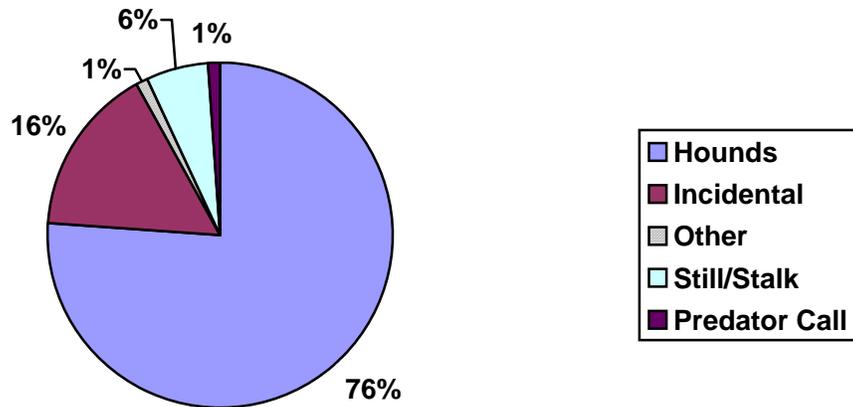
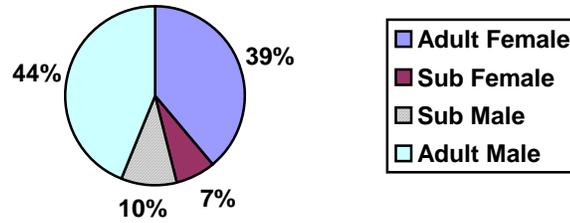
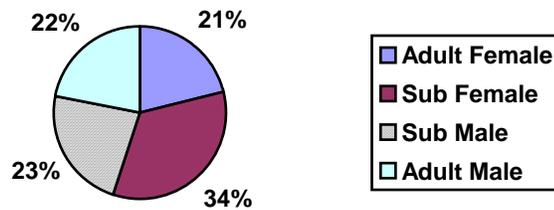


Figure 13. Harvest by method for the Boise Stanley DAU, 2001-2003.

2000



2001



2002

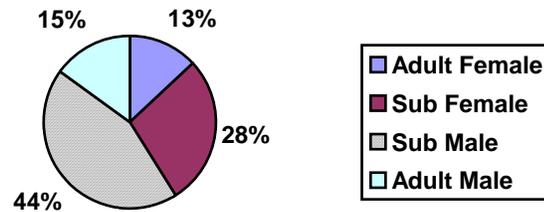


Figure 14. Sex and age composition of harvest for the Boise-Stanley DAU, 2000-2002.

2000-2002

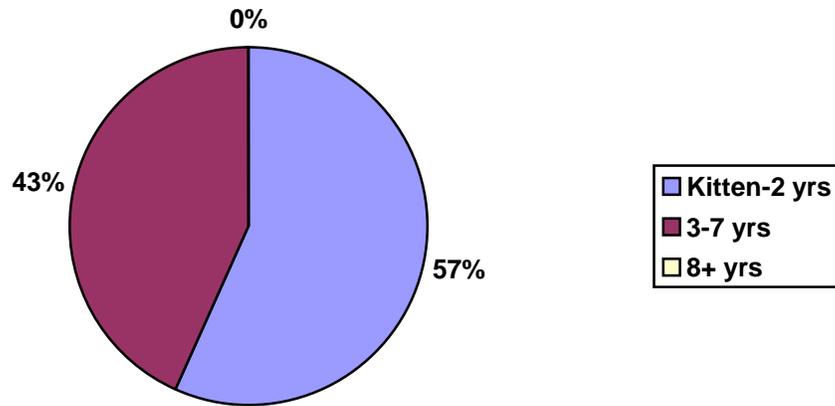


Figure 15. Average age composition of male harvest for the Boise-Stanley DAU, 2000-2002.

Total Harvest, 1994-2003 Units 40, 41, 42, 46, 47

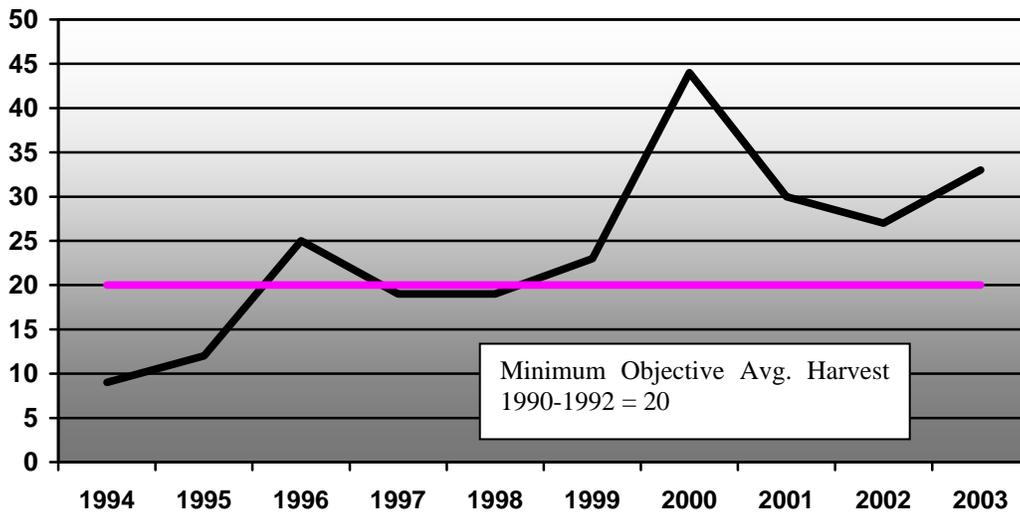


Figure 16. Mountain lion harvest for the Owyhee DAU, 1994-2003.

DAU Harvest by Sex, 1994-2003

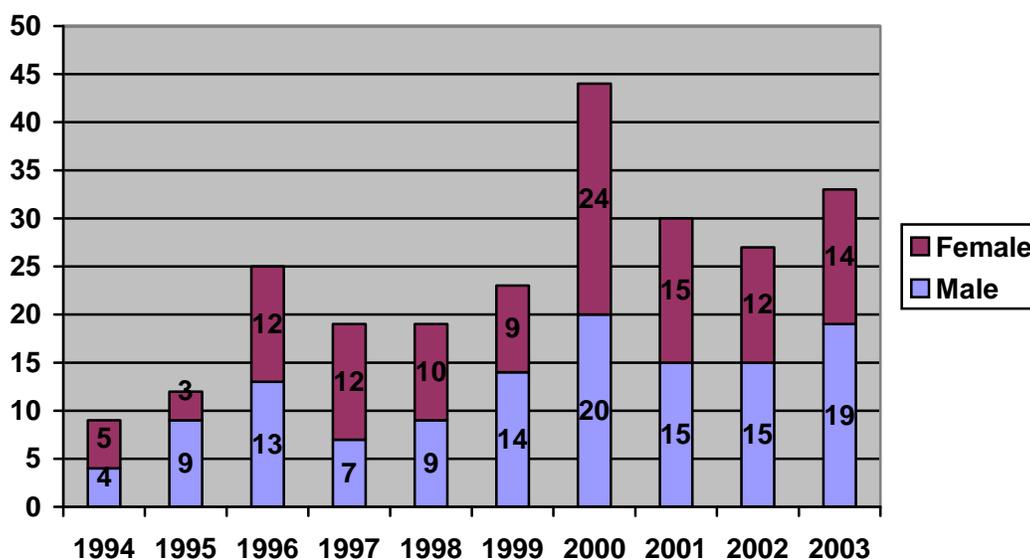


Figure 17. Harvest by sex for the Owyhee DAU, 1994-2003.

Method of Take, 2001-2003 Units 40, 41, 42, 46, 47

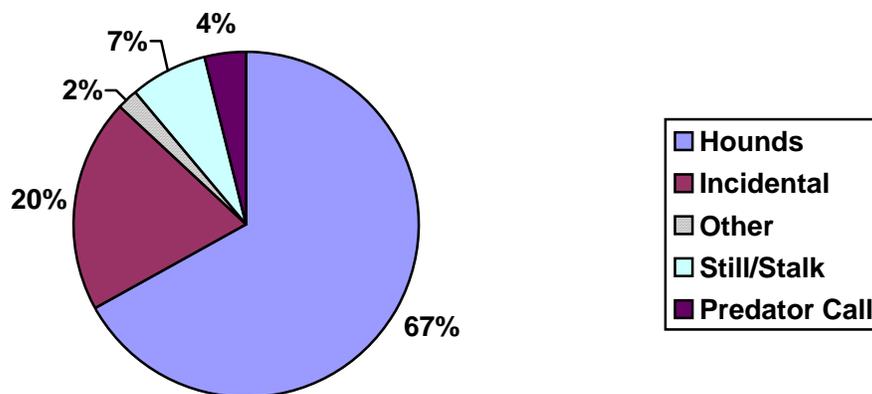
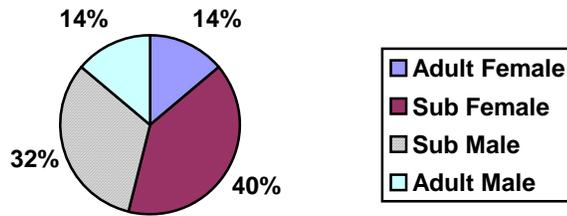
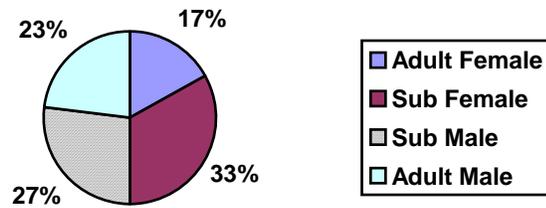


Figure 18. Harvest by method for the Owyhee DAU, 2001-2003.

2000



2001



2002

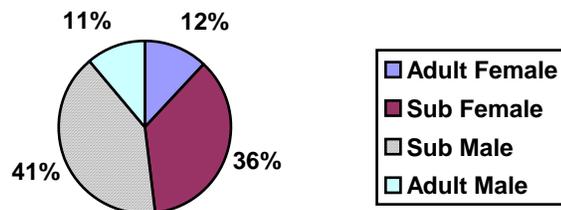


Figure 19. Sex and age composition of harvest for the Owyhee DAU, 2000-2002.

2000-2002

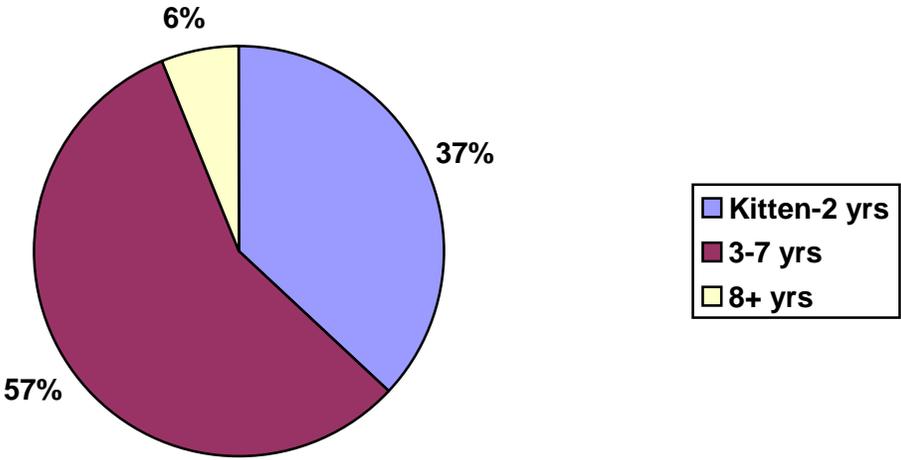


Figure 20. Average age composition of male harvest for the Owyhee DAU, 2000-2002.

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Mountain Lion Surveys and</u>
PROJECT:	<u>W-170-R-28</u>		<u>Inventories</u>
SUBPROJECT:	<u>4</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>8</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2003 to June 30, 2004</u>		

MAGIC VALLEY REGION

Abstract

Mandatory reports indicated a harvest of 48 mountain lions in the Sun Valley and Oakley DAUs during the 2003-2004 season, an increase of 17 % from the 2002-2003 season when 41 mountain lions were taken. Twenty-two lions were harvested in the Sun Valley DAU and 26 in the Oakley DAU. No other lions were killed in these two areas in response to deprecations and/or due to human threats; however, one emaciated lion was euthanized. The female quota was reached in two of the quota areas within these two DAUs.

The best hunting conditions occurred during December and early January when snow conditions were the best for tracking. Twenty of 49 (42%) mountain lions harvested in 2003-2004 were females. Hound hunting accounted for 33 (69%) of the harvested mountain lions in these areas.

Sun Valley DAU (GMUs 36A, 43, 44, 48, 49, 50)

Management Objectives

Broad harvest management goals for all DAUs were developed in the 2002-2010 Mountain Lion Management Plan to maintain current lion population levels, maintain a diversity of sport harvest opportunities, be responsive to human conflicts, and develop better lion population-monitoring tools. Specific harvest goals for the Sun Valley DAU will be determined during the upcoming year (Table 1).

Historical Information

Units within this DAU have accounted for approximately 20% of the mountain lion harvest in the Magic Valley Region over the last ten years. Prior to 1994, most mountain lion deprecations on livestock occurred in these units; however, in recent years, deprecations have been rare.

Harvest Characteristics

Twelve (52 %) of the twenty-two mountain lions harvested in this DAU during the 2003-2004 season were taken with rifles (Table 2). Fifty percent of the remaining lions were harvested with handguns. The distribution of harvest approached a two third/one third split with 59% of the harvest being male and the remaining 41% being female. The season structure has remained constant in recent years with a season length of 214 days beginning on August 30 (Table 3). The female quotas for Units 43, 44, 48, and 49 remained the same in 2003-2004 at five females. Units 36A and 50 don't have female harvest quotas. Total mountain lion harvest for all units in the Magic Valley Region reached 46 lions (Table 4). Total harvest within the DAU in 2003-2004 was well above the minimum objective average of 13 (Figure 1).

The sex and age composition of the harvest has shifted from sub-adults to adults throughout the three-year period 2000-2002 (Figure 2). Adult female harvest went from 6% in 2000 to 30% in 2002. Total male harvest, both adult and sub-adult, decreased from 65% in the preceding three-year period to 52% of the total harvest in 2000-2002. Average age of the male harvest began to shift towards the kitten- to two-year-old age class and away from the three- to seven-year-old age class during the same three-year period (Figure 3). Using hounds as a method of harvest continues to be the preferred harvest technique with 61% of the mountain lions being taken with this method during the three-year period from 2001-2003 (Figure 4). From 1994 through 2003, male harvest averaged 63% of the total harvest in this DAU (Figure 5).

Depredations

No depredations were reported to the Department during the reporting period (Table 5).

Management Implications

Current harvest strategies throughout this DAU indicate total harvest has increased annually since 1995 and continues to be well above the minimum objective average since 1998. This harvest level appears to correspond with the increase in prey species (deer and elk) present in this DAU during the same time period. As prey numbers fluctuate, measures may need to be implemented to alter harvest so as to meet established objectives.

Additionally, harvest among the sexes remained relatively stable during the same time frame with the majority of the harvest being taken from the male segment of the population. Harvest also continued to be relatively equal between the two younger age classes with limited harvest of older age-class mountain lions. These harvest characteristics would indicate this population of mountain lions is probably growing. Further analysis of the data during the upcoming year will be necessary to determine the management goals and techniques the Department will utilize to regulate harvest of the various sex and age classes within the population.

Oakley DAU (GMUs 54, 55, 56, 57)

Management Objectives

Broad harvest management goals for all DAUs were developed in the 2002-2010 Mountain Lion Management Plan to maintain current lion population levels, maintain a diversity of sport harvest opportunities, be responsive to human conflicts, and develop better lion population-monitoring tools. Specific harvest goals for the Oakley DAU will be determined during the upcoming year (Table 1).

Historical Information

Units 54, 55, 56, and 57 have accounted for approximately 62% of the mountain lion harvest in the Magic Valley Region during the last ten years. Unit 54 consistently has the highest annual mountain lion harvest of any management unit in the Region.

Historically, female harvest in these units has been very conservative with quotas being in place in most of these units since the 1980s. Since their inception, quotas have risen regularly and regrouping of units has taken place numerous times. A historical perspective of female quotas and grouping of units can be found in the 2001-2002 PR report. Unit groupings and quotas have remained relatively stable since 1998.

Harvest Characteristics

Eleven (42%) of the twenty-six mountain lions harvested in this DAU during the 2003-2004 season were taken with rifles while nine (35%) were harvested with handguns (Table 2). Amongst all weapon types, the distribution of harvest shifted from a heavy harvest of males in 2002-2003 to a more even split between males and females in 2003-2004. The season structure has remained constant in recent years with a season length of 214 days beginning August 30 (Table 3). The female quotas for units in this DAU remained the same as they were during the 2002-2003 reporting period. Total mountain lion harvest for all units in the Magic Valley Region reached 46 lions (Table 4). Total harvest within the DAU in 2003-2004 was well above the minimum objective average of 12 (Figure 6).

The sex and age composition of the harvest has changed markedly year-to-year throughout the three-year period 2000-2002 (Figure 7). The Oakley and Sun Valley DAUs were similar in male and female harvest with male harvest at 58% and female harvest at 32%. Additionally, sub-adult harvest, both male and female, on average made up a majority of the harvest during the most recent three-year period (2000-2002). Sixty-seven percent of the total male harvest from 2000-2002 was in the kitten- to two-year average age class (Figure 8). No older age class males were harvested during this three-year period. Using hounds as a method of harvest continues to be the preferred harvest technique with 72% of the mountain lions being taken with this method during the three-year period from 2001-2003 (Figure 9). From 1994 through 2003, male harvest averaged 61% of the total harvest in this DAU (Figure 10). In 2003, harvest remained similar with 58% of the harvest being males.

Depredations

Historically, mountain lion depredations were uncommon in these units compared to other units within the Magic Valley Region. However, following the decline in mule deer numbers in 1993, mountain lion depredations on domestic livestock increased. Since 1993, killing of depredating mountain lions by shearers or Wildlife Services has been common. Some sheep operators have even filed claims and been paid for sheep losses due to mountain lions. No depredations were reported to the Department in this DAU during the reporting period (Table 5).

Management Implications

Current harvest strategies in this DAU appear to have resulted in decreased annual harvest since 1995 but have still allowed the DAU to remain well above the minimum objective average harvest of 12. This decreasing trend may be the result of reduced prey species (mule deer) abundance and reduced harvest by outfitted mountain lion hunters. As prey numbers fluctuate, measures may need to be implemented to alter harvest so as to meet established management goals.

Additionally, harvest among the sexes has fluctuated during the same time frame with the majority of the harvest in recent years being taken from the male segment of the population. Harvest among the age groups indicates that numerous young mountain lions are readily available and continue to comprise a majority of the harvest. These harvest characteristics may indicate this population of mountain lions is stable to decreasing. Further analysis of the data during the upcoming year will be necessary to determine the management goals and techniques the Department will utilize to regulate harvest of the various sex and age classes within the population.

Table 1. Mountain lion plan harvest objectives for Magic Valley Region DAUs.

DAU	Management goals	Current status
Sun Valley	Minimum 3-year average harvest of 13 lions	18
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	52%
	Catch-Per-Unit Effort - To be established	No data
Oakley	Minimum 3-year average harvest of 12 lions	23
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	38%
	Catch-Per-Unit Effort - To be established	No data

Table 2. Mountain lion harvest by weapon and sex for Magic Valley Region DAUs, 1994-2003.

DAU	Year	Sex	Weapon					Total	
			Rifle	Archery	Muzzle-loader	Handgun	Unknown		Other
Sun Valley									
	1994	M	4	1	0	4	0	0	9
		F	2	1	0	0	0	0	3
	1995	M	1	0	0	3	0	0	4
		F	3	0	0	0	0	0	3
	1996	M	5	2	0	0	1	0	8
		F	1	0	0	1	1	0	3
	1997	M	5	3	0	1	0	0	9
		F	5	0	0	1	0	0	6
	1998	M	4	1	0	1	0	0	6
		F	3	1	0	2	0	0	6
	1999	M	7	3	0	2	0	0	12
		F	3	1	1	0	0	0	5
	2000	M	8	1	0	2	0	0	11
		F	3	2	0	1	0	0	6
	2001	M	8	2	0	3	0	0	13
		F	5	0	0	1	0	0	6
	2002	M	7	0	0	2	0	0	9
		F	5	1	0	2	0	0	8
	2003	M	9	2	0	2	0	0	13
		F	3	3	0	3	0	0	9
Oakley									
	1994	M	9	1	0	6	0	0	16
		F	2	1	0	2	0	0	5
	1995	M	12	2	0	8	1	0	23
		F	5	0	0	3	0	0	8
	1996	M	6	2	0	13	0	0	21
		F	3	2	1	6	1	0	13
	1997	M	7	1	0	4	0	0	12
		F	5	0	0	6	0	0	11
	1998	M	9	1	0	4	0	0	14
		F	5	1	0	4	0	1	11
	1999	M	6	2	0	3	0	0	11
		F	6	2	0	2	0	1	11
	2000	M	5	0	0	4	0	0	9
		F	4	1	0	3	0	0	8
	2001	M	4	4	0	5	0	0	13
		F	7	4	0	4	0	0	15
	2002	M	6	4	0	7	0	0	17
		F	2	0	0	2	0	0	4
	2003	M	8	3	0	4	0	0	15
		F	3	2	0	5	0	1	11

Table 3. 2003-2004 mountain lion harvest season structure by GMU in the Magic Valley Region.

Season	Season length (days)	Units	Female quota
August 30 - March 31	214	36A, 50	None
		43, 44, 48, 49	5
		54	6
		55	6
		56, 57	3

Table 4. Mountain lion harvest by GMU in the Magic Valley Region, 1994-2003.

Unit	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
43	1	1	1	3	1	3	4	6	2	4
44	1	0	0	2	1	0	3	1	0	4
45	2	6	2	3	2	1	7	5	0	4
46	1	1	1	1	0	0	0	2	2	1
47	2	3	5	4	2	5	2	4	4	2
48	0	0	0	0	0	1	0	0	3	3
49	2	0	5	0	3	2	2	2	3	3
52	0	0	0	0	0	2	0	0	0	0
52A	0	0	0	0	1	0	0	0	0	0
53	2	0	0	0	0	0	0	0	0	0
54	13	12	15	14	6	12	6	11	8	12
55	4	11	9	4	10	6	5	12	5	10
56	3	7	7	4	6	4	5	3	5	2
57	1	1	3	1	3	0	0	2	3	1
Total	32	42	48	36	35	36	34	48	35	46

Table 5. Mountain lion depredations by GMU in the Magic Valley Region, 1999-2003.

Unit	Year				
	1999	2000	2001	2002	2003
43	0	0	0	0	0
44	0	0	0	0	0
45	0	0	0	0	0
46	0	0	0	1	0
47	0	0	0	0	0
48	1	0	0	0	0
49	0	0	0	0	0
52	1	0	0	0	0
52A	0	0	0	0	0
53	0	1	0	0	0
54	1	1	0	0	0
55	0	0	0	0	0
56	0	0	0	0	0
57	0	0	0	0	0
Total	3	2	0	1	0

Total Harvest, 1994-2003
Units 36A, 43, 44, 48, 49, 50

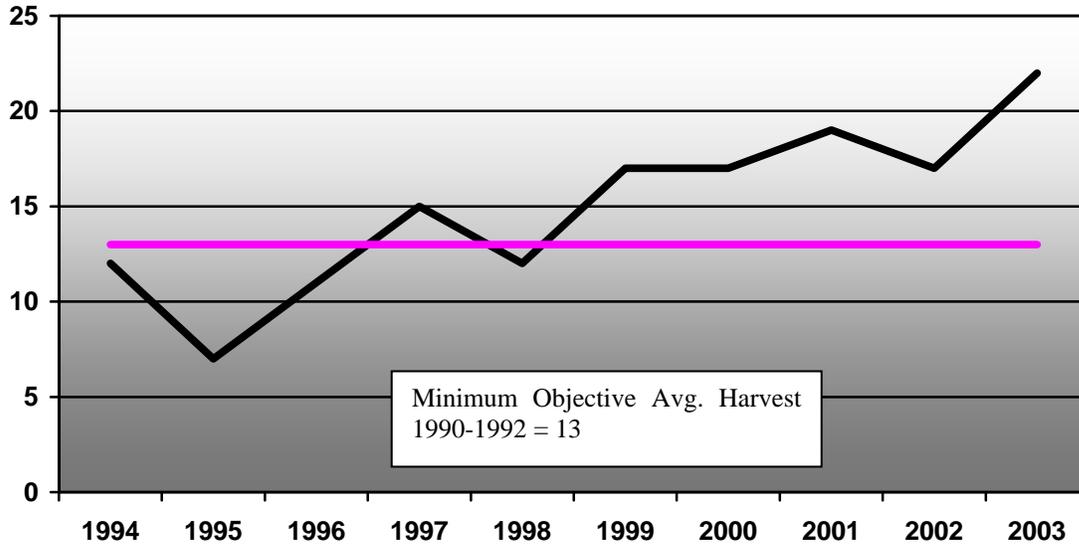
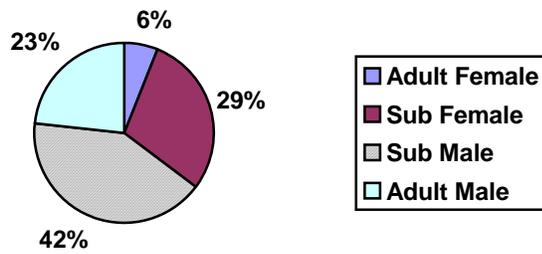
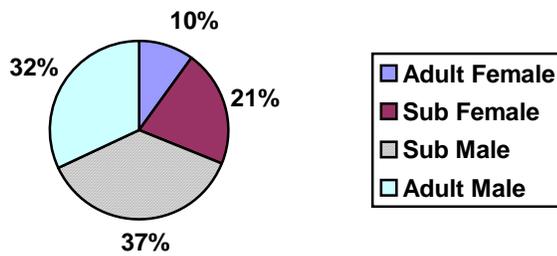


Figure 1. Mountain lion harvest for the Sun Valley DAU, 1994-2003.

2000



2001



2002

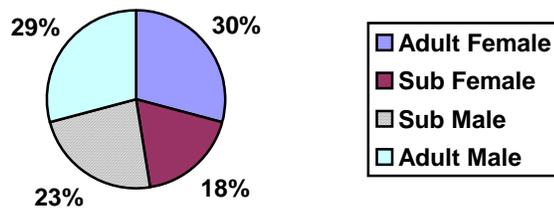


Figure 2. Sex and age composition of harvest for the Sun Valley DAU, 2000-2002.

2000-2002

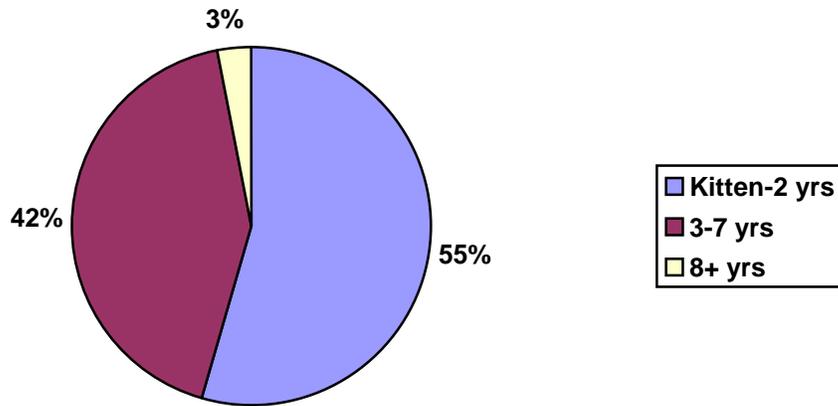


Figure 3. Average age composition of male harvest for the Sun Valley DAU, 2000-2002.

**Method of Take, 2001-2003
Units 36A, 43, 44, 48, 49, 50**

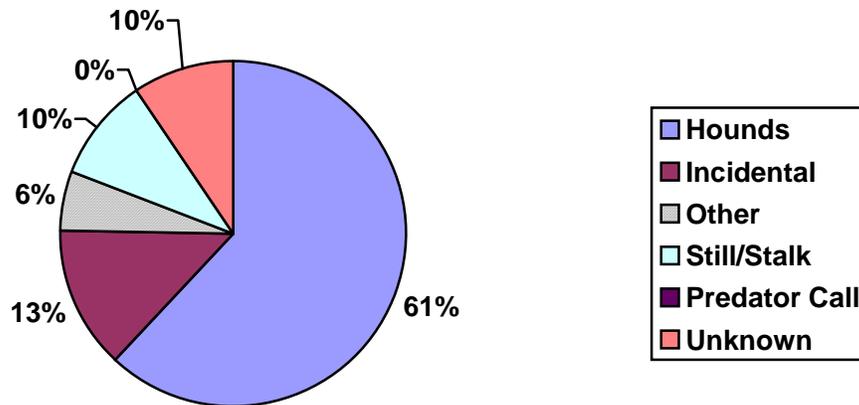


Figure 4. Harvest by method for the Sun Valley DAU, 2001-2003.

DAU Harvest by Sex, 1994-2003

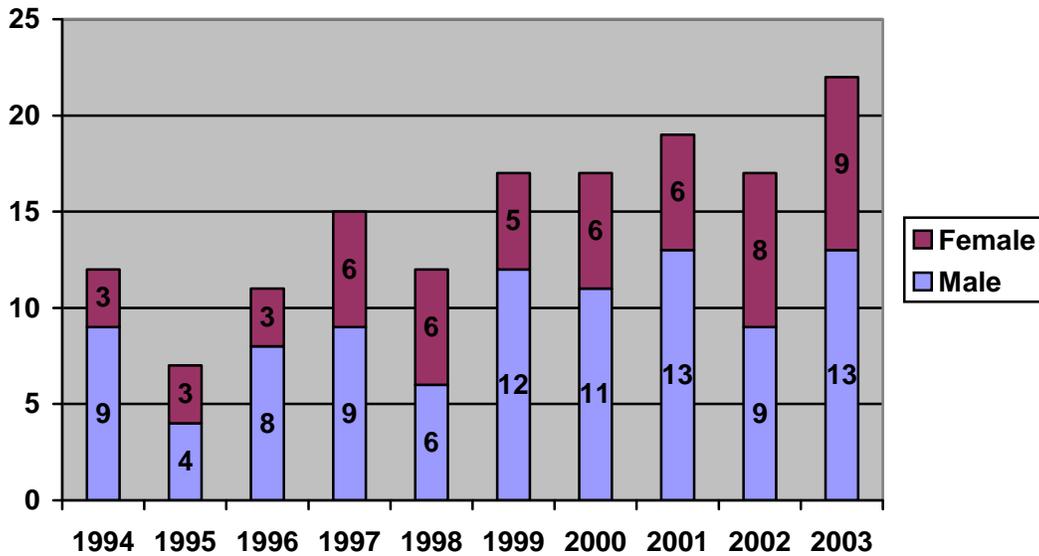


Figure 5. Harvest by sex for the Sun Valley DAU, 1994-2003.

Total Harvest, 1994-2003 Units 54, 55, 56, 57

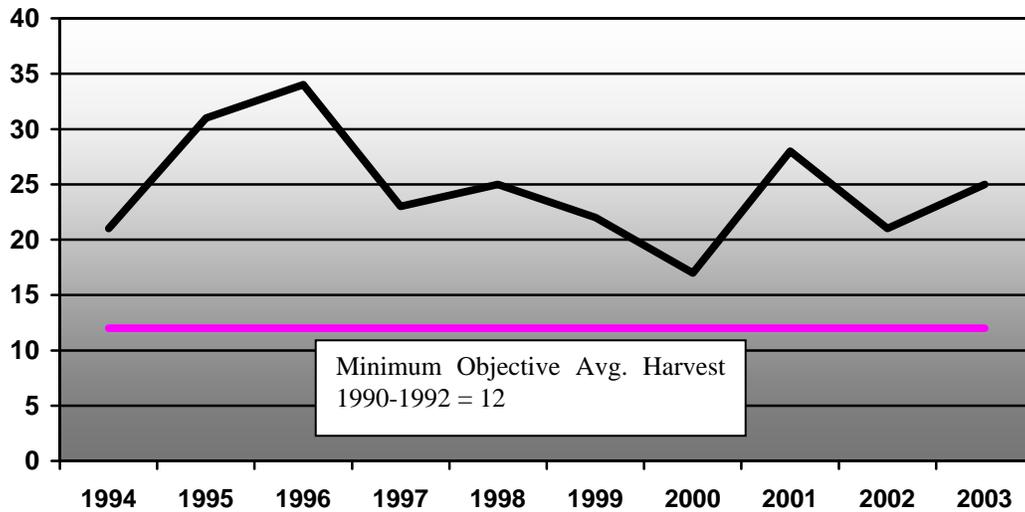
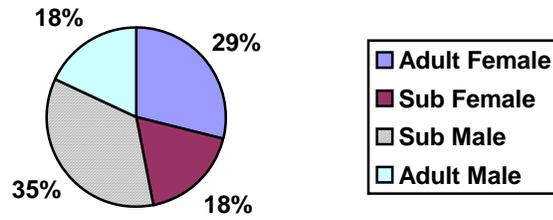
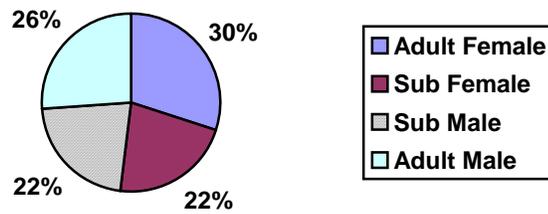


Figure 6. Mountain lion harvest for the Oakley DAU, 1994-2003.

2000



2001



2002

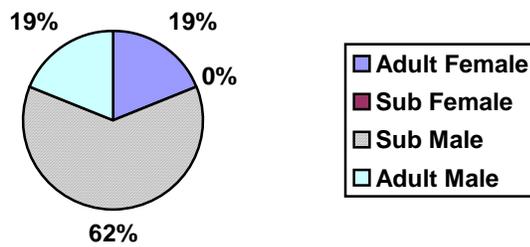


Figure 7. Sex and age composition of harvest for the Oakley DAU, 2000-2002.

2000-2002

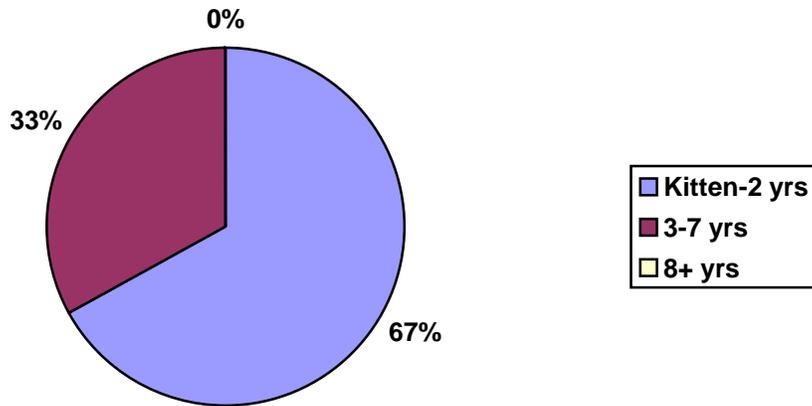


Figure 8. Average age composition of male harvest for the Oakley DAU, 2000-2002.

**Method of Take, 2001-2003
Units 54, 55, 56, 57**

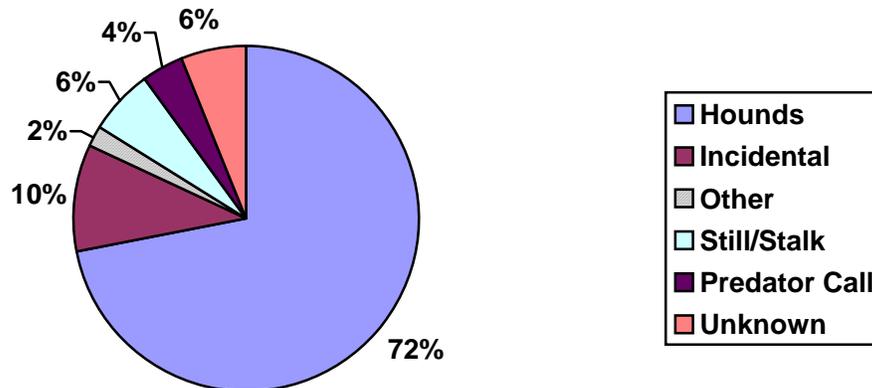


Figure 9. Harvest by method for the Oakley DAU, 2001-2003.

DAU Harvest by Sex, 1994-2003

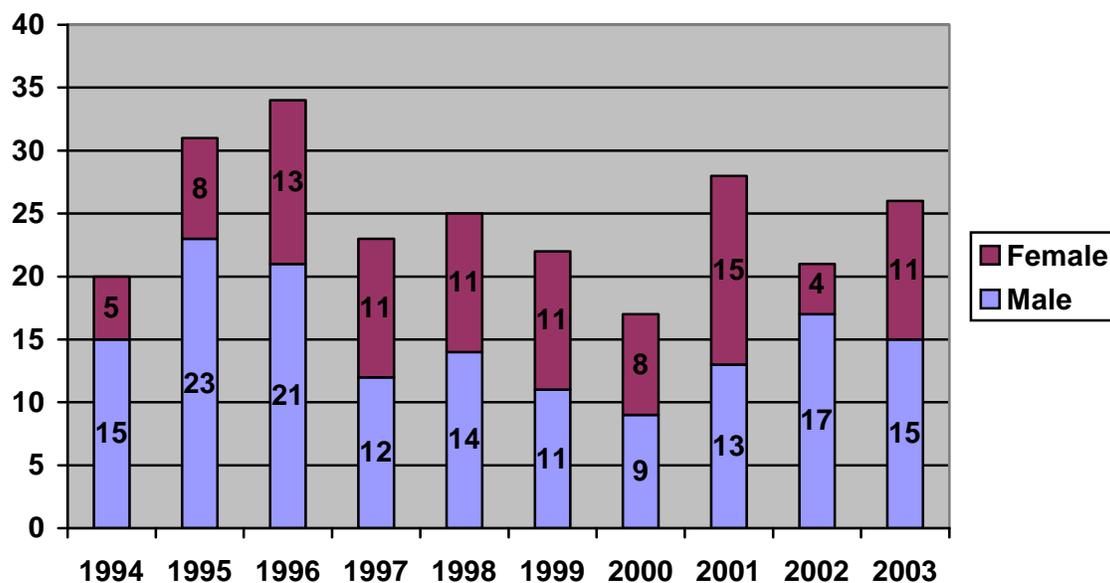


Figure 10. Harvest by sex for the Oakley DAU, 1994-2003.

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Mountain Lion Surveys and</u>
PROJECT:	<u>W-170-R-28</u>		<u>Inventories</u>
SUBPROJECT:	<u>5</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>8</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2003 to June 30, 2004</u>		

SOUTHEAST REGION

Abstract

Information and data from units within the Pocatello DAU were previously included in reports from the Southeast and Upper Snake Regions.

A total of 34 mountain lions (23 males, 11 females) were reported harvested in the Pocatello DAU during the report period. Two mountain lion livestock depredation complaints were reported by USDA Wildlife Services.

Pocatello DAU (GMUs 69, 70, 71, 72, 73, 73A, 74)

Management Objectives

The Department's Mountain Lion Management Plan was rewritten in 2002. Management policy and strategy calls for maintaining viable populations of lions in Idaho while maintaining harvest at levels at or above those of the early 1990s where appropriate. Harvest levels in that period were significantly lower than those of the mid- to late 1990s and early 2000s.

Historical Information

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 two to four animals. Population information is sparse; however, increased sightings, increased depredations, and increased harvest all suggest that mountain lion populations have increased over recent historic levels. Populations of the main prey species, mule deer, fluctuate widely and are currently 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 and again in 1999-2000, 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. In 1999, Unit 74 was moved from the western to eastern quota district. Quotas have varied from two females per district several years ago to 15 in the west and five in the east during the report period. A district remains 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. It is mandatory that all mountain lions harvested by hunters are checked and pelts tagged by the Department. Harvest data and characteristics are taken from these mandatory checks.

Units 70, 71, 73, and 73A have served as 'mountain lion harvest treatments' for the mule deer research project conducted from 1998 through 2003. Management was intended to maintain relatively higher harvest than in adjacent 'control' units with lower harvest levels.

Season Structure

Within the Pocatello DAU, the 2002-2003 mountain lion take season extended from August 30 through March 31 (Table 2). Dogs are prohibited from October 1 to November 9 in Units 70, 71, 72, 73, 73A, and 74; in Unit 69, dogs are prohibited from October 1 to November 30. A dog-training season opens upon the closure of a unit to harvest when a harvest quota is met and continues through the end of the season (March 31). There is no dog-training season for mountain lions in Unit 69 and no female harvest quota.

Harvest Characteristics

Reported harvest of lions from the DAU for the 2003-2004 season was 34; 23 male and 11 females (Tables 3 and 4, Figures 1 and 2). Age information (cementum annuli from teeth collected via the mandatory check) for lions harvested in that period is not yet available; however, during the period 2000-2002, the proportion of adult lions harvested increased relative to sub-adults (Figures 3 and 4).

Hound hunting remained the predominant method of take (67%). Incidental harvest (generally lions taken while deer or elk hunting) accounted for most of the remainder (Figure 5).

Climatic Conditions

Drought conditions persisted throughout the report period. Summer rainfall was below average; however, rain showers during late summer and fall contributed to some green-up prior to winter. Snow pack measurements taken during 2002-2003 were 60-80% of the 30-year average in both the Snake River (northern portion of the Region) and Great Basin (southern portion) watersheds.

Presence or absence of snow for tracking can have a significant effect on mountain lion harvest in some areas. Lower snow depths generally restrict snowmobiles. Conversely, adequate snow levels make tracking more efficient.

Depredations

The Wildlife Services branch of USDA Animal and Plant Health Inspection Service responds to mountain lion depredation issues in concert with the Department. Two mountain lions were killed by Wildlife Services for depredations during the reporting period (Table 5).

Management Implications

During the period 1981 through 1990, the annual harvest of mountain lions in southeast Idaho was low, from zero to approximately ten. 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 significantly, reaching a high of 94 in 1998.

Male/female ratios in the harvest have generally ranged between 2:1 and 1:1. The 32% female harvest during the reporting period is comparable to recent years. Effects to the mountain lion population of recent record-level harvests are unknown. Tracking the age structure within the harvest to identify changes in mountain lion population structure will continue to be important.

Low deer populations in the mid-1990s prompted many hunters to suggest that lion predation was a significant limiting factor and to favor reducing lion populations through increased harvest. The Department implemented a deer research project in southeast Idaho in 1998 which, in part, looked at whether varying levels of lion harvest influenced deer population response.

Table 1. Mountain lion plan harvest objectives for the Pocatello DAU.

DAU	Management goals	Current status
Pocatello	Minimum 3-year average harvest of 6 lions	37
	Sex/age composition - To be established	Unknown
	Percent males 3+ years - To be established	48%
	Catch-Per-Unit Effort - To be established	No data

Table 2. 2003-2004 mountain lion harvest season structure by GMU in the Pocatello Region.

Season	Season length (days)	Units	Female quota
August 30 - March 31	214	69	None
		70, 73, 73A	5
		71, 72, 74	4

Table 3. Mountain lion harvest by weapon and sex for the Pocatello DAU, 1999-2003.

Year	Sex	Weapon					Total
		Rifle	Archery	Muzzleloader	Handgun	Unknown	
1999	M	7	2	0	6	0	15
	F	4	1	0	7	0	12
2000	M	8	1	1	6	0	16
	F	4	1	0	10	0	15
2001	M	7	2	0	7	0	16
	F	6	4	0	5	0	15
2002	M	10	3	0	10	0	23
	F	13	1	0	3	0	17
2003	M	7	4	0	12	0	23
	F	3	2	0	6	0	11

Table 4. Mountain lion harvest by GMU in the Pocatello Region, 1994-2003.

Unit	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
69	0	0	0	0	0	1	4	12	8	10
70	1	1	0	3	3	2	2	3	6	5
71	0	0	0	0	2	4	4	0	4	4
72	0	0	0	0	1	2	3	2	2	4
73	2	2	5	8	22	8	9	7	15	7
73A	0	2	3	8	12	8	5	3	5	1
74	1	1	5	7	15	2	4	4	6	3
Total	4	6	13	26	55	27	31	31	46	34

Table 5. Mountain lion depredations by GMU in the Pocatello Region, 1999-2003.

Unit	Year				
	1999	2000	2001	2002	2003
66A	0	0	0	0	0
70	1	1	1	1	0
71	0	0	0	0	0
72	0	0	0	0	0
73	0	0	0	0	0
73A	0	0	0	0	0
74	0	0	0	0	1
75	0	0	0	0	0
76	0	0	1	0	1
77	0	0	0	0	0
78	0	0	0	0	0
Total	1	1	2	1	2

Total Harvest, 1994-2003
Units 69, 70, 71, 72, 73, 73A, 74

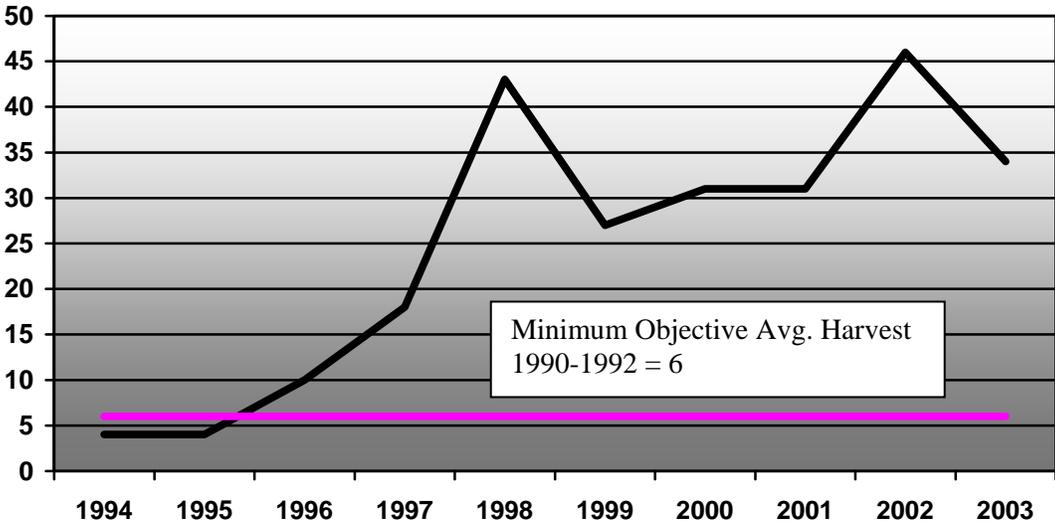


Figure 1. Mountain lion harvest for the Pocatello DAU, 1994-2003.

DAU Harvest by Sex, 1994-2003

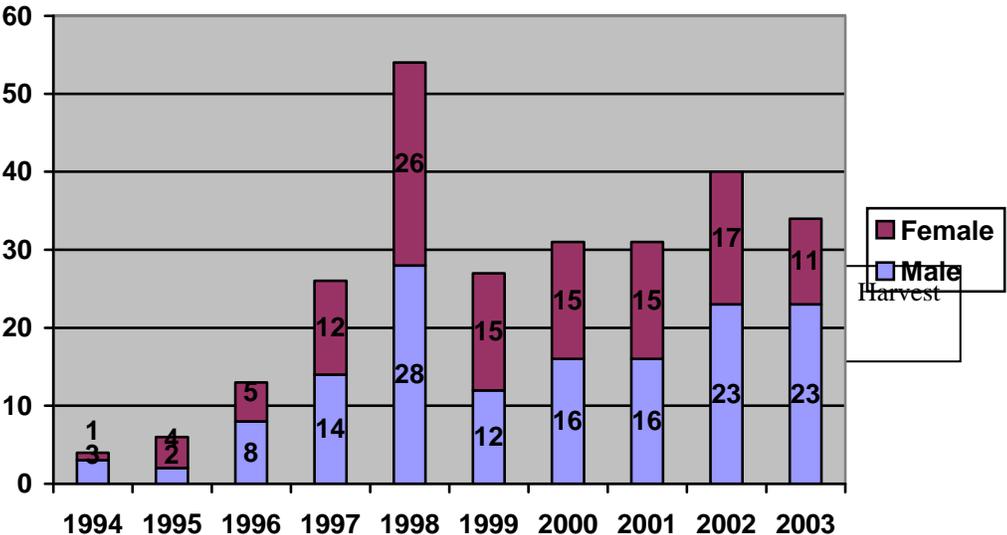
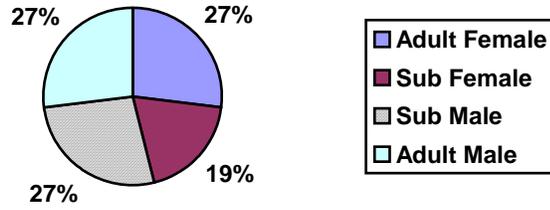
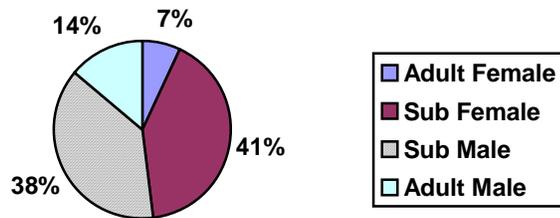


Figure 2. Harvest by sex for the Pocatello DAU, 1994-2003.

2000



2001



2002

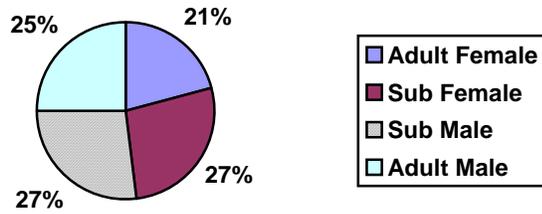


Figure 3. Sex and age composition of harvest for the Pocatello DAU, 2000-2002.

2000-2002

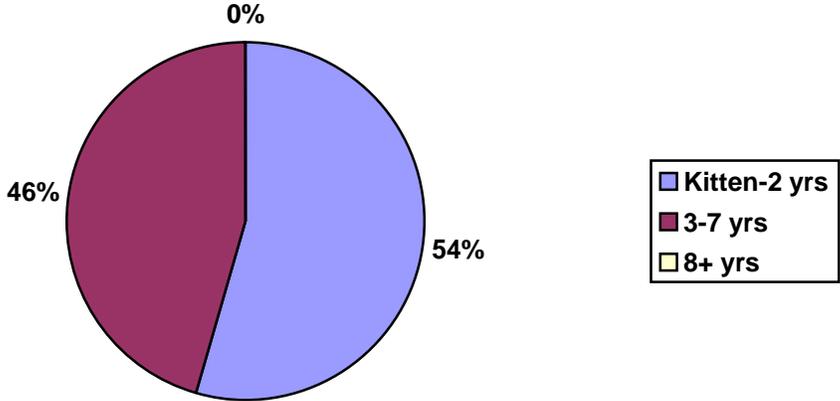


Figure 4. Average age composition of male harvest for the Pocatello DAU, 2000-2002.

**Method of Take, 2001-2003
Units 69, 70, 71, 72, 73, 73A, 74**

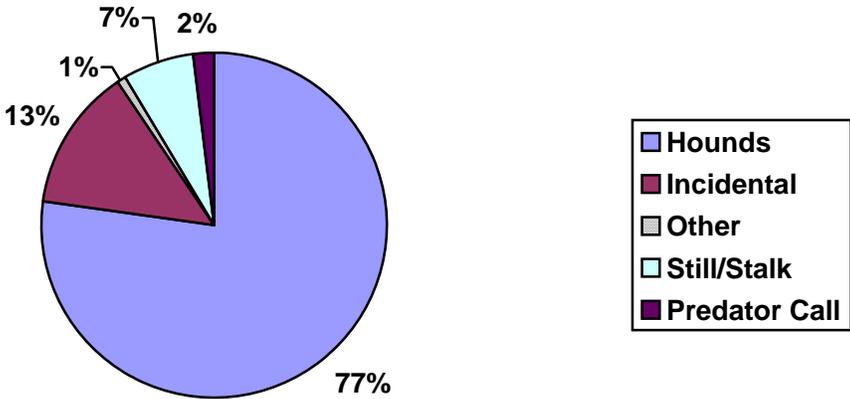


Figure 5. Harvest by method for the Pocatello DAU, 2001-2003.

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Mountain Lion Surveys and</u>
PROJECT:	<u>W-170-R-28</u>		<u>Inventories</u>
SUBPROJECT:	<u>6</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>8</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2003 to June 30, 2004</u>		

UPPER SNAKE REGION

Abstract

The Department revised its mountain lion management plan during the 2002-03 reporting period. The plan established new Data Analysis Units (DAUs) and the Region is now included in five different DAUs that also include parts of other regions. The Upper Snake Region is responsible for reporting on the Snake River and Bear Lake-Palisades DAUs.

Thirty five mountain lions were reported harvested in the Upper Snake Region during the 2003-2004 season. This was slightly below the previous three-year average of 28. Harvest was determined from hunter reports as required by Fish and Game Commission regulation. No estimate of hunter effort or hunter participation in the dog-training season is available. Officer field contacts have found only light dog-training activity in Units 51, 58, 59, and 59A and no known dog-training activity in Units 60, 60A, 61, 62, and 62A. There was no female mountain lion quota for units managed by the Upper Snake Region during the 2003-2004 season. The U.S. Department of Agriculture's Wildlife Services received no mountain lion depredations during this reporting period. The Department received no claims for livestock losses to mountain lions during 2003-2004.

(GMUs 50, 51, 58, 59, 59A, 60, 60A, 61, 62, 62A, 63, 63A, 64, 65, 66, 67, 69)

Historical Information

Mountain lion habitat in the Upper Snake Region lies outside of the core lion habitat in Idaho. Historically, lions were killed year-around to minimize conflict with livestock production resulting in very low lion numbers in the Region. In 1972, mountain lions in Idaho were reclassified as a game animal and harvest was regulated. Seasons in the western part of the Upper Snake Region during the 1970s remained liberal to address livestock conflict concerns. Lion numbers and distribution in the Region recovered slowly and by the late 1980s, a few lions were observed in the eastern part of the Region.

Mountain lion distribution in the Region appears to be closely associated with areas that have mule deer year-around. Most of the mule deer in the Region are migratory with some areas

having very few deer during summer or winter; however, these areas may or may not be used by deer during spring and fall migration. Those areas that do not have good year-around mule deer numbers tend to have only non-territorial lions and only occasional lion occurrence.

During the 1970s and 1980s, most of the lion harvest from the Upper Snake Region came from Unit 50 with occasional harvest from Unit 51. Very little harvest occurred from Units 58 and 59A. Units 60 through 69 had no lion season until the 1990s when a short limited season was opened for Units 64, 65, and 67. Since then, other units have been opened to lion hunting. Hunting seasons have also been lengthened, female quotas increased or removed, and seasons have changed from year to year.

Although most of the harvest historically came from Unit 50, in recent years, most of the harvest in the Region has come from Units 67 and 69 (Table 1). This is most likely the result of easy hunter access close to relatively large human population centers and vulnerability of lions to harvest.

In the past, big game units in the Upper Snake Region have been included in different DAUs, sometimes including parts of other regions and, at other times, contained solely within the Upper Snake Region. From 1996 through 2002, Units 50 and 51 were in DAU 6-2; Units 58, 59, and 59A were in DAU 6-1; Units 63A, 64, 65, 66, 67, and 69 were in DAU 6-3; and Units 60, 60A, 61, 62, and 62A were in DAU 6-4. Unit 63 had no lion season.

Starting with the 2003 season, the big game units will be placed in new DAUs. Since no biological data were available to establish DAUs based on lion populations, the DAUs were established using areas of somewhat similar habitat/ownership and/or average annual lion harvest during the 1990-2000 harvest seasons that might potentially be large enough to follow trends in lion numbers.

Unit 50 is now in the Sun Valley DAU along with Units 36A, 43, 44, 48, and 49. Units 51, 58, 59, and 59A are in the Borah DAU along with Units 29, 30, 30A, 37, and 37A. Units 60, 60A, 61, 62, 62A, 63, and 63A are in the Snake River DAU along with Units 38, 45, 52, 52A, 53, 68, and 68A. Units 64, 65, 66, and 67 are in the Bear Lake-Palisades DAU along with Units 66A, 75, 76, 77, and 78. Unit 69 is now in the Pocatello DAU along with Units 70, 71, 72, 73, 73A, and 74.

Harvest Characteristics

Thirty five lions were reported harvested from the Upper Snake Region during the 2003 harvest season (Table 1). This compares to 46 during the 2002 harvest season, 45 during the 2001 harvest season, and an average of 23 per harvest season from 1994 through 2002. Most of the 2003 harvest came from Units 66 and 69 which accounted for 43% of the harvest (15 lions) for the Region. No harvest was reported for Units 60, 60A, 62A, 63, or 63A. Six lions (17%) were reported from Units 50 and 51.

Climatic Conditions

The winter of 2003-2004 was relatively mild in the Upper Snake Region with above normal temperatures and below normal snow accumulation. These conditions provided easy access but difficult lion tracking conditions.

Depredations

Neither the Department nor the USDA Wildlife Services received any mountain lion depredation complaints during the report period (Table 2).

Management Objectives

One criteria suggested by Dr. Charles Anderson to manage mountain lion populations is the percentage of adult (≥ 3 year-old) female lions harvested from a population. If this percentage exceed 25%, it is an indication of a lion population being harvested at a level that will result in a decline. Dr. Anderson also emphasized the need to have consistent harvest seasons for at least three years to evaluate what effect the harvest is having on lion populations.

Management plans for the Region are to try to maintain consistent hunting seasons over time while at the same time trying to keep the adult female component of the harvest $\leq 25\%$.

Management Implications

Since the new DAUs overlap with other IDFG administrative regions, it will also be difficult to have uniform and consistent hunting seasons between regions and over years. The new DAUs will also make it difficult to track individual mountain lion concentrations in the Region. We will need to take the initiative to monitor individual lion concentrations in the Region to avoid conflict with livestock producers and other interests concerned about lion predation on other big game species while still addressing the desires of lion hunters.

There are three sub-populations within the Upper Snake Region that may indicate future population declines. Units 64, 65, 66, and 67 within the Bear Lake – Palisades DAU had a harvest of 25% adult females in 2000 and 37% in 2002. In 2002, Unit 69 within the Pocatello DAU had a harvest of 29% adult females, and Unit 50 within the Sun Valley DAU had a harvest of 33% adult females.

Snake River DAU (GMUs 38, 45, 52, 52A, 53, 60, 60A, 61, 62, 62A, 63, 63A, 68, 68A)

Management Objectives

Management objectives for this DAU have not been determined yet (Table 3).

The current Mountain Lion Management Plan states that initial harvest goals will be based to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 big game seasons (Figure 1). From 2001 to 2003, harvest

averaged eight lions per year. This level was higher than the 1990-1992 minimum harvest objective of 1.3.

Historical Information

In general, these units have marginal lion habitat, lack year-around prey sources, and lie on the margins of areas with established lion populations. Lion presence tends to be from occasional transient lions from other areas having established territorial lion populations. Hunting seasons have varied from closed to 214 days with some having female quotas and others without quotas; however, none of these units had female quotas for the 2003 harvest season (Table 4).

Harvest Characteristics

Harvest has been light (Figure 2) and appears to be primarily opportunistic. Most harvest has been of sub-adult lions (Figures 3 and 4) and occurs by the use of hounds (Figure 5). Harvest has varied from one to ten for the 1993 to 2003 seasons and has also varied from all male to all female (Figure 2). Since 1999, most (48%) of the reported lion harvest has occurred from Unit 45 while no lions were reported from Units 38, 52A, 60A, 63, 68, or 68A.

Fifty-five percent of the successful mountain lion hunters during the 2001-2003 season used hounds (Figure 5), and 75% used a rifle to take a mountain lion (Table 5).

Management Implications

Big game units included in this DAU are managed by the Southwest (Unit 38), Magic Valley (Units 45, 52, 52A, and 53), Upper Snake (Units 60, 60A, 61, 62, 62A, 63, and 63A) and Southeast (Units 68 and 68A) regions. Hunting season restrictions may vary between these administrative regions. Hunter access, winter conditions, and vulnerability of lions to harvest also vary throughout this DAU. Therefore, it will be difficult to manage lions in this DAU based on data collected. As long as harvest remains light and principally opportunistic, there is probably no need for more intense monitoring or management, but individual regions, especially the Magic Valley Region, will need to monitor harvest for their big game units to ensure it is consistent with local public desires.

Bear Lake-Palisades DAU (GMUs 64, 65, 66, 66A, 67, 75, 76, 77, 78)

Management Objectives

Management objectives for this DAU have not been determined yet (Table 3).

The current Mountain Lion Management Plan states that initial harvest goals will be based to maintain harvest levels on a three-year running average that are at or above the three-year average harvest for the 1990-1992 big game seasons (Figure 6). From 2001 to 2003, harvest averaged 34 lions per year. This level was much higher than the 1990-1992 minimum harvest objective of six.

Historical Information

This DAU lies along the Idaho-Wyoming state line from the Teton Valley south to the Utah state line and is managed by both the Upper Snake (Units 64, 65, 66, and 67) and Southeast (Units 66A, 75, 76, 77, and 78) regions. Mountain lion in this area tend to be associated with lions from the Pocatello DAU and Utah but separated from other lion populations in Idaho and Wyoming. No data exists to determine if lions in this area comprise one population with different concentration areas or if several different semi-isolated populations exist. Hunting seasons have ranged from closed in some big game units to liberal with no quotas in other big game units. The 2003 season is presented in Table 4.

Harvest Characteristics

Harvest has been quite variable and ranged from 12 in 1996 to 40 in 1997 (Figure 7). In 2000, the adult female (≥ 3 years old) harvest was 26% and in both 2001 and 2002, it was 16% (Figure 8). However, adult female harvest has exceeded 25% in 2000 and 2002 in Units 64, 65, 66, and 67. Units 64, 65, 66, and 67 did not have a female quota for the 2003 harvest season while units 66A, 75, 76, 77, and 78 had a female quota of six (Table 4). This quota was exceeded by three females. From 2000-2002, 55% of harvest has been sub-adult (Figure 9).

Since 1999, 7% of the harvest has come from Unit 64, 8% from Unit 65, 14% from Unit 66, 1% from Unit 66A, 18% from Unit 67, 13% from Unit 75, 15% from Unit 76, 17% from Unit 77, and 7% from Unit 78.

Eighty percent of the successful mountain lion hunters during the 2001-2003 season used hounds (Figure 10); 33% used a rifle, 23% used a handgun, and 20% used a bow to take a mountain lion (Table 5).

Management Implications

Big game units within this DAU are managed by the Upper Snake and Southeast regions and were previously parts of other DAUs. Consequently, hunting seasons have varied from area to area and from year to year. It is desirable to try to get all the big game units within the DAU to have the same hunting season and also to keep the same season for three or more years to determine what direction the lion population(s) within the DAU is going.

There may be a need to monitor more closely the percent adult females harvested between the units managed by the Southeast Region and the Upper Snake Region. During the 2002 harvest season, 37% of the harvest from Units 64, 65, 66, and 67 (units without a female quota and managed by the Upper Snake Region) was adult female, which Dr. Charles Anderson found in his research would result in a declining lion population. If the DAU is to be managed as one population, this difference in management could result in either over-harvesting or under-harvesting portions of the population.

Table 1. Mountain lion harvest by GMU in the Upper Snake Region, 1994-2003.

Unit	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
50	5	4	4	6	2	4	4	5	6	3
51	0	1	3	0	3	3	1	0	4	3
58	1	2	2	4	0	1	1	0	2	2
59	0	0	0	0	0	1	1	0	1	1
59A	0	2	0	2	1	0	1	0	0	1
60	0	0	0	0	0	0	0	1	1	0
60A	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	1	2
62	0	0	0	0	0	0	0	4	4	1
62A	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0
63A	0	0	0	0	0	0	0	0	0	0
64	1	1	1	2	1	0	1	7	0	3
65	1	0	0	0	0	3	2	4	2	1
66	0	0	2	5	2	3	4	6	6	3
67	3	4	1	3	7	2	5	6	11	5
69	0	0	0	0	0	1	4	12	8	10
Total	11	14	13	22	16	18	24	45	46	35

Table 2. Mountain lion depredations by GMU in the Upper Snake Region, 1999-2003.

Unit	Year				
	1999	2000	2001	2002	2003
50	0	3	0	0	0
51	0	0	0	0	0
58	0	0	0	0	0
59	0	0	0	0	0
59A	0	0	0	0	0
60	0	0	0	0	0
60A	0	0	0	0	0
61	1	1	0	0	0
62	0	0	0	0	0
62A	0	0	0	0	0
63	0	0	0	0	0
63A	0	0	0	0	0
64	0	1	1	0	0
65	1	1	0	0	0
66	0	0	0	0	0
67	0	0	0	0	0
69	0	0	0	0	0
Total	2	6	1	0	0

Table 3. Mountain lion plan harvest objectives for Upper Snake Region DAUs.

DAU	Management goals	Current status
Snake River	Minimum 3-year average harvest of 1.3 lions	8.7
	Sex/age composition - To be established	Increasing
	Percent males 3+ years - To be established	100%
	Catch-Per-Unit Effort - To be established	No data
Bear Lake-Palisades	Minimum 3-year average harvest of 6 lions	34.3
	Sex/age composition - To be established	Increasing
	Percent males 3+ years - To be established	79%
	Catch-Per-Unit Effort - To be established	No data

Table 4. 2003-2004 mountain lion harvest season structure by GMU in the Upper Snake Region.

Season	Season length (days)	Units	Female quota
Aug 30 - Mar31	214	38, 45, 52, 52A, 53, 60, 60A, 61, 62,	None
		62A, 63, 63A, 64, 65, 66, 67, 68, 68A	None
		66A, 75, 76, 77, 78	6

Table 5. Mountain lion harvest by weapon and sex for Upper Snake Region DAUs, 1999-2003.

DAU	Year	Sex	Weapon					Total	
			Rifle	Archery	Muzzle-loader	Handgun	Unknown		Other
Snake River	1999	M	2	1	0	0	0	0	3
		F	0	0	0	0	0	0	0
	2000	M	2	0	0	2	0	0	4
		F	3	0	0	0	0	0	3
	2001	M	1	0	0	1	0	1	3
		F	4	0	0	3	0	0	7
	2002	M	3	1	0	0	0	0	4
		F	0	0	0	2	0	0	2
	2003	M	2	1	0	0	0	1	4
		F	3	1	0	0	0	0	4
Bear Lake-Palisades	1999	M	3	6	0	4	0	0	13
		F	4	0	0	2	0	0	6
	2000	M	3	3	0	7	0	0	13
		F	4	2	0	7	1	0	14
	2001	M	9	4	0	3	0	0	16
		F	6	5	0	2	0	0	13
	2002	M	6	11	0	5	0	1	23
		F	3	3	0	5	0	0	11
	2003	M	9	5	3	6	0	0	23
		F	4	3	0	3	3	3	16
U		0	0	0	0	0	1	1	

Total Harvest, 1994-2003
Units 38, 45, 52, 52A, 53, 60, 60A,
61, 62, 62A, 63, 63A, 68, 68A

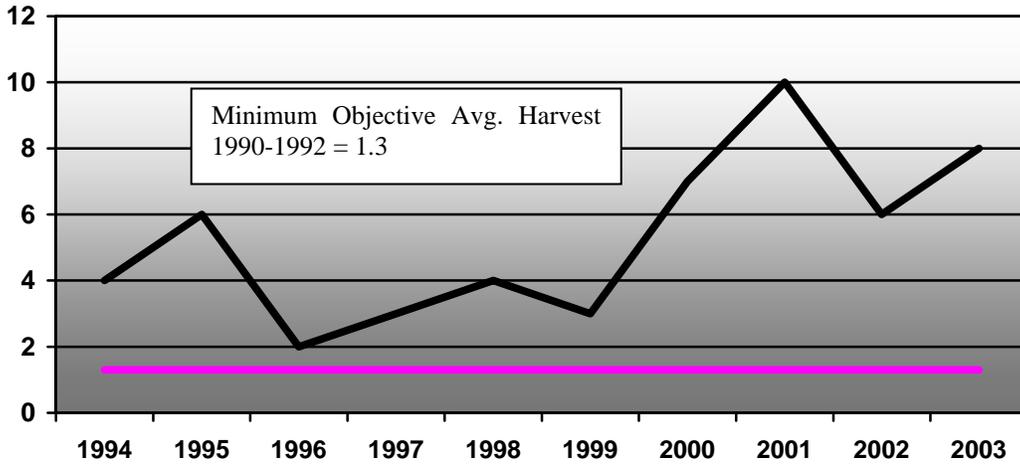


Figure 1. Mountain lion harvest for the Snake River DAU, 1994-2003.

DAU Harvest by Sex, 1994-2003

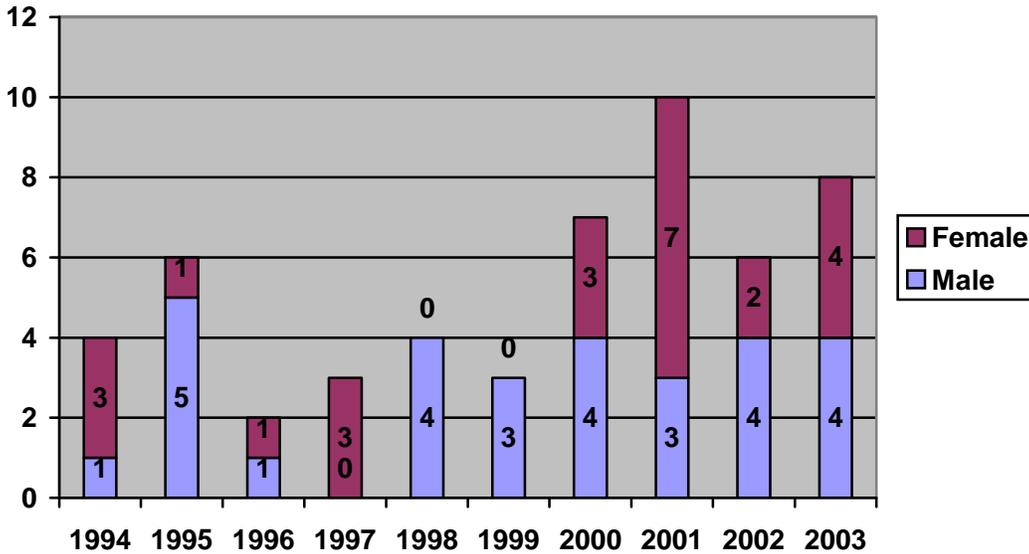
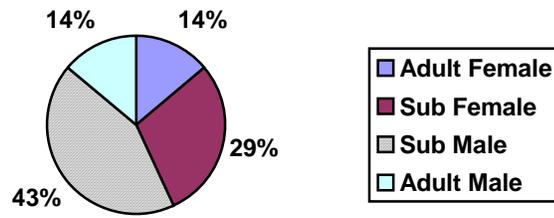
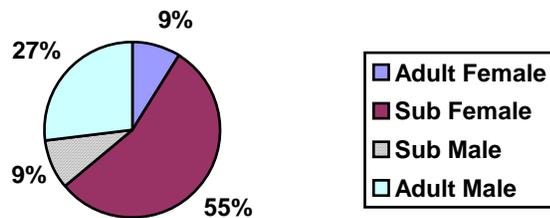


Figure 2. Harvest by sex for the Snake River DAU, 1994-2003.

2000



2001



2002

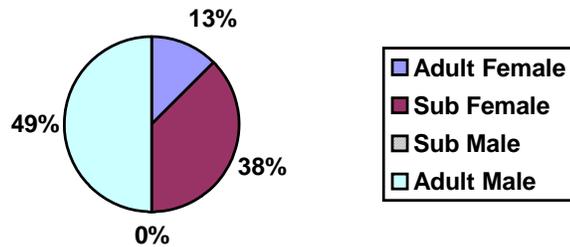


Figure 3. Sex and age composition of harvest for the Snake River DAU, 2000-2002.

2000-2002

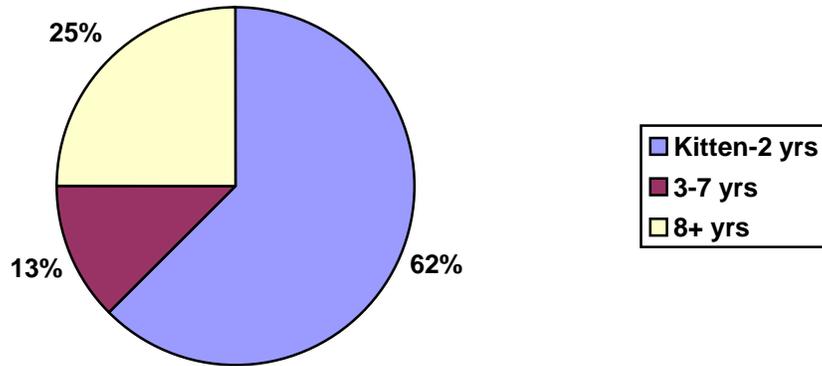


Figure 4. Average age composition of male harvest for the Snake River DAU, 2000-2002.

Method of Take, 2001-2003
Units 38, 45, 52, 52A, 53, 60,
60A,
61, 62, 62A, 63, 63A, 68, 68A

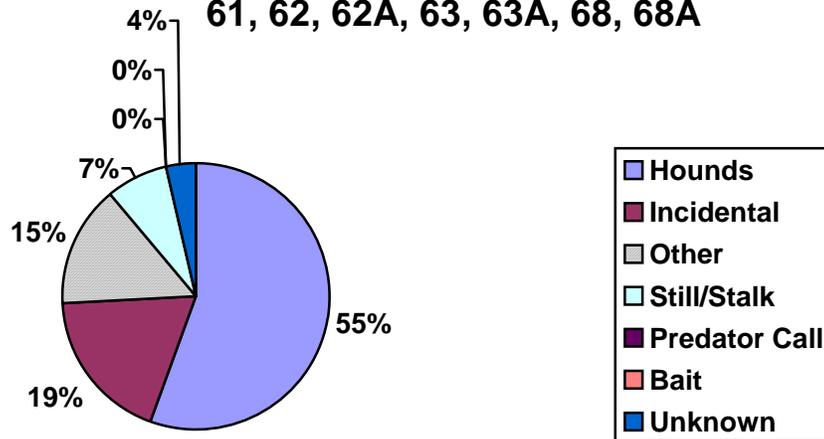


Figure 5. Harvest by method for the Snake River DAU, 2001-2003.

Total Harvest, 1994-2003
Units 64, 65, 66, 66A, 67, 75, 76, 77, 78

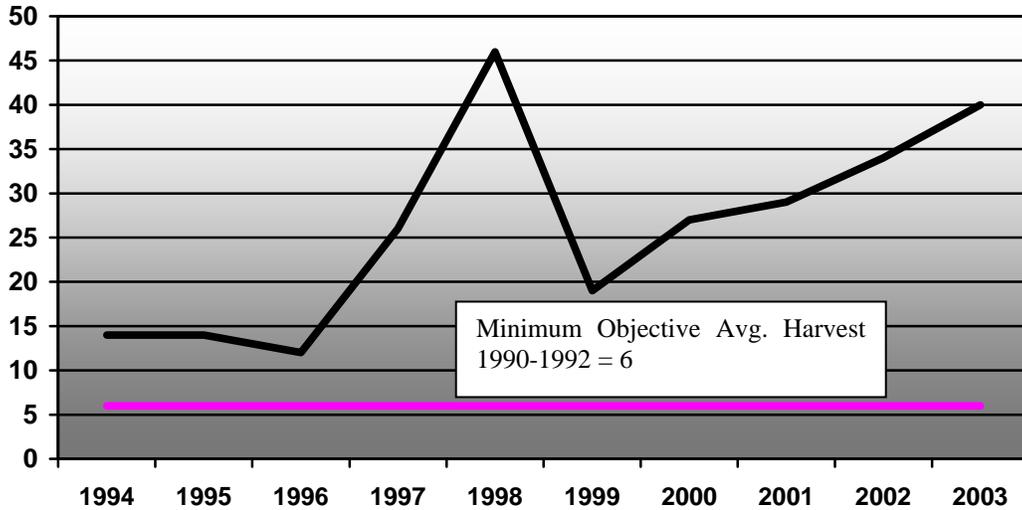


Figure 6. Mountain lion harvest for the Bear Lake-Palisades DAU, 1994-2003.

DAU Harvest by Sex, 1994-2003

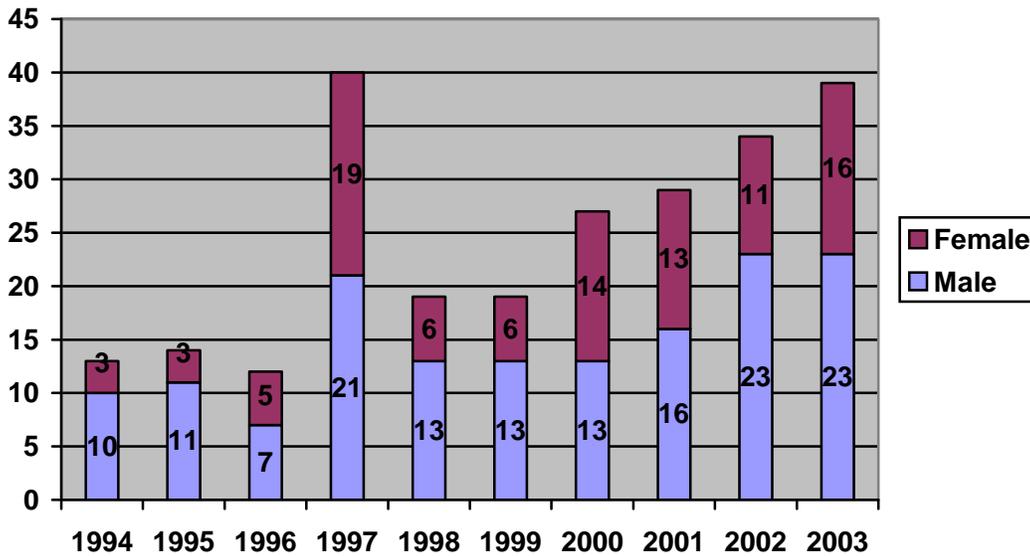
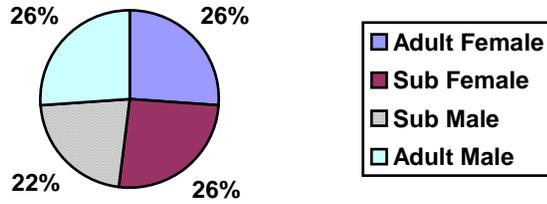
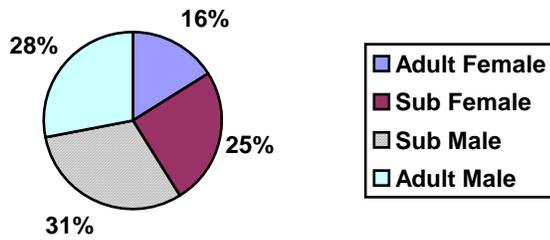


Figure 7. Harvest by sex for the Bear Lake-Palisades DAU, 1994-2003.

2000



2001



2002

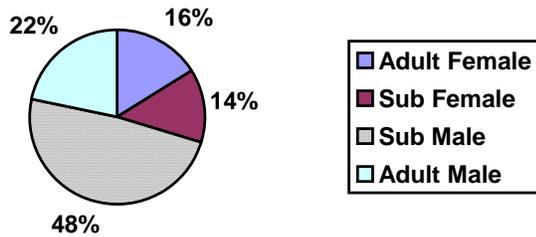


Figure 8. Sex and age composition of harvest for the Bear Lake-Palisades DAU, 2000-2002.

2000-2002

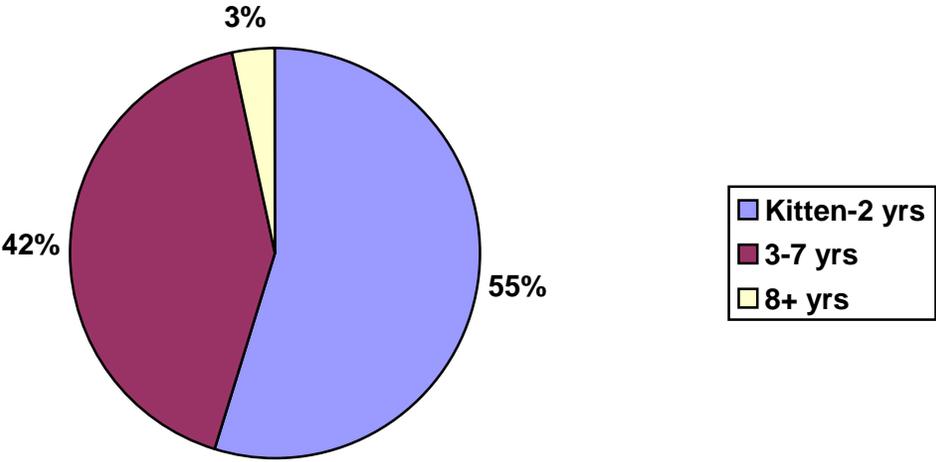


Figure 9. Average age composition of male harvest for the Bear Lake-Palisades DAU, 2000-2002.

**Method of Take, 2001-2003
Units 64, 65, 66, 66A, 67,
75, 76, 77, 78**

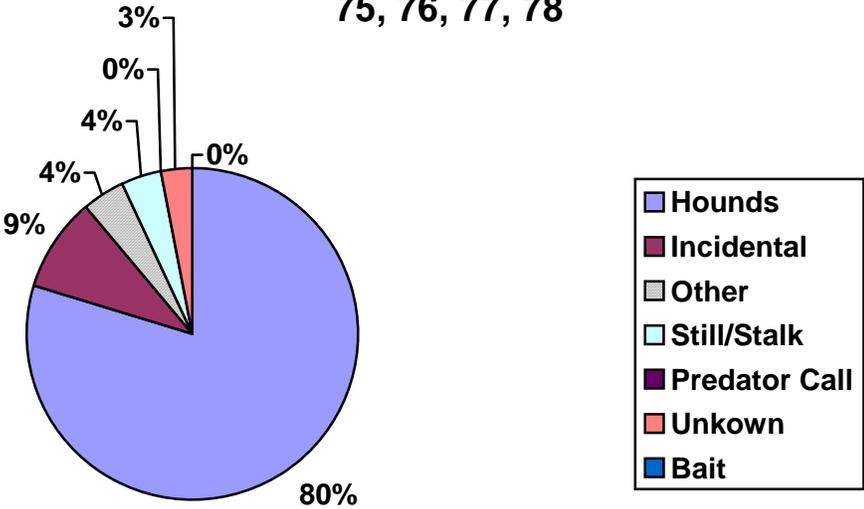


Figure 10. Harvest by method for the Bear Lake-Palisades DAU, 2001-2003.

**PROGRESS REPORT
SURVEYS AND INVENTORIES**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Mountain Lion Surveys and</u>
PROJECT:	<u>W-170-R-28</u>		<u>Inventories</u>
SUBPROJECT:	<u>7</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>1</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>8</u>		<u>Habitat Studies</u>
PERIOD COVERED: <u>July 1, 2003 to June 30, 2004</u>			

SALMON REGION

Abstract

Hunters harvested 206 mountain lions (135 males, 71 females) in two DAUs reported by the Salmon Region (Salmon and Borah) during the past five seasons. Forty-one mountain lions (37% females) were harvested in these DAUs during the 2003 season. Age data for mountain lions harvested during the 2003 season were not available for this report. In the Salmon and Borah DAUs, 80% of mountain lions were taken using hounds.

Average annual mountain lion harvest from the Salmon and Borah DAUs increased through the late 1990s to slightly >50 (Table 1), more than tripling from 1970s levels. Increased harvest probably reflects mountain lion population increases as a result of prey (primarily elk) population increases. In contrast, harvest during the last three seasons has ranged from 36 to 41 animals. Weather certainly influenced tracking conditions and harvest during the last three years, but total harvest has fallen compared to the peak years of the late 1990s. cursory evaluation of age composition of harvested animals (based on cementum annuli rather than tooth drop) suggests average age may have decreased. However, 3-5 years of age data based on cementum analysis are needed to encompass wide annual variation and increase sample sizes. In some analysis areas, human harvest may be contributing to changes in population characteristics. Gray wolves, now established in several units, may also be contributing to changes in mountain lion demographics.

Salmon DAU (GMUs 21, 21A, 28, 36B)

Management Objectives

Follow statewide management direction in the 2002-2010 Mountain Lion Management Plan. Objectives are to maintain distribution of mountain lions and maintain harvest at or above 1990-1992 levels. Specific objectives regarding sex and age composition of the harvest (Table 2) will be developed in the near future (e.g., ≤40% females in the harvest, ≥20% of males ≥5 years old).

Historical Information

The Salmon DAU is comprised primarily of drainages 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.

The DAU supports large 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. Salmon DAU mountain lion populations are likely partly sustained by immigration from adjacent, less-hunted wilderness populations (e.g., Warren DAU). During 1995 and 1996, wolves were reintroduced in the Salmon and Warren DAUs. At least four wolf packs are established within the Salmon DAU and additional wolf activity is suspected. Depredation problems are not a major concern in the Salmon DAU.

Season Structure

During 1996-1997, the general mountain lion season in the Salmon DAU was extended by 15 days from January 31 to February 15. The 1999-2000 season was extended by another 61 days (August 30 to March 31) because of an apparent continued increase in mountain lion populations. With 17 days added to the beginning and 44 days at the end, total season length became 214 days. This season structure remained the same in 2003 (Table 3). In general, 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. There were no dog-training seasons in Salmon DAU units.

Harvest Characteristics

After falling to a ten-year low of 20 animals in 2002, harvest increased to 26, approaching the recent average of 28 since 1998 (Figure 1). Average harvest for these units increased from approximately 11 mountain lions per year in the 1970s to nearly 18 during the 1980s and 31 per year in the 1990s.

Sex Ratio

During 2003-2004, 9 of 26 (35%) mountain lions harvested were females (Table 4). Over the longer term, females comprised 38% of the harvest over the previous three seasons ($n = 28$).

Age Structure

Of known-age animals harvested during the 2000-2002 seasons, 39% were adult males (≥ 3 years) and 27% were adult females (Figure 2). Sex and age structure of harvested mountain lions appeared relatively stable over the last three seasons. Of known-age males, 63% were ≥ 3 years across the last three years (Figure 3).

Method of Take

Eighty-seven percent of mountain lions harvested in the Salmon DAU during 2001-2003 were taken with assistance of hounds (Figure 4); six lions (9%) were taken incidentally to other hunting.

Climatic Conditions

Rainfall during summer months in 2003 was below average with warm, dry weather during early summer. Vegetative growth generally appeared well below average. Winter conditions were generally mild with temperatures above normal, and snow accumulation at lower elevations was below average. Animals, therefore, likely entered winter in average to below average body condition, then encountered a mild to average winter, which should have produced average over-winter survival. Snow pack (as measured at higher elevations) was approximately 70% of average by late winter. Onset of spring weather and associated plant phenology was apparently advanced by approximately 3-4 weeks. Water-year precipitation to date has been near average.

Depredations

No mountain lion depredations were reported in 2003-2004 (Table 5).

Management Implications

Mountain lion harvest in the Salmon DAU has been on an increasing trend since mandatory check was initiated in 1973. Increased harvest probably reflects mountain lion population increases as a result of prey (primarily elk) population increases. Based on cementum annuli, >65% of animals harvested during the 2000-2002 seasons were adults (≥ 3 years), but <10% of known-age males were ≥ 8 years. Percent females in the harvest is within the previous goal of $\leq 40\%$ based on the last three years (Figure 5) and appears relatively stable. Reintroduced gray wolves will likely have some impact on mountain lion populations, at least on a local level.

Borah DAU (GMUs 29, 30, 30A, 37, 37A, 51, 58, 59, 59A)

Management Objectives

Follow statewide management direction in the 2002-2010 Mountain Lion Management Plan. Objectives are to maintain distribution of mountain lions and maintain harvest at or above 1990-1992 levels. Specific objectives regarding sex and age composition of harvested mountain lions (Table 2) will be developed in the near future (e.g., $\leq 40\%$ females in the harvest, $\geq 20\%$ of males ≥ 5 years old).

Historical Information

The Borah DAU is comprised primarily of drainages east of the upper Salmon River and drainages from the Little Lost River east to I-15. 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 DAUs farther north and west.

The Borah DAU supports mountain lion populations of low to moderate density 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 the Borah DAU.

Season Structure

During 1996-1997, the general mountain lion season was extended from January 31 to February 15 in northern units and to March 31 in southern units. During 1999-2000, seasons throughout the DAU were extended to August 30 through March 31 (214 days) because of an apparent continued increase in mountain lion populations, to provide additional opportunity, and to allow archers to harvest mountain lions during standard deer and elk seasons. This season structure remained the same in 2003 (Table 3). Female quotas remained in place for southern units with training seasons allowed after female quotas were reached. There were no quotas or dog-training seasons in northern units within the DAU. In general, dogs may be used when firearm seasons for deer or elk are not open. Neither spotted young nor female mountain lions accompanied by young may be taken.

Harvest Characteristics

Harvest of 15 mountain lions in 2003 equaled the ten-year average harvest (Figure 6). Harvest for these units increased gradually over the last several decades and appears relatively stable in recent years.

Sex Ratio

During 2003-2004, six of 15 (40%) mountain lions harvested were females (Table 4). Over the longer term, females comprised 32% of the harvest over the previous three seasons ($n = 38$).

Age Structure

Of known-age animals harvested during 2000-2003 seasons, 27% were adult males (≥ 3 years) and 15% were adult females (Figure 7). Sex and age structure of harvested mountain lions appeared relatively stable through this timeframe. Of known-age males, 39% were ≥ 3 years across the last three seasons (Figure 8).

Method of Take

Eighty-one percent of mountain lions harvested in the Borah DAU during 2001-2003 were taken with assistance of hounds (Figure 9); 14% were taken incidentally to other hunting.

Climatic Conditions

Rainfall during summer months in 2003 was below average with warm, dry weather during early summer. Vegetative growth generally appeared well below average. Winter conditions were generally mild with temperatures above normal, and snow accumulation at lower elevations was below average. Animals, therefore, likely entered winter in average to below average body condition, then encountered a mild to average winter, which should have produced average over-winter survival. Snow pack (as measured at higher elevations) was approximately 70% of average by late winter. Onset of spring weather and associated plant phenology was apparently advanced by approximately 3-4 weeks. Water-year precipitation to date has been near average.

Depredations

No mountain lion depredations were reported in 2003-2004 (Table 5).

Management Implications

Annual mountain lion harvest in the Borah DAU increased gradually through the 1970s to 1990s and appears stable at approximately 12-15. Increased harvest probably reflects mountain lion population increases as a result of prey (primarily elk) population increases. Sex composition of harvested animals in the Borah DAU suggest that harvest rate is still acceptable; however, the proportion of older-age mountain lions in the harvest has been low since 1999. Based on cementum annuli, 42% of animals harvested during the 2000-2002 seasons were adults (≥ 3 years), but no known-age males were ≥ 8 years. Percent females in the harvest for the Borah DAU is well within the previous goal of $\leq 40\%$ (Figure 10). Monitoring trends in harvest rate and sex/age composition (based on the change to tooth cementum analysis) will be a high priority. Expansion of gray wolves into parts of the Borah DAU may have some impact on local mountain lion populations.

Table 1. Mountain lion harvest by GMU in the Salmon Region, 1994-2003.

Unit	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
21	9	7	9	11	9	7	5			
21A	4	5	1	1	6	4	1			
27	4	6	12	19	19	17	6	9		
28	16	14	17	12	13	18	11			
29	4	3	3	3	5	3	1			
30	3	4	3	2	1	4	2			
30A	3	2	1	3	1	6	1			
36	2	3	1	1	1	1	2			
36A	3	2	1	4	5	7	4			
36B	7	9	7	13	12	4	8			
37	0	0	1	1	0	1	2			
37A	3	2	4	1	2	4	0			
Total	58	57	60	71	74	76	43			

Table 2. Mountain lion plan harvest objectives for Salmon Region DAUs.

DAU	Management goals	Current status
Salmon	Minimum 3-year average harvest of 15 lions	25
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	63%
	Catch-Per-Unit Effort - To be established	No data
Borah	Minimum 3-year average harvest of 7 lions	14
	Sex/age composition - To be established	Stable
	Percent males 3+ years - To be established	39%
	Catch-Per-Unit Effort - To be established	No data

Table 3. 2003-2004 mountain lion harvest season structure by GMU in the Salmon Region.

Season	Season length (days)	Units	Female quota
Aug 30 - Mar31	214	21, 21A, 28, 29, 30, 30A, 36B, 37, 37A, 51, 58, 59, 59A	None None

Table 4. Mountain lion harvest by weapon and sex for Salmon Region DAUs, 1998-2003.

DAU	Year	Sex	Weapon					Total	
			Rifle	Archery	Muzzleloader	Handgun	Unknown		
Salmon	1998	M	9	6	0	8	0	23	
		F	7	6	0	3	0	16	
	1999	M	10	5	0	3	0	18	
		F	5	6	0	2	0	13	
	2000	M	7	4	0	5	1	17	
		F	4	2	0	2	0	8	
	2001	M	9	8	0	2	0	19	
		F	6	2	0	2	0	10	
	2002	M	6	1	0	3	0	10	
		F	6	2	0	2	0	10	
	2003	M	11	4	0	2	0	17	
		F	7	0	0	1	1	9	
	Borah	1998	M	2	1	0	5	0	8
			F	2	1	0	2	0	5
1999		M	5	6	0	8	0	19	
		F	1	1	0	1	0	3	
2000		M	4	2	0	1	0	7	
		F	0	1	0	2	0	3	
2001		M	1	2	1	2	1	7	
		F	1	3	0	1	0	5	
2002		M	3	2	0	7	0	12	
		F	3	1	0	0	0	4	
2003		M	4	1	0	4	0	9	
		F	3	1	0	2	0	6	

Table 5. Mountain lion depredations by GMU in the Salmon Region, 1994-2003.

Year	Unit												Total
	21	21A	27	28	29	30	30A	36	36A	36B	37	37A	
1994	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	1	0	0	0	0	0	1	0	0	0	0	2
1997	0	0	0	1	0	0	0	0	0	0	0	0	1
1998	0	0	0	1	1	0	0	0	0	0	0	0	2
1999	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Harvest, 1993-2003
Units 21, 21A, 28, 36B

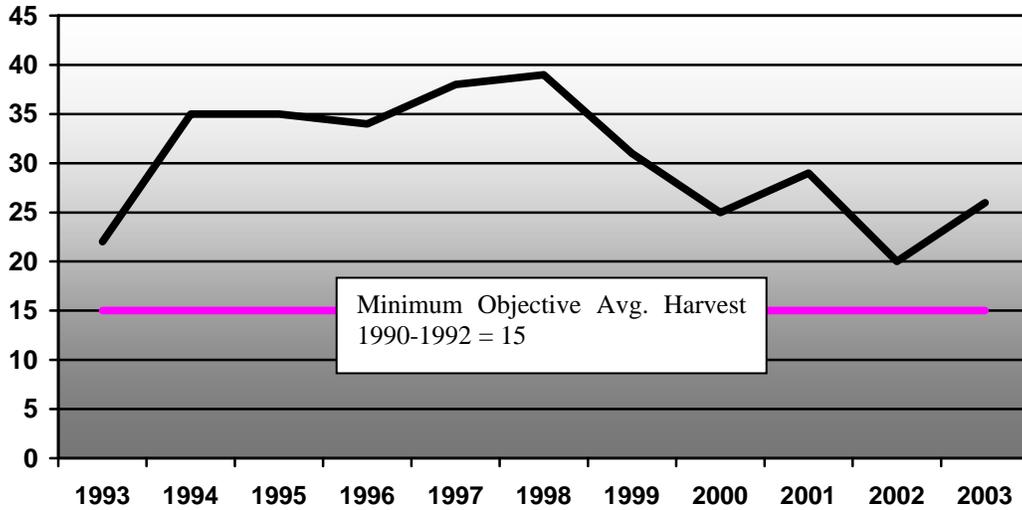


Figure 1. Mountain lion harvest for the Salmon DAU, 1993-2003.

2000-2002

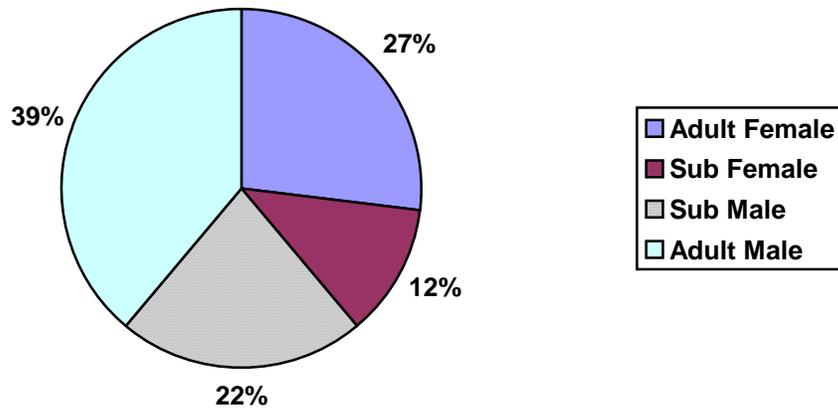


Figure 2. Sex and age composition of harvest ($n = 67$) for the Salmon DAU, 2000-2002.

2000-2002

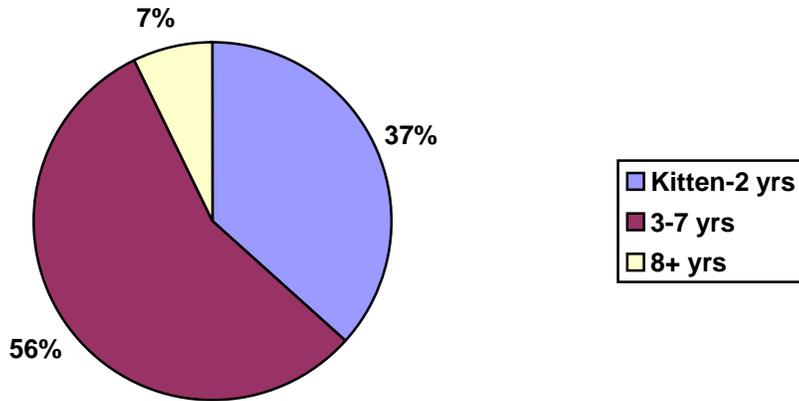


Figure 3. Average age composition of male harvest ($n = 41$) for the Salmon DAU, 2000-2002.

**Method of Take, 2001-2003
Units 21, 21A, 28, 36B**

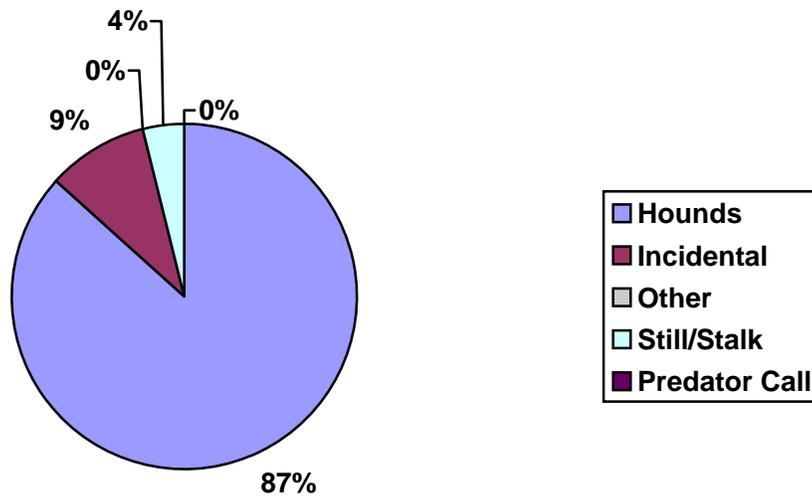


Figure 4. Harvest by method for the Salmon DAU, 2001-2003.

DAU Harvest by Sex, 1993-2003

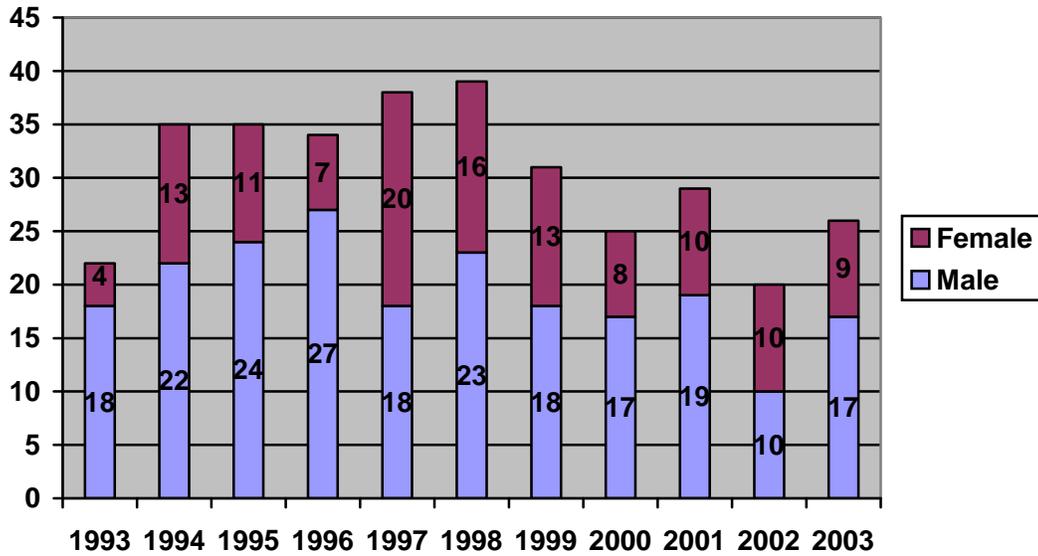


Figure 5. Harvest by sex for the Salmon DAU, 1993-2003.

Total Harvest, 1993-2003 Units 29, 30, 30A, 37, 37A, 51, 58, 59, 59A

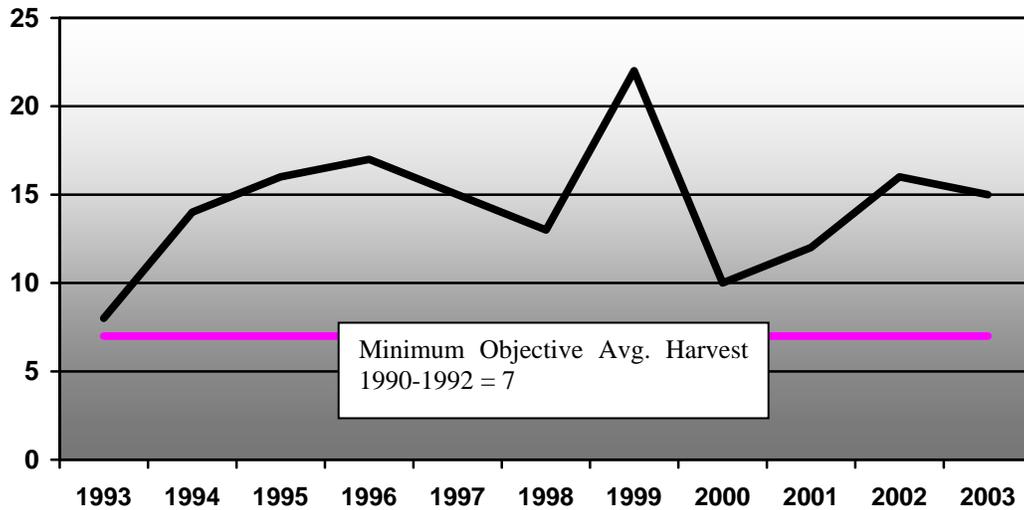


Figure 6. Mountain lion harvest for the Borah DAU, 1993-2003.

2000-2002

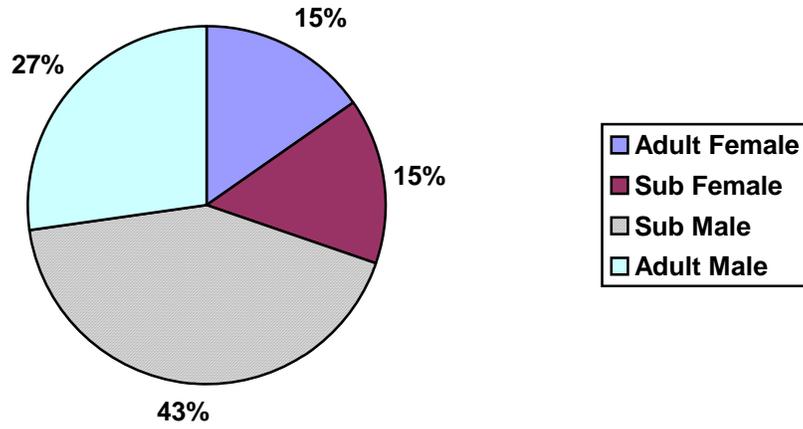


Figure 7. Sex and age composition of harvest ($n = 33$) for the Borah DAU, 2000-2002.

2000-2002

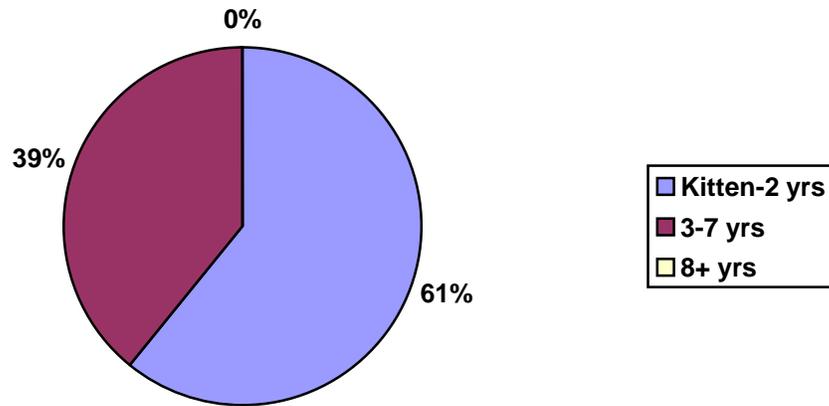


Figure 8. Average age composition of male harvest ($n = 23$) for the Borah DAU, 2000-2002.

Method of Take, 2001-2003
Units 29, 30, 30A, 37, 37A, 51, 58, 59, 59A

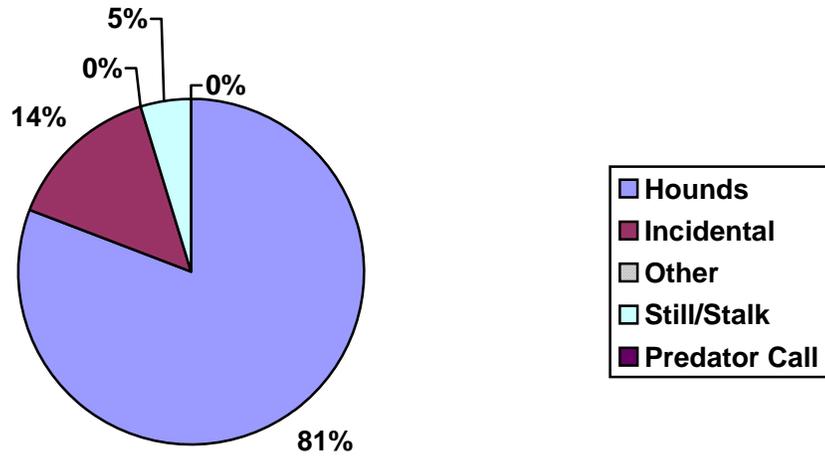


Figure 9. Harvest by method for the Borah DAU, 2001-2003.

DAU Harvest by Sex, 1993-2003

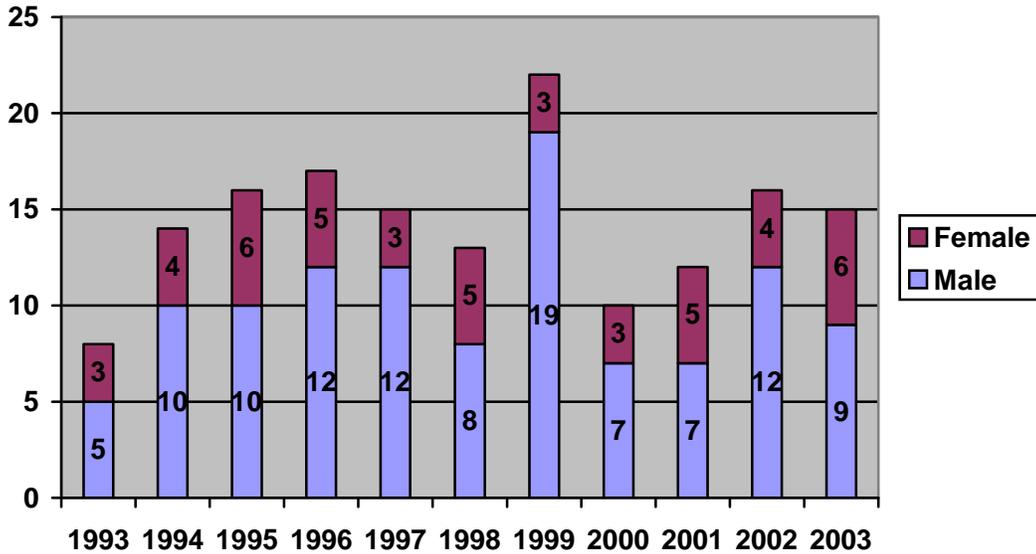
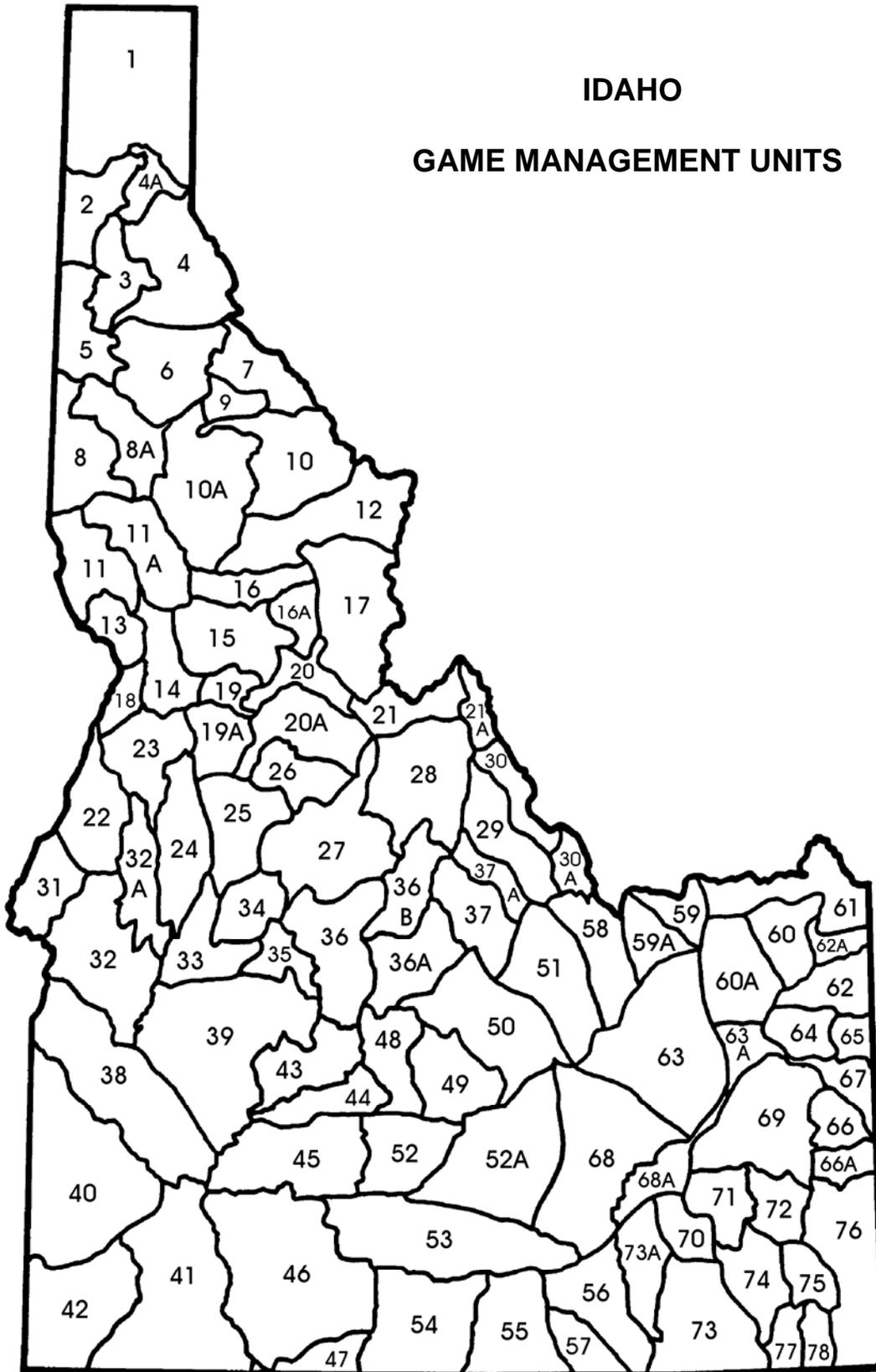


Figure 10. Harvest by sex for the Borah DAU, 1993-2003.

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.

