

IDAHO DEPARTMENT OF FISH AND GAME

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Surveys and Inventories

Statewide Report



MOUNTAIN LION

July 1, 2018 to June 30, 2019

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STATEWIDE REPORT SURVEYS AND INVENTORY

JOB TITLE: Mountain Lion Surveys and Inventories

STUDY NAME: Big Game Population Status, Trends, Use, and Associated Habitat Studies

PERIOD COVERED: July 1, 2018 to June 30, 2019

STATEWIDE

Historical Perspective

During the westward expansion of settlers in the late 1800's and early 1900's, mountain lions and were perceived as significant threats to livestock and human interests and were systematically destroyed. As a result of decades of unregulated harvest, mountain lion distribution and numbers declined. In 1972, concern over the status of the mountain lion population resulted in reclassifying the mountain lion as a big game species. Reclassification allowed the Idaho Department of Fish & Game (IDFG) to regulate mountain lion harvest for the first time. Since 1973 there has been a mandatory check of harvested mountain lions, and a mountain lion tag has been required since 1975.

Management Objectives

For analysis, Idaho's mountain lion management utilizes 18 Data Analysis Units (DAU) comprised of multiple game management units (GMUs; Figure 1). Mountain lion harvest data are summarized based on the fiscal year (FY; 1 July 1–30 June) because this better reflects the contiguous harvest season (August 30 – March 31). This report summarizes harvest data for FY2018 (July 1, 2018 – June 30, 2019).

The 2002–2010 Mountain Lion Species Management Plan states that initial harvest goals will be based on maintaining harvest levels on a 3-year running average that are at or above the 3-year average harvest for the 1990–1992 big game seasons. Wildlife managers may recommend quotas (female quotas or total quota) to regulate harvest at desired levels through the regulation setting process. Hunters are required to report mountain lions harvested within 10 days of kill.

Biological Objectives

Capture, Radio-Mark and/or Telemetry

No capture, radio-marking, or telemetry occurred in this DAU during the reporting period. While nuisance mountain lions are occasionally relocated, mountain lions are not a focus of department-lead capture or collaring efforts.

Population Survey and Monitoring

Population monitoring consisted of monitoring trends in harvest demographics (sex and age obtained from tooth cementum analysis) via mandatory checks of all harvested bears.

Mountain lions were monitored incidentally to camera trap surveys for wolf distribution during this grant period. Department personnel deployed a total of 416 unbaited cameras in the field during June 2019. During early fall 2018, data cards were retrieved from cameras deployed during the previous report period. Mountain lion images obtained from wolf cameras are currently being analyzed in cooperation with our research program.

During the winters of 2016/17 and 2017/18, IDFG assisted with a graduate study project in GMUs 33, 35, 77 and 75 to test the effectiveness of using remote cameras to monitor mountain lion populations and abundance estimate. Remote cameras were deployed across predicted mule deer and elk winter range to detect lions. Genetic sampling of mountain lions was also conducted in the study area (biopsy darting and backtracking to collect scat and hair samples) with the assistance of local houndsmen and contractors, and used for comparison with the trail camera results. The data is currently being analyzed at the University of Montana for use of this technique to monitor mountain lion populations elsewhere.

Hunting and Harvest Characteristics

Few significant changes to mountain lion harvest seasons were made during the report period. Harvest season was lengthened in GMUs 1, 2, 3, 4, 4A, 5 and 6. A second mountain lion in the bag was authorized for GMUs 14, 15 and 16. In the Southeast Region, female harvest quotas were increased and a new male quota was created.

During Calendar Year 2018 (CY2018), 26,819 mountain lion tags were sold, showing a slight growth of 1.6% annually over the prior 10 years. However, additional mountain lion tags were included in each of 21,845 Sportsman's Packages sold in Idaho during 2018. It is unknown how many of these individuals hunted mountain lion. A total of 3,628 resident hound hunter permits were sold in 2018, with a 2.6% annual average increase over the prior 10 years. Nonresident hound hunter permits totaled 134 for 2018.

Mountain lion harvest has increased an average of 4.2% annually during the past 10 years, with the FY2018 harvest of 611 lions the second highest during that period. The dominant method for hunting mountain lions is with the use of hounds (70% of the annual harvest, 2018). Typically ranging between 40% and 50% in Idaho, the percentage of females in the harvest averaged 42% during FY2016-2018 and was slightly lower than the past 10-year average of 43% (Figure 2). Typically ranging between 50% and 70%, the percentage of 3 year old and older lions within the male harvest averaged 55% for FY2015–2017, the most recent age data on record.

Harvest objectives are to maintain a mountain lion population capable of sustaining a harvest of at least 331 lions annually (the 1990–1992 average). This objective has been attained annually since 1991, with the most recent 3-year average of 634 lions 85% higher than the minimum.

In 2019, 693 mountain lion DNA samples were collected from pulled teeth of mountain lions harvested in the 2017 harvest season to evaluate the ability of personnel checking mountain lions for Mandatory Harvest Reporting to assign the correct gender. Genotypes were obtained for 659 mountain lions. Of that total, 33 samples did not match the reported gender (21 reported females

had genetic results consistent with males, 12 reported males had genetic results consistent with females). The overall error rate of mis-sexing mountain lions was 5% (IDFG unpublished report). Fifteen of the 33 misidentified samples came from animals harvested in the Clearwater region, and 9 of those animals were checked at what appears to be vendor locations.

Predation Issues

Mountain lions regularly prey on deer and elk, but the population level effect of predation likely varies with the species of prey, their abundance and recent population trends, lion numbers, the types and abundance of other prey, and the type and abundance of other predators. Depressed ungulate recruitment with predator management alone may not be effective because habitat structure, weather conditions and nutrition also influenced ungulate survival.

Across the state in 21 different areas, 868 radio collared elk were monitored throughout the winter. Adult cow survival was 98% and calf survival was 66%. Leading cause of mortality for both adult cow elk and calves was mountain lions (2018 Elk Statewide Report). In the Panhandle, Clearwater and Salmon Regions mountain lions have been a main documented source of predation to deer fawns and elk calves and likely plays a limiting role. Recent bighorn sheep research and monitoring suggests mountain lion predation may be a limiting factor for some populations, but results are inconclusive at this time. In many Southern Idaho DAUs, necropsy data on radio-marked deer and elk indicate mountain lion predation is likely not a population-limiting factor for ungulates.

Depredation Issues

There were 7 mountain lion depredation complaints in 2018 to livestock during this reporting period. Mountain lion sightings have increased in urban areas throughout the Panhandle and Clearwater Regions; assuming this might be due to a growing urban interface with lion-occupied range and an increase in white-tailed deer populations.

Management Discussion

Idaho's mountain lion population has sustained a harvest well above management plan levels for the past 15 years. Current information includes a recent increase in harvest levels and a slightly younger male age structure. This combination of factors is consistent with a mountain lion population that has undergone a recent increase or has undergone substantial recent increase in immigration.

In some areas that have experienced low elk calf-cow or deer fawn-doe ratios, mountain lion harvested will be managed as part of an adaptive management strategy in accordance to Statewide or regional predation management plans. However, the remote nature of some DAUs, makes it unlikely that sport harvest can regulate lion population numbers. Prey populations and competition with wolves will likely have the greatest effect on lion populations in this area.

Mountain lions are currently managed to provide continued recreational opportunity for hunting and non-hunting resource users. The increasing popularity of mountain lion as a big game animal to hunters using trailing hounds, and the concerns of some citizens about the use of those

methods of take have combined to generate some controversy in the management of this species. Idaho Department of Fish & Game recognizes and addresses these conflicting demands and concerns.

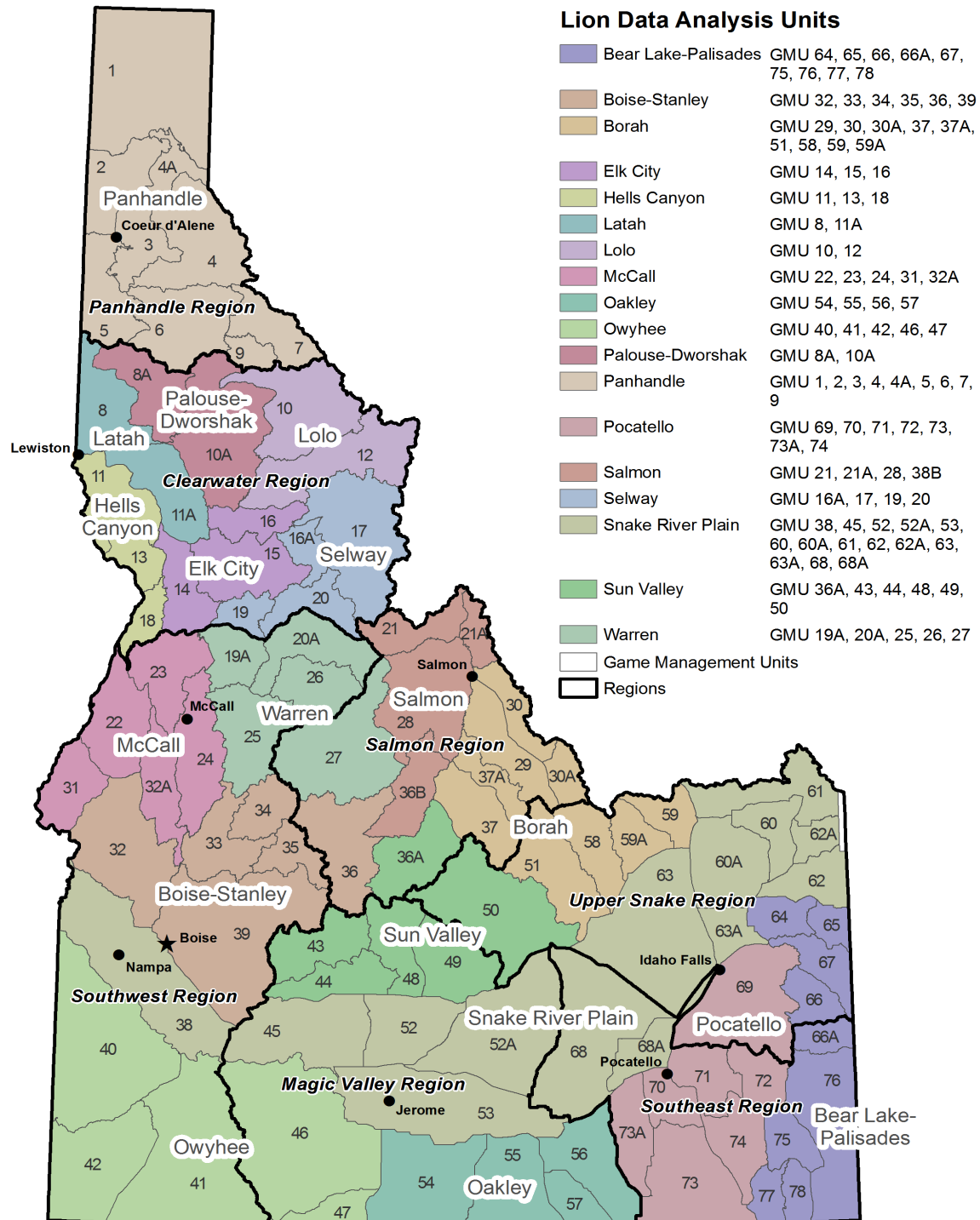
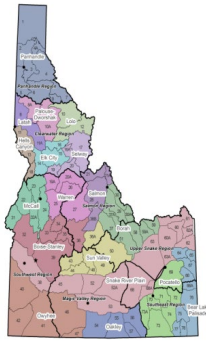


Figure 1 Statewide Mountain Lion Management Zones (DAUs).



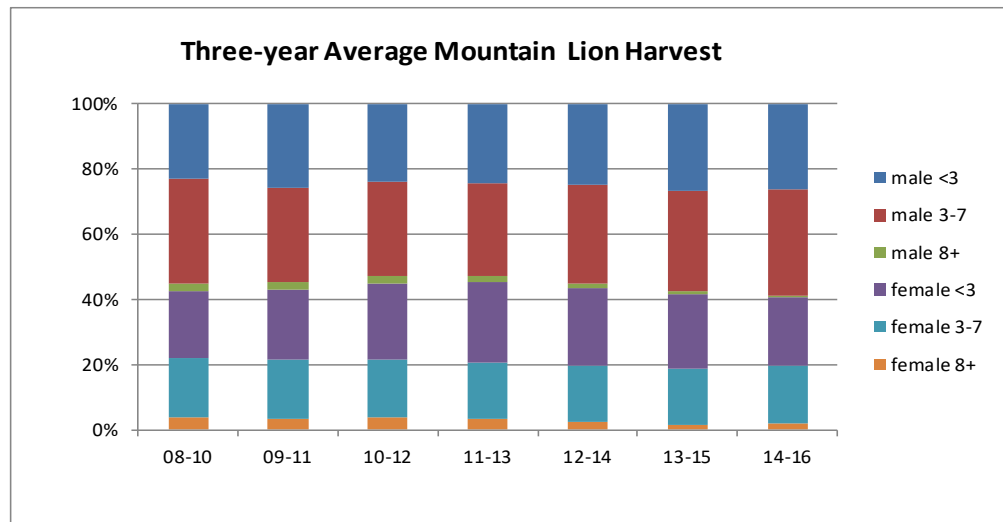
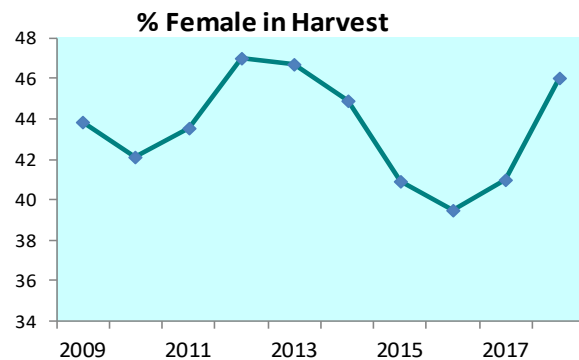
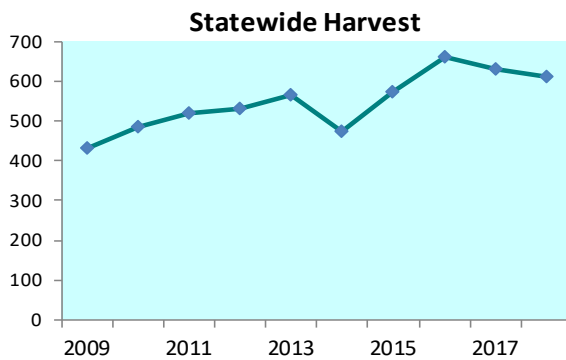
Statewide

2018 Season (Fall 2018-Spring 2019)		
Square Miles: 3-Year Averages		Goal
83,620	Annual Harvest	634
	Harvest per 100 mi ²	0.8
	Males: Percent 3+ yrs *	56%

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		431	484	519	530	565	472	572	661	629	611
Males	0-2 years	71	107	125	130	99	122	145	151	0	0
	3-7 years	142	147	128	125	168	116	160	201	0	0
	8+ years	10	11	10	7	13	2	2	7	0	0
	Unknown	19	15	30	19	21	20	31	41	371	330
	Subtotal	242	280	293	281	301	260	338	400	371	330
Females	0-2 years	79	72	113	114	118	122	112	118	0	0
	3-7 years	71	88	79	85	96	68	87	113	0	0
	8+ years	23	19	11	20	25	4	10	13	0	0
	Unknown	16	25	23	30	25	18	25	17	258	281
	Subtotal	189	204	226	249	264	212	234	261	258	281

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 2. Statewide Mountain Lion Status and Objectives

Type	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Resident lion tags	22,406	21,662	21,574	21,675	21,589	22,546	22,966	24,081	24,827	25,241	26,006
Nonresident lion tags	695	526	463	444	528	546	551	558	633	677	813
Total lion tags	23,101	22,188	22,037	22,119	22,117	23,092	23,517	24,639	25,460	25,918	26,819
Resident houndhunter permits	2,844	2,894	2,886	2,863	2,858	3,039	3,145	3,340	3,436	3,438	3,628
Nonresident houndhunter permits	121	108	98	100	97	104	96	97	114	119	134
Total houndhunter permits	2,965	3,002	2,984	2,963	2,955	3,143	3,241	3,437	3,550	3,557	3,762

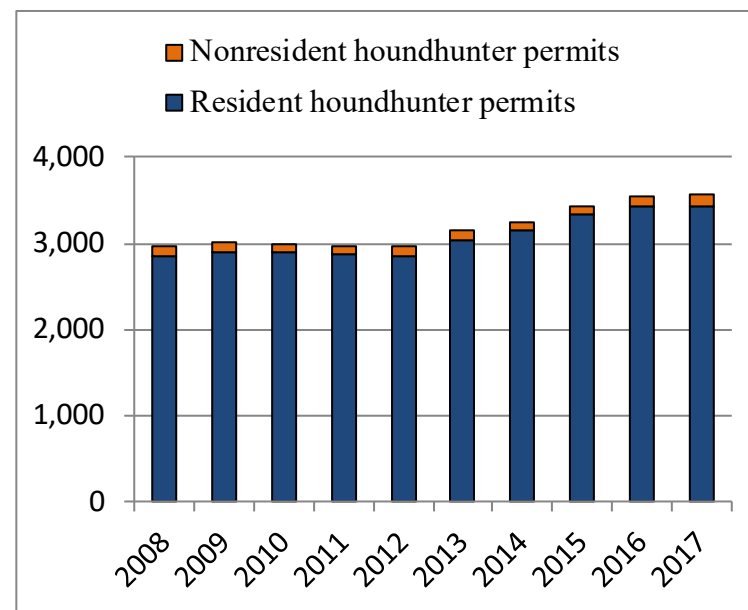
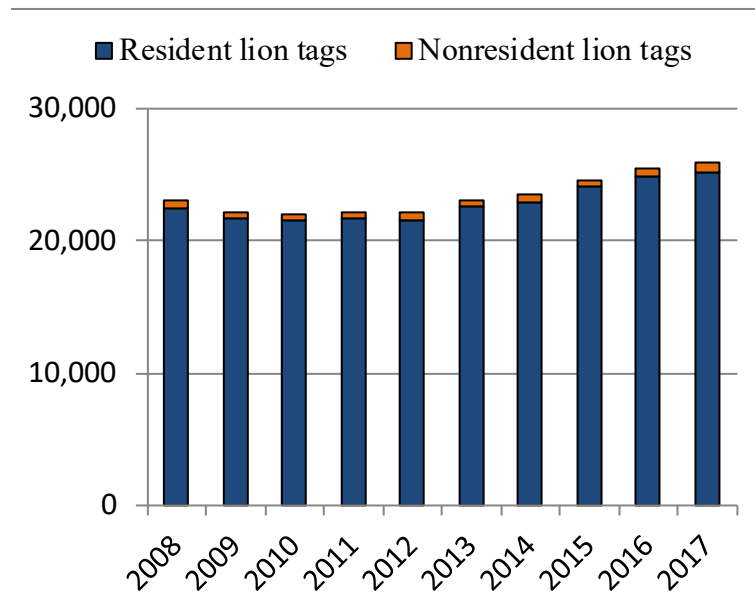


Figure 3. Mountain Lion Tag and Permit Status

PANHANDLE REGION

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

Historical Background

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 1972, more conservative management was initiated to increase the mountain lion population.

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

Prior to the 1995 season, this DAU was comprised of 3 separate areas made up of GMUs: 1-1 (GMUs 1, 2, 3, and 5), 1-2 (GMUs 4 and 4A), and 1-3 (GMUs 6, 7, and 9). Concurrent with the establishment of a single Panhandle DAU, seasons in some GMUs were extended to establish a single, DAU-wide season framework and to provide a larger annual sample size, although over a broader area.

Management Objectives

The 2002–2010 Mountain Lion Species Management Plan states that initial harvest goals will be based on maintaining harvest levels on a 3-year running average that are at or above the 3-year average harvest for the 1990–1992 big game seasons (Figure 4) 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 objective for the Panhandle DAU is to maintain a harvest of at least 61 animals. Specific objectives regarding sex and age composition of the harvest will be developed in the future.

Idaho Department of Fish & Game 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.

Capture, Radio-mark, and/or Telemetry

No mountain lions were captured and radio-marked during this reporting period in the Panhandle DAU.

Population Surveys and Monitoring

Currently mountain lion populations are monitored through hunter harvest information and mandatory big game mortality reports. There are no formal mountain lion population surveys

conducted in the Panhandle DAU. Mountain lions have been monitored incidentally on game cameras place for wolves throughout the Panhandle DAU. Additionally, game cameras were placed on elk mortalities throughout GMUs 4, 6 and 7 in 2017. Game cameras were used to confirm predation/consumption on collared elk and document behavior of mountain lions on elk mortalities.

Hunting and Harvest Characteristics

Mountain lion seasons and statewide reporting are based on state fiscal years. In 2007 the season was shortened in response to apparent high harvest rates and a concern of low lion numbers by lion hunters. The opening date was delayed 2 weeks to 15 September, resulting in a 153-day season, closing 16 February in all GMUs. In 2012, the season in GMUs 6, 7, and 9 was lengthened, starting on 30 Aug and ending 31 Mar. The seasons in GMUs 7 and 9 were further lengthened in 2013; the closing date is now 30 June. Additionally, a second mountain lion may be harvested in GMUs 4, 4A, 6, 7 and 9. In GMU 1 the season runs from 30 Aug through 16 Feb. The use of hounds is not allowed during general deer and elk rifle seasons. Electronic calls may be used in GMU 4, 4A, 6, 7 and 9. No female quotas apply in the Panhandle DAU.

Harvest in 2018 was 106 mountain lions. This is a reduction from the 2017 season of 152 lions. The highest harvest on record occurred during the 1997 harvest season when 210 mountain lions were killed. There were 59 males and 47 females harvested in 2018 in the Panhandle DAU.

The percentage of females in the harvest, generally considered an indicator of mortality rates, decreased steadily from the early 1980s through 1993. Since 2006 the percentage has varied, with a low of 38% in 2007 and a high of 52% in 2013 (Figure 4). The 3-year average is 40% females in the harvest. The 2016 season percent of females in the harvest was 36%; the lowest since 2007. In 2018 female harvest was 44%. There is currently no established threshold for this metric.

Age structure from harvested mountain lions during the 2017 and 2018 seasons were not available at the time of this report was written. The most recent 3-year average (2014–2016) of males 3 years or older was 51% in the harvest.

The percent of females over 3 years of age in the harvest has stayed relatively the same since the 2008–2010 average of 16% The 3-year average (2014–2016) of females 3 years or older was 15%.

Predation Issues

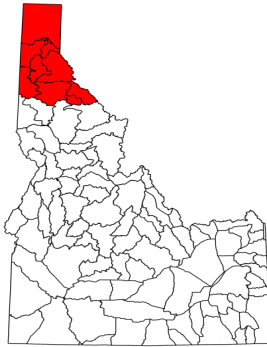
Mountain lions have been the main documented source of predation to elk calves in the Panhandle DAU. Over the winter of 2015-2016, 14% of mortality on 6-month old collared elk calves came from mountain lions in GMUs 4, 6 and 7. The winter of 2017 produced similar estimates where 16% of winter collared calf mortality was from mountain lions. Game cameras were also used to monitor prey consumption of collared elk in 2017. Elk collar and monitoring efforts will continue in the Panhandle DAU allowing staff to understand the predation rate of mountain lions on elk (within GMUs 4, 6 and 7). The amount of mountain lion mortalities on elk calves and cows during 2018 was not calculated at the time of this report.

Depredation Issues

There were 3 mountain lion depredation issues within the Panhandle DAU in 2018. These depredation issues either involved livestock kills or safety issues with landowners in urban areas. All depredation issues occurred over the months of August and September. Mountain lion sightings have increased in urban areas throughout the Panhandle DAU and developing a protocol to address depredation issues should be a priority. One mountain lion in Coeur d'Alene that was captured and euthanized during 2018, due to human safety concerns.

Management Discussion

The current mountain lion plan indicates populations will be managed to maintain a 3-year average harvest at or above the 1990–1992 average harvest except in areas where other factors or circumstances justify a different goal. The 3-year average for this DAU from 1990–1992 is 61 mountain lions. The latest 3-year average of 135 harvested lions is well above the minimum criteria and has been at or near this level for the past 8 years. The percent of adult males in the harvest has remained relatively stable over the past 5 years, but declined drastically in 2018. The percent adult females has remained relatively stable during this same time period. Idaho Department of Fish & Game will have more information to work with as new mountain lion population estimation techniques become available.



Panhandle DAW

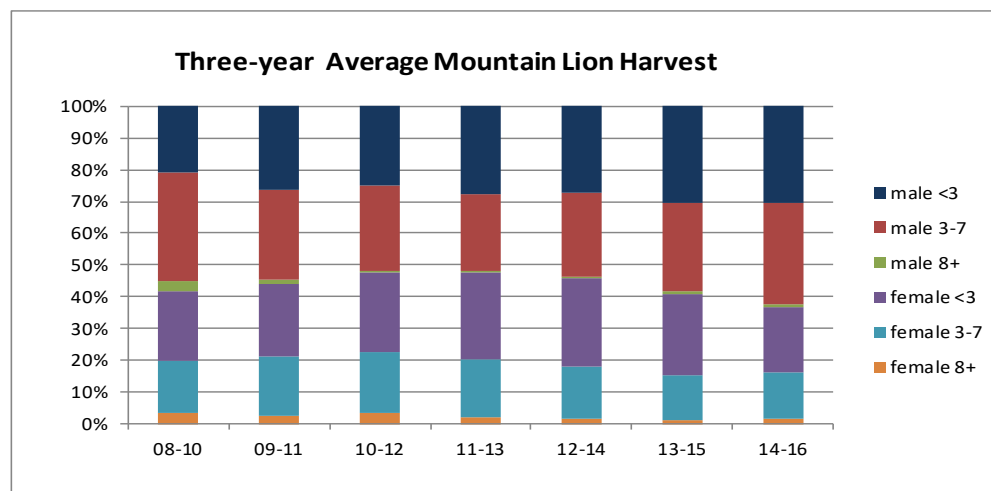
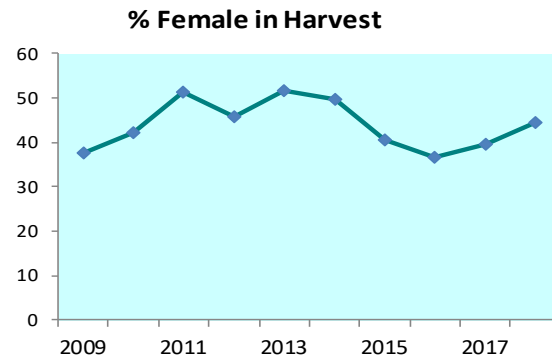
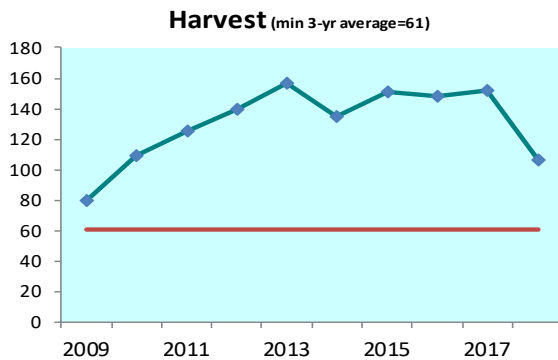
(GMUs 1, 2, 3, 4, 4A, 5, 6, 7, 9)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
7,779	Annual Harvest	135	61
	Harvest per 100 mi ²	1.7	TBD
	Males: Percent 3+ yrs*	51%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Males	Total	80	109	125	140	157	135	151	148	152	106
	0-2 years	9	27	24	38	35	37	39	43	0	0
	3-7 years	36	29	32	33	39	24	44	41	0	0
	8+ years	5	3	1	1	0	1	1	1	0	0
	Unknown	0	4	4	4	2	6	6	9	92	59
Females	Subtotal	50	63	61	76	76	68	90	94	92	59
	0-2 years	12	19	32	25	39	46	28	27	0	0
	3-7 years	9	19	18	26	30	15	22	18	0	0
	8+ years	5	0	5	4	5	0	1	3	0	0
	Unknown	4	8	9	9	7	6	10	6	60	47
	Subtotal	30	46	64	64	81	67	61	54	60	47

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 4 Panhandle DAW status and objectives

CLEARWATER REGION

Latah DAU (GMUs 8, 11A)

Historical Background

Latah DAU GMUs 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.

Management Objectives

The 2002–2010 Mountain Lion Management Plan directs IDFG to maintain lions at or near their current distribution throughout the state. Harvest goals are based on trends from past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a 3-year average. Initial harvest goals for a DAU were designed to maintain harvest levels on a 3-year running average that are at or above the 3-year average harvest for the 1990–1992 mountain lion seasons.

Biological Objectives

Management in this DAU is focused on maximizing hunter opportunity while maintaining a healthy mountain lion population. If the current mountain lion harvest objectives are met, the population will be held below carrying capacity and should exhibit a younger age structure than more lightly harvested DAUs.

Capture, Radio-mark, and/or Telemetry

While nuisance mountain lions are occasionally removed or relocated, mountain lions are not a focus of department-lead capture or collaring efforts in this DAU. We do not have any current collar or telemetry data for mountain lions in the Latah DAU.

Population Surveys and Monitoring

There is no mountain lion population monitoring efforts currently underway in the Latah DAU.

Hunting and Harvest Characteristics

Mountain lion seasons and statewide reporting are based on state fiscal years. No change occurred to season structure for mountain lions in the Latah DAU for the 2018-2019 hunting seasons. There is no dog-training season for mountain lions and no female harvest quotas in this DAU.

Mountain lion harvest in Latah DAU GMUs has historically been light, although it has increased in recent years, averaging 20 lions per season from 2016–2018. This level exceeds the 1990–1992 minimum harvest objective of 3 per year. A total of 19 lions were harvested in 2018. Harvest with hounds and incidental harvest each made up 84% of the harvest in the 2018 season.

The percentage of females in the harvest decreased steadily from the early 1980s through 1993. Since 2006, the percentage has varied between a low of 28% in 2012 and a high of 75% in 2007. The current 3-year average is 60% females in the harvest. The 2018 harvest was 58% females. There is currently no established threshold for this metric.

Age structure of harvested mountain lions from the 2018 season was not available at the time of this report. The most recent 3-year average (2014–2016) of males 3 years or older was 45% of all males harvested, approximately the same as the 2011–2013 average.

The 3-year average (2014–2016) of percent females over 3 years of age in the overall harvest was 27%.

Predation Issues

The impact of mountain lion predation on ungulate populations likely varies with the species of prey, their abundance and recent population trends, lion numbers, the types and abundance of other prey, and the type and abundance of other predators. These vary with habitat type and land use, climate and weather, and hunting pressure. Recent research on cause-specific mortality for elk calves collared in GMUs 10A and 15 of the Clearwater Region from 2017–2019 indicated that lions were one of the known primary causes of death (31% of mortalities) for calves between January 1 and May 31 along with wolves (31%), followed by malnutrition (19%), unknown predation (14%), and accident (6%).

Depredation Issues

There was one mountain lion depredation complaint in the Clearwater Region in 2018. In general, mountain lion depredations are usually minor in the Clearwater Region. In 2018 there were 9 total kill permits issued, which is a slight increase from the previous year, when 8 kill permits were issued. Taking a long-term view of the Clearwater Region, an increasing trend in lion depredations might be due to a growing urban interface with lion-occupied range and an increase in white-tailed deer populations.

Management Discussion

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 record harvest.



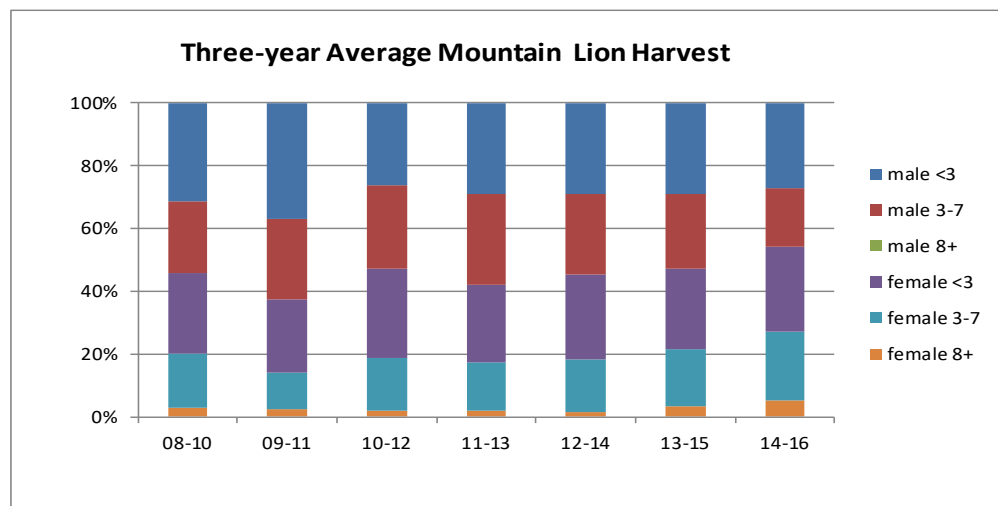
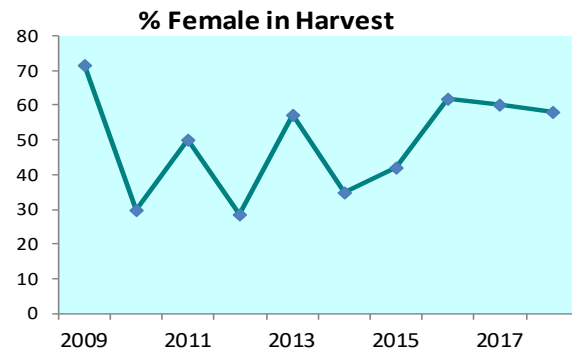
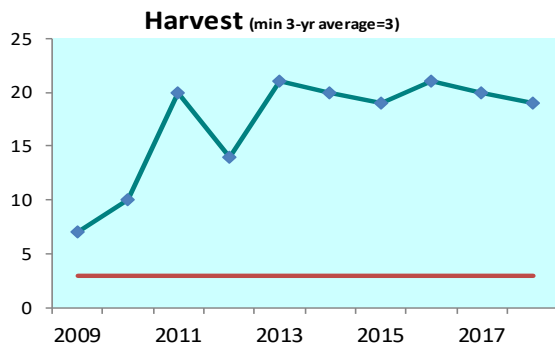
Latah DAU (GMUs 8, 11A)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
1,608	Annual Harvest	20	3
	Harvest per 100 mi ²	1.2	
	Males: Percent 3+ yrs*	41%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		7	10	20	14	21	20	19	21	20	19
Males	0-2 years	1	5	5	6	3	6	7	3	0	0
	3-7 years	1	2	5	4	5	6	3	4	0	0
	8+ years	0	0	0	0	0	0	0	0	0	0
	Unknown	0	0	0	0	1	1	1	1	8	8
	Subtotal	2	7	10	10	9	13	11	8	8	8
Females	0-2 years	1	2	6	2	7	4	4	6	0	0
	3-7 years	2	1	3	1	5	2	2	6	0	0
	8+ years	1	0	0	1	0	0	1	1	0	0
	Unknown	1	0	1	0	0	1	1	0	12	11
	Subtotal	5	3	10	4	12	7	8	13	12	11

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 5 Latah DAU status and objectives

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

Historical Background

Timberlands owned by Potlatch Corporation, Idaho Department of Lands (IDL), and U.S. Forest Service (USFS) comprise 75% of the Palouse-Dworshak DAU. 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 (GMU 8A), Clearwater River, and lower North Fork of Clearwater River (GMU 10A). Both GMUs 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.

Management Objectives

The 2002–2010 Mountain Lion Management Plan directs IDFG to maintain lions at or near their current distribution throughout the state. Harvest goals are based on trends from past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a 3-year average. Initial harvest goals for the DAU were designed to maintain harvest levels on a 3-year running average that are at or above the 3-year average harvest for the 1990–1992 mountain lion seasons.

Biological Objectives

Management in this DAU is focused on maximizing hunter opportunity while maintaining a healthy mountain lion population. If the current mountain lion harvest objectives are met, the population will be held below carrying capacity and should exhibit a younger age structure than more lightly harvested DAUs.

Capture, Radio-mark, and/or Telemetry

While nuisance mountain lions are occasionally removed or relocated, mountain lions are not a focus of department-lead capture or collaring efforts in this DAU. We do not have any current collar or telemetry data for mountain lions in the Palouse-Dworshak DAU.

Population Surveys and Monitoring

There is no mountain lion population monitoring efforts currently underway in the Palouse-Dworshak DAU.

Hunting and Harvest Characteristics

No change occurred to season structure for mountain lions in the Palouse-Dworshak DAU for the 2018-2019 hunting season. There is no dog-training season for mountain lions and no female harvest quotas in this DAU.

Mountain lion harvest in the Palouse-Dworshak DAU averaged 57 lions for the 2016–2018 seasons. Sixty-six lions were harvested during the 2018 season. This is above the 1990–1992 minimum harvest objective of 21. Harvest has been highly variable, potentially due to varied

hunting opportunity (i.e., weather conditions) between years but has generally increased since the late 2000s.

Harvest with the use of hounds accounted for 68% of the total harvest in the 2018 season. Incidental harvest made up 23% of the harvest in 2018.

The percentage of females in the harvest has varied, with a low of 34% in 2009 and a high of 61% in 2012. The 3-year average (2016–2018) was 48% females in the harvest. The 2018 season percent of females in the harvest was 53%. There is currently no established threshold for this metric.

The age structure of harvested mountain lions from the 2018 season was not available at the time of this report. The most recent 3-year average (2014–2016) of males 3 years or older was 53% of the total male harvest, a slight increase over the 2011–2013 average of 50%. The percent of females over 3 years of age in the harvest has varied between 18% and 29% of total harvest based on a running 3-year average since 2007–2009. The most recent average (2014–2016) was 21%.

Depredation Issues

There was one mountain lion depredation complaints in the Clearwater Region in 2018. In general, mountain lion depredations are usually minor in the Clearwater Region. In 2018 there were 9 total kill permits issued, which is a slight increase from the previous year, when 8 kill permits were issued. Taking a long-term view of the Clearwater Region, an increasing trend in lion depredations might be due to a growing urban interface with lion-occupied range and an increase in white-tailed deer populations.

Management Discussion

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 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 half that level. It is unclear whether the current status is a result of a population change or variable hunting conditions.



Palouse-Dworshak DAW

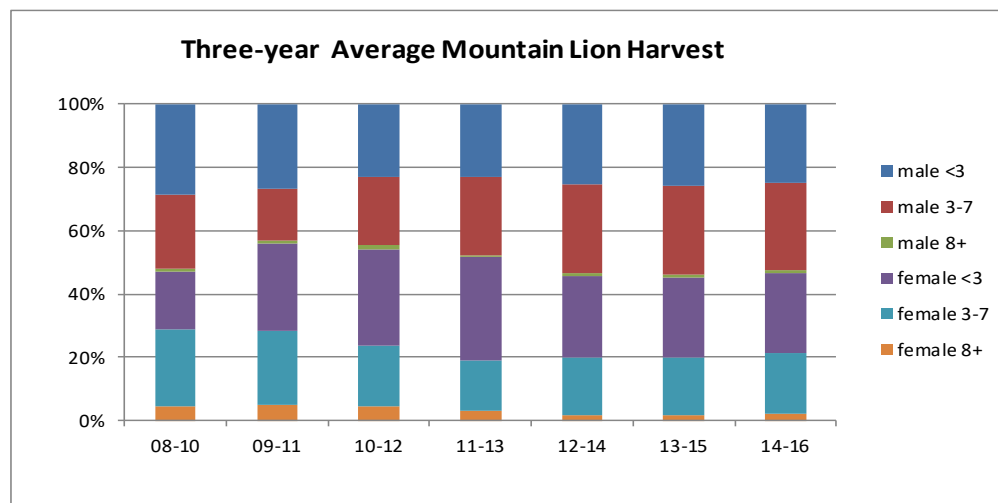
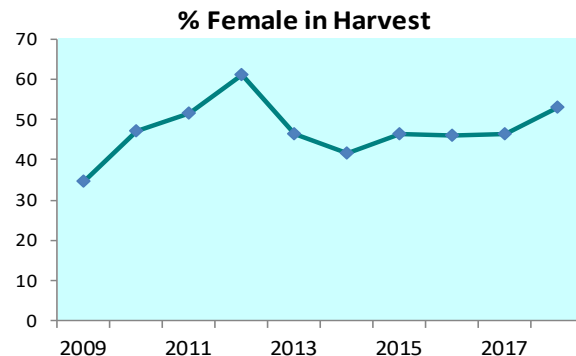
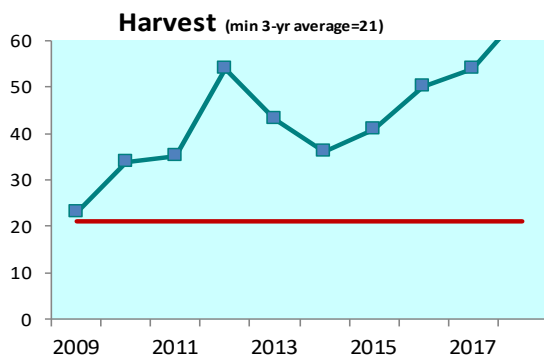
(GMUs 8A, 10A)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
2,310	Annual Harvest	57	21
	Harvest per 100 mi ²	2.5	
	Males: Percent 3+ yrs*	53%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		23	34	35	54	43	36	41	50	54	66
Males	0-2 years	6	10	9	12	8	9	12	10	0	0
	3-7 years	9	5	6	8	13	10	9	15	0	0
	8+ years	0	0	1	0	1	0	0	1	0	0
	Unknown	0	3	1	1	1	2	1	1	29	31
	Subtotal	15	18	17	21	23	21	22	27	29	31
Females	0-2 years	5	5	6	21	11	9	9	13	0	0
	3-7 years	2	10	9	8	7	5	9	8	0	0
	8+ years	1	1	2	3	1	0	1	1	0	0
	Unknown	0	0	1	1	1	1	0	1	25	35
	Subtotal	8	16	18	33	20	15	19	23	25	35

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 6. Palouse-Dworshak DAW status and objectives

Lolo DAU (GMUs 10, 12)

Historical Background

Lion hunter access to the Lolo DAU is extremely limited during winter months, except along State Highway 12 from Lowell to Lolo Pass and by snowmobile along the North Fork of the Clearwater River. Much of these 2 GMUs are difficult to access because of snow, mud, and steep, rugged terrain. Deer and elk populations throughout most of the DAU provide a considerable prey base; however, elk numbers have declined substantially over the past 2 decades. Habitat includes dense coniferous forest and mountains with relatively high precipitation. Land ownership is almost entirely public (USFS).

Management Objectives

The 2002–2010 Mountain Lion Management Plan directs IDFG to maintain lions at or near their current distribution throughout the state. Harvest goals are based on trends from past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a 3-year average. Initial harvest goals for this DAU were designed to maintain harvest levels on a 3-year running average that are at or above the 3-year average harvest for the 1990–1992 mountain lion seasons.

Biological Objectives

Management in this DAU is focused on reducing the impact of mountain lion predation on the elk herd and maximizing hunter opportunity while maintaining a healthy mountain lion population. If the current mountain lion harvest objectives are met, the population will be held below carrying capacity and should exhibit a younger age structure than more lightly harvested DAUs.

Capture, Radio-mark, and/or Telemetry

While nuisance mountain lions are occasionally removed or relocated, mountain lions are not a focus of department-lead capture or collaring efforts at this time. We do not have any current collar or telemetry data for mountain lions in the Lolo DAU.

Population Surveys and Monitoring

There is no mountain lion population monitoring efforts currently underway in the Lolo DAU.

Hunting and Harvest Characteristics

Within the Lolo DAU, the take season began at the end of August and extended through 30 June. The 2-lion bag limit in GMUs 10 and 12 and the use of electronic calls for hunting lions in GMU 12 were discontinued with the 2006 season, but reinstated in 2010. This DAU does not have a dog-training season, and there is no female harvest quota.

The remote nature and difficult access in this DAU result in a moderate harvest level. An average annual harvest of 19 lions occurred for the 2016–2018 seasons. Harvest has decreased in recent years from 25 lions harvested in 2016 to 16 and 17 harvested in 2017 and 2018, respectively. Lolo DAU hunter harvest has often been below the 1990–1992 minimum harvest

objective of 20. Since the 1990s, availability of mountain lions appears to be declining, potentially a result of the effects of substantial decreases in elk numbers over the past 2 decades and, to a lesser extent, additional lion hunting pressure from reduced nonresident tag costs and the 2-lion bag limit.

Harvest with the use of hounds accounted for 76% of the total harvest during the 2018 season. The percentage of females in the harvest has varied in recent years from a low of 27% in 2015 to a high of 55% in 2008. Females accounted for 44% of the harvest on average from 2016–2018. The 2018 season percent of females in the harvest was 47%. There is currently no established threshold for this metric.

Age structure from harvested mountain lions in the 2018 season was not available at the time of this report. The most recent 3-year average (2014–2016) of males 3 years or older was 73% of total male harvest, up from the 2011–2013 average of 59%.

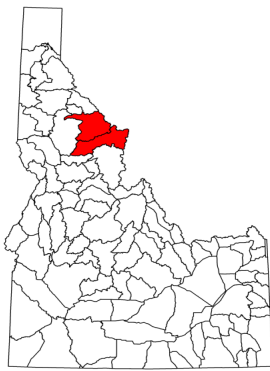
The percent of females over 3 years of age in the harvest has varied between 23% and 34% of total harvest based on a running 3-year average since 2007–2009. The most recent average (2014–2016) was 21%.

Depredation Issues

There was one mountain lion depredation complaint in the Clearwater Region in 2018. In general, mountain lion depredations are usually minor in the Clearwater Region. In 2018 there were 9 total kill permits issued, which is a slight increase from the previous year, when 9 kill permits were issued. Taking a long-term view of the Clearwater Region, an increasing trend in lion depredations might be due to a growing urban interface with lion-occupied range and an increase in white-tailed deer populations.

Management Discussion

Mountain lion harvest in the Lolo DAU averaged 17 lions per year over the past decade, with a high of 25 lions harvested in 2016 and the highest since 2007. However, recent trends followed a substantial decline in harvest since 2000, when harvest peaked at 54 lions. This decline may be an indication that efforts to increase harvest through liberal season regulations have been moderately effective, and that lion numbers have potentially adjusted to decreased prey availability. Also, anecdotal information suggests that lion hunters are less willing to turn hounds loose in areas with high wolf densities, which might account for reduced harvest since wolves became reestablished in the 2000s.



Lolo DAU

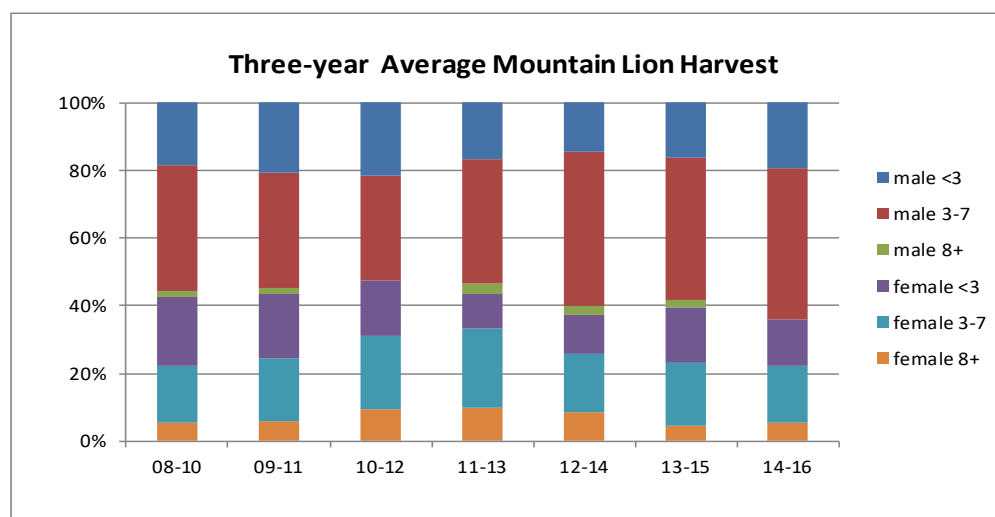
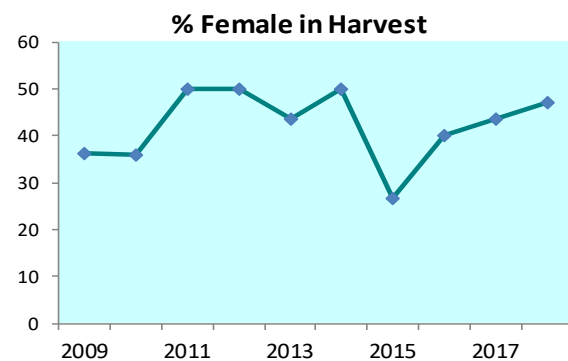
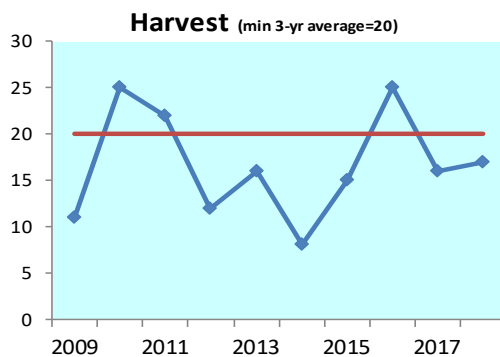
(GMUs 10, 12)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
2,396	Annual Harvest	19	20
	Harvest per 100 mi ²	0.8	
	Males: Percent 3+ yrs*	70%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Males	Total	11	25	22	12	16	8	15	25	16	17
	0-2 years	2	4	4	3	2	0	3	4	0	0
	3-7 years	5	11	4	3	6	2	8	8	0	0
	8+ years	0	1	0	0	0	1	0	0	0	0
	Unknown	0	0	3	0	1	1	0	3	9	9
Females	Subtotal	7	16	11	6	9	4	11	15	9	9
	0-2 years	2	3	6	1	0	2	2	3	0	0
	3-7 years	2	3	4	3	2	2	2	4	0	0
	8+ years	0	2	1	0	3	0	0	2	0	0
	Unknown	0	1	0	2	2	0	0	1	7	8
	Subtotal	4	9	11	6	7	4	4	10	7	8

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 7. Lolo DAU status and objectives

Hells Canyon DAU (GMUs 11, 13, 18)

Historical Background

Wildlife habitat in Hells Canyon GMUs 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. Game Management Unit 11 is mostly private land except for the Craig Mountain Wildlife Management Area (83,000 acres). Game Management Unit 13 is primarily under private ownership and is managed mostly for agriculture and livestock production. Game Management Unit 18 is two-thirds public land, mostly in the Hells Canyon Wilderness and National Recreation Area. All 3 GMUs 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.

Management Objectives

The 2002–2010 Mountain Lion Management Plan directs IDFG to maintain lions at or near their current distribution throughout the state. Harvest goals are based on trends from past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a 3-year average. Initial harvest goals for a DAU were designed to maintain harvest levels on a 3-year running average that are at or above the 3-year average harvest for the 1990–1992 mountain lion seasons.

Biological Objectives

Management in this DAU is focused on maximizing hunter opportunity while maintaining a healthy mountain lion population. If the current mountain lion harvest objectives are met, the population will be held below carrying capacity and should exhibit a younger age structure than more lightly harvested DAUs.

Capture, Radio-mark, and/or Telemetry

While nuisance mountain lions are occasionally removed or relocated, mountain lions are not a focus of department-lead capture or collaring efforts. We do not have any current collar or telemetry data for mountain lions in the Hells Canyon DAU.

Population Surveys and Monitoring

There is no mountain lion population monitoring efforts currently underway in the Hells Canyon DAU.

Hunting and Harvest Characteristics

No change occurred to season structure for mountain lions in the Hells Canyon DAU for the 2018 and 2019 hunting seasons. There is no dog-training season for mountain lions and no female harvest quotas for this DAU.

Mountain lion harvest in the Hells Canyon DAU has historically been moderate. During the 2016–2018 seasons, harvest averaged 37 lions per season, with 38 and 43 lions harvested in 2017

and 2018, respectively. This level surpassed the 1990–1992 minimum harvest objective of 15 per year.

Similar to previous years, rifle was the most common weapon used and hunting with hounds was the most common method (72%), followed by incidental harvest (19%), during the 2018 season.

The percentage of females in the harvest has varied, with a low of 29% in 2007 and 2011 and a high of 61% in 2013. The 3-year average (2016–2018) was 52% females in the harvest. The 2018 season percent of females in the harvest was 61%. There is currently no established threshold for this metric.

Age structure from harvested mountain lions in the 2018 season was not available at the time of this report. The most recent 3-year average (2014–2016) of males 3 years or older was 59% of all males in the harvest, a slight decrease from 62% for 2013–2015.

The 3-year average (2014–2016) of the percent of females over 3 years of age in the harvest was 21%, and has varied between 15% and 25% since 2007–2009 (data from 2017 and 2018 ages unavailable at this time).

Predation Issues

The impact of mountain lion predation on ungulate populations likely varies with the species of prey, their abundance and recent population trends, lion numbers, the types and abundance of other prey, and the type and abundance of other predators. These vary with habitat type and land use, climate and weather, and hunting pressure. Recent research on cause-specific mortality for elk calves collared in GMUs 10A and 15 of the Clearwater Region from 2017–2019 indicated that lions were one of the known primary causes of death (31% of mortalities) for calves between January 1 and May 31 along with wolves (31%), followed by malnutrition (19%), unknown predation (14%), and accident (6%).

Depredation Issues

There was one mountain lion depredation complaint in the Clearwater Region in 2018. In general, mountain lion depredations are usually minor in the Clearwater Region. In 2018 there were 9 total kill permits issued, which is a slight increase from the previous year, when 8 kill permits were issued. Taking a long-term view of the Clearwater Region, an increasing trend in lion depredations might be due to a growing urban interface with lion-occupied range and an increase in white-tailed deer populations.

Management Discussion

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. Wolf presence is minimal, especially in the northern portion of this DAU, which may draw hound hunters to this area, and could increase harvest in the future.



Hells Canyon DAU

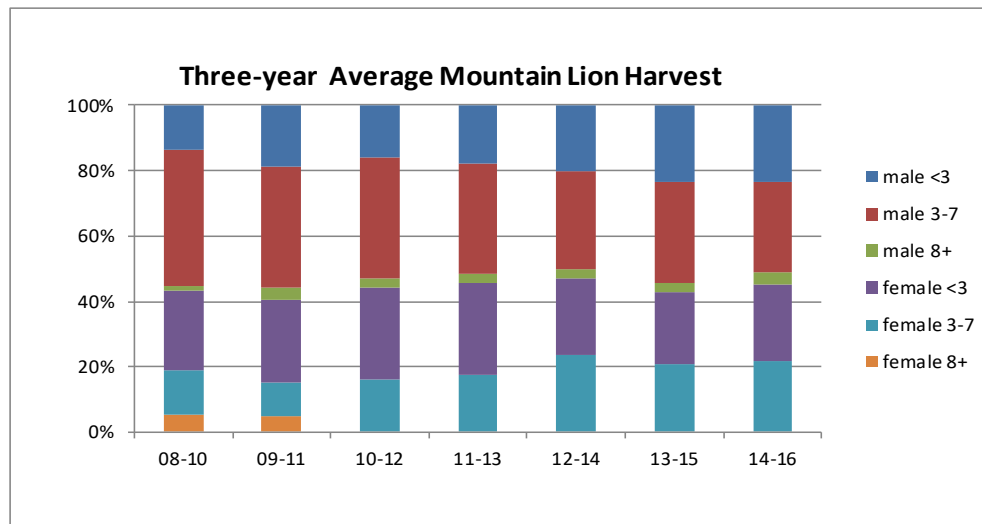
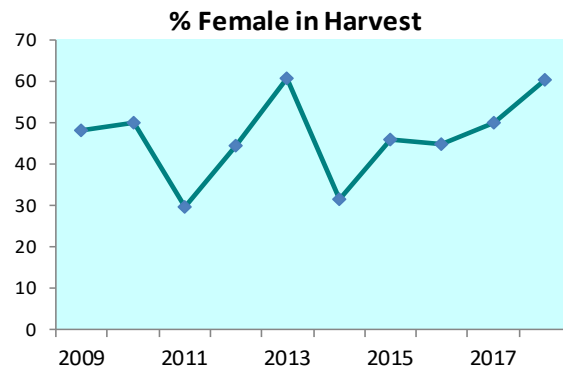
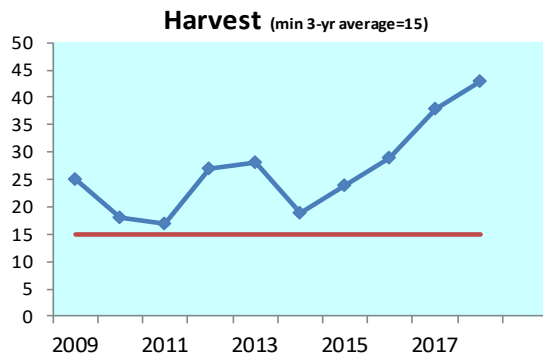
(GMUs 11, 13, 18)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
1,396	Annual Harvest	37	15
	Harvest per 100 mi ²	2.6	
	Males: Percent 3+ yrs*	57%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		25	18	17	27	28	19	24	29	38	43
Males	0-2 years	3	2	3	6	2	4	7	5	0	0
	3-7 years	10	5	9	8	8	7	4	10	0	0
	8+ years	0	1	0	1	1	0	1	1	0	0
	Unknown	0	1	0	0	0	2	1	0	19	17
	Subtotal	13	9	12	15	11	13	13	16	19	17
Females	0-2 years	8	3	3	9	7	3	5	7	0	0
	3-7 years	4	2	2	2	7	3	5	6	0	0
	8+ years	0	3	0	0	0	0	0	0	0	0
	Unknown	0	1	0	1	3	0	1	0	19	26
	Subtotal	12	9	5	12	17	6	11	13	19	26

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 8 Hells Canyon DAU status and objectives

Elk City DAU (GMUs 14, 15, 16)

Historical Background

Land ownership in Elk City DAU is 80% public and 20% private. Privately owned portions are at lower elevations along Clearwater and Salmon rivers. Approximately 8% of the DAU is 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 populations throughout most of the DAU are thriving, providing a substantial prey base; however, elk populations in GMUs 15 and 16 are likely in decline.

Management Objectives

The 2002–2010 Mountain Lion Management Plan directs IDFG to maintain lions at or near their current distribution throughout the state. Harvest goals are based on trends from past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a 3-year average. Initial harvest goals for a DAU were designed to maintain harvest levels on a 3-year running average that are at or above the 3-year average harvest for the 1990–1992 mountain lion seasons.

Biological Objectives

Management in this DAU is focused on maximizing hunter opportunity while maintaining a healthy mountain lion population. If the current mountain lion harvest objectives are met, the population will be held below carrying capacity and should exhibit a younger age structure than more lightly harvested DAUs.

Capture, Radio-mark, and/or Telemetry

While nuisance mountain lions are occasionally removed or relocated, mountain lions are not a focus of department-lead capture or collaring efforts. We do not have any current collar or telemetry data for mountain lions in the Elk City DAU.

Population Surveys and Monitoring

There is no mountain lion population monitoring efforts currently underway in the Elk City DAU.

Hunting and Harvest Characteristics

No change occurred to season structure for mountain lions in the Elk City DAU for the 2018 and 2019 hunting seasons. This DAU does not have a dog-training season and there is no female harvest quota. The northern portion of GMU 15 was closed to mountain lion harvest from 1999 through the 2003 season for research purposes. Additional hunting opportunity has been offered with a 2-lion bag limit in that portion of GMU 16 north of the Selway River since 2000.

During the 2018-2019 season, Elk City DAU hunters harvested 51 mountain lions. The 1990–1992 minimum harvest objective of 40 lions has been met since 2013. Lion harvest peaked in 1996 and has decreased since that time, although harvest has recently increased. Some of the

initial decline may be attributed to the lion harvest closure in the northern portion of GMU 15 from 1999 through the 2003 season.

Harvest with the use of hounds accounted for 90% of the harvest in 2018, followed by incidental harvest at 8%. In comparison, harvest with hounds accounted for 72% of the harvest in 2017 with incidental harvest at 26%. The percentage of females in the harvest has varied between 38% and 60% annually, with 43% of the 2018 harvest comprised of females. The 3-year average (2016–2018) was 46% females in the harvest. There is currently no established threshold for this metric.

Age structure from harvested mountain lions in the 2018 seasons was not available at the time of this report. The most recent 3-year average (2014–2016) of males 3 years or older was 56% of all males in the harvest, similar to the 2013–2015 average.

The percent of females over 3 years of age in the harvest has fluctuated between 20% and 29% since the 2006 with a current 3- year average of 22% for the 2014–2016 seasons.

Predation Issues

The impact of mountain lion predation on ungulate populations likely varies with the species of prey, their abundance and recent population trends, lion numbers, the types and abundance of other prey, and the type and abundance of other predators. These vary with habitat type and land use, climate and weather, and hunting pressure. Recent research on cause-specific mortality for elk calves collared in GMUs 10A and 15 of the Clearwater Region from 2017–2019 indicated that lions were one of the known primary causes of death (31% of mortalities) for calves between January 1 and May 31 along with wolves (31%), followed by malnutrition (19%), unknown predation (14%), and accident (6%).

Depredation Issues

In general, mountain lion depredations are usually minor in the Clearwater Region. In 2018 there were 9 total kill permits issued, which is a slight increase from the previous year, when 8 kill permits were issued. Taking a long-term view of the Clearwater Region, an increasing trend in lion depredations might be due to a growing urban interface with lion-occupied range and an increase in white-tailed deer populations.

Management Discussion

A decline in total mountain lion harvest in Elk City DAU was to be expected after the northern portion of GMU 15 was closed from 1999–2003. However, an additional drop in the Elk City 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. Also, lion hunters may have re-located hunting efforts to areas with lower wolf densities to avoid potential conflict with hounds. Annual harvest remained below the 3-year harvest goal of 40 lions until 2013, and has remained above objective since.



Elk City DAU

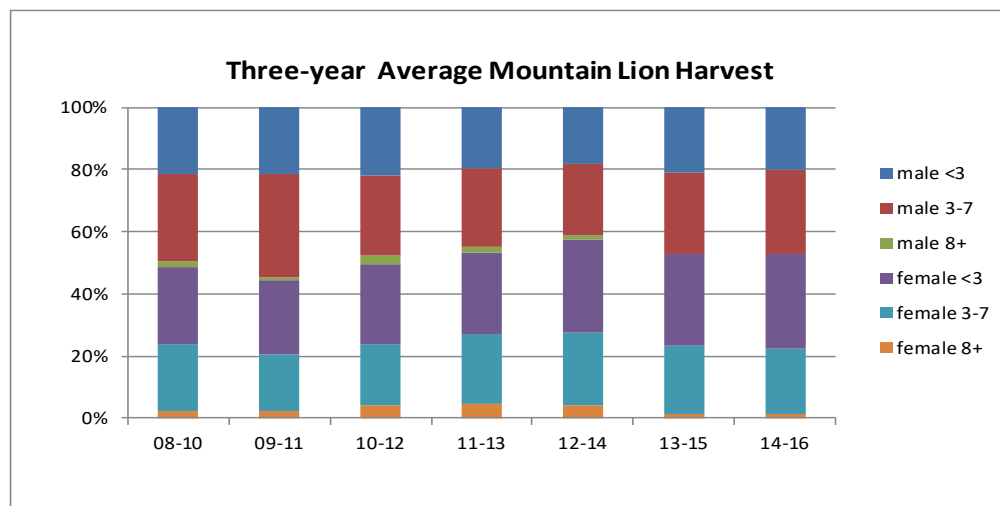
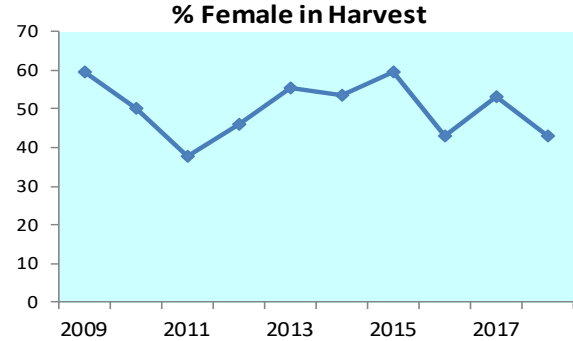
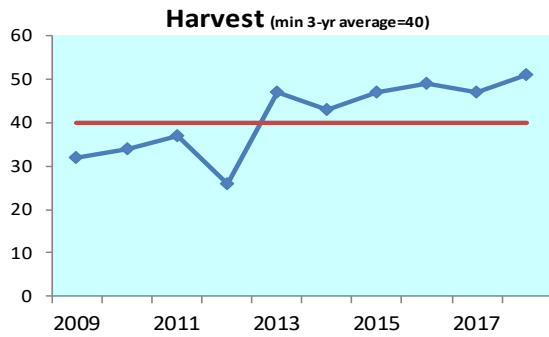
(GMUs 14, 15, 16)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
1,857	Annual Harvest	49	40
	Harvest per 100 mi ²	2.6	
	Males: Percent 3+ yrs*	57%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Males	Total	32	34	37	26	47	43	47	49	47	51
	0-2 years	6	4	10	5	7	9	7	11	0	0
	3-7 years	4	13	9	7	10	10	9	15	0	0
	8+ years	1	0	1	0	2	0	0	0	0	0
	Unknown	2	0	3	2	2	1	3	2	22	29
	Subtotal	13	17	23	14	21	20	19	28	22	29
Females	0-2 years	8	6	9	6	11	11	16	11	0	0
	3-7 years	8	7	5	4	11	9	10	9	0	0
	8+ years	1	1	0	1	3	1	1	0	0	0
	Unknown	2	3	0	1	1	2	1	1	25	22
	Subtotal	19	17	14	12	26	23	28	21	25	22

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 9. Elk City DAU status and objectives

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

Historical Background

The Selway DAU is, 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 mountain lion season. Habitat within this DAU includes 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 GMUs, the predominant ungulates are elk and mule deer.

Management Objectives

The 2002–2010 Mountain Lion Management Plan directs IDFG to maintain lions at or near their current distribution throughout the state. Harvest goals are based on trends from past harvest data, mountain lion population dynamics, harvest vulnerability, and the desired level and composition of harvest over a 3-year average. Initial harvest goals for a DAU were designed to maintain harvest levels on a 3-year running average that are at or above the 3-year average harvest for the 1990–1992 mountain lion seasons.

Biological Objectives

Management in this DAU is focused on reducing the impact of mountain lion predation on the elk herd and maximizing hunter opportunity while maintaining a healthy mountain lion population. If the current mountain lion harvest objectives are met, the population will be held below carrying capacity and should exhibit a younger age structure than more lightly harvested DAUs.

Capture, Radio-mark, and/or Telemetry

While nuisance mountain lions are occasionally removed or relocated, mountain lions are not a focus of department-lead capture or collaring efforts. We do not have any current collar or telemetry data for mountain lions in the Selway DAU.

Population Surveys and Monitoring

There is no mountain lion population monitoring efforts currently underway in the Selway DAU.

Hunting and Harvest Characteristics

Within the Selway DAU, the mountain lion take season extended from 30 August–30 June. A bag limit of 2 lions has been allowed since 2000 and electronic calls are permitted. This DAU does not have a dog-training season and nor any female harvest quotas.

Mountain lion harvest in the Selway DAU peaked in 2000 and 2001 (39 and 33, respectively), then declined to a recent 10-year average of 14 lions per year. Peak harvest was likely the result of several factors including the increased bag limit and season length, increased nonresident hound permits, outfitter efforts, and low snow pack. After peaking, harvest declined substantially in 2002 and has remained low since. Reduced harvest is likely due to a combination of factors

including a substantial decline in the elk population, fewer hunters in some areas, and reluctance to release hounds in areas with high wolf densities. During the 2018 season, Selway DAU hunters harvested 16 mountain lions. The 3-year average of 15 lions was only slightly below the 1990–1992 minimum harvest objective of 16. Because these are such large GMUs, with a moderate 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.

Harvest with the use of hounds accounted for 94% of the total harvest in 2018. The percentage of females in the harvest has varied, with a low of 38% in 2017 and a high of 80% in 2014. The 3-year average (2015–2017) was 41% females in the harvest. There is currently no established threshold for this metric.

Age structure from harvested mountain lions in the 2017 season was not available at the time of this report. The most recent 3-year average (2014–2016) of males 3 years or older was 56% of all males in the harvest, down from 68% for 2011–2013.

The 3-year average percent of females over 3 years of age in the harvest has decreased since the 2008–2010 average, declining from 40% to 29% in 2014–2016.

Depredation Issues

There were no mountain lion depredation complaints in the Clearwater Region in 2018. In general, mountain lion depredations are usually minor in the Clearwater Region. In 2018 there were 9 total kill permits issued, which is a slight increase from the previous year, when 8 kill permits were issued. Taking a long-term view of the Clearwater Region, an increasing trend in lion depredations might be due to a growing urban interface with lion-occupied range and an increase in white-tailed deer populations.

Management Discussion

The Selway DAU occupies a vast, remote area with high-quality big game range. Consequently, effects of hunting on mountain lion populations in the DAU are generally considered to be light except in those few areas with good road access or in areas where outfitters concentrate their hunting efforts.



Selway DAU

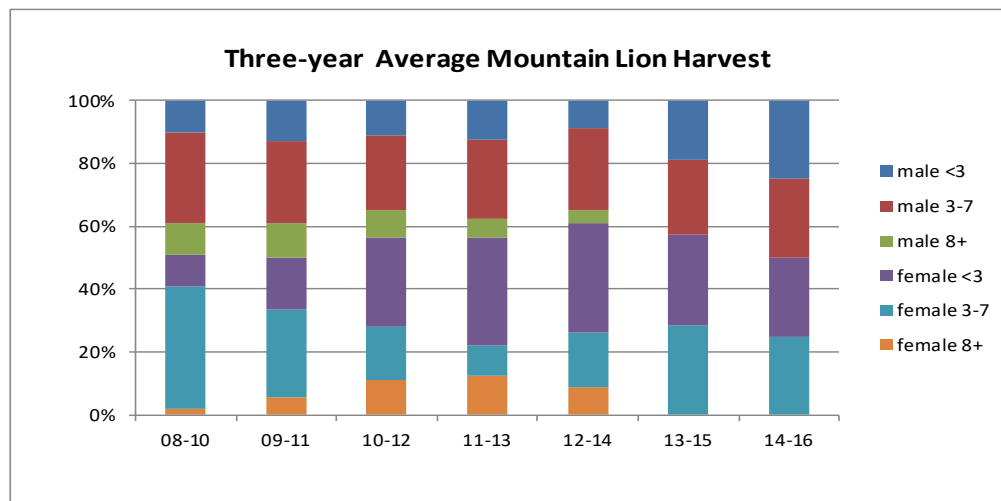
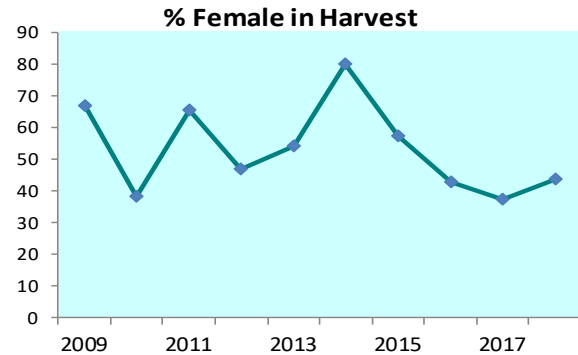
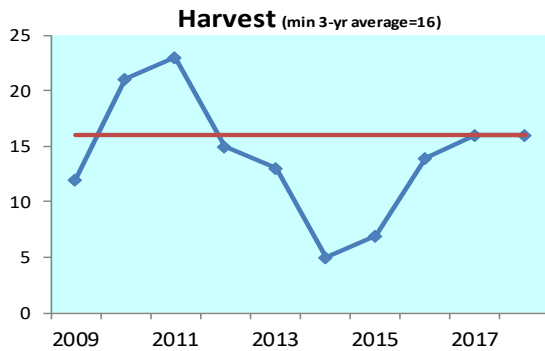
(GMUs 16A, 17, 19, 20)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
2,551	Annual Harvest	15	16
	Harvest per 100 mi ²	0.6	
	Males: Percent 3+ yrs*	50%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		12	21	23	15	13	5	7	14	16	16
Males	0-2 years	1	3	1	3	1	0	1	3	0	0
	3-7 years	3	7	4	3	4	1	1	3	0	0
	8+ years	0	3	2	1	1	0	0	0	0	0
	Unknown	0	0	1	1	0	0	1	2	10	9
	Subtotal	4	13	8	8	6	1	3	8	10	9
Females	0-2 years	1	0	4	5	4	2	2	2	0	0
	3-7 years	4	8	7	0	1	2	1	3	0	0
	8+ years	0	0	1	2	2	0	0	0	0	0
	Unknown	3	0	3	0	0	0	1	1	6	7
	Subtotal	8	8	15	7	7	4	4	6	6	7

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 10. Selway DAU status and objectives

SOUTHWEST REGION

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

Historical Information

Warren DAU is characterized by limited access and rugged topography. Most of the DAU occurs within the Frank Church River-of-No-Return Wilderness. Research data from the early 1970's (Seidensticker et al. 1973) indicate mountain lion populations in this area are self-regulating, contributing emigrating animals to surrounding GMUs. The current structure of long seasons and 2-lion bag limits in GMUs 20A, 26, and 27 were implemented in response to sportsmen's concerns about declining ungulate recruitment.

Management Objectives

Harvest objectives for the Warren DAU are designed to maintain 3-year average harvest at or above the 1990–1992 average harvest of 15 mountain lions. A female harvest quota is currently in place in GMU 25 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 the female harvest quota has been met.

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No capture, radio-marking, or telemetry occurred in the Warren DAU during the reporting period.

Population Surveys and Monitoring

No population surveys or monitoring occurred in the Warren DAU during the reporting period.

Hunting and Harvest Characteristics

Recent season changes include the extension of the take season in GMU 27 by two months (to 30 June) in the 2015 season. The use of dogs is prohibited during open firearm seasons for deer and elk in all GMUs in this DAU (Appendix A).

Eleven mountain lions (7 males, 4 females) were harvested in Warren DAU during the 2018 (Figure 11). The female quota in GMU 25 was not met in the 2018 season. The 2018 harvest was just below that for the previous 3-year average harvest (2015–2018; 11.7). The 2016–2018 average harvest of 11 is 27% below the minimum 3-year average harvest objective of 15 for this DAU. The harvest trend remains below objective.

During the 2018 season, the majority of mountain lions harvested in the Warren DAU were taken with assistance of hounds (75%).

Age data for the 2017 and 2018 harvest seasons are not yet available. Three-year average age data from the most current analyzed years (2014–2016; n=16) indicated that 50% of harvested males were in the ≥ 3 -year-old age class. The proportion of females in the harvest has varied

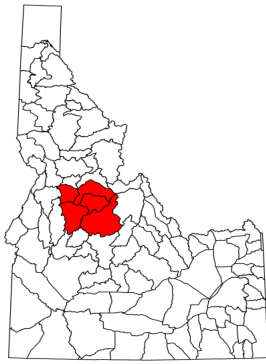
dramatically in the last 10 years (range 0% – 64%), averaging 20% over the past three years (Figure 11).

Depredation Issues

No mountain lion depredations were reported in the Warren DAU in 2018.

Management Discussion

Three-year average harvest in the Warren DAU continues to be below the minimum objective of 15, consistent with the past 10 years. The remote nature of this DAU makes it unlikely that sport harvest can regulate lion population numbers. Prey populations and competition with wolves will likely have the greatest effect on lion populations in this area.



Warren DAW

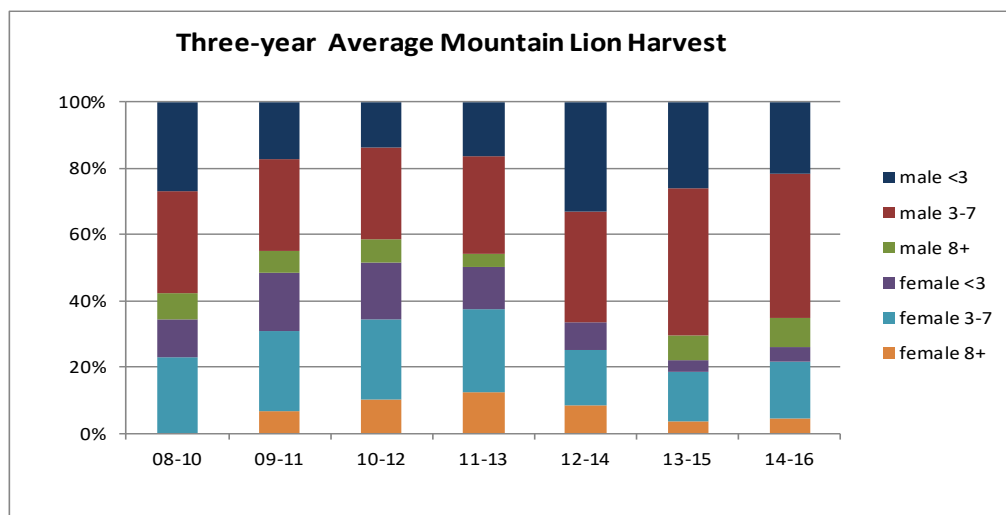
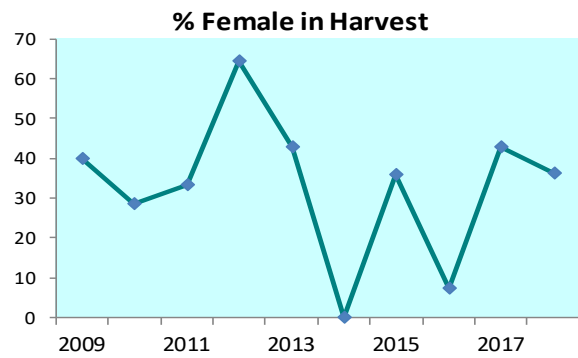
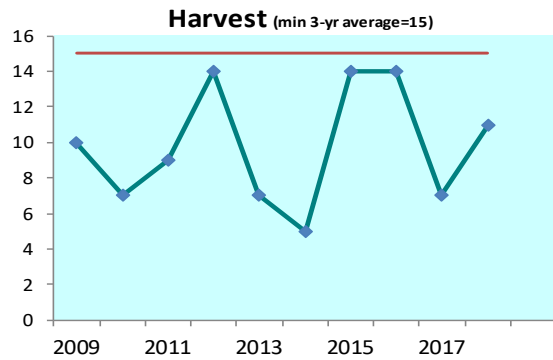
(GMEs 19A, 20A, 25, 26, 27)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
4,289	Annual Harvest	11	15
	Harvest per 100 mi ²	0.2	
	Males: Percent 3+ yrs*	71%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		10	7	9	14	7	5	14	14	7	11
Males	0-2 years	3	2	2	1	1	2	5	0	0	0
	3-7 years	2	3	3	2	3	2	3	7	0	0
	8+ years	1	0	1	1	0	0	0	2	0	0
	Unknown	0	0	0	1	0	1	1	4	4	7
	Subtotal	6	5	6	5	4	5	9	13	4	7
Females	0-2 years	0	1	2	2	1	0	1	0	0	0
	3-7 years	4	1	1	5	1	0	3	1	0	0
	8+ years	0	0	0	2	1	0	1	0	0	0
	Unknown	0	0	0	0	0	0	0	0	3	4
	Subtotal	4	2	3	9	3	0	5	1	3	4

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 11. Warren DAW status and objectives

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

Historical Background

Approximately two-thirds of the McCall DAU is in public ownership, with most land managed by the USFS. Open, scattered shrub communities at lower elevations and mixed-conifer forests at mid to upper elevations characterize the habitat. The wide valley bottoms of the upper Little Salmon River, Weiser River, and North Fork Payette River are dominated by agri-business and housing developments. Moderate to high road densities exist in most of this DAU, with lower road densities on the eastern side of the DAU.

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 McCall DAU began increasing dramatically in the early 1990s. Subsequently, lion sightings, depredation occurrences, and sportsmen concerns for impacts on ungulates increased. Conservative seasons adopted in the 1980s were modified to the more liberal seasons currently in place (Appendix A).

Management Objectives

Harvest objectives for the McCall DAU are designed to maintain 3-year average harvest levels at or above the 1990–1992 average harvest of 20 mountain lions. Female harvest quotas are currently in place in all GMUs of this DAU 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 the female harvest quota has been met.

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No capture, radio-marking, or telemetry occurred in the McCall DAU during the reporting period.

Population Surveys and Monitoring

No population surveys or monitoring occurred in the McCall DAU during the reporting period.

Hunting and Harvest Characteristics

No changes occurred to season structure for mountain lions in the McCall DAU for the 2018 seasons. The use of dogs is prohibited during open firearm seasons for deer and elk in all GMUs in this DAU (Appendix A).

Thirty-three mountain lions (17 males, 16 females) were harvested in the McCall DAU during the 2018 season (Figure 11). The female quota was not reached in any GMU during the 2018 season. The 2018 harvest was 30% below the 2017 harvest level but remains above the previous 3- year average harvest (2014–2016; 28.3). The 2016–2018 average harvest of 39 is 95% above the minimum harvest objective of 20 for this DAU. The harvest trend has been above objective for the past 9 years.

The majority of mountain lions harvested in the McCall DAU during the 2018 season were taken with assistance of hounds (90%).

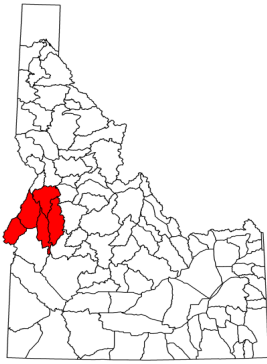
Age data for the 2017 and 2018 harvest seasons are not yet available. Three-year average age data from the most current analyzed years (2014–2016) indicated that 63% of harvested males were in the ≥ 3 -year-old age class. Percent females in the harvest averaged 40% over the last three years (2015–2017). Three-year average (2014–2016) adult female harvest (≥ 3 years old) was 50% of the total female harvest (Figure 12).

Depredation Issues

Wildlife Services reported 3 domestic livestock depredations (1 cow and 7 sheep) by mountain lions in this DAU during the reporting period.

Management Discussion

Current 3-year average harvest in the McCall DAU is above the minimum objective. 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.



McCall DAU

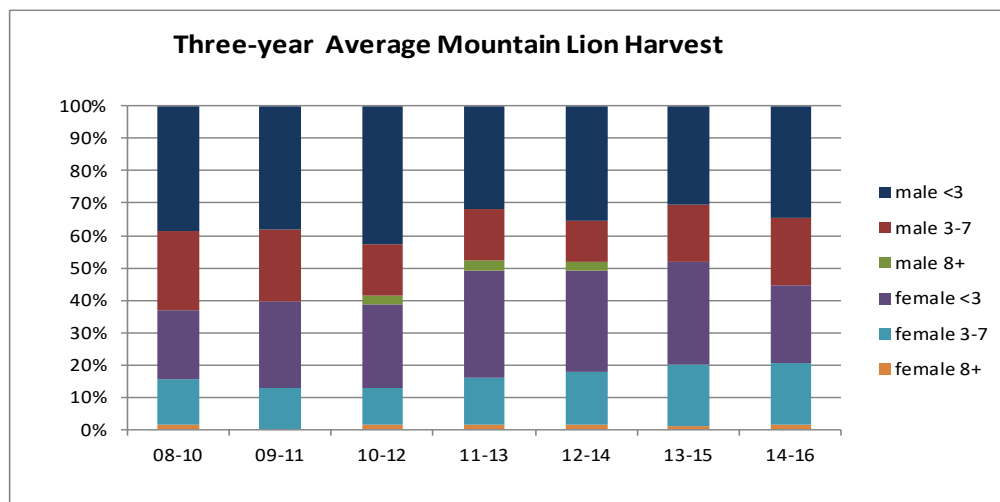
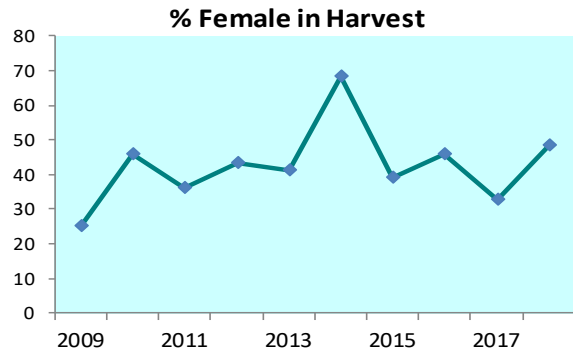
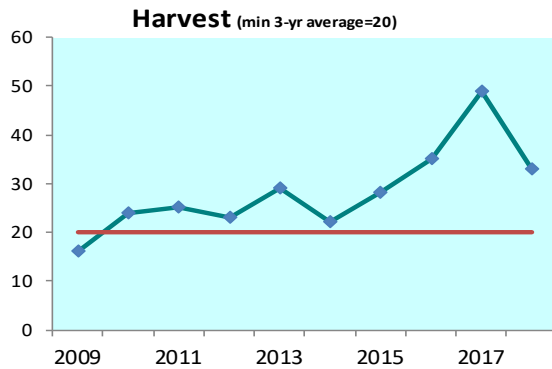
(GMUs 22, 23, 24, 31, 32A)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
3,101	Annual Harvest	39	20
	Harvest per 100 mi ²	1.3	
	Males: Percent 3+ yrs*	38%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		16	24	25	23	29	22	28	35	49	33
Males	0-2 years	6	4	12	8	10	4	12	8	0	0
	3-7 years	5	7	2	5	4	2	3	9	0	0
	8+ years	0	0	0	0	2	0	0	0	0	0
	Unknown	1	2	2	0	1	1	2	2	33	17
	Subtotal	12	13	16	13	17	7	17	19	33	17
Females	0-2 years	1	5	6	6	6	11	6	8	0	0
	3-7 years	2	4	2	2	4	4	4	7	0	0
	8+ years	1	0	0	0	1	0	0	1	0	0
	Unknown	0	2	1	2	1	0	1	0	16	16
	Subtotal	4	11	9	10	12	15	11	16	16	16

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 12 McCall DAU status and objectives

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

Historical Background

The majority of the Boise-Stanley DAU is forested public land administered by the Boise, Challis and Sawtooth National Forests. However sections of private agricultural also exist in the valley bottoms. A portion of the Treasure Valley-Idaho's largest metropolitan area-is also found in this DAU. Open, scattered shrub communities at lower elevations and mixed-conifer forests at mid to upper elevations characterize the habitat. Access within the Boise-Stanley DAU ranges from heavily roaded urban areas to roadless wilderness areas.

Lions occurred in lower densities in these GMUs in the late 1970s and early 1980s. Like lion populations in other parts of the state, lion numbers in 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 for ungulates increased. Conservative seasons adopted in the 1980s were modified to the more liberal seasons currently in place (Appendix A).

Management Objectives

Harvest objectives for the Boise-Stanley DAU are designed to maintain 3-year average harvest levels at or above the 1990–1992 average harvest of 30 mountain lions.

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No mountain lions were captured for radio marking or telemetry.

Population Surveys and Monitoring

During the winters of 2016/17 and 2017/18, IDFG assisted with a graduate study project in GMUs 33 and 35 to test the effectiveness of using remote cameras to monitor mountain lion populations. Approximately 70 trail cameras were deployed each winter on predicted elk winter range in the Garden Valley to Lowman area. Non-invasive genetic sampling of mountain lions was also conducted in the study area (biopsy darting and backtracking) with the assistance of local houndsmen and contractors, and used for comparison with the trail camera results. The data is currently being analyzed at the University of Montana.

Hunting and Harvest Characteristics

No changes occurred to season structure for mountain lions in the Boise-Stanley DAU for the 2018 season. Female harvest quotas are currently in place in these GMUs (with the exception of GMU 36) 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. GMU 36 contains higher elevation mountainous terrain and has comparatively few wintering ungulates to maintain mountain lions during winter months. The use of dogs is prohibited during open firearm seasons for deer and elk in all GMUs in this DAU (Appendix A).

Thirty-five mountain lions (20 males, 15 females) were harvested in the Boise-Stanley DAU during the 2018 season (Figure 13). The 2018 harvest was 6% above the previous 3-year average harvest (2015-2017; 33). The 2016-2018 average harvest of 35 is 17% above the minimum objective of 30 for this DAU. The overall harvest trend has been stable over the past 10 years.

The majority of mountain lions harvested in the Boise-Stanley DAU during the 2018 season were taken with assistance of hounds (62%).

Age data for the 2018 harvest season are not yet available. Three-year average age data from the most current analyzed years (2014–2016) indicated that 65% of harvested males were in the ≥ 3 -year-old age class. Percent females in the harvest averaged 45% over the last 3 years (2016–2018). Three-year average (2014–2016) adult female harvest (≥ 3 years old) was 50% of the total female harvest (Figure 13). .

Predation Issues

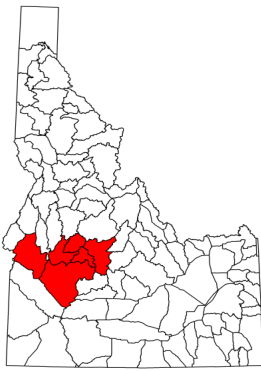
Wolves and mountain lions are the primary large predators in this area. Mountain lions in the Boise-Stanley DAU are known to prey upon mule deer and elk. Necropsy data on radio-marked deer and elk indicate mountain lion predation is likely not a population-limiting factor for ungulates in this DAU.

Depredation Issues

No mountain lion depredations on livestock were reported during this period in the Boise-Stanley DAU.

Management Discussion

Current three-year average harvest in the Boise-Stanley DAU is above the minimum objective of 30 mountain lions. Harvest trends over the past 10 years appear stable. Quotas on female lion harvest, implemented to skew lion harvest toward the male component, probably have little effect in most of the GMUs of this DAU because they are rarely reached.



Boise-Stanley DAU

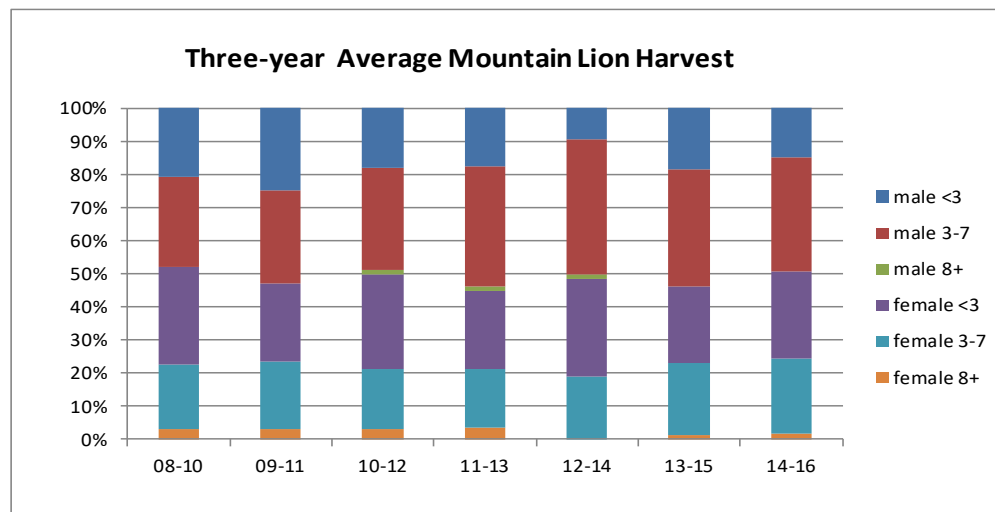
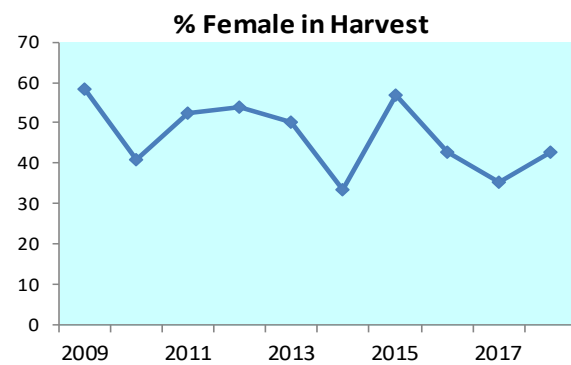
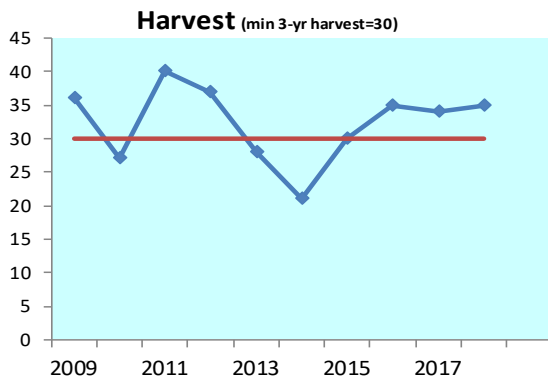
(GMUs 32, 33, 34, 35, 36, 39)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
6,489	Annual Harvest	35	30
	Harvest per 100 mi ²	0.5	
	Males: Percent 3+ yrs*	70%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Males	Total	36	27	40	37	28	21	30	35	34	35
	0-2 years	4	6	9	8	0	6	1	8	0	0
	3-7 years	8	9	8	9	12	8	10	11	0	0
	8+ years	0	0	0	0	1	0	0	0	0	0
	Unknown	3	1	2	0	1	0	2	1	22	20
Females	Subtotal	15	16	19	17	14	14	13	20	22	20
	0-2 years	11	5	11	6	10	3	9	7	0	0
	3-7 years	6	5	7	7	3	4	7	7	0	0
	8+ years	3	0	0	3	0	0	0	1	0	0
	Unknown	1	1	3	4	1	0	1	0	12	15
	Subtotal	21	11	21	20	14	7	17	15	12	15

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 13 Boise-Stanley DAU status and objectives

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

Historical Background

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 remoteness of the area and general scarcity of trees and presence of cliffs, caves, and other rocky features in parts of these GMUs make mountain lions more difficult to capture with hounds than in many other areas of Idaho. 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 GMU 41 and the Owyhee River drainage in GMU 42 prompted the initiation of research on bighorn sheep survival in the Little Jacks and Big Jacks Creek drainages in 2002. Results suggest mountain lions may have contributed to the decline of sheep in this system. The sheep population seems to have stabilized in recent years, and a study initiated in 2011 did not indicate that mountain lions were significantly impacting sheep in these GMUs.

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 GMUs 41 and 42 in 2000.

Management Objectives

Harvest objectives for the Owyhee DAU are designed to maintain 3-year average harvest levels at or above the 1990–1992 average harvest of 20 mountain lions.

The management direction for this DAU is to encourage sport harvest of mountain lions in GMUs where there is a concern about the impacts of lion predation on California bighorn sheep herds while maintaining a viable mountain lion population throughout the area. Liberal seasons are offered (Appendix A), particularly in GMUs 41 and 42, where there is some concern about the impacts of mountain lions on ungulate populations.

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No mountain lions were captured for radio marking or telemetry.

Population Surveys and Monitoring

No mountain lion surveys or monitoring were conducted during this reporting period.

Hunting and Harvest Characteristics

No changes occurred to season structure for mountain lions in the Owyhee DAU for the 2018 season. Female harvest quotas are currently in place in some GMUs (40, 46, 47) 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 (Appendix A). There has been no female quota in GMUs 41 or 42 since the 2006 season. The use of electronic calls is permitted in GMUs 41 and 42. The use of dogs is prohibited during open firearm seasons for deer and elk in all GMUs in this DAU (Appendix A).

Thirty-eight mountain lions (20 males, 18 females) were harvested in the Owyhee DAU during the 2018 season (Figure 13). No female harvest quotas were reached in the 2018 season. Harvest was 23% above the previous 3-year average harvest (2015-2017; 31). The 2016-2018 average harvest of 34 exceeds the minimum objective of 20 for this DAU. The overall harvest trend shows an increase in harvest over the past five years.

Age data for the 2018 harvest season are not yet available. Three-year average age data from the most current analyzed years (2014–2016) indicated that 50% of harvested males were in the ≥ 3 -year-old age class. Percent females in the harvest averaged 46% over the last three years (2016-2018). Three-year average (2014–2016) adult female harvest (> 3 years old) was 59% of the total female harvest (Figure 14).

The majority of mountain lions harvested in the Owyhee DAU during the 2018 season were taken with assistance of hounds (68%).

Predation Issues

Coyotes, bobcats, and mountain lions are the large predators in this area. Mountain lions in the Owyhee DAU prey on bighorn sheep, mule deer, and elk. Predation rates and effects to ungulate populations are largely unknown. Recent bighorn sheep and mule deer research and monitoring suggests mountain lion predation may be a limiting factor for some ungulate populations, but results are inconclusive at this time.

Depredation Issues

No mountain lion depredations on livestock were reported in this DAU in 2018.

Management Discussion

Current three-year average harvest in the Owyhee DAU meets the minimum objective of 20 mountain lions. Quotas on female lion harvest, implemented to skew lion harvest toward the male component, probably have little effect in most of the GMUs of this DAU because they are rarely reached.



Owyhee DAU

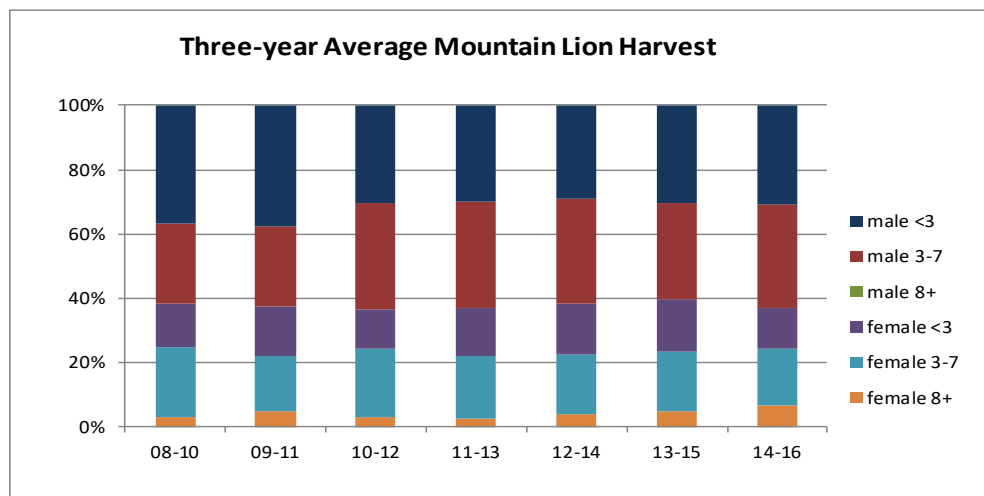
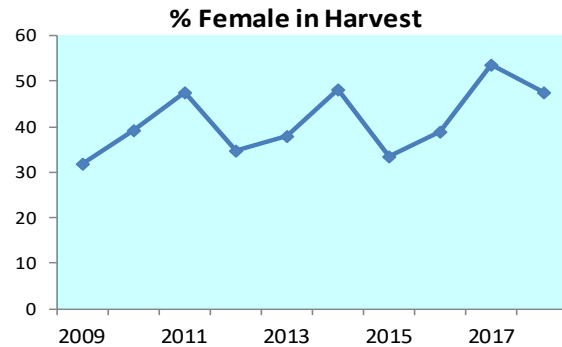
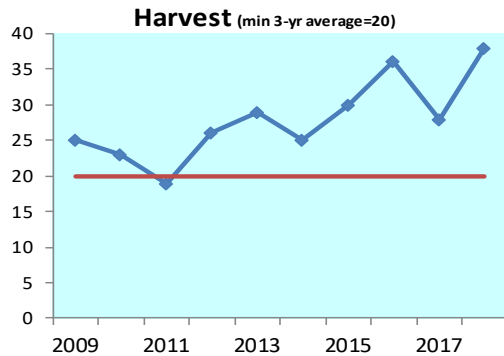
(GMUs 40, 41, 42, 46, 47)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
9,106	Annual Harvest	34	20
	Harvest per 100 mi ²	0.4	
	Males: Percent 3+ yrs*	51%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		25	23	19	26	29	25	30	36	28	38
Males	0-2 years	9	10	5	9	6	7	9	10	0	0
	3-7 years	8	4	4	8	10	6	9	11	0	0
	8+ years	0	0	0	0	0	0	0	0	0	0
	Unknown	0	0	1	0	2	0	2	1	13	20
	Subtotal	17	14	10	17	18	13	20	22	13	20
Females	0-2 years	3	3	3	4	1	6	5	3	0	0
	3-7 years	5	4	5	2	7	5	2	9	0	0
	8+ years	0	2	0	1	1	0	2	2	0	0
	Unknown	0	0	1	2	2	1	1	0	15	18
	Subtotal	8	9	9	9	11	12	10	14	15	18

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 14. Owyhee DAU status and objectives

MAGIC VALLEY REGION

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

Historical Background

Sun Valley DAU has accounted for an average of 33% of the mountain lion harvest in the Magic Valley Region over the last 10 years. Prior to 1994, most mountain lion depredations on livestock occurred in these GMUs. However, in recent years depredations have been rare.

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 Sun Valley DAU are currently limited to maintaining a 3-year average minimum harvest of 13 lions. The 3-year average harvest (2016–2018) for the Sun Valley DAU is 14 lions.

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No capture, radio-marking, or telemetry occurred during this reporting period.

Population Surveys and Monitoring

No formal mountain lion surveys were conducted during this reporting period.

Hunting and Harvest Characteristics

The season structure has remained constant in recent years with a season length of 214 days beginning 30 August (Appendix A). Fifteen mountain lions were harvested in the Sun Valley DAU during the 2018 season (Figure 15). The current 3-year average harvest of 14 lions meets the minimum objective as detailed in the 2002–2010 Mountain Lion Management Plan. The female quota of 6 lions was met for the DAU during this reporting period. This is the first time the quota has been met since the introduction of the quota in the 2004–2005 season. A quota of 9 females is being considered for future seasons. A female quota of 2 lions was initiated in 2014 for GMU 36A. This quota has not been met since its inception. There is currently no female quota in place for GMU 50.

The percentage of females in the harvest has fluctuated year to year since 2001, from a low of 7% in 2015 to a high of 67% in 2012. The overall average for the last 18 years has been 40%. The percent females in the harvest was at 55% and 50% for the last 2 years. The 3-year mean percent of adult lions in the harvest has varied from a low of 50% from 2003–2005, to a peak of 82% from 2007–2009. The 3-year mean remained in the high 70% range until dropping to the mid-40s in the last three years. The 3-year average of adult males ≥ 3 year of age (2014–2016) is 57% (Figure 15). Age data for 2017 & 2018 are not available at this time.

Predation Issues

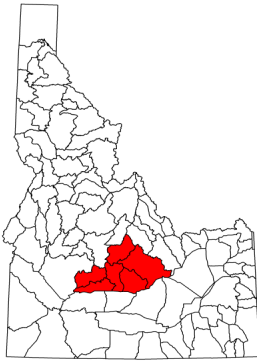
Coyotes, bobcats, black bear, gray wolf, and mountain lions are the large predators in this area. Mountain lions in the Sun Valley DAU prey on mule deer and elk. Predation rates and effects to ungulate populations are unknown.

Depredation Issues

Mountain lion depredations are uncommon in the Sun Valley DAU with an average of <1 depredation per year since 2000. Wildlife services reported that there were 2 lion depredations on cattle in GMU 49 during the month of July 2016. In February of 2017 a mountain lion killed 21 pregnant ewes in the Macon Flat area.

Management Discussion

Total harvest in this DAU remains relatively stable, with a peak of 22 in 2007 and a subsequent low of 6 in 2013. The 3-year average of 14 lions meets the minimum harvest objective for this DAU. The recent trend indicates an increasing proportion of adults in the harvest. This may indicate a lack of immigration into the population as a result of relatively high densities. The number of lion sightings and incidents with pets in the Wood River Valley has increased over the last 3 years, including repeated reports of lions in and around Friedman Airport (Hailey) and within neighborhoods throughout the valley. Most of these encounters occur during the winter months as mule deer and elk numbers increase in the valley bottom. Coincidentally, the number of lion sightings in urban and rural residential areas during the summer and fall has also increased.



Sun Valley DAU

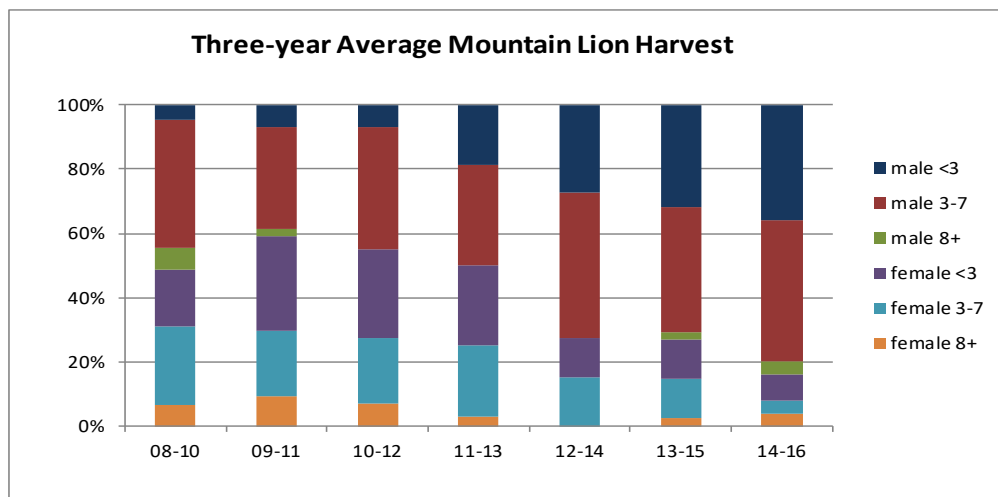
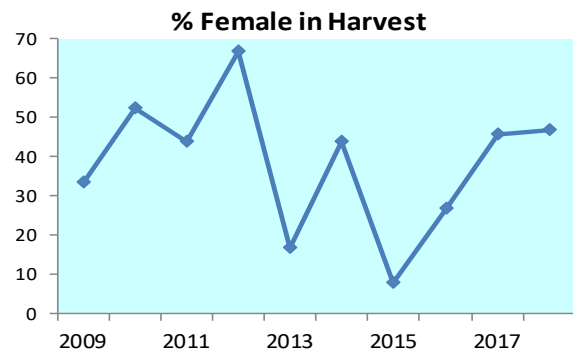
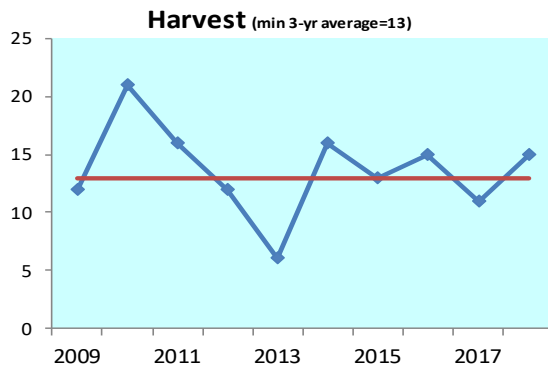
(GMUs 36A, 43, 44, 48, 49, 50)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
5,114	Annual Harvest	14	13
	Harvest per 100 mi ²	0.3	
	Males: Percent 3+ yrs*	57%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		12	21	16	12	6	16	13	15	11	15
Males	0-2 years	1	1	0	2	0	4	5	4	0	0
	3-7 years	5	7	6	1	4	5	6	5	0	0
	8+ years	2	1	0	0	0	0	0	1	0	0
	Unknown	0	1	3	1	1	0	1	1	6	8
	Subtotal	8	10	9	4	5	9	12	11	6	8
Females	0-2 years	0	5	3	5	0	3	1	1	0	0
	3-7 years	4	4	3	2	1	4	0	1	0	0
	8+ years	0	2	1	1	0	0	0	1	0	0
	Unknown	0	0	0	0	0	0	0	1	5	7
	Subtotal	4	11	7	8	1	7	1	4	5	7

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 15. Sun Valley DAU status and objectives

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

Historical Background

The Oakley DAU has accounted for an average of 66% of the mountain lion harvest in Magic Valley Region during the last 10 years. GMU 54 consistently has the highest annual mountain lion harvest of any GMU in the region.

Most of the GMUs within this DAU have had female quotas since the 1980s. As such, female harvest has generally been very conservative. However, it should be noted that female quotas increased regularly during the early 1990s, and regrouping of GMUs has taken place numerous times. There is currently a quota of 6 females each for GMUs 54 and 55. Increasing the quota to 9 female lions for each GMU was implemented for the 2019 season. A historical perspective of female quotas and grouping of GMUs can be found in the 2001–2002 report.

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 Oakley DAU are currently limited to maintaining a 3-year average minimum harvest of 12 lions. The 3-year average harvest for 2016–2018 for the Oakley DAUs is 38 lions.

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No capture, radio-marking, or telemetry occurred during this reporting period.

Population Surveys and Monitoring

From 1987 to 2000 researchers from Idaho State University evaluated mountain lion population trends in southeastern Idaho (GMUs 55 and 57) and northeastern Utah. Predictably, the long-term study found that mountain lion numbers, particularly the number of juveniles, fluctuated in response to variations in mule deer populations.

No surveys or monitoring were conducted during this reporting period.

Hunting and Harvest Characteristics

The season structure has remained constant in recent years with a season length of 214 days beginning 30 August (Appendix A). The female quota of 6 lions was not met in any GMU in the DAU during this reporting period. Thirty-five mountain lions were harvested in the Oakley DAU during the 2018 season. These levels exceeded the 1990–1992 minimum harvest objective of 12 (Figure 16).

Total lion harvest has remained relatively stable over the past 10 years, with the exception of 2015 and 2016 when harvest increased 36%. The 3-year average of male lions ≥ 3 year of age

(2014-2016) was 53%. Ages for 2017 and 2018 were not available. Males continue to constitute the majority of the mountain lion harvest in this DAU (Figure 16).

Predation Issues

Coyotes, bobcats, and mountain lions are the large predators in this area. Mountain lions in the Oakley DAU prey primarily on mule deer. Elk occur throughout the DAU and a small population of bighorn sheep has been established in GMU 55. Mountain lions prey on both but likely to a lesser extent. Predation rates and effects to ungulate populations are largely unknown.

Depredation Issues

Mountain lion depredations are uncommon in the Oakley DAU with an average of <1 depredation per year since 2000. There were no depredations during this reporting period.

Management Discussion

Current harvest strategies in this DAU resulted in slightly decreased annual harvest from 1997 through 2000, but annual harvest has remained relatively unchanged through 2014, and still well above the minimum objective of 12. The increased harvest observed in 2015 and 2016 may be indicative of an increasing mountain lion population. The distribution of males and females in the harvest fluctuated in the late 1990s through the mid-2000s. However, these fluctuations have moderated over the past 5 years. In general, males have comprised the majority of the harvest; indicative of light harvest pressure. Reevaluating mountain lion trends in response to the reintroduction (bighorn sheep) and proliferation (elk) of alternative prey species could provide valuable information for future management.



Oakley DAU

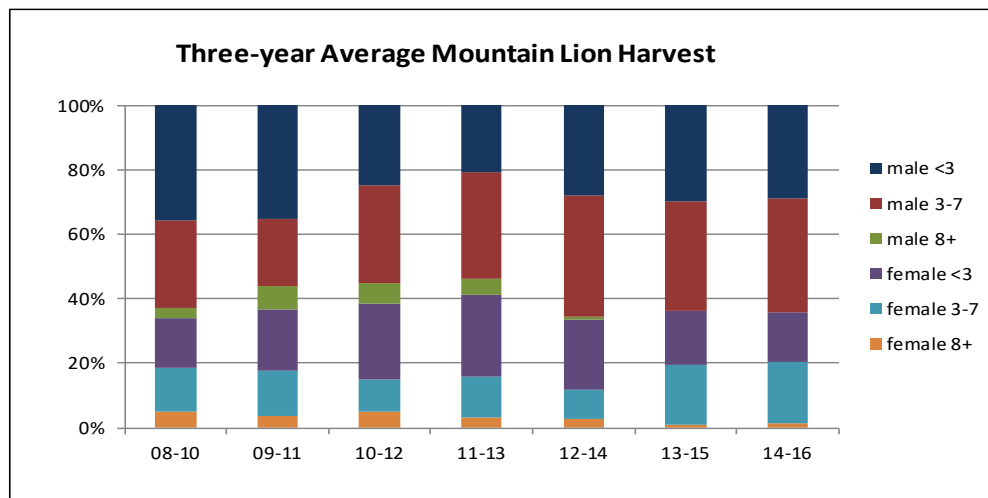
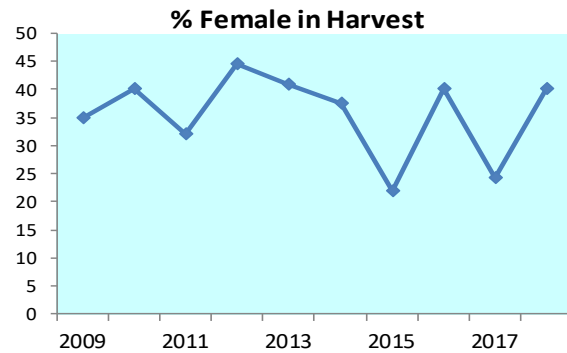
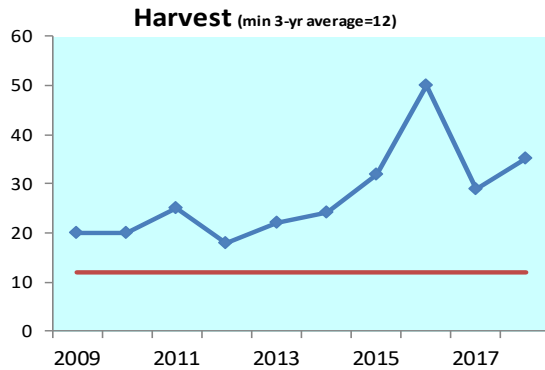
(GMUs 54, 55, 56, 57)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
3,675	Annual Harvest	38	12
	Harvest per 100 mi ²	1.0	
	Males: Percent 3+ yrs*	55%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Males	Total	20	20	25	18	22	24	32	50	29	35
	0-2 years	3	8	10	2	3	8	10	11	0	0
	3-7 years	9	3	4	5	9	7	12	14	0	0
	8+ years	0	1	1	2	1	0	0	0	0	0
	Unknown	1	0	2	1	0	0	3	5	22	21
	Subtotal	13	12	17	10	13	15	25	30	22	21
Females	0-2 years	3	3	3	5	6	5	5	6	0	0
	3-7 years	3	3	2	3	1	4	2	12	0	0
	8+ years	1	1	1	0	2	0	0	1	0	0
	Unknown	0	1	2	0	0	0	0	1	7	14
	Subtotal	7	8	8	8	9	9	7	20	7	14

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 16 Oakley DAU status and objectives

SOUTHEAST REGION

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

Historical Background

The mountain lion was first classified as a big game species in Idaho in 1972. Mountain lion tags have been required since 1975. Mountain lion numbers are believed to have been low in the Southeast Region during the 1950s and 1960s when annual harvest in eastern Idaho averaged from 2 to 4 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 from 1999–2000, the region was divided into a west district (GMUs 70, 71, 73, 73A, 74) and an east district (GMUs 66A, 72, 75, 76, 77, 78) with a female harvest quota for each district. In 1999, GMU 74 was moved from the western to eastern quota district. Quotas varied from 2 females per district to 15 in the west and 5 in the east district.

GMU's 70, 71, 73, and 73A 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 compared to adjacent 'control' GMU's with lower harvest levels (Hurley et al. 2011).

Due to pressure from sportsmen's groups and a commitment to the Mule Deer Initiative, IDFG initiated a general lion season with no female quotas across the Southeast Region for the 2005–2009 mountain lion seasons. Starting for the 2010 Big Game Season, a female quota of 22 was established for the entire southeast region which includes GMUs from the Pocatello DAU (70, 71, 72, 73, 73A, 74), the Snake River DAU (68, 68A), and the Bear Lake-Palisades DAU (66A, 75, 76, 77, 78). Starting in 2017, the regional quota of 22 was divided into 4 clusters of GMUs to better align with DAUs and to distribute harvest more equitably. The female quota was removed from GMUs 68 and 68A. GMUs 76 and 66A had a quota of 5 females. GMUs 75, 77, and 78 had a female quota of 4 females. GMUs 71, 72, and 74 had a female quota of 5 females. Lastly, GMUs 70, 73, and 73A had a female quota of 8 females.

Mountain lion harvest opportunity within the southeast region ceases once the female quota has been reached or at the closing date for that hunting season, whichever occurs first. If the female quota is reached prior to the closing date, pursuit-only opportunity is allowed until the close of the season. It is mandatory that all mountain lions harvested by hunters are checked and pelts tagged by IDFG. Harvest data and characteristics are taken from these mandatory checks.

Management Objectives

Idaho Department of Fish & Game'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.

Biological Objectives

The current Mountain Lion Management Plan states that initial harvest goals will be to maintain the harvest level on a 3-year running average at or above the 3-year average harvest for the 1990–1992 big game seasons (6 lions).

Capture, Radio-mark, and/or Telemetry

No capture, radio-marking, or telemetry was conducted during this reporting period.

Population Surveys and Monitoring

No population surveys or monitoring occurred during this reporting period.

Hunting and Harvest Characteristics

The fall 2018–spring 2019 mountain lion take season was from 30 August through 31 March (Appendix A). Dogs remained prohibited from 1 October to 30 November in all of the Pocatello DAU. The female harvest quota was previously set at 22 for the entire Southeast Region. However, for the 2017–2018 big game seasons the regional quota of 22 was divided into 4 clusters of GMUs to better align with DAUs and to distribute harvest more equitably. In the Pocatello DAU GMUs 71, 72, and 74 had a female quota of 5 females, and GMUs 70, 73, and 73A had a female quota of 8 females. GMU 69 is in the Upper Snake Region and does not have a female quota.

Reported harvest of lions from the Pocatello DAU for the fall 2018–spring 2019 season was 42; 27 males and 15 females (Figure 17). Hound hunting comprised 67% of the harvest this reporting period. Incidental harvest (generally lions taken while deer or elk hunting), still/stalk, and predator calling accounted for the remainder.

The 3 year average (2015–2017) of male's ≥ 3 year of age was 48.5%. Ages were not available for 2018 at the time of this report.

Predation Issues

Mountain lions are the dominant predator of ungulates in southeast Idaho. Current research and data do not suggest that predation by lions is the limiting factor for ungulates. Monitoring predation by lions, as well as other predators, on ungulate populations will continue to be an important factor for wildlife managers to consider.

Depredation Issues

Wildlife Services responds to mountain lion depredation issues in concert with IDFG. No mountain lion was removed by Wildlife Services during the reporting period.

Management Discussion

During the period 1981–1990, the annual harvest of mountain lions in Southeast Idaho was low (0–10). Seventeen mountain lions were reported harvested in 1990, prompting the establishment

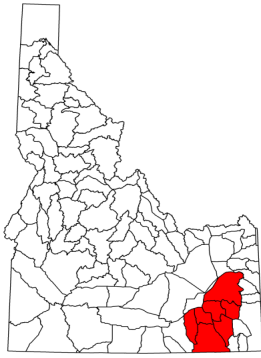
of a female quota beginning in 1991. As the quotas gradually increased during the 1990's, the harvest increased significantly, reaching a high of 94 in 1998.

Male/female ratios in the harvest have generally ranged between 1:1 and 2:1. Females comprised 35.7 % of the harvest in fall 2018–spring 2019. 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. Idaho Department of Fish & Game 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. Increased lion harvest did show some short term positive effect on deer survival, but did not indicate any change in population trends (Hurley et. al. 2011).

Continuing concern for the Southeast Region's mule deer herd resulted in the removal of the female harvest quota in previous years. This, however, generated concern among lion hunters regarding healthy lion populations and opportunities for future trophy lion hunting.

During the season setting process in the spring of 2010, lion hunter comments unanimously favored some form of protection for the female portion of the lion population. As a result, in an effort to compromise between the lion hunting and mule deer hunting publics, a region wide female lion harvest quota was set at 22 females. However, in 2016 and 2017 the female quota was reached before the end of the take season with harvest inequitably distributed across the region. This prompted a division of the female quota amongst smaller clusters of GMUs for the 2017 and 2018 big game seasons to more equitably distribute female harvest from year to year.



Pocatello DAU

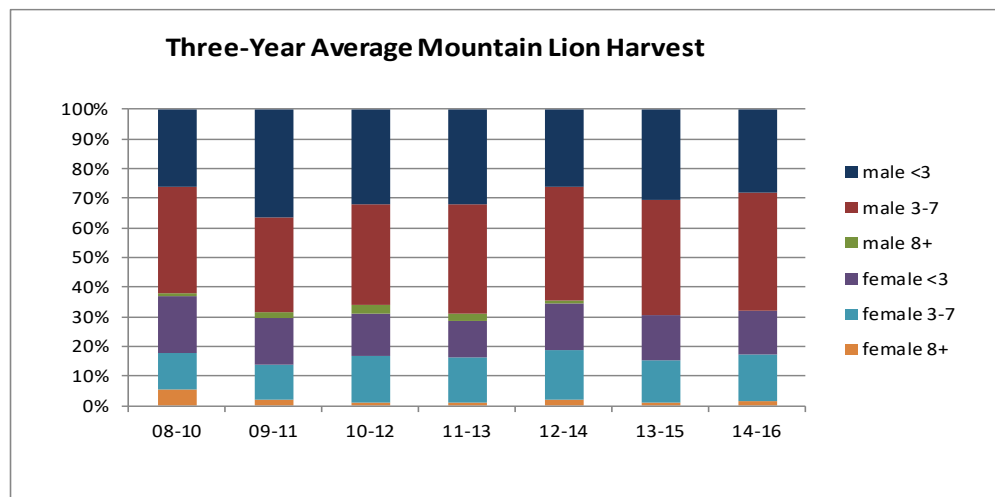
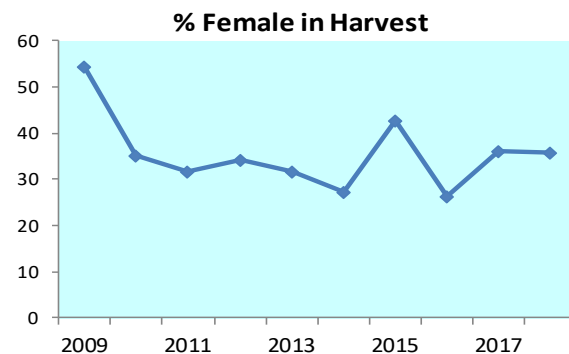
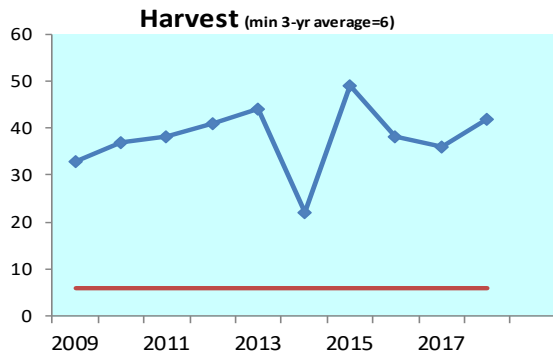
(GMUs 69, 70, 71, 72, 73, 73A, 74)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
5,241	Annual Harvest	39	6
	Harvest per 100 mi ²	0.7	
	Males: Percent 3+ yrs*	59%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Males	Total	33	37	38	41	44	22	49	38	36	42
	0-2 years	2	10	13	14	7	7	11	10	0	0
	3-7 years	11	13	10	9	17	6	14	16	0	0
	8+ years	0	0	1	1	1	0	0	0	0	0
	Unknown	2	1	2	3	5	3	3	2	23	27
	Subtotal	15	24	26	27	30	16	28	28	23	27
Females	0-2 years	6	5	7	4	4	3	8	3	0	0
	3-7 years	5	2	5	5	7	1	8	4	0	0
	8+ years	3	2	0	0	1	0	1	0	0	0
	Unknown	4	4	0	5	2	2	4	3	13	15
	Subtotal	18	13	12	14	14	6	21	10	13	15

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 17. Pocatello DAU status and objectives

UPPER SNAKE REGION

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

Historical Background

In general, these GMUs have marginal lion habitat, lack year-round prey sources, and lie on the margins of areas with established lion populations. Lion presence tends to be occasional transient lions from other areas having established territorial lion populations.

Management Objectives

Specific objectives regarding sex and age composition of the harvest have not been developed for this DAU. Objectives are to maintain harvest at or above the 1990–1992 average harvest level of 1.5 mountain lions as specified in the 2002–2010 Mountain Lion Management Plan. From 2015–2017, harvest averaged 12 lions per year. This level is 8 times higher than the 1990–1992 minimum harvest objective.

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No activities meeting these criteria occurred in the Snake River Plain DAU for this reporting period.

Population Surveys and Monitoring

Population monitoring consisted of monitoring trends in harvest demographics (sex and age obtained from tooth cementum analysis) via mandatory checks of all harvested bears.

Hunting and Harvest Characteristics

Hunting seasons have varied from closed to 214 days with some having female quotas and others with no female quotas; however, none of these GMUs have had female quotas since the 2004 harvest season (Appendix A).

Ten mountain lions (5 males, 5 females) were harvested in the Snake River Plain DAU in 2018. Two were harvested using hounds and 8 were incidental take. Harvest has varied from 2 to 16 for the 1994–2018 seasons and has also varied from all male to all female. Age data for the 2017 and 2018 harvest seasons are not yet available. The 3 year average from the most current age data available (2014–2016) indicated that males ≥ 3 years old compromised 44% of the male harvest. Female harvest compromised 58% of the total harvest over the last three years (2016–2018).

Predation Issues

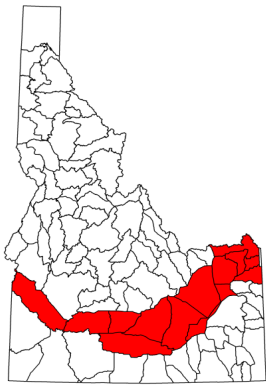
Predation by mountain lions is not a limiting factor for ungulate populations in the Snake River Plain DAU.

Depredation Issues

No lion depredation complaints were verified during this reporting period.

Management Discussion

GMUs included in this DAU are managed by the Southwest (GMU 38), Magic Valley (GMUs 45, 52, 52A, and 53), Upper Snake (GMUs 60, 60A, 61, 62, 62A, 63, and 63A) and Southeast (GMUs 68 and 68A) regions. As stated in the historical section, this DAU is a population sink area for several adjacent areas that act as source populations for lions harvested in this DAU. Prior to 2004, hunting season restrictions varied between these administrative regions. As of 2009 it varies again with a female quota of 22 spread throughout the Southeast region's GMUs. Hunter access, winter conditions, and vulnerability of lions to harvest also vary throughout this DAU. Therefore, it is 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. Individual regions, especially Magic Valley Region, will need to monitor harvest for their GMUs to ensure it is consistent with local public desires.



Snake River Plain DAU

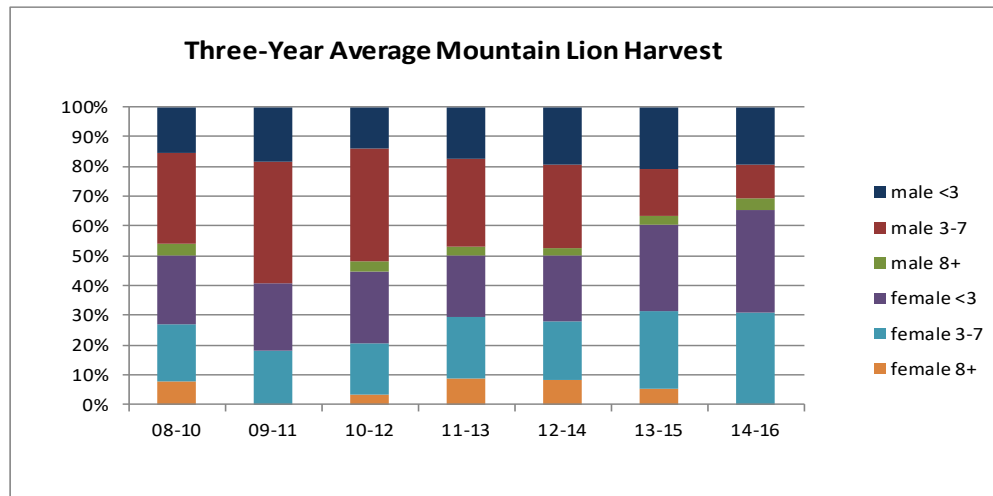
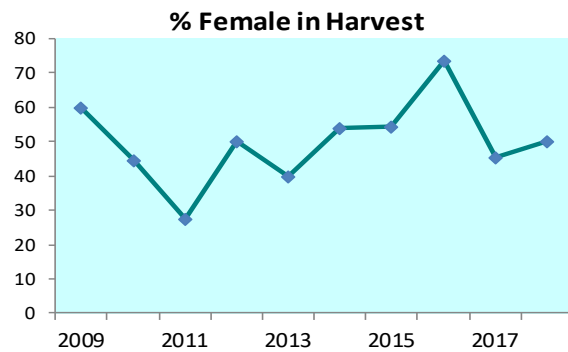
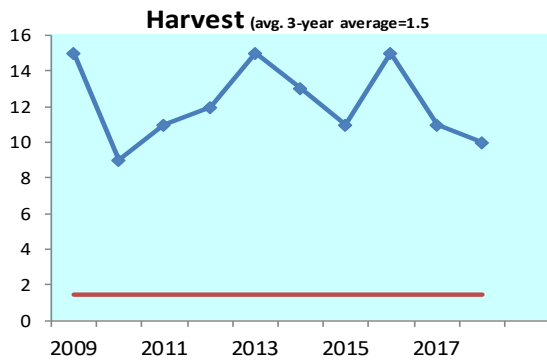
(GMUs 38, 45, 52, 52A 53, 60, 60A, 61, 62, 62A, 63, 63A, 68, 68A)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
15,316	Annual Harvest	12	1.5
	Harvest per 100 mi ²	0.1	
	Males: Percent 3+ yrs*	44%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		15	9	11	12	15	13	11	15	11	10
Males	0-2 years	2	1	1	2	1	3	3	2	0	0
	3-7 years	1	3	4	2	5	3	2	1	0	0
	8+ years	1	0	0	0	1	0	0	1	0	0
	Unknown	2	1	3	2	2	0	0	0	6	5
	Subtotal	6	5	8	6	9	6	5	4	6	5
Females	0-2 years	3	1	2	2	3	2	3	6	0	0
	3-7 years	4	1	0	3	2	2	3	5	0	0
	8+ years	2	0	0	0	1	2	0	0	0	0
	Unknown	0	2	1	1	0	1	0	0	5	5
	Subtotal	9	4	3	6	6	7	6	11	5	5

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 18 Snake River Plain DAU status and objectives

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

Historical Background

The mountain lion was first classified as a big game species in Idaho in 1972. Mountain lion tags have been required since 1975. 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 eastern Idaho and the concern for depredations has and will probably continue to influence mountain lion populations and management. This DAU lies along the Idaho-Wyoming state line from the Teton Valley south to the Utah state line and is managed by both Upper Snake (GMUs 64, 65, 66, and 67) and Southeast (GMUs 66A, 75, 76, 77, and 78) regions.

Management Objectives

Specific objectives regarding sex and age composition of the harvest have not been developed for this DAU. The current Mountain Lion Management Plan states that initial harvest goals will be to maintain the harvest level on a 3-year running average at or above the 3-year average harvest for the 1990–1992 big game seasons. From 2015–2017, harvest averaged 36 lions per year. This level is 6 times higher than the 1990–1992 minimum harvest objective of 6 lions.

Biological Objectives

The current Mountain Lion Management Plan states that initial harvest goals will be to maintain the harvest level on a 3-year running average at or above the 3-year average harvest for the 1990–1992 big game seasons (6 lions).

Capture, Radio-mark, and/or Telemetry

No capture, radio-marking, or telemetry was conducted during this reporting period.

Population Surveys and Monitoring

During the fall of 2016, IDFG initiated a mountain lion research project in GMUs 75 and 77 targeted at using a new technique to estimate lion abundance. Remote cameras were deployed across predicted mule deer and elk winter range to detect lions. Simultaneously, houndsmen covered the same area and collected DNA samples from treed lions and/or from backtracking to pick up scat and hair samples. This project is ongoing and data sources will be analyzed for use of this technique to monitor mountain lion populations elsewhere.

Hunting and Harvest Characteristics

Hunting seasons have ranged from closed in some GMUs to liberal with no quotas in other GMUs. GMUs 64, 65, 66, and 67 did not have a female quota for the 2004 harvest season, and from 2005–2009 none of the GMUs in the DAU had a female quota. From 2010–2016 the GMU's in the Southeast region had a combined female quota of 22 (Appendix A). For the 2018 season, GMUs 66A and 76 had a combined female quota of 5.

Harvest has been quite variable and ranged from 12 in 1996 to 44 in 2016 and 2017. Adult female harvest averaged 14% from 2014–2016. During the 2018 season, 34 mountain lions were harvested. Twenty-two were harvested with hounds, 9 were incidental take, 2 by still/stalk hunters, and one was unknown.

From 2014–2016, 25% of the harvest were male lions under 3 years old, 33% were male lions 3 years and older, 27% were females under 3 years old, and 14% were females 3 years and older (Figure 19). Age data for harvested lions in 2017 and 2018 are not yet available.

Predation Issues

Current research and data do not suggest that predation by lions is the limiting factor for ungulates. Monitoring predation by lions, as well as other predators, on ungulate populations will continue to be an important factor for wildlife managers to consider.

Depredation Issues

Wildlife Services responds to mountain lion depredation issues in concert with IDFG. During this reporting period there were not any mountain lions removed by Wildlife Services for depredations.

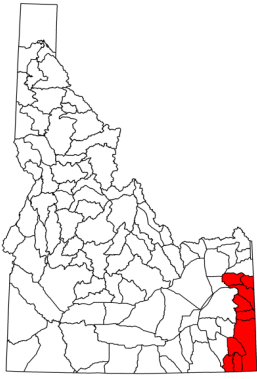
Management Discussion

GMUs within this DAU are managed by 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. However, in 2005, GMUs within this DAU had the same lion season with no female quotas. Since 2010 there have been female quotas applied to the GMUs in the Southeast Region.

There is a need to monitor the percentage of adult females harvested closely. Anderson and Lindzey (2005) found that when the adult (≥ 3 -year-old) female harvest averaged 25% or greater, the lion population declined. Our latest 3 year average (15%) is well below that threshold.

Literature Cited

Anderson, C. R. Jr., and F. G. Lindzey. 2005. Experimental evaluation of population trend and harvest composition in a Wyoming cougar population. *Wildlife Society Bulletin* 33(1):179–188.



Bear Lake-Palisades DAW

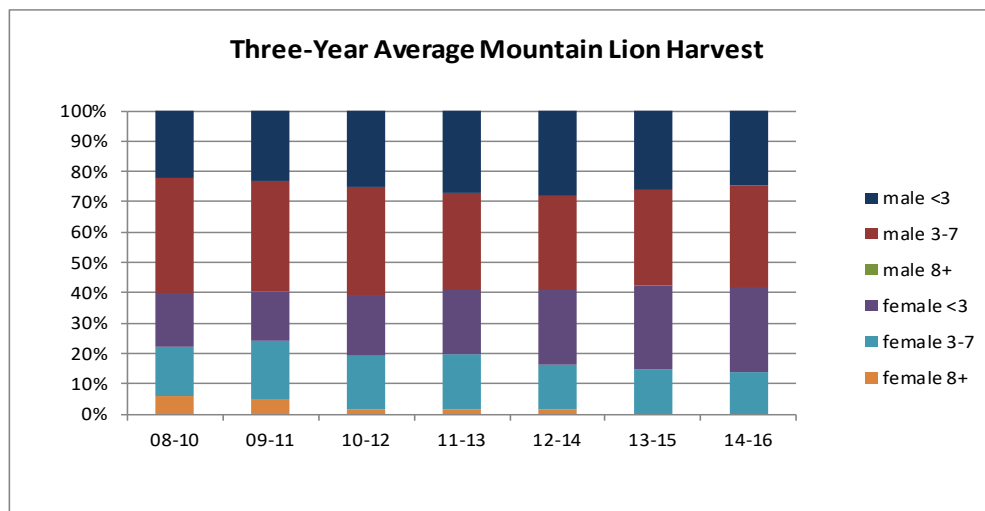
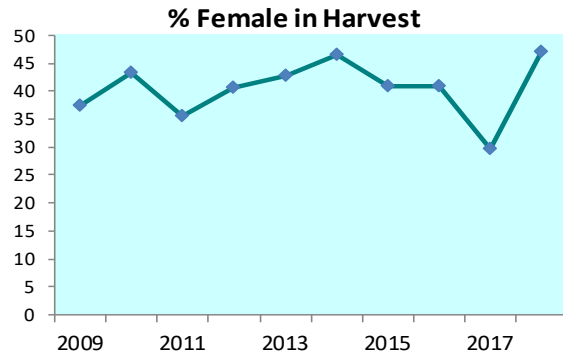
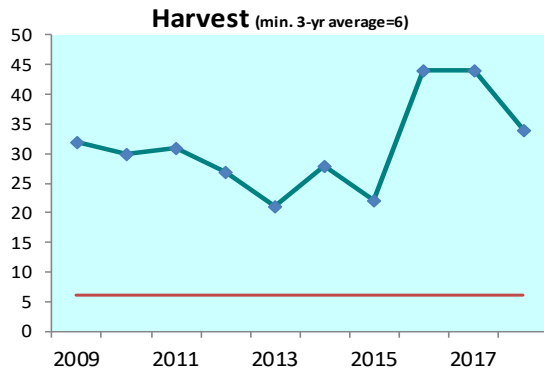
(GMUs 64, 65, 66, 66A, 67, 75, 76, 77, 78)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
3,928	Annual Harvest	41	6
	Harvest per 100 mi ²	1.0	
	Males: Percent 3+ yrs*	58%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		32	30	31	27	21	28	22	44	44	34
Males	0-2 years	6	6	7	6	5	7	5	9	0	0
	3-7 years	11	10	11	9	6	6	7	12	0	0
	8+ years	0	0	0	0	0	0	0	0	0	0
	Unknown	3	1	2	1	1	2	1	5	31	18
	Subtotal	20	17	20	16	12	15	13	26	31	18
Females	0-2 years	7	2	6	5	3	6	6	10	0	0
	3-7 years	3	6	5	5	3	4	2	6	0	0
	8+ years	1	4	0	0	1	0	0	0	0	0
	Unknown	1	1	0	1	2	3	1	2	13	16
	Subtotal	12	13	11	11	9	13	9	18	13	16

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 19 Bear Lake Palisades DAW status and objectives

SALMON REGION

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

Historical Background

Land ownership in the Salmon DAU is 95% Federally owned public and 5% private, with most private land occurring as agricultural and residential properties along valley bottoms. Approximately 11% falls within the Frank Church – River of No Return Wilderness. Elevations vary from 3,000 to 10,000 feet and include sagebrush grasslands, river breaks, mixed conifer forests, and sub-alpine habitats.

The DAU supports mountain lion populations that are generally accessible during winter. Both deer and elk are abundant prey species with bighorn sheep and mountain goats locally available. 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 Salmon and Warren DAUs. Wolves are well established within the DAU, and a harvest season was implemented beginning in 2009. Depredation problems are not a major concern in Salmon DAU.

Management Objectives

Objectives are to maintain the distribution of mountain lions and harvest at or above the 1990–1992 average harvest level of 15 mountain lions as specified in the 2002–2010 Mountain Lion Management Plan. Specific objectives regarding sex and age composition of the harvest will be developed in the near future (e.g., $\leq 40\%$ females in the harvest, $\geq 20\%$ of males ≥ 5 years old).

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No activities meeting these criteria occurred in the Salmon DAU for this reporting period.

Population Surveys and Monitoring

Population monitoring consisted of monitoring trends in harvest demographics (sex and age obtained from tooth cementum analysis) via mandatory checks of all harvested lions.

Hunting and Harvest Characteristics

During 1996–1997, the general mountain lion season in Salmon DAU was extended by 15 days from 31 January to 15 February. The 1999–2000 season was extended by another 60 days (30 Aug to 31 Mar) because of an apparent continued increase in mountain lion populations. With 16 days added to the beginning and 44 days at the end, total season length became 214 days. A female quota of 2 mountain lions was implemented for GMU 36B in this DAU beginning in the 2014 season. 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.

Eighteen mountain lions (13 males, 5 females) were harvested in the Salmon DAU during the 2018 season (Figure 20). The female quota was not reached in GMU 36B during the 2018

season. The 2018 harvest was consistent with the previous 3-year average harvest (2015–2017; 18.3). The annual and 2016–2018 three-year average harvest of 17.7 exceeds the minimum harvest objective of 15 for this DAU. Three-year average harvest appears relatively stable over the prior 7 seasons, averaging 16.3–18.3 mountain lions.

The majority of mountain lions harvested in the Salmon DAU during the 2017 season were taken with assistance of hounds (89%). The remaining harvest was incidental to other hunting.

Age data for the 2017 and 2018 harvest seasons are not yet available. Three-year average age data from the most current analyzed years (2014–2016) indicated that the ≥ 3 year-old male age class comprised 73% of the total known-aged male harvest, and 52% of the overall harvest. Percent females in the harvest averaged 30% over the last 3 years (2016–2018). Three-year average (2014–2016) adult female harvest (≥ 3 years old) comprised 60% of the total known-aged female harvest, and 13% of the overall harvest.

Predation Issues

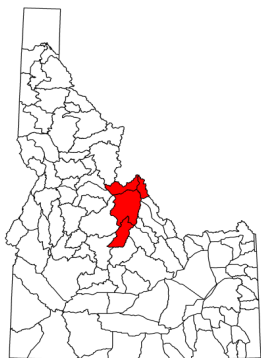
The Salmon Elk Zone, which is comprised of the same GMUs as the Salmon Mountain Lion DAU, is considered highly limited by predation (IDFG 2014). Predation by mountain lions also likely plays a limiting role on deer numbers within this DAU. Mountain lion predation accounts for a significant proportion of known-caused radio-collared ungulate mortalities in this DAU.

Depredation Issues

No mountain lion depredations on domestic livestock were reported in the Salmon DAU in 2018.

Management Discussion

Total harvest density (0.7 mountain lions harvested/100mi²) is light to moderate relative to other mountain lion DAUs in the state, and consistent 3-year average harvest and age-sex harvest data have not been indicative of major population changes in the DAU. However, it will be important to incorporate new age data when it becomes available and to continue to monitor the female component of the harvest given the sensitivity of mountain lion populations—particularly adults-to female harvest.



Salmon Zone DAU

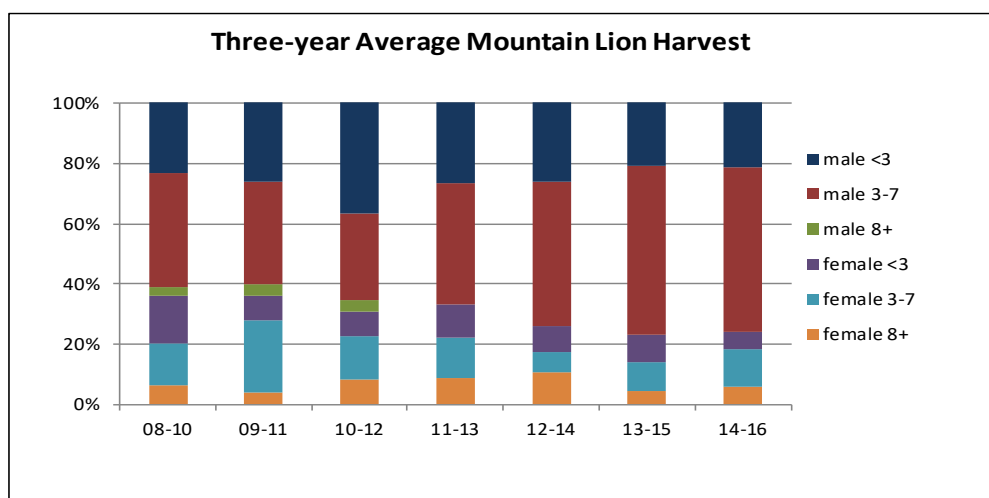
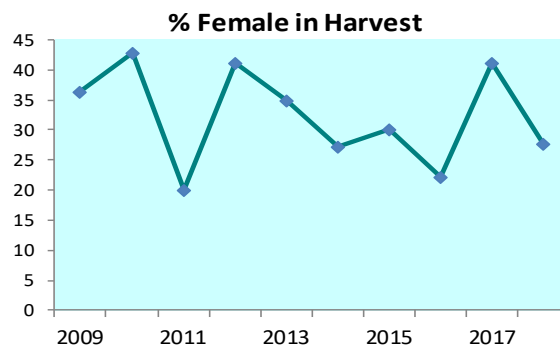
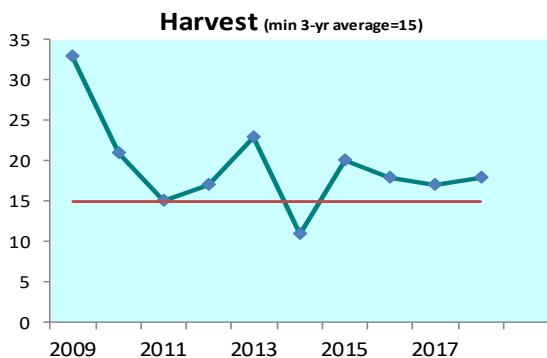
(GMUs 21, 21A, 28, 36B)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
2,678	Annual Harvest	18	15
	Harvest per 100 mi ²	0.7	
	Males: Percent 3+ yrs*	72%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		33	21	15	17	23	11	20	18	17	18
Males	0-2 years	6	1	8	4	6	2	4	3	0	0
	3-7 years	11	11	2	4	8	6	8	10	0	0
	8+ years	0	0	2	0	0	0	0	0	0	0
	Unknown	4	0	0	2	1	0	2	1	10	13
	Subtotal	21	12	12	10	15	8	14	14	10	13
Females	0-2 years	7	2	1	1	2	2	0	2	0	0
	3-7 years	2	6	1	5	1	0	2	2	0	0
	8+ years	3	1	0	1	3	0	2	0	0	0
	Unknown	0	0	1	0	2	1	2	0	7	5
	Subtotal	12	9	3	7	8	3	6	4	7	5

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 20 Salmon DAU status and objectives

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

Historical Background

Land ownership in the Borah DAU is 86% Federally owned public and 13% private, with most private land occurring as agricultural and residential properties along valley bottoms. Elevations vary from 4,000 feet to 12,000 feet and include a large proportion of high desert shrub-steppe communities, as well as mixed conifer forests and sub-alpine habitats. This DAU receives much less precipitation, and therefore has less forest than DAUs farther north and west.

Borah DAU supports a mountain lion population of low to moderate density that is generally readily accessible during winter. Both deer and elk are common prey species with bighorn sheep and mountain goats locally available. Depredation problems are an uncommon concern in the Borah DAU.

Management Objectives

Objectives are to maintain the distribution of mountain lions and harvest at or above the 1990–1992 average harvest level of 7 mountain lions as specified in the 2002–2010 Mountain Lion Management Plan. Specific objectives regarding sex and age composition of harvested mountain lions will be developed in the near future (e.g., $\leq 40\%$ females in the harvest, $\geq 20\%$ of males ≥ 5 years old).

Biological Objectives

Capture, Radio-mark, and/or Telemetry

No activities meeting these criteria occurred in the Borah DAU for this reporting period.

Population Surveys and Monitoring

Population monitoring consisted of monitoring trends in harvest demographics (sex and age obtained from tooth cementum analysis) via mandatory checks of all harvested lions.

Hunting and Harvest Characteristics

During 1996–1997, the general mountain lion season was extended from 31 January to 15 February in northern GMUs and to 31 March in southern GMUs. During 1999–2000, seasons throughout the DAU were extended to 30 August through 31 March (214 days) because of an apparent continued increase in mountain lion numbers, to provide additional opportunity, and to allow archers to harvest mountain lions during standard deer and elk seasons. Female quotas were removed in southern GMUs starting fall 2003. There were no quotas or dog-training seasons in northern GMUs 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.

Twenty-two mountain lions (12 males, 10 females) were harvested in the Borah DAU during the 2018 season (Figure 21). The 2018 harvest increased slightly from the previous 3-year average harvest (2015–2017; 21.3). The 2016–2018 average harvest of 22.3 is well above the minimum harvest objective of 7 for this DAU. The 3-year average harvest has been above objective for the

past 8 years, and has increased annually from the 2009-2011 average of 11.3 mountain lions harvested.

The majority of mountain lions harvested in the Borah DAU during the 2017 season were taken with assistance of hounds (82%). The remaining harvest was attributed to still hunting or incidental to other hunting.

Age data for the 2017 and 2018 harvest season are not yet available. Three-year average age data from the most current analyzed years (2014–2016) indicated that the ≥ 3 year-old male age class comprised 55% of the total known-aged male harvest, and 36% of the overall harvest. Percent females in the harvest averaged 39% over the last 3 years (2016–2018). Three-year average (2014–2016) adult female harvest (≥ 3 years old) comprised 55% of the total known-aged female harvest, and 18% of the overall harvest.

Predation Issues

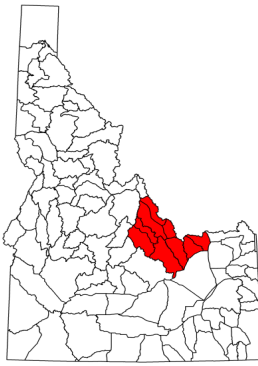
Predation limitation is low in the Elk Zones that are overlapped by the Borah DAU (IDFG 2014), and is likely similar for other ungulate prey within this DAU. Some bighorn sheep populations may be locally effected by mountain lion predation.

Depredation Issues

No mountain lion depredations on domestic livestock were reported in the Borah DAU in 2018.

Management Discussion

Annual and 3-year average mountain lion harvest in the Borah DAU has trended upwards and is currently well above minimum harvest objectives. Total harvest density (0.5 mountain lions harvested/100mi²) is relatively light, although a large portion of this DAU is composed of private agricultural or open sagebrush/rangeland habitat that is poor mountain lion habitat and where harvest is presumed to be minimal. Most of the harvest contributing to the increasing trend in this DAU has occurred in GMU's 29, 30, and 51, although the reason for these increases is not clear. Additionally, female harvest within these 3 GMUs (26 of 60 lions [43%]) is higher than in the remaining GMUs of the DAU (6 of 20 lions [23%]) over the prior 4 harvest seasons. Pending tooth cementum age data will be informative to evaluate whether changes in the age structure of the female harvest is occurring within these GMUs and to assess whether season changes are needed.



Borah Zone DAU

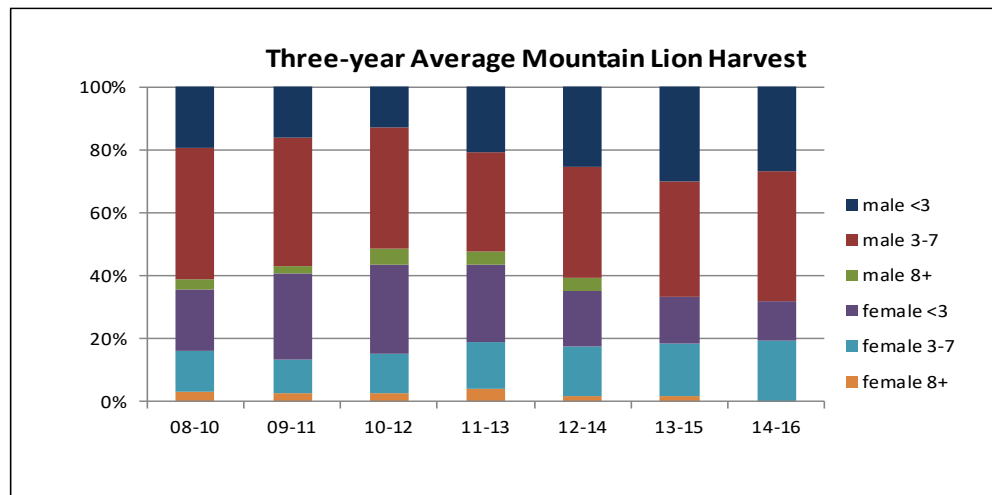
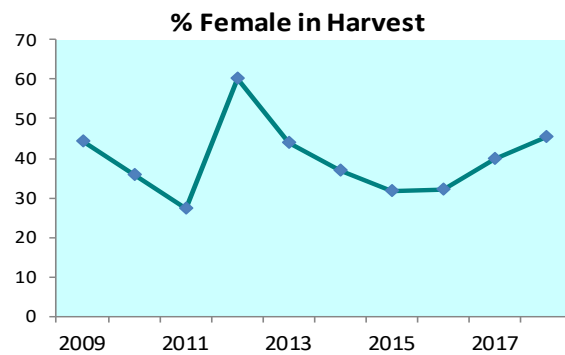
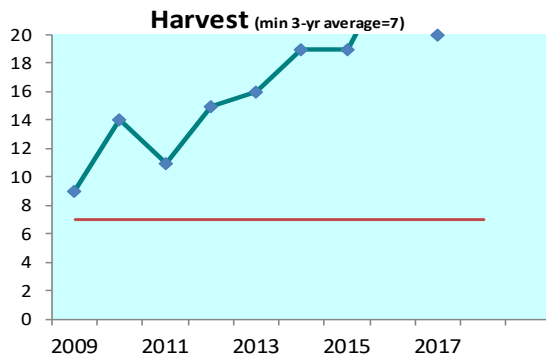
(GMUs 29, 30, 30A, 37, 37A, 51, 58, 59, 59A)

2018 Season (Fall 2018-Spring 2019)			
Square Miles:	3-Year Averages	Goal	
4,786	Annual Harvest	22	7
	Harvest per 100 mi ²	0.5	
	Males: Percent 3+ yrs*	61%	TBD

* Within male harvest 2014-2016

Harvest Statistics		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total		9	14	11	15	16	19	19	25	20	22
Males	0-2 years	1	3	2	1	2	7	4	7	0	0
	3-7 years	3	5	5	5	5	5	8	9	0	0
	8+ years	0	1	0	0	2	0	0	0	0	0
	Unknown	1	0	1	0	0	0	1	1	12	12
	Subtotal	5	9	8	6	9	12	13	17	12	12
Females	0-2 years	1	2	3	5	3	4	2	3	0	0
	3-7 years	2	2	0	2	3	2	3	5	0	0
	8+ years	1	0	0	1	0	1	0	0	0	0
	Unknown	0	1	0	1	1	0	1	0	8	10
	Subtotal	4	5	3	9	7	7	6	8	8	10

Note: Lions in harvest year 2017 and 2018 have yet to be aged



Note: Harvest does not include unknown aged lions. Lions in harvest year 2017 and 2018 have yet to be aged.

Figure 21 Borah DAU status and objectives

Idaho Big Game

2017 and 2018 Seasons & Rules

2nd Edition, 2018

Idfg.Idaho.gov



Controlled Hunt Application Periods

Deer, Elk, Pronghorn & Fall Black Bear: May 1 - June 5
Spring Black Bear: January 15 - February 15

Deer, Elk, Pronghorn Seasons: August 2017 - February 2018 & August 2018 - February 2019

Black Bear, Mountain Lion Seasons: August 2017 - June 2018 & August 2018 - June 2019

Gray Wolf Seasons: July 2017 - June 2018 & July 2018 - June 2019

Including Controlled Hunts for Deer, Elk, Pronghorn and Black Bear

2017-2018 & 2018-2019 MOUNTAIN LION HUNTING SEASONS



MOUNTAIN LION

General Rules

Kittens, Female With Young: Neither spotted mountain lion young nor female mountain lions accompanied by spotted young may be taken.

Evidence of Sex: must be left attached to the hide of any mountain lion taken. For mountain lions, external evidence of sex (either scrotum, penis, or testicles for males, or vulva for females) must be left naturally attached to the hide until the mandatory check requirement has been satisfied.

Bag Limit: No person may take more than one mountain lion per legal tag in his or her possession.

Capturing Mountain Lions: No person may trap, snare or otherwise capture or hold any mountain lion.

Big Game Feeding Sites: It is unlawful to hunt or pursue mountain lions within one-half mile of any active Fish and Game big game feeding site.

Mandatory Check and Report: Any hunter killing a mountain lion must, **within 10 days of the date of kill (Note: where there is a female quota, hunters must report within 5 days):**

- Present the skull and hide to an Idaho Fish and Game conservation officer, regional office or other official checkpoint for removal and retention of a premolar tooth and to have the hide tagged with an official state export tag. No person, who does not possess a fur buyer or taxidermist

license with appropriate import documentation, shall have, except during the open season and for 5 days after the close of the season, any raw mountain lion pelt that does not have an official state export tag attached (either Idaho's or another state's official export documentation).

- A hunter may authorize another person to comply with the above requirements if that person possesses enough information to accurately complete the necessary form. Proxy statement required, see page 100.
- **Please thaw your mountain lion hide and skull before bringing it in for tagging.** Staff members may not be able to check a frozen hide or skull.

Fish and Game's headquarters office is not equipped to check mountain lions. In the Boise area, these animals can be checked Monday through Friday, at the Fish and Game regional office in Nampa, 3101 S. Powerline Rd, 208-465-8465, between the hours of 8 a.m. and 5 p.m.; or by appointment at the Garden City facility, 109 W. 44th St., 208-327-7095.

Female Mountain Lion Quota

To find out whether the quota on female mountain lions has been met and the season has been closed in a particular management unit, call 1-800-323-4334. For more information about the number of female lions harvested and reported for each management unit with a quota, visit idfg.idaho.gov or call a Fish and Game office.

Hound Hunting

Please see the section on hound hunting rules on page 99.

Discounted Nonresident Tags

Nonresidents may purchase two (2) reduced-price mountain lion tags for Units 4, 4A, 6, 7, 9, 10, 12, 16A, 17, 19, 20, 20A, 26, 27, that portion of Unit 16 north of the Selway River, and those portions of Units 21 and 28 within designated wilderness at the discounted price of \$41.75; or may purchase one (1) full priced mountain lion tag (\$186.00) to hunt mountain lion anywhere outside the areas listed above and one (1) reduced priced mountain lion tag valid in areas listed above.

Nonresident Deer or Elk tags: A nonresident deer or elk tag, **excluding** Nonresident Junior Mentored/DAV deer and elk tags, may be used to tag a black bear, mountain lion or gray wolf. See page 110 for details.

Winter 2017-2018 & 2018-2019 Mountain Lion Seasons				
Units	Take Season	Dogs Prohibited	Female Quota	Notes
1	Aug 30 - Feb 16	Aug 30 - Dec 1 <i>Except</i> Priest River drainage: Dogs Prohibited Aug 30 - Dec 13		<i>Dog training season open Feb 17 - Mar 31</i>
2, 3, 5	Aug 30 - Mar 31	Aug 30 - Sep 14 Oct 10 - Dec 1		
4, 4A, 6	Aug 30 - Mar 31	Aug 30 - Sep 14 Oct 10 - Oct 31		<i>Second lion tag may be used, Electronic calls may be used</i>
7, 9	Aug 30 - June 30	Oct 10 - Oct 31		<i>Second lion tag may be used, Electronic calls may be used</i>
8	Aug 30 - Mar 31	Oct 10 - Dec 1		
8A	Aug 30 - Mar 31	Aug 30 - Sep 14 Oct 10 - Dec 1		
10, 12	Aug 30 - June 30	Oct 10 - Oct 31		<i>Second lion tag may be used, Electronic calls may be used</i>
10A	Aug 30 - Mar 31	Aug 30 - Sep 14 Oct 10 - Dec 1		
11, 11A	Aug 30 - Mar 31	Oct 10 - Dec 1		
14, 15, 18	Aug 30 - Mar 31	Oct 10 - Nov 20		
13	Aug 30 - Mar 31	Oct 10 - Nov 3		
16	Aug 30 - Mar 31	Oct 10 - Nov 20		<i>Second lion tag may be used North of Selway River, Remainder of unit: 1 lion tag</i>
16A, 17 19, 20	Aug 30 - June 30	Sep 15 - Oct 31		<i>Second lion tag may be used, Electronic calls may be used</i>
19A	Aug 30 - Mar 31	Oct 1 - Nov 24		
20A, 26	Aug 30 - Apr 30	Sep 15 - Oct 31		<i>Second lion tag may be used, Electronic calls may be used</i>
21A	Aug 30 - Mar 31	Oct 10 - Nov 8		
21, 28	Aug 30 - June 30	Oct 10 - Nov 8		<i>Second lion tag may be used and electronic calls may be used in those portions of Units 21 and 28 within designated wilderness only. Remainder of units: 1 lion tag</i>
22	Aug 30 - Mar 31	Aug 30 - Nov 24	6	<i>See note 1, Page 75</i>
23	Aug 30 - Mar 31	Oct 1 - Nov 24	8	<i>See note 1, Page 75</i>
24	Aug 30 - Mar 31	Oct 5 - Nov 24	5	<i>See note 1, Page 75</i>
25	Aug 30 - Mar 31	Oct 5 - Nov 24	8	<i>See note 1, Page 75</i>
27	Aug 30 - June 30	Sep 15 - Oct 31		<i>Second lion tag may be used, Electronic calls may be used</i>
29, 30, 30A, 37, 37A	Aug 30 - Mar 31	Oct 1 - Nov 24		<i>See note 3, Page 75, Motorized Hunting Rule Applies, See Pages 101 - 103</i>
31	Aug 30 - Mar 31	Aug 30 - Nov 24	3	<i>See note 1, Page 75</i>
32	Aug 30 - Mar 31	Aug 30 - Nov 24	6	<i>See notes 1 & 3, Page 75, Motorized Hunting Rule Applies, See Pages 101 - 103</i>

Winter 2017-2018 & 2018-2019 Mountain Lion Seasons				
Units	Take Season	Dogs Prohibited	Female Quota	Notes
32A	Aug 30 - Mar 31	Aug 30 - Nov 3 Nov 10 - Nov 24	5	See notes 1 & 3, Page 75, Motorized Hunting Rule Applies, See Pages 101 - 103
33, 34, 35	Aug 30 - Mar 31	Oct 5 - Nov 8	15	See note 1, Page 75
36	Aug 30 - Mar 31	Oct 5 - Nov 8		
36A	Aug 30 - Mar 31	Oct 1 - Nov 24	2	See notes 1 & 3, Page 75, Motorized Hunting Rule Applies, See Pages 101 - 103
36B	Aug 30 - Mar 31	Oct 10 - Nov 8	2	See note 1, Page 75
38	Aug 30 - Mar 31	Oct 5 - Nov 30		
39	Aug 30 - Mar 31	Oct 5 - Nov 9	10	See note 1, Page 75
40	Aug 30 - Mar 31	Oct 5 - Nov 24	10	See note 1, Page 75
41, 42	Aug 30 - June 30	Oct 5 - Nov 24		Electronic calls may be used
43, 44, 48, 49	Aug 30 - Mar 31	Oct 1 - Nov 30	6	See notes 2 & 3, Page 75, Motorized Hunting Rule Applies in Unit 49, See Pages 101 - 103
45, 50, 51, 52, 52A, 53, 58, 59, 59A	Aug 30 - Mar 31	Oct 1 - Nov 30		See note 3, Page 75, Motorized Hunting Rule Applies in Units 45, 50, 51, 52, 53, 58, 59 & 59A, See Pages 101 - 103
46, 47	Aug 30 - Mar 31	Oct 1 - Nov 30	6	See notes 2 & 3, Page 75, Motorized Hunting Rule Applies in Unit 47, See Pages 101 - 103
54	Aug 30 - Mar 31	Oct 1 - Nov 30	6	See note 2, Page 75
55	Aug 30 - Mar 31	Oct 1 - Nov 30	6	See note 2, Page 75
56, 57, 60, 60A, 61, 62, 62A, 63, 63A, 64, 65, 66, 67, 68, 68A, 69	Aug 30 - Mar 31	Oct 1 - Nov 30		See note 3, Page 75, Motorized Hunting Rule Applies in Units 56, 66, & 69, See Pages 101 - 103
66A, 76	Aug 30 - Mar 31	Oct 1 - Nov 30	5	See notes 2 & 3, Page 75, Motorized Hunting Rule Applies, See Pages 101 - 103
71, 72, 74	Aug 30 - Mar 31	Oct 1 - Nov 30	5	See notes 2 & 3, Page 75, Motorized Hunting Rule Applies in Unit 72, See Pages 101 - 103
75, 77, 78	Aug 30 - Mar 31	Oct 1 - Nov 30	4	See notes 2 & 3, Page 75, Motorized Hunting Rule Applies, See Pages 101 - 103
70, 73, 73A	Aug 30 - Mar 31	Oct 1 - Nov 30	8	See notes 2 & 3, Page 75, Motorized Hunting Rule Applies in Units 70 & 73, See Pages 101 - 103

Notes:

1. The take season in this/these unit(s) will remain open for either sex until the female quota is reached or the take season ends. After the female quota has been reached, the take season in this/these unit(s) will remain open for males only.
2. The take season in this/these unit(s) will remain open until the female quota is reached, or the take season ends, whichever comes first. For these units, a dog training season opens upon the closure of the unit to harvest where a harvest quota is met. If opened, the training season in any of these units shall close March 31.
3. Motorized vehicle use as an aid to hunting for mountain lion is restricted **August 30 through December 31** to established roadways open to motorized vehicle traffic capable of travel by full-sized automobiles - any motorized vehicle with a gross vehicle weight of 1,500 pounds. See pages 101 - 103.

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