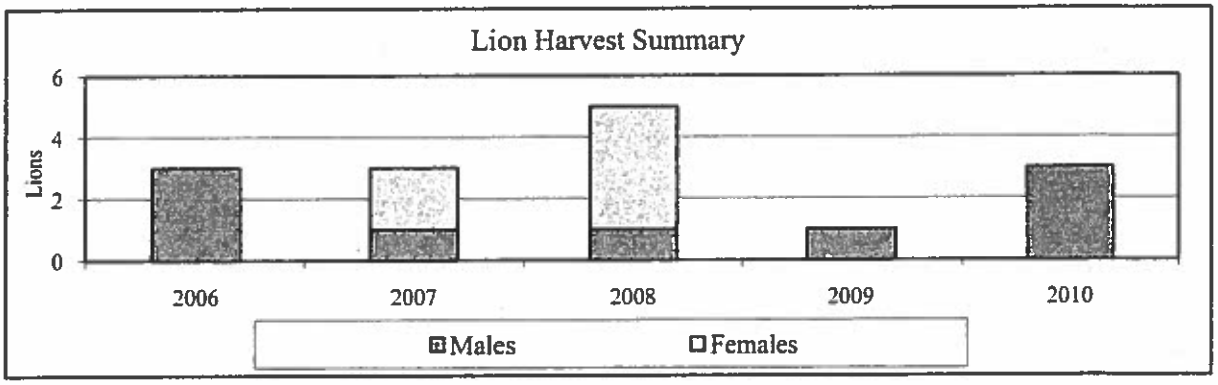
Unit(s): 1 Species: Mountain Lion Year: 2010/2011

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	3	0	3	0	0%	NO
2007	1	2	3	2	67%	YES
2008	1	4	5	1	20%	NO
2009	1	0	1	0	0%	NO
2010	3	0	3			
				2-Year Mean	10%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - ~~May 24~~ March 17, 2012	Unit 1 - Unitwide	None	None
	Correct 8/19-2011 to 5/24/2012			

Submitted by: T. Richins, J. Capps
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: _____ Date: 3/7/11

Unit(s): 1 Species: Mountain Lion Year: 2010/2011

Management Notes:

It is recommended to continue with the current standard hunt in Unit 1 without a female harvest limit. In 2010 no female mountain lions were harvested. The resulting 2 year mean of the percentage of adult females harvested is 10%. This is below Commission guidelines.

Unit(s): 2ABC Species: Mountain Lion Year: 2011/12

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006		1	1	1	100%	YES
2007			0		#DIV/0!	#DIV/0!
2008			0		#DIV/0!	#DIV/0!
2009			0		#DIV/0!	#DIV/0!
2010		1	1			
				2-Year Mean	#DIV/0!	#DIV/0!

Management Considerations: #DIV/0!
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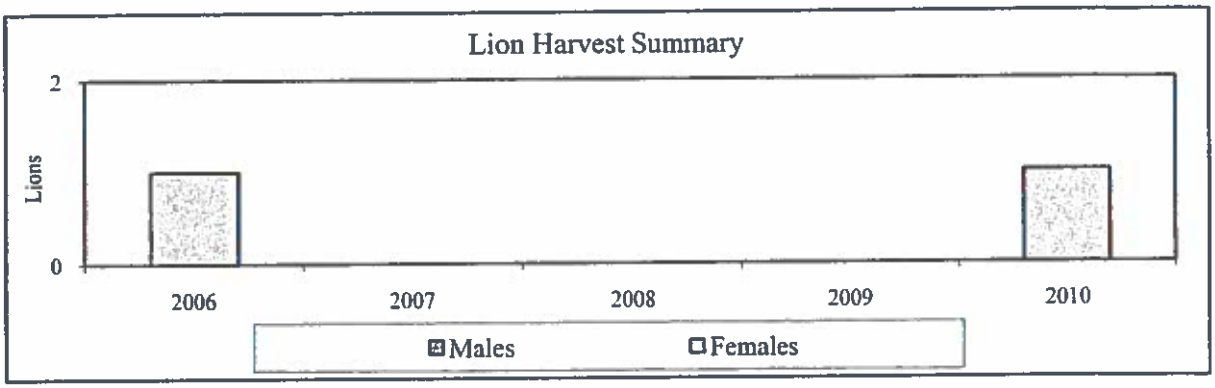


Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - ~~May 24, 2012~~ May 24, 2012	Unit 2ABC, unit wide	None	None

Submitted by: Joel Weiss
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: _____ Date: 3/1/11

Unit(s): 2ABC Species: Mountain Lion Year: 2011/12

Management Notes:

Maintain current hunt structure of August 19, 2011 – May 24, 2012 season dates with bag limit of one mountain lion per year for the entire unit.

The current hunt structure in GMU 2ABC is an open season from August 19, 2011 through May 24, 2012 with a bag limit of one lion per year. This season and bag limit is consistent with most of the state.

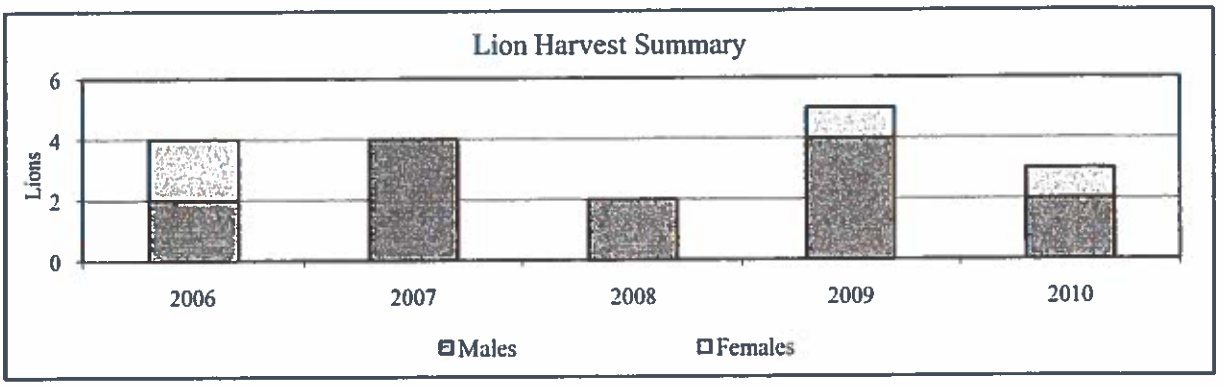
Unit(s): 3A,3B,3C Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	2	2	4	1	25%	NO
2007	4	0	4	0	0%	NO
2008	2	0	2	0	0%	NO
2009	4	1	5	0	0%	NO
2010	2	1	3			
				2-Year Mean	0%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

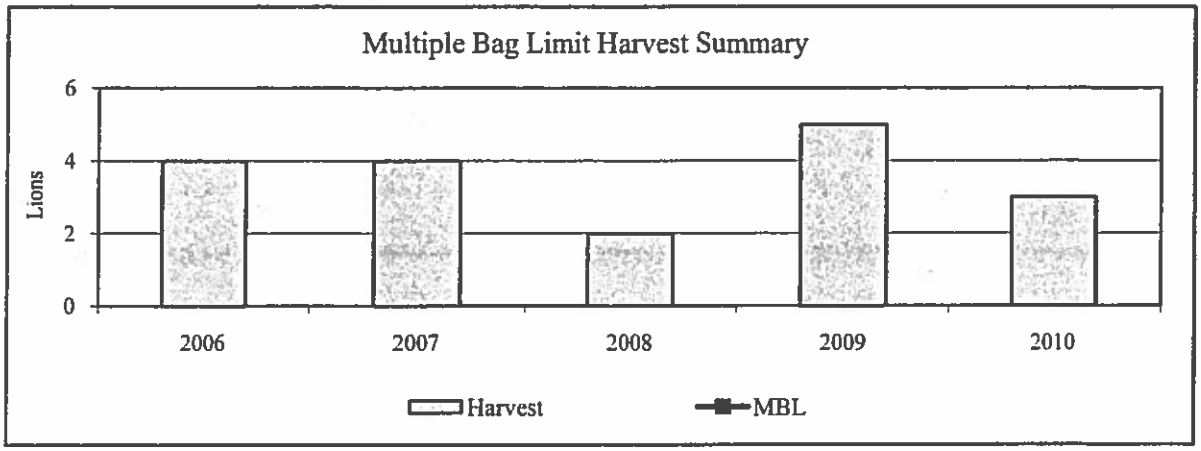
Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	Unit 3A, 3B, 3C - Unitwide	None	None

Submitted by: Eric Podoll
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAM Date: 3/7/11

Unit(s): 3A,3B,3C Species: Mountain Lion Year: 2010/11



Significant Management Issues, Opportunities or Challenges:
*list items of management significance
*
*

Regional Notes:

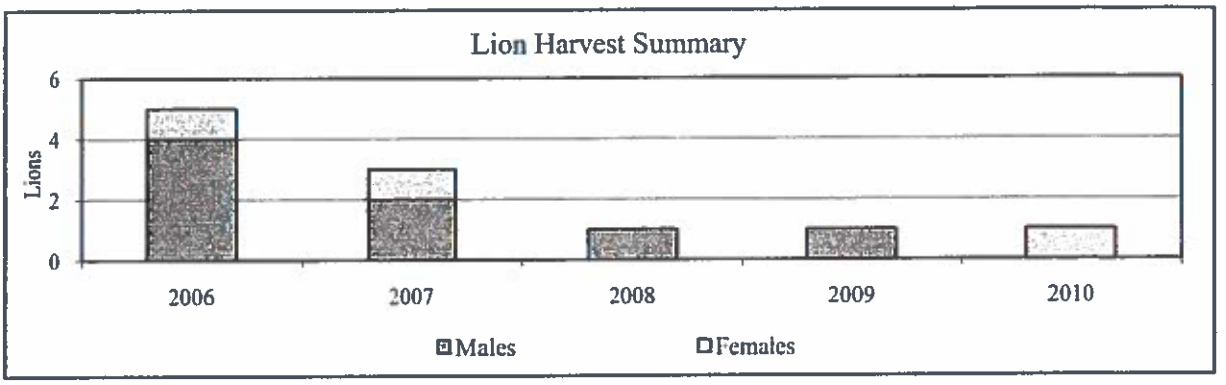
Unit(s): 4 Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	4	1	5	1	20%	NO
2007	2	1	3	1	33%	NO
2008	1	0	1		0%	NO
2009	1	0	1		0%	NO
2010	0	1	1			
				2-Year Mean	0%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

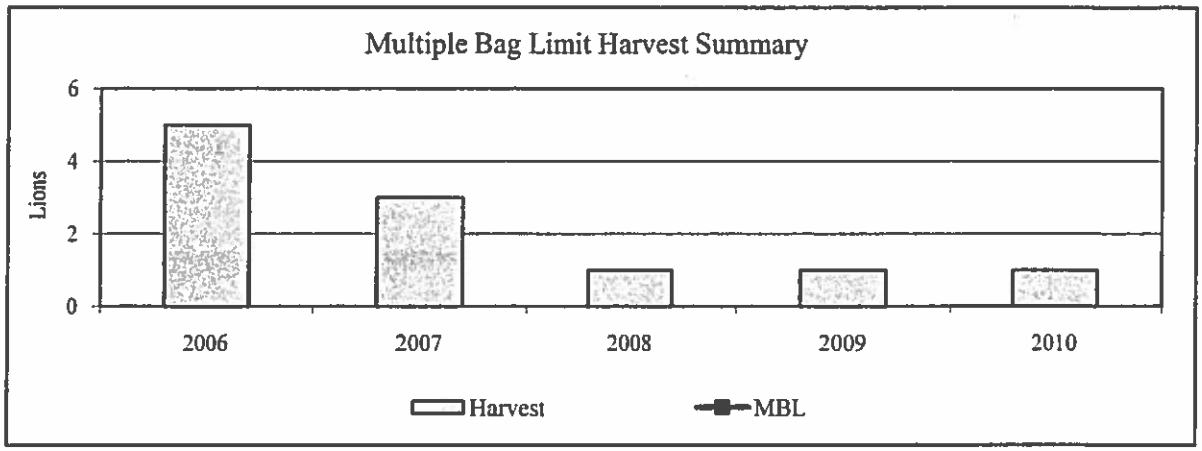
Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May ~~24~~, 2012	Units 4A & 4B	None	None
	24			

Submitted by: Ken Clay & Evan Lautzenheiser
Wildlife Manager(s)

Amendments & Notes:
Reviewed by GF108 on February 23, 2011

Game Branch Approval: ADM Date: 3/7/11

Unit(s): 4 Species: Mountain Lion Year: 2010/11



Significant Management Issues, Opportunities or Challenges:

Regional Notes:

We combined Units 4A and 4B for Lion Management in 2011.

Age Data: 2009 - M ale - 4 years old (Unit 4B)

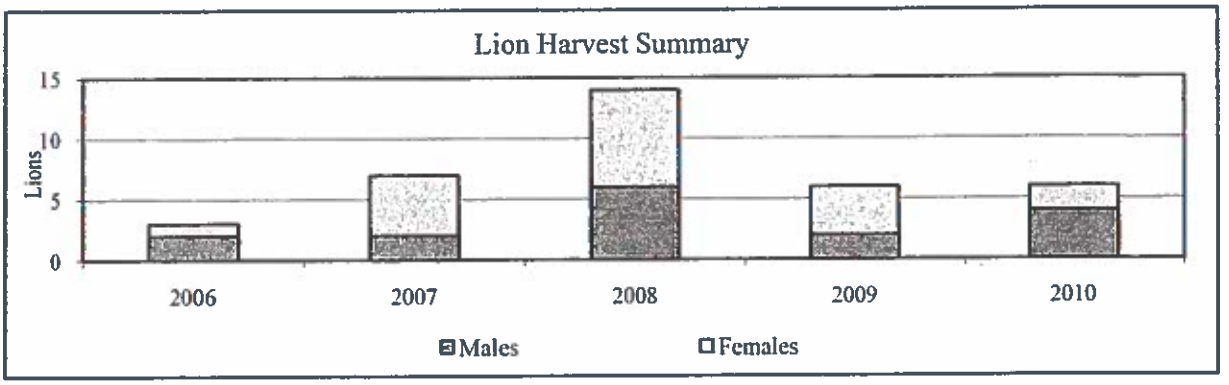
Unit(s): 27 Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	2	1	3	0	0%	NO
2007	2	5	7	3	43%	YES
2008	6	8	14	3	21%	NO
2009	2	4	6	1	17%	NO
2010	4	2	6			
				2-Year Mean	20%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



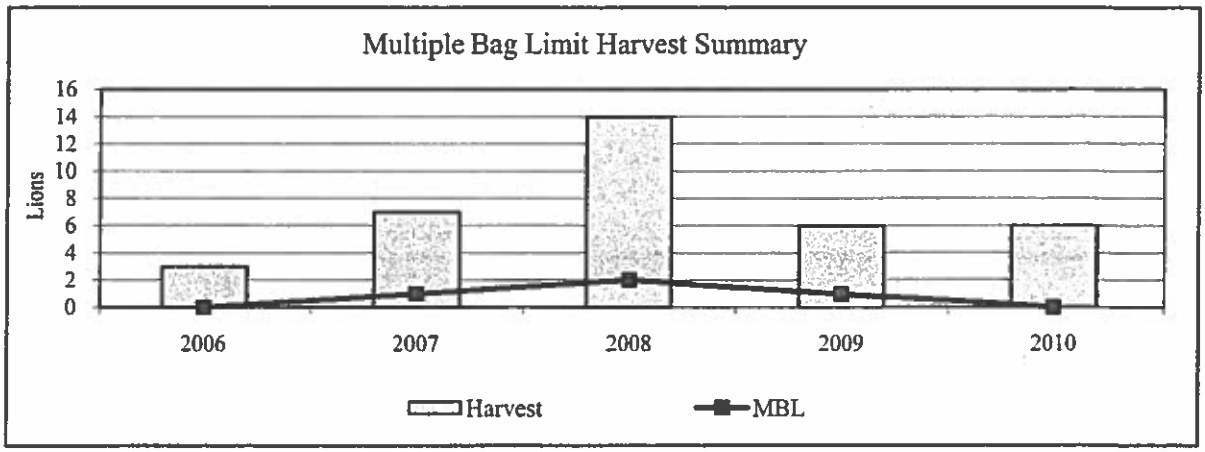
Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	Unit 27	None	None
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	Bear Canyon Hunt Area in Unit 27	5	None
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2013	Pipestem Hunt Area in Unit 27	10	None

Submitted by: H.S. Najar, A. Hartzell
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: _____ Date: 3/7/11



Significant Management Issues, Opportunities or Challenges:
*No data is currently available for depredation harvest.

Regional Notes:

Recommendation : **NO CHANGE** from current hunt structure.

The current hunt structure in GMU 27 is a recommended open season from August 19th through May 24th of the following year with a bag limit of one lion per year. This season and bag limit is consistent with most of the state. Additionally there are two multiple bag limit areas in the Bear Canyon and Pipestem areas of Unit 27. The two areas allow for year round lion hunting addressing population needs of recently reintroduced bighorn sheep.

The recommended triggers to initiate and/or stop these multiple bag hunts are as follows:

Bear Canyon – Initiate and/or continue the multiple bag hunt as long as the estimated sheep population is below 40 or there are two or more consecutive years with lamb recruitment below 35% at time of survey in the October/November survey period. This hunt will cease when the estimated sheep population is above 40 and one of the last two years of survey data indicates lamb recruitment is above 35%.

Pipestem – Initiate and/or continue the multiple bag hunt as long as the estimated sheep population is below 40 or there are two or more consecutive years with lamb recruitment below 35% at time of survey in the October/November survey period. This hunt will cease when the estimated sheep population is above 40 and one of the last two years of survey data indicates lamb recruitment is above 35%.

With these triggers in mind we are recommending to maintain the Bear Canyon and Pipestem multiple bag hunt for the 2011/2012 season.

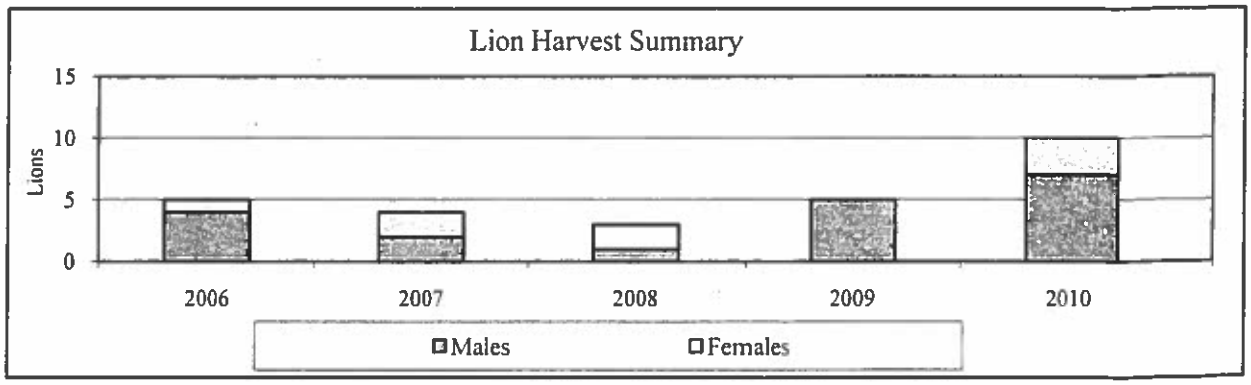
Unit(s): 5A/5B/6A North Species: Mountain Lion Year: 20 11/12

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	4	1	5	1	20%	NO
2007	2	2	4	0	0%	NO
2008	1	2	3	1	33%	NO
2009	5	0	5		0%	NO
2010	7	3	10			
				2-Year Mean	17%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	Aug 19, 2011 - May 24, 2012	Units 5A / 5B / 6A North - Statewide	None	None

Submitted by: C. Adams
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAM Date: 3/9/12

Unit(s): 5B / 6A North Species: Mountain Lion Year: 20 11/12

Management Notes:

Harvest results from units 5A, 5B and 6A North were combined because it is believed that lions most likely travel between the units as they follow the prey base which is shared between thte units. Of the 27 lions harvested between 2006 and 2010 only 8(30%) were females. This is below the 35% limit and therefore I recommend that units 5A, 5B and 6A north remain open to lion hunting under the general statewide regulations and season dates.

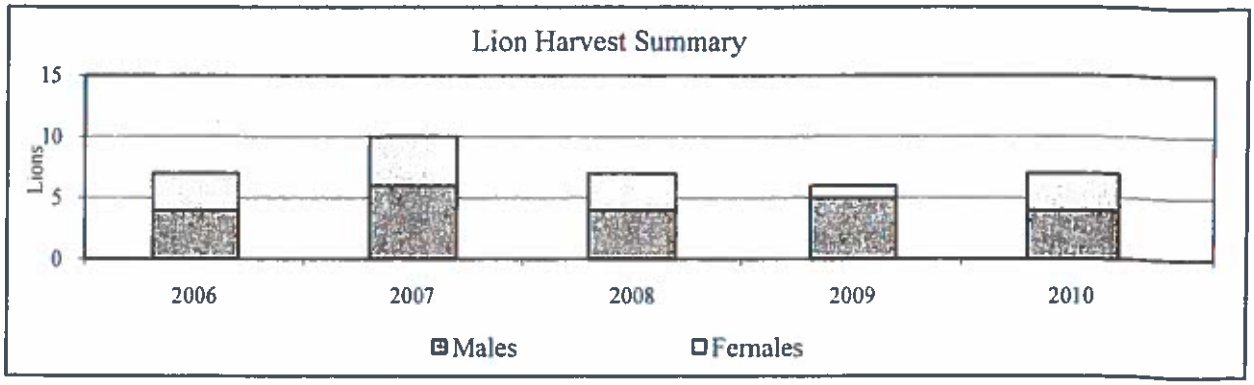
Unit(s): 6A South Species: Mountain Lion Year: 20 10/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	4	3	7	2	29%	NO
2007	6	4	10	1	10%	NO
2008	4	3	7	2	29%	NO
2009	5	1	6		0%	NO
2010	4	3	7			
				2-Year Mean	15%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

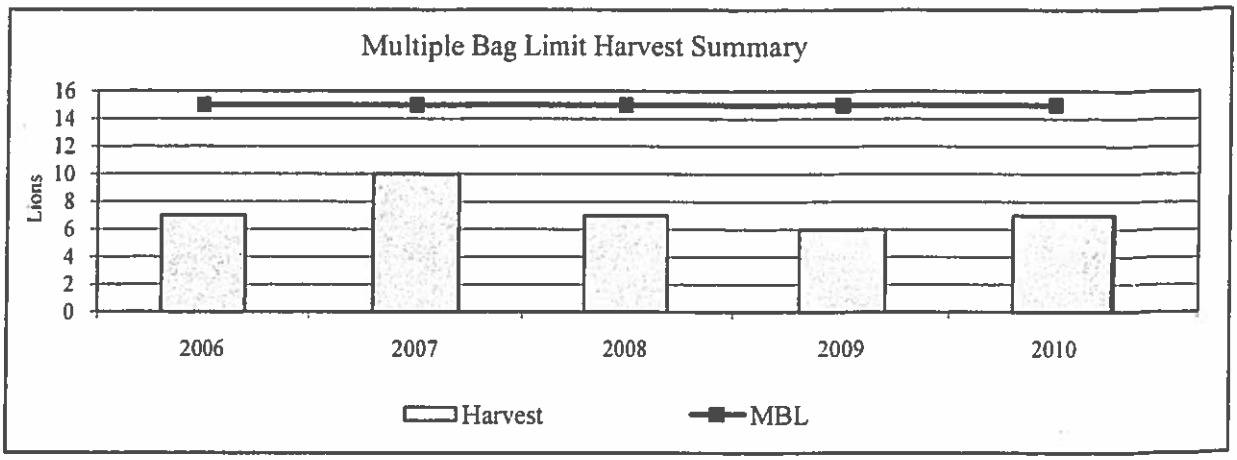
Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	Unit 6A	None	None
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	Unit 6A South	15	None

Submitted by: E. M. Turnpaugh
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAM Date: 3/9/12

Unit(s): 6A South Species: Mountain Lion Year: 2010/11



During the 2010 hunting season 7 lions were harvested by hunters in GMU 6A (5 male, 2 female.)

Currently, a multiple bag limit for lions is in effect in GMU 6AS. Region II will discontinue the multiple harvest objective if:

- No lions are harvested in three consecutive years (lack of lion harvest may indicate a low population of lions), or
- The Region is no longer monitoring radio-collared sheep, or
- It is evident that predation is not impacting the reintroduced sheep population.

Due to the fact that lions have been harvested within the last 3 years and Region II is currently monitoring radio-collared bighorn sheep in the area of West Clear Creek, it is my recommendation that the multiple bag limit stay in effect for the 2010 hunting season in GMU 6AS

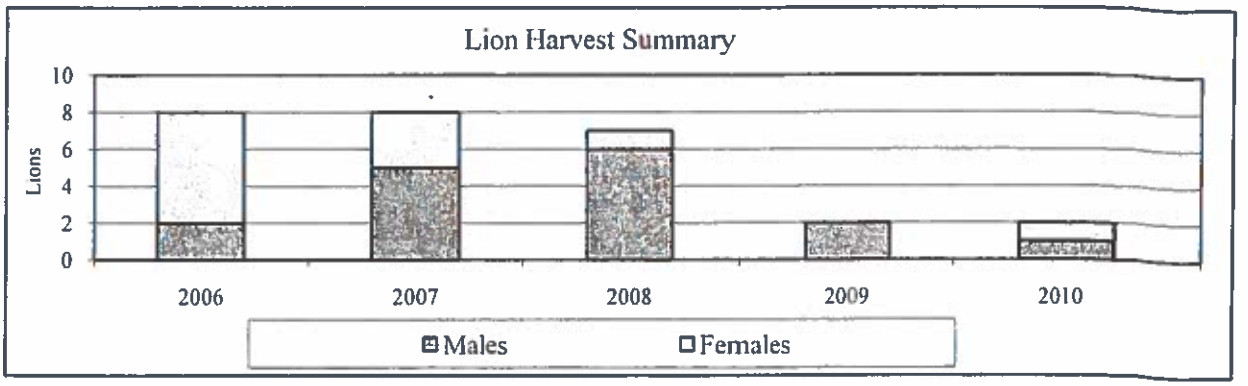
Unit(s): 6B & 8 Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (>3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	2	6	8	6	75%	YES
2007	5	3	8	3	38%	YES
2008	6	1	7	1	14%	NO
2009	2	0	2	0	0%	NO
2010	1	1	2			
				2-Year Mean	7%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August ~~20~~ 19, ~~2010~~ 2011 - May ~~19~~ 24, ~~2011~~ 2012	Units 6B & 8 - Unitwide	None	None

Submitted by: Michael Rice & Lee Leudeker
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAW Date: 3/9/11

Unit(s): 6B & 8 Species: Mountain Lion Year: 20 10/11

Management Notes:

SURVEY RESULTS:
There were no mountain lion surveys conducted in Units 6B & 8 for 2010. There were also no incidental observations made by the Unit Wildlife Managers. The Unit Wildlife Managers did find several lion killed deer and elk in the units as well as scrapes and tracks.

HUNT RESULTS:
For 2010 there were a total of 1 male mountain lion and 1 female mountain lion killed in Units 6B & 8.

OTHER INFORMATION:
No lion depredation complaints were made in 2010 in Units 6B & 8. There were few observations of lions reported by the general public throughout the summer in Unit 8, but several in Sedona (6A-6B boundary) and in the southern portion of 6B.

HUNT RECOMMENDATIONS:
Eleven female lions have been killed in Units 6B & 8 from 2006 - 2010 with a median age of (waiting for data) years old of the 11 female lions killed during this period. We believe that Units 6B & 8 have a healthy mountain lion population due to a robust population of deer and elk.

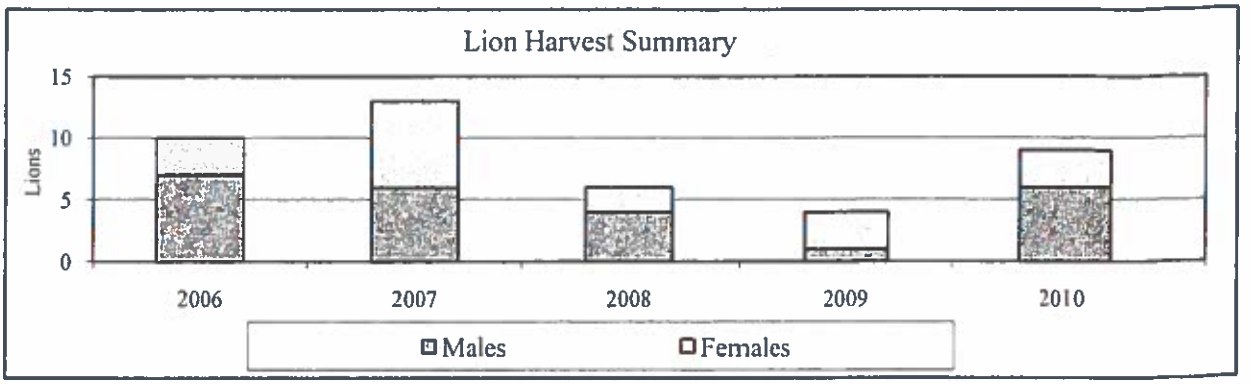
Unit(s): 7,9 Species: Mountain Lion Year: 20 10/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	7	3	10	3	30%	NO
2007	6	7	13	3	23%	NO
2008	4	2	6	1	17%	NO
2009	1	3	4	1	25%	NO
2010	6	3	9			
				2-Year Mean	21%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	Units 7 and 9	None	None

Submitted by: M. White
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: [signature] Date: 3/9/11

Unit(s): 7.9 Species: Mountain Lion Year: 20 10/11

Management Notes:

Management Recommendations and Notes:

Assuming that mountain lions follow their prey base, GMU's 7 and 9 are grouped together because they are similar in habitat type and large numbers of deer move back and forth across the unit boundaires between summer and winter ranges.

The mountain lion harvest is split fairly evenly between GMU's 7 and 9 with a few more lions being taken in GMU 7. 57% of the harvest over the last five years have been males with 43% females. The average age of a male lion harvested in GMU's 7 and 9 over the last five years is 3.8 and the average age of females is 4.1.

GMU's 7 and 9 should remain open during the standard season type without a harvest limit since adult females ≥3 years of age have made up only 21% of the harvest between the two units (2 year mean). This will maximize hunter opportunity without jeopardizing the mountain lion population.

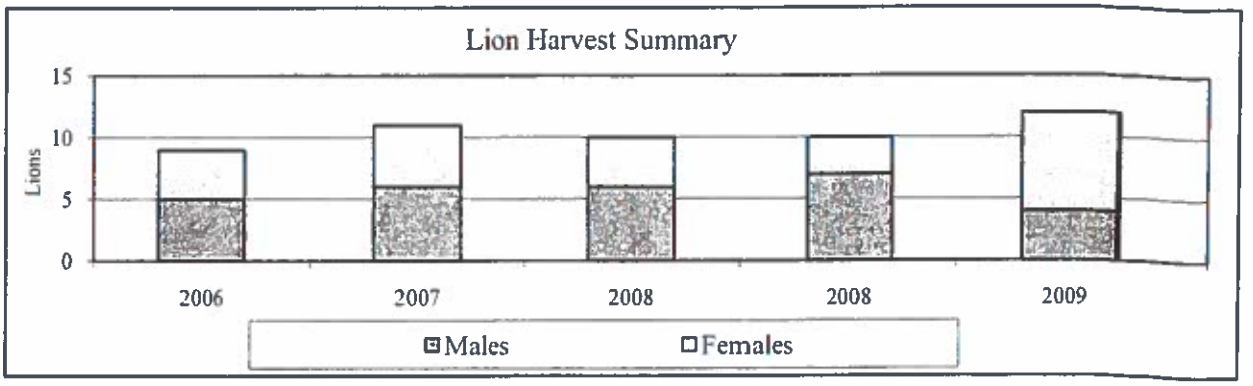
Unit(s): 12A,12B,13A Species: Mountain Lion Year: 2009/10

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	5	4	9	2	22%	NO
2007	6	5	11	3	27%	NO
2008	6	4	10	0	0%	NO
2008	7	3	10	0	0%	NO
2009	4	8	12			
				2-Year Mean	0%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	Unit 12A/12B/13A - Unitwide	None	None
Standard				
Standard				

Submitted by: Todd Buck
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: [signature] Date: 3/9/11

Unit(s): 12A,12B,13A Species: Mountain Lion Year: 2011

Management Notes:

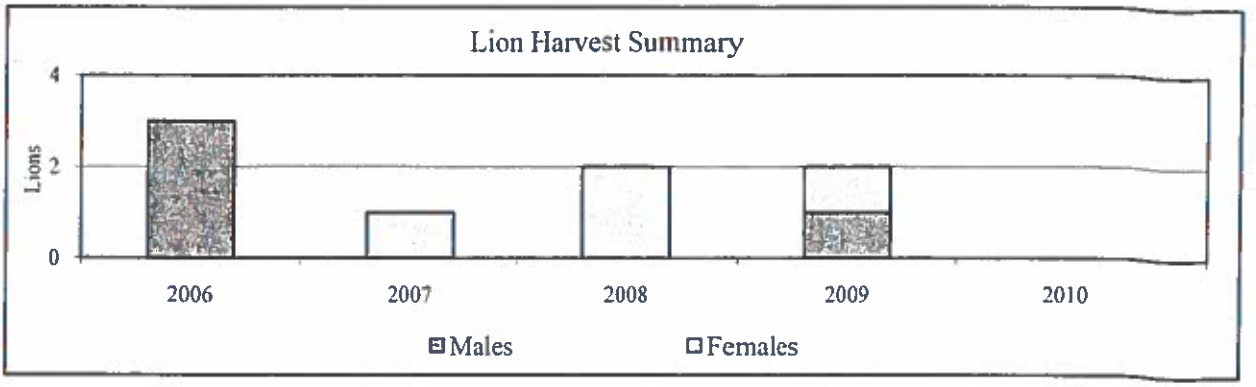
At the direction of regional game staff the harvest totals for 13A, 12A, and 12B were grouped for analysis of current harvest data. Current mountain lion harvest levels do not indicate a negative impact on the lion population. It is therefore proposed that the standard lion season be implemented in 12A/12B/13A for 2011.

Unit(s): 13B Species: Mountain Lion Year: 20 10/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	3	0	3	0	0%	NO
2007	0	1	1	0	0%	NO
2008	0	2	2	1	50%	YES
2009	1	1	2	1	50%	YES
2010	0	0	0			
				2-Year Mean	50%	YES

Management Considerations: *Evaluate Adjacent Unit Zone Management
*Consider Female Harvest Limit



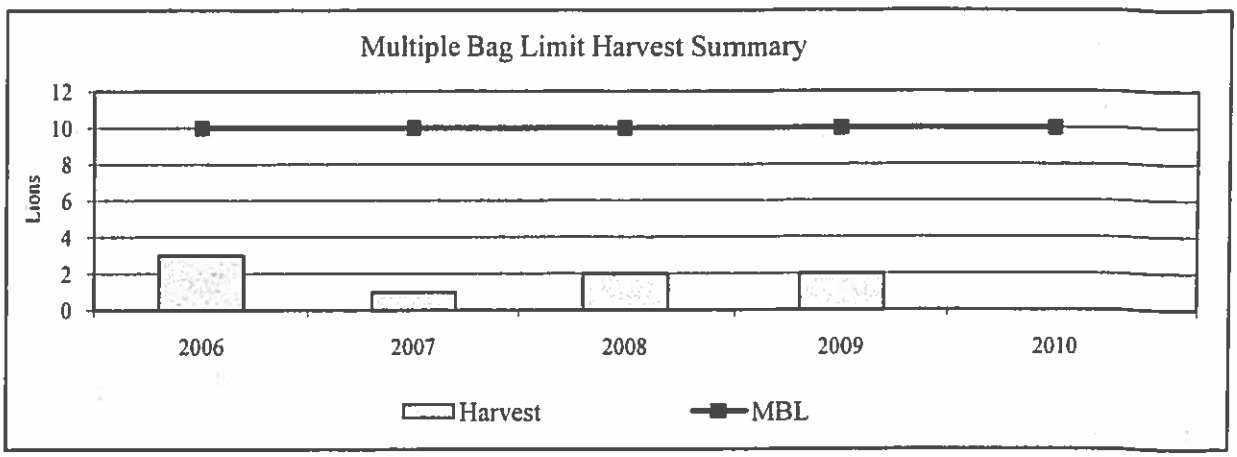
Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	13B - Not Including the 13BS portion	None	None
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	13BS	10	

Submitted by: Luke Thompson
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAm Date: 3/9/11



Significant Management Issues, Opportunities or Challenges:

The 13BS hunt unit has a multiple bag limt that has been in effect since 2002. ~17 mountainlions have ben harvested as part of this hunt. The objective in establishing this multiple bag limit hunt was to 1) remove predatory pressure on a struggling 13BS bighorn sheep population in hopes to improve survival and lamb production, and 2) provide an incentive to moutnain lion hunters to travel to 13B and harvest when they would otherwise would not becuase of hunting areas in closer proximity to home.

In recent years triggers for the 13BS bighorn sheep population have been established that would determine the appropriateness of the multiple bag limt lion hunt. Those triggers have been clarified and are as follows:

To Continue the Hunt: The following stipulations apply:
1. A five-year average lamb:ewe ratio lower than what is recommended by Remington for a stable Arizona Bighorn Sheep Population (22:100);
2. A decline in the average number of class III and IV rams available for harvest within the population. The 15% threshold would be equal to 2 or fewer permits on the permit worksheet;

To End the Hunt: The following stipulations apply:
1. An average lamb:ewe ratio above what is recommended by Remington for a stable Arizona Bighorn Sheep Population (22:100), based on survey data for two consecutive survey periods;
2. An increase in class III and IV rams available for harvest. The 15% threshold would be equal to 3 or more permits on the permit worksheet;
3. No Lion Harvest for 3 consecutive years.

In general 1 stipulation has been met to continue the hunt, and 1 stipulation has been met to end the hunt. It is recommended to continue the multiple bag limit hunt with the discussion below.

*
*

The 13BS mountain lion population has historically relied on mule deer as a primary prey base. In 13B, the migratory nature of the mule deer population brings mountain lions into the habitat of bighorn sheep during the winter months and resident mule deer encourage mountain lions to remain in proximity to the bighorn sheep. For many years, the 13B mule deer population was struggling with growth and the logical tenet was that mountain lions would rely on alternative prey.

Mountain lion predation on bighorn has been documented in the Grand Wash Cliffs and is a potential control on a struggling bighorn sheep population. In fact the 13BS bighorn population, until recent years, has experienced low lamb production, and ram survival. Data and biological knowledge suggested that mountain lion predation may be one factor limiting thie 13BS bighorn popualtion. It was not until 2008 that these indicators seemed to improve.

Mountain lion hunters do not typically come to 13B to hunt. In general the area is very difficult to hunt, and there are areas more conducive closer to home. Out of state hunters don't hunt 13B because of the same reason and increased cost. Until various game management units close to moutnain lion hunting from a true harvest objective approach, hunters will likely continue to hunt somewhere else.

The multiple bag limit hunt provides an incentive to mountain lion hunters to harvest in 13B when they normally would hunt elsewhere, while at the same time allowing the Department to use an effective predator management tool in management of the bighorn sheep population.

It should also be noted that the mule deer popualtion throughout 13B has increased in recent years and mountain lion sightings have also increased. In 2009 4 mountain lions were observed together on Black Rock Mountain, and in 2010, several photographs at different time intervals showed 4 mountain lions together on Whitmore Point. 2 seperate lions have been documented through track sign in the Mt. Dellenbaugh area for several years.

These types of sightings were uncommon prior and is a direct indication that the mountian lion population is responding favourably to the prey base, despite the continued multiple bag limt hunt. In other words, the multiple bag limit hunt does not appear to be having an adverse impact on mountain lions.

Incidentally, mountian lion harvest in 13A has increased in 2010 and is likely a direct result of the burgeoning mule deer population in 13A.

Related to the remainder of 13B, it is felt that mule deer and bighorn sheep populations are doing fine and a population managament hunt is not immediately necessary. Standard mountain lion harvest is sufficient in the remainder of the unit.

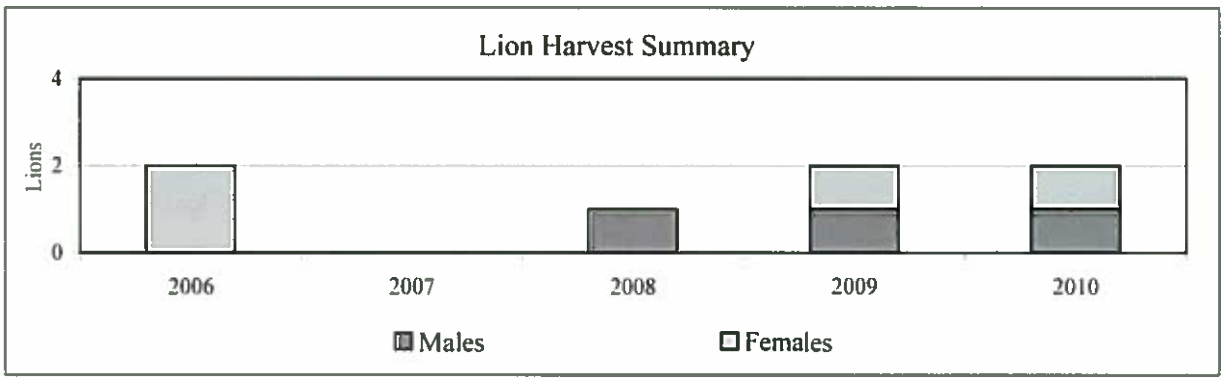
Unit(s): 15BW, 15C, 15D Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006		2	2	1	50%	YES
2007			0		#DIV/0!	#DIV/0!
2008	1		1		0%	NO
2009	1	1	2	1	50%	YES
2010	1	1	2			
				2-Year Mean	33%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	15B West, 15C, 15D	10	

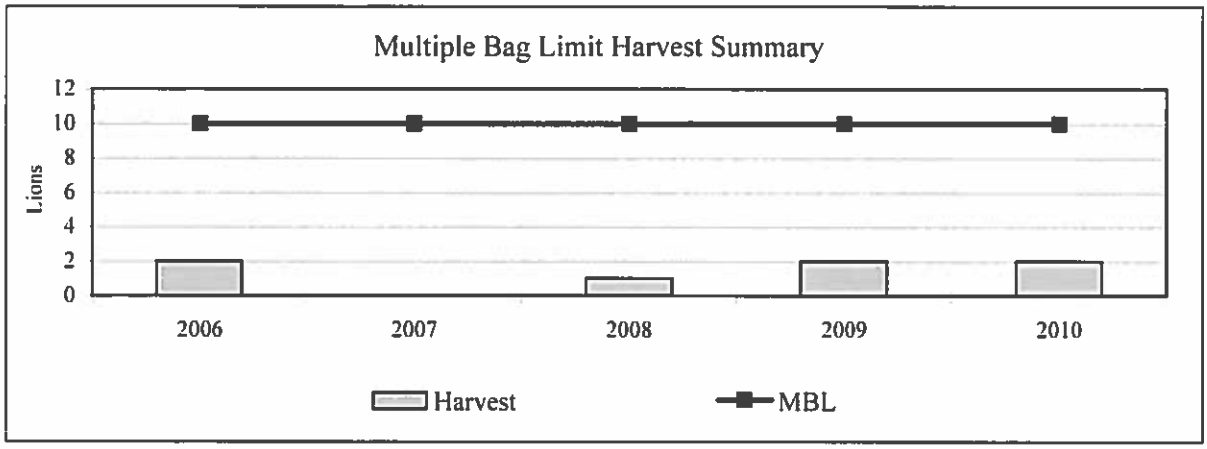
Submitted by:

Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: Date: 3/11/11

Unit(s): 15BW, 15C, 15D Species: Mountain Lion Year: 2010/11



Multiple Bag Limit Triggers are as follows:

* Sheep/hour observed in Unit 15CS reaches the 20-year average of 18.1 sheep/hr. In 2010 it was 7.4, which is not as good as 2009 at 9.6 sheep/hour.
* Average sheep observed in Unit 15CS reaches the 20-year average of >108 sheep. In 2010 it was 49, which is better than 2009 at 38 sheep observed.

In the 2004-2005 hunt season, Units 15BW, 15C and 15D were added to the multiple bag limit hunt area, as outlined in the recently update Black Mountains Predation Adaptive Management Plan. The hunt is to encourage removal of mountain lions by sport hunters to reduce predation on a declining bighorn sheep population. The harvest objective was placed at 10 due to the high density of lions in the area.

Mountain lion predation has recently been documented in Unit 15BW by the regional wildlife technician. The technician has been tracking at least one lion which is preying on bighorn sheep from Oct till now. The technician believes there may actually be two lions living in Unit 15BW and the number of sheep being eaten is actually higher than the 4 documented lion kills. This predation could be a factor in the decreased sheep observation seen during the sheep survey in 2010.

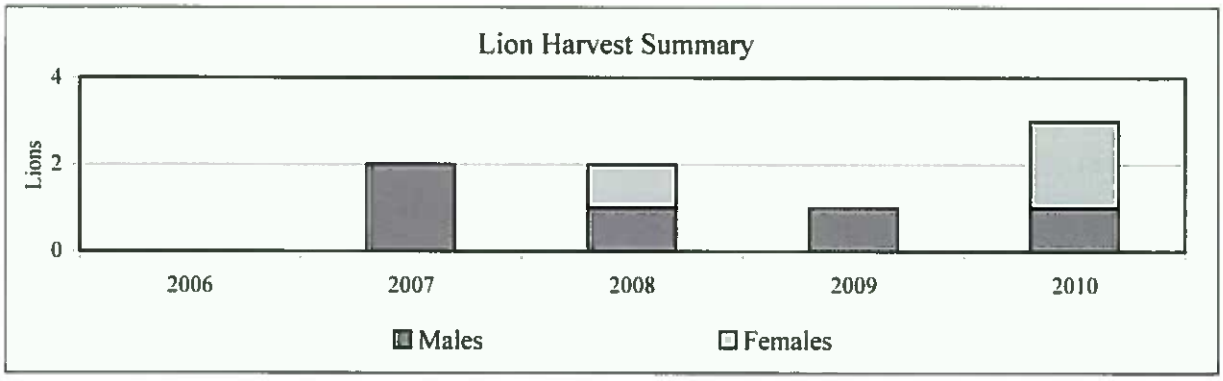
Unit(s): 16AS, 18BS Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	0	0	0		#DIV/0!	#DIV/0!
2007	2	0	2		0%	NO
2008	1	1	2	1	50%	YES
2009	1	0	1		0%	NO
2010	1	2	3			
				2-Year Mean	33%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	16AS, 18BS	15	

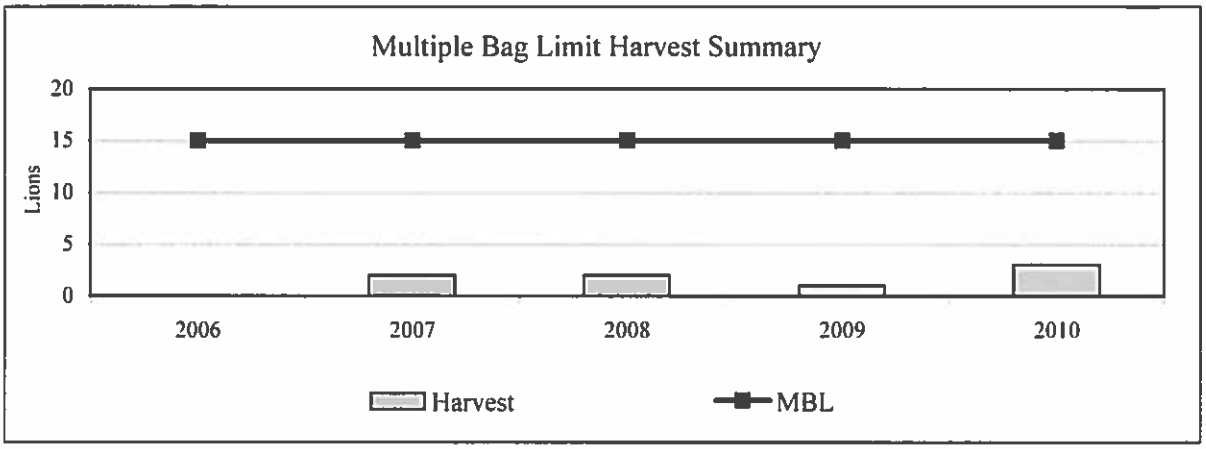
Submitted by:

Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAM Date: 3/11/11

Unit(s): 16AS. 18BS Species: Mountain Lion Year: 2010/11



Multiple Bag Limit Triggers are as follows:

* The bighorn sheep herd reaches a self sustaining level. In 2009, only 13 sheep were observed. In 2010, 37 sheep were observed. An additional release is planned for November 2011.
* Less than 10% of the bighorn mortalities can be attributed to mountain lion predation. In 2010 there were no lion predation documented on bighorn sheep.

In November 2006, 28 bighorn sheep were released in Hell's Half Acre; then another 27 were released in 2007. The release planned for 2008 and 2009 was cancelled, but hopefully a third release will occur in 2010. Units 18BS & 16AS were added as a multiple bag limit hunt area to allow the bighorn sheep transplanted to settle in the area. Lion track surveys indicated a high density of lions in the area, so the harvest objective was 15 placed at 15 lions.

Unit 16AS should continue to be included since un-collared, ear-tagged sheep have been documented in Unit 16AS and have been documented crossing Highway 93 between Burro Creek and Kaiser Spring. A number of transplanted sheep reside in Unit 16AS at certain times of the year.

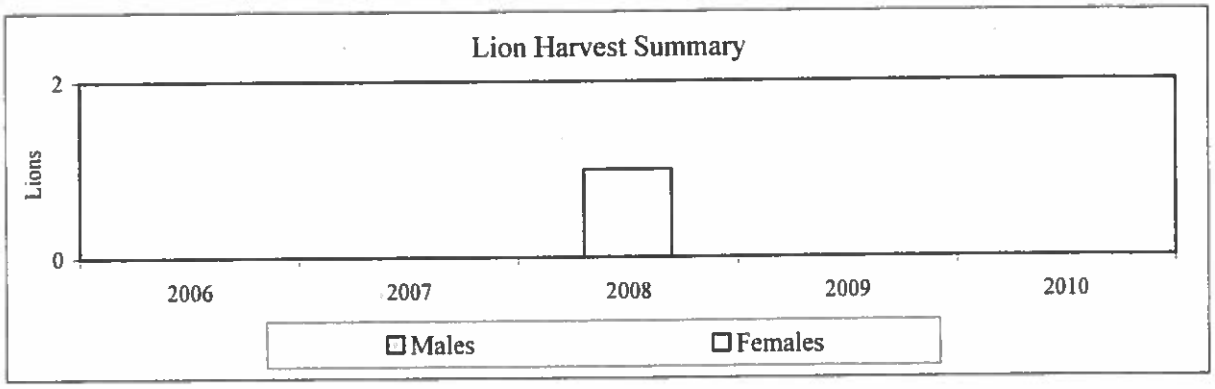
Unit(s): 39, 40A Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	0	0	0	0	#DIV/0!	#DIV/0!
2007	0	0	0	0	#DIV/0!	#DIV/0!
2008	0	1	1	0	0%	NO
2009	0	0	0	0	#DIV/0!	#DIV/0!
2010	0	0	0			
				2-Year Mean	0%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	40A ~~and 39E~~	4	None

Submitted by: D. Urquidez
Wildlife Manager(s)

Amendments & Notes:

adding unit 39E Not Approved

Game Branch Approval: AAM Date: 3/15/11

Significant Management Issues, Opportunities or Challenges:

The South Maricopa Mountains are part of a complex of mountains that also experienced a bighorn sheep, mule deer, and javelina population crash during the same period as GMU 40A.

GMU 39E is immediately north of GMU 40A's boundary. Several lion sightings were reported, as well as several photos of lions in the South Maricopa Mtns. In 2010, a lion was photo trapped in a wash of the North Maricopa Mtns. In 2009, one female lion was photo trapped with two yearling lions in the South Maricopa Mtns. Since a lion's range is large, and is not restricted by roads or highways with low traffic volume, I recommend including GMU 39E.

Over the past three summers, trail cameras have photo-trapped several lions throughout Area B, BMGR. In 2009, two separate females were photo trapped with twin kittens each. In addition, in 2008 several lions were also photo-trapped throughout the Vekol Valley area. Over the past years, ADOT employees have reported four lion roadkills along Interstate 8.

Currently, this department guidance suggests setting up lion management zones based on major interstate highways. Past lion genetic and corridor studies suggest lions don't cross major highways. More specifically, the high volume of vehicles on an interstate will act as a moving fence prohibiting lions from crossing, as recorded from an earlier corridor study. I recommend we make an exception for GMU 39E. I inquired about whether S.R. 85 from Gila Bend to Buckeye has a higher tempo and traffic volume then Interstate 8 from Gila Bend to Casa Grande. The Gila Bend ADOT and DPS substation representatives supports S.R. 85 has a higher traffic volume. ADOT website discusses further planning actions for S.R. 85 from Gila Bend to Buckeye as part of the CANAMEX corridor. In 2002, this segment of highway, a two lane undivided highway, was upgraded to a four lane divided highway with auxiliary lanes, left turn medians, and frontage roads as part of the NAFTA by-pass. ADOT reports 27,530 vehicles per day on this segment of highway and anticipates in twenty years 82,180 vehicles per day. After traffic reaches Gila Bend, most traffic flows to San Diego then Mexico respectively as per DPS officials in Gila Bend.

In the case of GMU 39E, lions are crossing Interstate 8, despite four roadkills and the similarities in declining populations of bighorn, deer, and javelina suggest this unit better fits in GMU 40A 's zone. In addition, crossing laterally to GMU 39W is unlikely due to the current rate of vehicle volume and its anticipated increase.

The harvest objective should be discontinued using the following triggers: when bighorn sheep populations of GMUs 39E and 40A respectively reach a self-sustaining population level of 200, or if evidence indicates that less than 10% of the bighorn sheep mortality can be attributed to mountain lion predation.

This recommendation supports the management goal of reducing lion predation on the struggling bighorn sheep populations in GMU 40A and nearby GMU 39E. It is well documented resident lions exist throughout GMUs 40A and the South Maricopa Mtns of GMU 39E. I don't see any reason to adjust the multiple bag limit at this time, because so few lions have been harvested in GMU 40A to date. I recommend the multiple-bag limit of 4 be maintained in GMU 40A and extended to GMU 39E.

Regional Notes:

Currently one lion is radio collared in GMU 39W. This lion's diet, based on lion kill, visits has consisted of rabbit, javelina, and deer.

In the near future, research branch plans are to trap and collar several lions within the Sonoran Desert National Monument. The core purpose is to document travel corridors throughout the Monument and surrounding area. In addition, Region IV will follow up with lion kill-site visits to determine these lions' diets in this area.

The multiple bag limit objective was set to temporarily reduce the number of lions to allow the existing bighorn sheep population to recover to sustainable numbers. The harvest objective has never been reached; it was implemented in 2005. The Sonoran desert terrain makes it nearly impossible to use dogs to trail lions. The most successfully method has been calling lions. Since the multiple bag-limit was established, one lion has been taken by a varmint hunter using calls.

The bag-limit was derived from estimated lion populations based on preferred habitat and incidental observations. A best educated guess was used at the time because time, manpower, and resources were not available to complete track surveys or any other reliable survey method of the time.

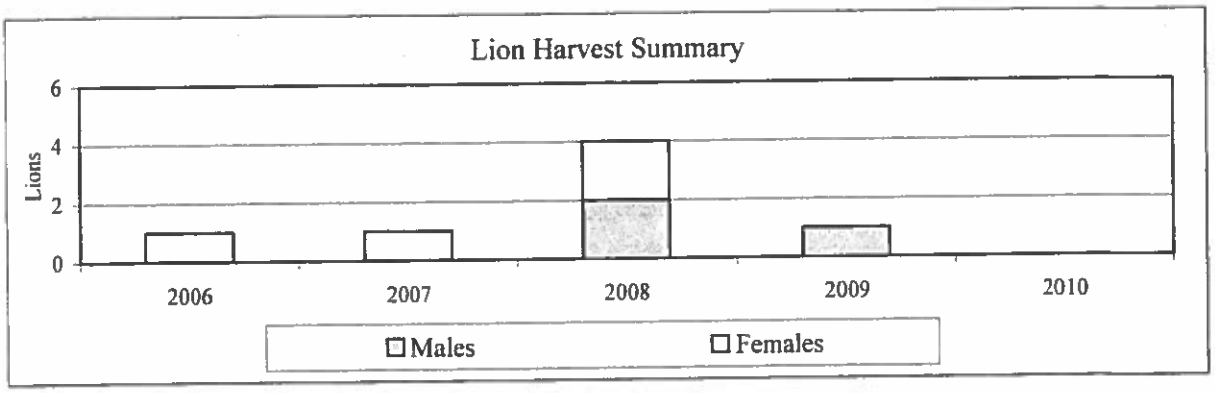
In 1993, the department estimated lion densities for GMU 40A ranging from 0 to 16 in about 1030 sq. mi. In 2004, the average lion densities ranged from 7 to 26 in about 1082 sq. mi. Today, game trail cameras has allowed us to easily confirm more than 7 lions exist throughout this unit. While photo trapping several solitary lions throughout the unit, two separate females with kittens were also photo trapped. While these observations were being recorded, in an adjacent unit, GMU 39E, a female lion with two yearlings were photo trapped. Despite the removal of cattle from the northern half of GMU 40A and a low prey density, based on our deer-javelina and bighorn surveys; lions are still prospering.

Unit(s): 42 Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	0	1	1	1	100%	YES
2007	0	1	1	1	100%	YES
2008	2	2	4	2	50%	YES
2009	1	0	1		0%	NO
2010	0	0	0			
				2-Year Mean	40%	YES

Management Considerations: *Evaluate Adjacent Unit Zone Management
*Consider Female Harvest Limit



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	Unit 42 Unitwide	None	None
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	42 (South of the Buckeye Aguila Rd and west of 355th	2	None

Submitted by: Craig Heath
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAM Date: 3/15/11

Significant Management Issues, Opportunities or Challenges:

Background:

Mountain Lion management in Game Management Unit 42 is closely tied to the management of the remnant desert bighorn sheep population in the unit. A total of 49 bighorn sheep (41 with radio collars) have been released into the Big Horn Mountains in three separate releases (2005, 2007, and 2010). Aerial telemetry flights are conducted to track the collared sheep. Sheep mortalities are recovered when detected and a cause of death determined by evidence at the site. Lion predation has been a significant cause of death for this sheep population.

Results

Sixteen of the collared sheep in the Big Horn Mountains have died (1 capture related, 11 lion kills, and 4 unknown causes). The two known sheep mortalities in the last year were verified mountain lion kills.

A harvest objective of 2 lions has been set for the Big Horn Mountain complex for the past four years. No lions have been taken from this area since the objective was set. Triggers were set to discontinue the harvest objective. One objective is when the bighorn population reaches a self-sustaining level of 100 bighorns within the unit. The other is when less than 10% of radio-collared bighorn mortalities can be attributed to mountain lion predation. Neither objective has been met.

Telemetry flights continue to be flown for locating the collared sheep in the area. There are 22 active collars on sheep in the Big Horn Mountains. Based on survey flights and spring lamb counts the total bighorn population in the mountain range is estimated at 55 animals.

It is recommended that the multiple bag limit of 2 lions remain in effect for the area south of the Buckeye-Aguila Road and west of 355th Ave.

Regional Notes:

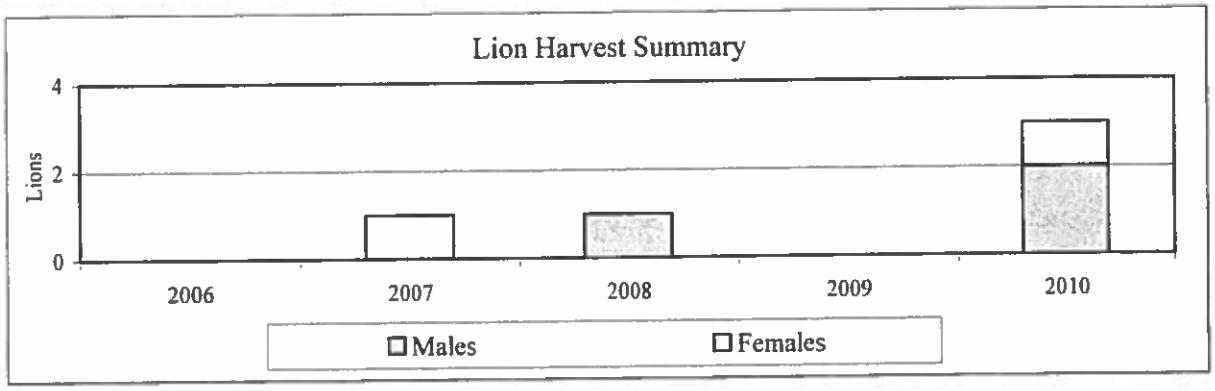
Unit(s): 44A & 44AE Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	0	0	0		#DIV/0!	#DIV/0!
2007	0	1	1	1	100%	YES
2008	1	0	1		0%	NO
2009	0	0	0		#DIV/0!	#DIV/0!
2010	2	1	3			
				2-Year Mean	0%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	Unit 44A West of Cunningham Wash	None	None
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	Unit 44A East of Cunningham Wash	4	None

Submitted by: Stewart Kohnke
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAM Date: 3/15/11

Significant Management Issues, Opportunities or Challenges:

Hunt Unit 44A is partitioned into two hunt areas. One is the multiple bag limit area and the rest of the unit is the Standard. The boundaries for the multiple bag limit area are as follows: Beginning at Alamo Lake; southeasterly along the Wenden- Alamo Lake Road to Cunningham Wash, southwesterly along Cunningham Wash to McVay Road: south on McVay Road to AZ Hwy 72: southeasterly on AZ Hwy 72 to Vicksburg; south on the Vicksburg Road to I-10; easterly on I-10 to the Salome-Hassayampa road (Exit 81); northwesterly on this road to Eagle Eye road; northeasterly on Eagle Eye road to Aguila; east on U.S. Hwy 60 to AZ Hwy 71; northeasterly on AZ Hwy 71 to U.S. Hwy 93; northwesterly on U.S. Hwy 93 to the Santa Maria River; westerly along the Santa Maria and Bill Williams rivers to Alamo Lake. The multiple bag liit area is surrounding a major bighorn sheep transplant area.

From 1994 to 2001, one hundred and eleven desert bighorn sheep have been transplanted into 4 different locations in the Granite Wash and Harcuvar Mountains. Of these 111 total sheep 72 were fitted with VHF radio telemetry collars (Telonics, Inc., Mesa, AZ) and were monitored though January of 2006. Mortality signals were located as soon as possible after each telemetry flight. 49 mortalities were indicated but one was not recovered. Of the 48 documented mortalities, 23 were caused by mountain lion, 15 were undetermined but not obvious predation, five were capture related, four had evidence of bad sinusitis, one from falling and one drowned.

In 2000, twenty-five desert bighorn sheep were transplanted into the Harquahala Mountains. Of these 25 sheep, 13 were fitted with VHF radio telemetry collars and were monitored though January of 2006. Mortality signals were located as soon as possible after each telemetry flight. 9 mortalities were documented and 3 radio collars either malfunctioned or their battery went dead. Of the 9 documented mortalities, 8 were caused by mountain lion and the other one appeared to be malnutrition.

Of these 57 documented desert bighorn sheep mortalities investigated 31 or 54% were caused by mountain lion predation. These predations occurred throughout the habitat from low creosote-paloverde to chaparral-scrub type. Lion predations during the radio telemetry study occurred in the Harquahalas, Little Harquahalas, Granite Wash, and the Harcuvar Mountains.

Adjacent bighorn sheep habitat includes the Bighorn and Belmont Mountains in unit 42. Research associated with construction of the Hayden/Rhodes aqueduct documented movement of radio collared bighorn sheep between the Little Harquahala and Harquahala Mts. and between the Harquahala and Bighorn/Belmont Mts. (Krausman, Etchberger 1993).

Regional Notes:

Mountain lion sign and/or lion predations have been documented at almost every developed waterhole around these mountains. In 2009, eight deer predations have been observed at water developments in the multiple bag limit area. In 2006, fifteen deer predations were observed at a single water development on top of the Harcuvar Mountains.

Recommendation:
This unit has been open for the harvest of mountain lion, but only rarely is any harvest recorded. In the last five years only 5 lions were reported as harvested in 44A. It is hoped that the setting of a multiple bag with a harvest objective greater than one will encourage an increase in the sport take of mountain lions in this area. A temporary reduction in mountain lion numbers in bighorn sheep habitat is expected to reduce predation on sheep and help them to recover to a self-sustaining population level.

The harvest objective should be discontinued when the bighorn sheep population in this portion of Unit 44A reaches a self-sustaining level of 332. The current population estimate is 108 animals.

Population information for lions in this habitat type is scarce and population estimating techniques are few. One mapping strategy from several years ago categorized lion habitat using designations of sparse, low and medium habitat. The densities developed for each category were ranges, but the low end of the range seems most realistic in Region 4:
sparse = .001 lions per square mile (lpsm) X ~200 square miles multiple bag area (mba) = .2
low = .005 lpsm X ~1000 square miles in the mba = 5
medium = .01 lpsm X ~380 square miles in the mba = 3.8
Total = 9 lions X 50% = 4.5 or 4 lions

GMU 44A is shown to contain a total of 2363 square miles of habitat; 400.4 sq mi of sparse lion range, 1482 sq mi of low lion range, and 480.3 sq mi of medium range.

A harvest objective of 50 % of the population estimate would be 4.

We would like to maintain the multiple bag structure in the eastern portion of Unit 44A with a harvest objective of 4 lions.

The rest of the unit would be designated with the Standard lion hunt.

Unit(s): 44A & 44AE Species: Mountain Lion Year: 2010/11

3/23/10- Catchment 945 Harquahalas- 4 scat various ages and fresh scrape
3/23/10 - Catchment 937 Harquahala- fresh scrape
5/27/10 - Catchment 375 Harquahala- fresh scrape 50 yards downhill of catchment
6/22/10 - Catchment 441 Harcuvar- mule deer doe killed by Mountain lion
6/23/10 - Catchment 930 Granite Wash- Mountain lion on trail camera
6/29/10 - Catchment 442 Harcuvar- adult Mtn lion on camera
7/1/10 - Catchment 441 Harcuvar- Mule deer buck killed by Mtn lion
7/2/10 - Catchment 442 Harcuvar- Ault Mtn lion on camera
7/14 & 7/18/10 Catchment 930 Granite Wash- Mtn lion on camera
7/17/10 - Catchment 929 Granite Wash- lion kill doe approx 3 weeks old
8/29/10 - Catchment 596 Harquahala - fresh scat and scrape

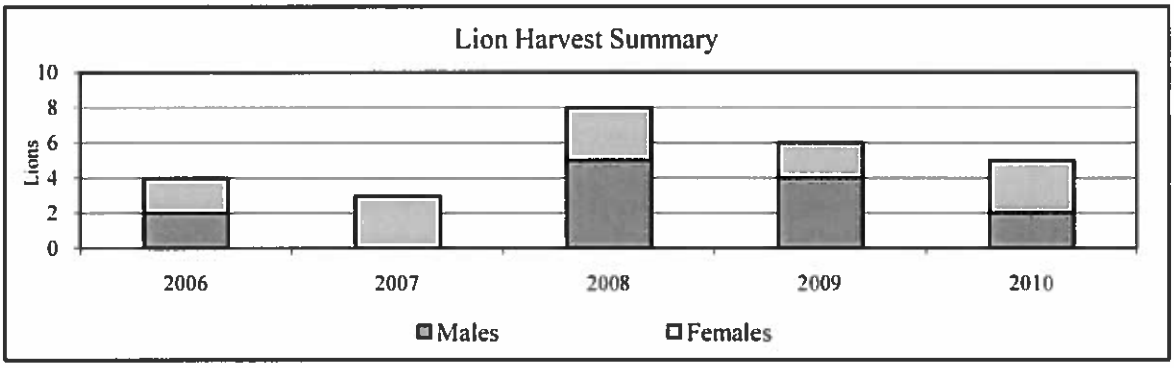
Unit(s): 37B Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	2	2	4	0	0%	NO
2007	0	3	3	1	33%	NO
2008	5	3	8	2	25%	NO
2009	4	2	6	1	17%	NO
2010	2	3	5			
				2-Year Mean	21%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

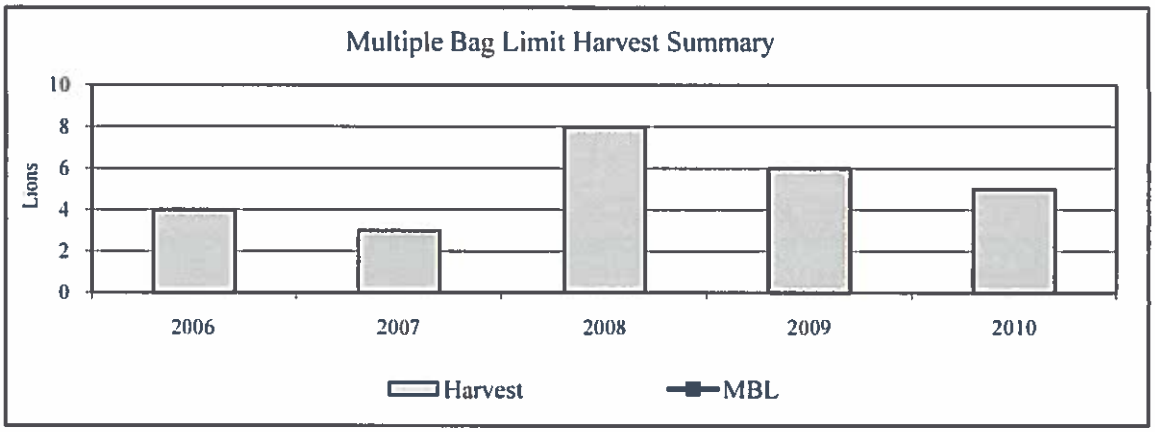
Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	Unit 37B - Unitwide	8	4

Submitted by: Ben Brochu
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: _____ Date: _____

Unit(s): 37B Species: Mountain Lion Year: 2010/11



A multiple bag limit (MBL) for mountain lions is being proposed for Game Management Unit (GMU) 37B for 3 reasons with the first being the primary goal and the second two being ancillary benefits to the initiation of a MBL. They are: 1) to establish a viable population of bighorn sheep in suitable but mostly unoccupied bighorn habitat in the Mineral Mountains in northern GMU 37B, 2) to increase hunter opportunity, and 3) to reduce lion depredations on livestock.

The MBL will run in conjunction with the Statewide Comprehensive Game Management Plan currently being developed by the Game Branch as well as a Ecological Management Area (EMA) Plan and Predation Management Plan for GMU 37B. These plans are also currently being developed.

Goal 1: To establish a viable population of bighorn sheep in suitable but mostly unoccupied bighorn habitat in the Mineral Mountains in northern GMU 37B. Once targets have been achieved for which the MBL was established, the MBL hunt structure will be removed from GMU 37B.

MEASURABLE OBJECTIVES

* The MBL will be discontinued in GMU 37B once a viable population of bighorn sheep has become established in suitable but mostly unoccupied bighorn habitat in the Mineral Mountains; **or -**
* After a period of five years and the determination has been made that the continued use of a MBL is not beneficial or necessary for the establishment of a viable sheep population.
* Once the MBL is discontinued and a viable population of sheep becomes established; it may be reinstated at a later date if sheep population levels fall to or below 30 individuals.

The Mineral Mountains have been identified in AGFD and BLM documents for the last two decades as a priority area to establish a robust population of desert bighorn sheep. In 2000, AGFD conducted a statewide bighorn sheep habitat analysis using the Cunningham/Hansen Habitat Evaluation Model (Lee et al. 2000), and the Mineral Mountains area rated as the highest currently unoccupied bighorn sheep habitat in southern Arizona.

Summary of efforts thus far in the Minerals - 2003 to Current

Fiscal Year 03/04 - In October, 2003 the AGFD captured and translocated 30 desert bighorn sheep (8 rams and 22 ewes) into the Mineral Mountains. Eleven were instrumented with radiotelemetry collars to facilitate monitoring of their status, location and survival.

Fiscal Year 04/05 - One year after the release 5 mortalities of collared sheep were documented. Causes of mortality were unknown for four individuals and attributed to a fall for one ewe.

Fiscal Year 05/06 - A 4.8-hour helicopter survey was flow on the 27th of October 2005. This survey resulted in a total of 12 sheep observations; 2 Rams (class I and II), 6 Ewes, 3 Lambs and 1 yearling male. Two of the sheep observed during this flight had active radio collars.

Fiscal Year 06/07 - Five radio collared sheep were still alive, 6 total mortalities of radiocollared sheep had been documented (one fall and 5 unknown were the reported causes of death). Also, 3-hour helicopter survey was flow on the October 15, 2006 - 7 bighorn sheep were observed; 3 ewes and 4 yearlings. An additional 3 bighorn sheep were observed as incidentals and included 2 rams (class I and II) and 1 ewe.

Fiscal Year 07/08 - Three of the 11 radiocollared sheep are still confirmed alive. A secondary supplemental release took place on November 18, 2007, 10 bighorn sheep (7 ewes, 1 lamb, and 2 rams) were released to augment the population. Four sheep released in 2007 were fitted with radio-collars.

Fiscal year 08/09 - A two day helicopter survey was flown on October 29th and 30th, 2008. Eleven bighorn in four groups were observed during the 4.6 hours of survey. There were 4 rams, 1 class I, 3 class II's and a class III and also 6 ewes observed. No yearlings or lambs were observed.

Fiscal Year 09/10 - No further confirmed mortalities of radiocollared sheep were documented.

Fiscal Year 10/11 - On November 16/17, 2010, 30 sheep were captured and released (22 females and 8 males). Twenty collars (10 GPS and 10 VHF) were placed on the sheep to monitor status, location, and survival. As of February, 2011, 19 of 20 collared sheep are still alive. On 12/27/10, a mortality signal was detected on one of the 10 sheep with telemetry collars (VHF). A site visit on 12/28/10 revealed the carcass of ewe 25. The cause of death was officially ruled as unknown from what remained of the skeleton; however lion sign was observed in the area.

Summary: Since 2003, 70 sheep have been translocated into the Mineral Mountains. The lack of recruitment as shown in the survey data appear to be limiting this population from becoming established and viable. Carr and Ohmart (1987) and Cunningham et al. (1987) respectively reported similar findings in the Horse Mesa and Coffee Flat releases in the Superstitions. Cunningham et al. (1993) reported similar findings initially with the Aravaipa release, which stemmed from 22 individuals, from 1973 to 1975. However after 1975, Dodd (1982 and 1983) reported that the Aravaipa herd grew rapidly and in less than 10 years was estimated at over 100 individuals. The population was estimated to double every four to five years. The Aravaipa herd, from its release, experienced a geometric growth rate and was projected to reach a population of 160 by 1985. This population experienced a high rate of increase between the years 1973 to 1983, averaging greater than a 20% annual increase. The Aravaipa herd, based on fall survey data, averaged a 50% rate of recruitment. Remington (1990) states that in favorable habitats, beginning with an initial minimum population of 20 individuals, and somewhat irrespective of annual weather fluctuations, bighorn sheep populations in Arizona should be able to double every four to five years, until carrying capacity is reached.

While multiple factors may be associated with the inability of the sheep in the Mineral Mountains to become established (predation, dispersal from translocation sites, disease, human recreation, and habitat quality), predation may be the most likely and something we may be able to control using a MBL.

Predation - While not normally a concern with a healthy population, predation may be depressing or inhibiting recovery of the population in the Minerals because the sheep population is and has been so low. Bighorn released into areas where no other bighorn are present may encounter mountain lions soon after release. Such bighorn may be highly vulnerable to predation until their knowledge of the area increases. Bighorn translocations at Ives Peak (Region IV) and Galiuros (Region V, GMU 32) failed, due mostly to predation by a lions immediately after release (evidenced by numerous radiocollared sheep killed by one or more lions). Research in southeastern Arizona (Bristow et al. 1996, Cunningham et al. 1995) showed that 1 or 2 lions can specialize in killing bighorn sheep and potentially impact an isolated sheep population even if it is not new to the habitat.

As identified in the Black Mountains Predator Management Plan, (AGFD 2006) 19 of 28 recorded mortalities of radio-collared sheep from April 2004 to March 2006 were attributed to mountain lion predation. Of the 28 total recorded mortalities on radio-collared bighorn sheep, 16 were ewes, 12 were rams; while 11 of the 19 mortalities attributed to lion predation were ewes, and the remaining 8 were rams.

Declines in the Peninsular and Sierra Nevada populations of bighorn sheep, which are currently listed as endangered by the USFWS, have been attributed to a combination of mountain lion depredation and disease. Other populations, such as the San Gabriel Mountains herd in California, have declined from over 500 animals to less than 90 since 1989 almost exclusively attributed to mountain lion depredation (CA Dept. of Fish and Game).

To develop a better understanding of the factors that resulted in a declining bighorn sheep population in central Arizona, McKinney et al. (2004) studied a desert bighorn sheep population in the Mazatzal Mountains during 1999–2003 to determine concurrent influences of disease exposure, nutritional status, predators, and rainfall on population growth and lamb production. Demographic indices obtained during annual surveys indicated the population declined from 1994–1997, experienced low growth and lamb production through 1999, and exhibited upward trends of growth and production during 2000–2003, despite persistent drought conditions.

Disease exposure during 2000–2002 did not correspond with livestock presence, rainfall, or dynamics and nutritional status of the desert bighorn sheep population. Evidence of bacterial and viral activity persisted during the study, and was unremarkable in comparison to bacterial prevalence, and seroprevalence and antibody titers against disease agents reported for other desert bighorn sheep populations. However, livestock removal by early 2001 was followed by lower incidence of pneumophilic bacteria in nasal swab specimens, suggesting linkage between livestock presence and bacterial exposure.

Relative nutritional status of adults and lambs indexed by concentrations of fecal nitrogen, 2, 6-diaminopimelic acid, minerals, and blood chemistry, did not prevent lamb production and population growth during 1999–2003. Forb production, forage quality, desert bighorn sheep nutritional status, population growth, and lamb production tended to be higher during wetter than drought years, but nutritional status of adults and lambs was adequate

to maintain population growth and production during drought conditions. Delayed lambing in 2003 suggested marginal or deficient nutritional status during severe drought in 2002. Decline of desert bighorn sheep abundance on Mazatzal Mountains during 1994–1997 was less than declines on reference areas lacking mountain lions. Mountain lion predation was a limiting factor for radiocollared desert bighorn sheep on the Mazatzal Mountains during 1995–1998.

During 2000–2003, bobcat and coyote scats evidenced no predation or scavenging of desert bighorn sheep on the Mazatzal Mountains study area. Mountain lion reductions on Mazatzal Mountains after 1999 resulted in lower predator abundance and corresponded with higher desert bighorn sheep population growth and lamb production, despite persistent drought. We conclude winter rainfall interacted with mountain lion predation to influence growth and production of the desert bighorn sheep population, but diet data, documented kills, and predator removal during 2000–2003 indicated predation by mountain lions was the primary, strongly additive limiting factor.

Dispersal from translocation sites – While this is a possibility, of the 70 sheep translocated into the Minerals, 35 of which were collared, none dispersed out of GMU 37B.

Disease - Cunningham et al. (1993) speculated that a disease vector inhibiting population growth may have been a factor in the lack of reproduction in the Coffee Flat translocation in the Superstition Mountains. They speculated that a livestock disease could be increasing lamb mortality. Also, Dodd (1981) sampled four yearling sheep in the Aravaipa translocation, none of which exhibited disease titers, indicating a potential window of disease vulnerability. To date, there have been no attempts to recapture sheep in the Mineral Mountains to test this theory.

Human Recreation – Hikers (with and without dogs), trail development, and off road vehicle use have been speculated as being associated with limiting the population growth of bighorn sheep in the Minerals, however, this theory also remains untested.

Habitat Quality – As previously stated, using the Cunningham/Hansen Habitat Evaluation Model (Lee et al. 2000), the Mineral Mountains were rated as being the best currently unoccupied sheep habitat in southern Arizona. The Minerals had 84 (1.5mi^2) cells of which 7 rated as excellent, 30 good, 61 fair and 2 poor. This area also receives 8-20 inches of precipitation per year. Little can be done from a management perspective to influence the habitat quality of this area

AGFD Governing Documents Supporting a MBL for Goal 1-
Predation Management Policy, Species Management Guidelines, Hunt Guidelines and the Arizona Game and Fish Department Predator Management Team Report

Commission Order 7: Bighorn Sheep
The Department's Bighorn Sheep Management Goals - To increase bighorn sheep populations and to provide diverse recreational opportunities, while avoiding adverse impacts to the habitat.

Commission Order 10: Mountain lion
Guideline #5 - Multiple bag limits may be offered in hunt units or a portion of a hunt unit to increase lion hunting opportunity. These should be designed to assist in achieving population objectives for another wildlife species. When targets have been achieved for which

multiple bag limits were established, the multiple bag limit hunt structure should be removed from that unit.

Bighorn Sheep Management Guidelines
Goal - Increase bighorn sheep populations and provide diverse recreational opportunities.
Objective #6 - Maintain the existing range of all subspecies in Arizona, and repopulate historical range through translocations.
Species-Specific Strategy #2 - Establish self-sustaining populations at all new transplant sites.

Hunting and Recreational Opportunity Strategies, Mountain Lion
Strategy #1 - Maintain multiple bag limit areas where the objective is a reduction of mountain lion abundance. This will allow hunters to continue to participate in mountain lion hunting in areas that will benefit other wildlife species to meet specific management objectives.

Wildlife Predation Strategies, Mountain Lion and Bear
Strategy #1 - Continue to use site-specific predation management plans as directed through the Commission's Predation Management Policy to address situations where other wildlife species have been recently translocated or where the other wildlife species is below population management objectives.

Strategy #2 - Continue to use multiple bag limits to provide increased hunter opportunity within hunt areas where increased removal of mountain lions may benefit prey species that are below management objectives.

Goal 2: To increase hunter opportunity. A MBL in 37B will increase hunting opportunities, while accomplishing given objectives as stated in Goal 1. Currently, there are no MBL units available in southeastern Arizona.

There has been much discussion on the use and effectiveness of a MBL. While the creation of a MBL in some units has not resulted in any increased lion harvest, it does result in increased hunter opportunity. This being the case, one must ask; if biologically the MBL results in no net increase in lion harvest, what then is the harm in increasing hunter opportunity through the use of a MBL.

AGFD Governing Documents Supporting a MBL for Goal 2-
Predation Management Policy, Species Management Guidelines, Hunt Guidelines and the Arizona Game and Fish Department Predator Management Team Report

Commission Order 10: Mountain lion
The Department's Lion Management Goal - To manage the mountain lion population, its numbers and distribution, as an important part of Arizona's fauna while providing maximum mountain lion hunting and other recreational opportunities.

Commission Order 10: Mountain lion
Guideline #5 - Multiple bag limits may be offered in hunt units or a portion of a hunt unit to increase lion hunting opportunity. These should be designed to assist in achieving population objectives for another wildlife species. When targets have been achieved for which multiple bag limits were established, the multiple bag limit hunt structure should be removed from that unit.

Wildlife Predation Strategies, Mountain Lion and Bear
Strategy #2 - Continue to use multiple bag limits to provide increased hunter opportunity within hunt areas where increased removal of mountain lions may benefit prey species that are below management objectives.

Goal 3: To reduce lion depredations on livestock. A MBL may reduce lion depredations on livestock thereby improving relationships with livestock operators. Also, hunters may be more likely to pursue depredating lions with a MBL in place, which will allow for an increase in bag limit and sport harvest of lions.

AGFD Governing Documents Supporting a MBL for Goal 3-
Predation Management Policy, Species Management Guidelines, Hunt Guidelines and the Arizona Game and Fish Department Predator Management Team Report

Livestock Depredation Strategies, Mountain Lion and Bear
Strategy #1 - Intensive harvest of female mountain lions in an area, even though they are responsible for comparatively fewer cattle depredations than are males, could theoretically reduce mountain lion depredations on cattle because male mountain lions may spend less time in areas with fewer breeding females.

Strategy #2 - Collaborate with Wildlife Services, guides, ranchers and the land management agencies where depredations of livestock by mountain lions and black bears occur to increase additional hunting and guiding opportunity under the current depredation law A.R.S. § 17-302 and associated Commission Rule A.A.C. R12-4-305(H).

Strategy #3 - When appropriate, use current hunt structures (limit, population management hunts, and multiple bag limits) to increase the harvest of mountain lions and bears in areas of high livestock depredation caused by mountain lion and black bear.

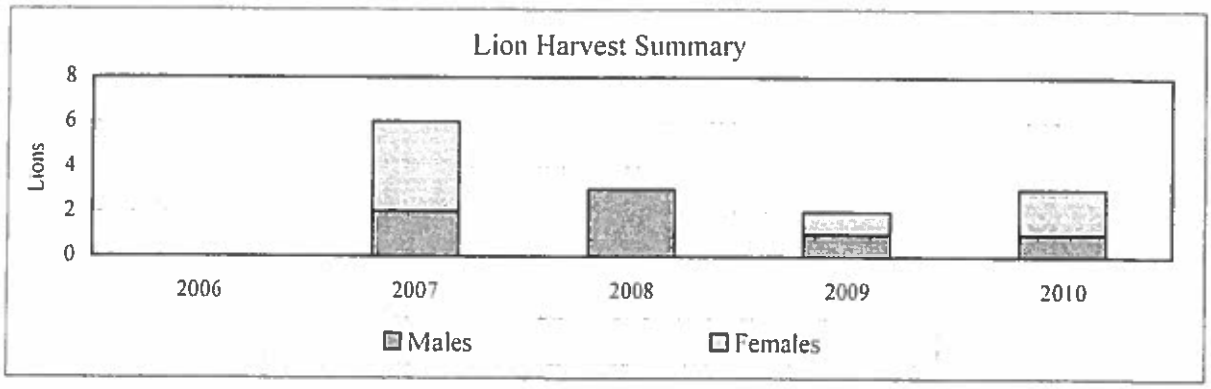
Unit(s): 20B Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (>3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	0	0	0	0	#DIV/0!	#DIV/0!
2007	2	4	6	2	33%	NO
2008	3	0	3	0	0%	NO
2009	1	1	2	0	0%	NO
2010	1	2	3			
				2-Year Mean	0%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19 2011-May ~~24~~ 2012	Unit 20B - Unitwide	None	None
	24			

Submitted by: R. BABEL
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: _____ Date: 3/8/11

Unit(s): 20B Species: Mountain Lion Year: 2010/11

Management Notes:

Mountain Lion Recommendation – Unit 20B

Submitted by: R. Babel

Open Season Dates: August 19, 2011 – May 24, 2012

Open Areas: Unit wide

Legal Animal: Any Mountain Lion except spotted kittens or females accompanied by spotted kittens.

Number of Permits: Unlimited

Change from last year: Season Dates

Three (3) mountain lions were reported by sport harvest in 2010. The harvest comprised of 1 male lion and 2 female lions.

One (1) male lion was taken because of depredation (Buckhorn Ranch). The Williams Family Ranch, located on the Hassayampa River voiced concerns about a livestock kill believed to be from Mountain lions and filed a depredation report. The hunter did not take a lion for the ranch.

Unit(s): 20B Species: Mountain Lion Year: 2010/11

Management Notes:

Unknown age for females for 2009 and 2010 at time of hunt recommendation .

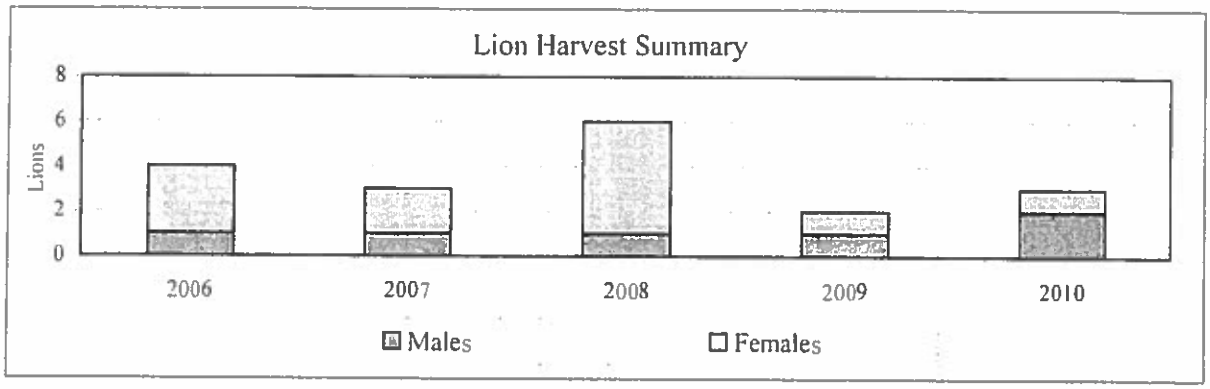
Unit(s): 21 Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	1	3	4	0	0%	NO
2007	1	2	3	1	33%	NO
2008	1	5	6	1	17%	NO
2009	1	1	2	1	50%	YES
2010	2	1	3			
				2-Year Mean	33%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May ~~17~~ 24, 2012	Unit 21	None	None

Submitted by: WM K. Cooper 675
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: [signature] Date: 3/8/11

Unit(s): 21 Species: Mountain Lion Year: 2010/11

Management Notes:

**Please provide explaination and justification for recommendations outside of guidelines.*

**This section may be used to document management information that may be instructive to future wildlife managers.*

**This section may vary by region; some regions may have other required information for this section.*

The 2010 harvest in unit 21 was three sport lion and no depredation reports. One lion was killed as a result of a vehicle collision. I spoke with several lion hunters this past season and all were not having problems locating lion tracks. One lion hunter I spoke with had treed several lions this past season but chose not to harvest the lion.
I recommend keeping the same hunt structure with the new season dates.

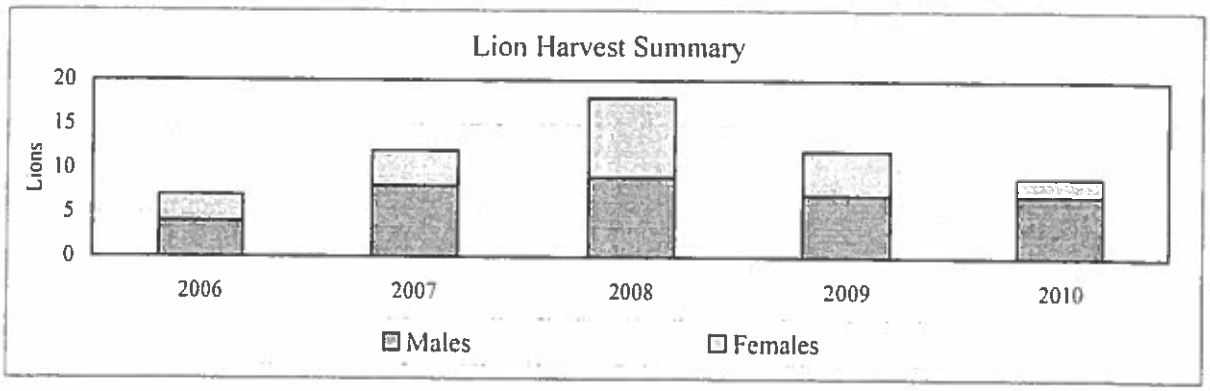
Unit(s): 22 Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (>3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	4	3	7	2	29%	NO
2007	8	4	12	3	25%	NO
2008	9	9	18	3	17%	NO
2009	7	5	12	2	17%	NO
2010	7	2	9			
				2-Year Mean	17%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011 - May 24, 2012	Unit 22- Unit wide 24m	None	None
Multiple Bag Limit (MBL)	July 1, 2011 - June 30, 2012	22S(south of Hwy 87 & FR 143, west of Hwy 188)	12	None

Submitted by: J. Dickson
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAM Date: 3/8/11

Unit(s): 22 Species: Mountain Lion Year: 2010/11

Management Notes:

A total of 9 lions (7male and 2 female) were harvested from unit 22. Three of these lions (2 males and 1 female) were harvested from the 22 south multiple bag limit area.

The mountain lion population in Unit 22 appears to be stable and healthy from the harvest information, therefore I recommend no change from the current standard hunt structure.

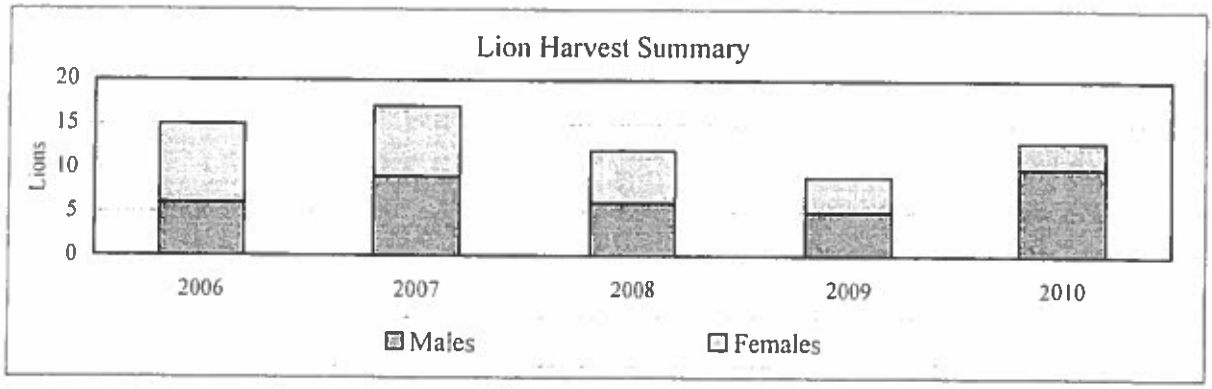
Unit(s): 23 Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (>3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	6	9	15	1	7%	NO
2007	9	8	17	3	18%	NO
2008	6	6	12	2	17%	NO
2009	5	4	9	3	33%	NO
2010	10	3	13			
				2-Year Mean	25%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	Aug. 19, 2011- May ~~24~~ 31, 2010	Unit 23 - Unitwide	None	None

Submitted by: Dave Daniels
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: _____ Date: 3/8/11

Management Notes:

Harvest Information: The three-year mean combined harvest of sport and depredation for Unit 23 is 11 mountain lions. Reported harvest last year was 13 mountain lions in Unit 23. Harvest in the past decade has fluctuated between 6 (1991) and 23 (1994), but is considered to be stable. Harvest the past five years was, 15 (2006), 17 (2007), 12 (2008), 9 (2009) and 13(2010).

Track Counts: Track counts are no longer conducted to monitor the mountain lion population changes.

Conclusion: The mountain lion population in Unit 23 appears to be stable and healthy. The lion harvest appears to not need more restrictions on take at this time. This year's harvest included 3 female and 10 male lions. Field observations include recognition that more mountain lions are killed during periods of snow as hunters utilizing hounds are more predominant and successful. No change from the current hunt structure is recommended.

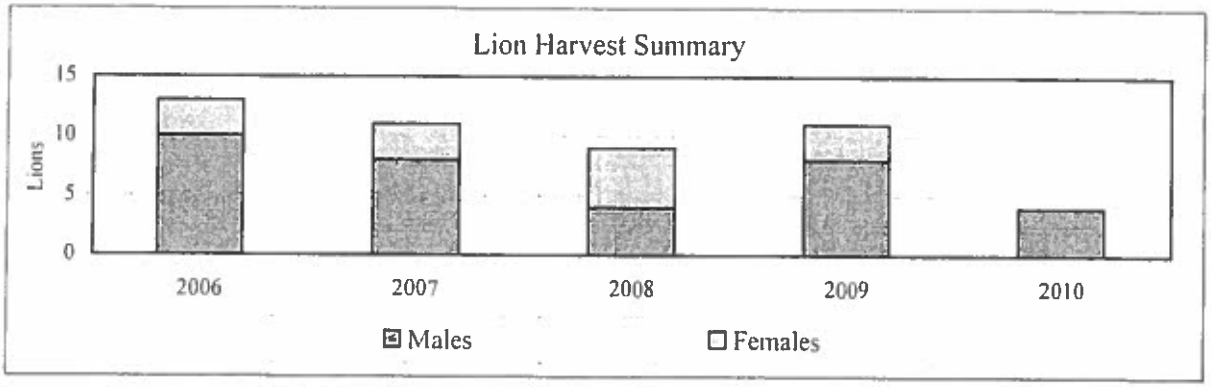
Unit(s): 24A Species: Mountain Lion Year: 2011/12

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	10	3	13	0	0%	NO
2007	8	3	11	1	9%	NO
2008	4	5	9	3	33%	NO
2009	8	3	11	0	0%	NO
2010	4	0	4			
			2-Year Mean		17%	NO

Management Considerations:

*Continue Single Unit Management
*No Female Harvest Limit Indicated



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011-May ~~24~~ 14, 2012	Unitwide	None	None
	24			

Submitted by: Danny Rodriguez
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: _____ Date: 3/8/11

Unit(s): 24A Species: Mountain Lion Year: 2011/12

Management Notes:

For 2010, a total of 4 lions were harvested of which all were males.

For 2009, a total of 11 lions were reported as sport harvest of which, 8 were males and 3 were females. In 2008, 4 males and 5 females were reported as sport harvest for a total of 9. In 2007, 8 males and 3 female lions were reported as sport harvest. In 2006, 13 lions were reported as sport harvested of which, 10 were males and 3 were females. In 2005, 10 lions were reported as sport harvested of which, 5 were males and 5 were females.

For 2009, the oldest male harvested was 4 and the youngest was 1 with an average age of 2.5. For 2009, the oldest female was 2 and the youngest was 1 with an average age of 1.5. Of the 9 lions harvested in 2008, tooth data was only available for 4 of them. The average age for lions harvested was 4 years old for males and 4.5 years old for females. The average age for lions harvested in 2007 is 2 years old for males and 3.5 years old for females. The average age for lions harvested in 2006 is 3 years old for males and 2 years old for females. In 2005, one lion was aged 3-4 years, one at 2-3 years, and two lions were 1-2 years old.

The unit is comprised of 810 square miles with 659 square miles classified as medium lion density and 162 miles as low mountain lion density. The population also fluctuates with the emigration-immigration of lions from San Carlos Reservation. Based on the age and harvest data, lion populations appear to be stable.

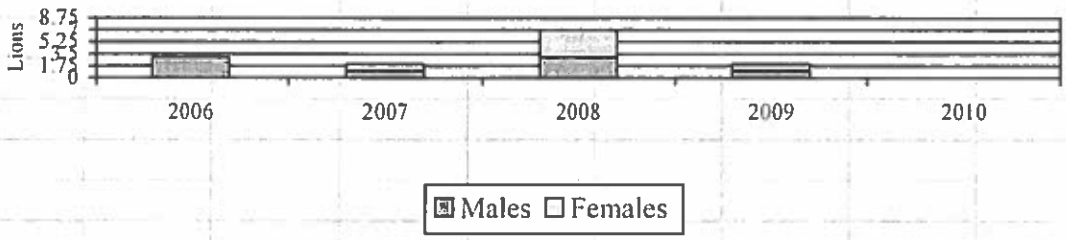
Unit(s): 24B Species: Mountain Lion Year: 2010/11

Harvest Summary:

Year	Male Harvest	Female Harvest	Total Harvest	Adult ♀ (≥3 yrs)	% Adult ♀ in Harvest	Adult ♀ Exceed 35% of Harvest?
2006	3	0	3	0	0%	NO
2007	1	1	2	0	0%	NO
2008	3	4	7	2	29%	NO
2009	1	1	2	2	100%	YES
2010	0	0	0			
				2-Year Mean	64%	YES

Management Considerations: *Evaluate Adjacent Unit Zone Management
*Consider Female Harvest Limit

Lion Harvest Summary



Hunt Recommendation:

Season Type	Season Dates	Open Areas	MBL Target	Female Limit
Standard	August 19, 2011-May 24, 2012	Unit 24B - Unit wide	None	None

Submitted by: D. McGehee
Wildlife Manager(s)

Amendments & Notes:

Game Branch Approval: AAM Date: 3/8/11

Unit(s): 24B Species: Mountain Lion Year: 2010/11

Management Notes:

No lions were reported taken in 24B during 2010.