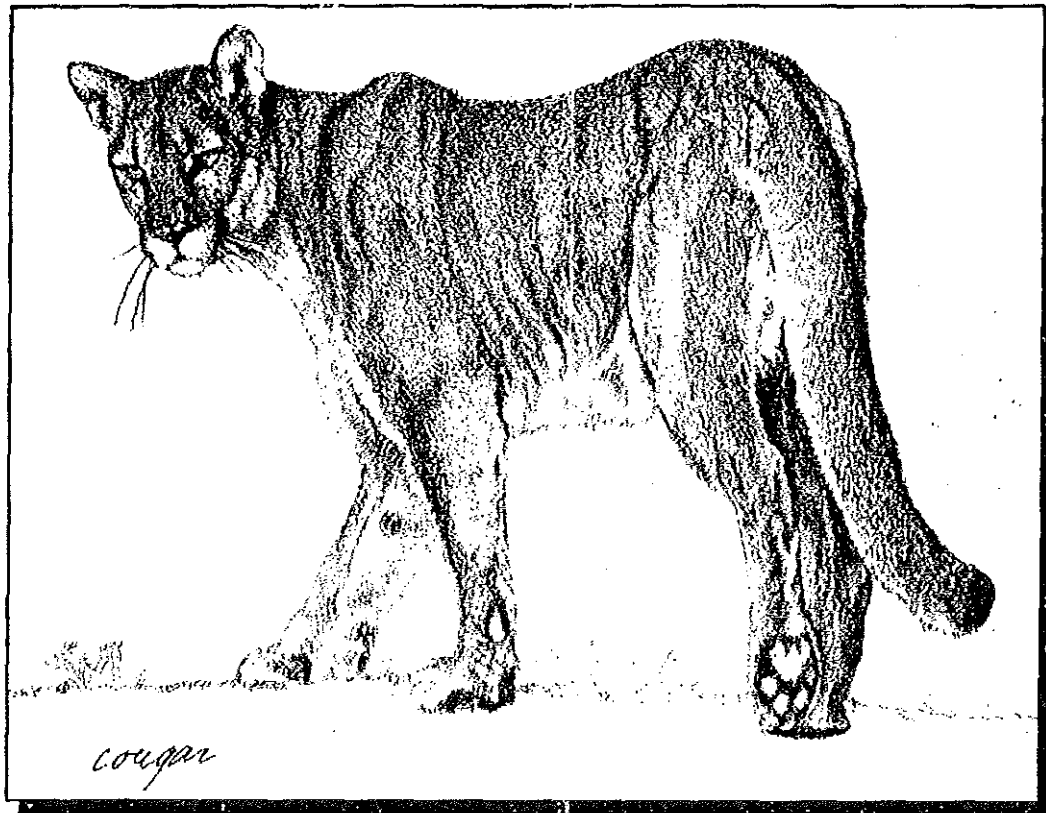


NEVADA DEPARTMENT of CONSERVATION and NATURAL RESOURCES

**DIVISION
OF
WILDLIFE**



**COMPREHENSIVE
MOUNTAIN LION
MANAGEMENT PLAN**

January, 1995

Mountain Lion Comprehensive Management Plan

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Mountain Lion Comprehensive Management Plan

INTRODUCTION

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Nevada Mountain Lion Species Management Plan

Preamble

The Division of Wildlife is charged with the management of the mountain lion, the largest predator in the State of Nevada. Because of its position in the food chain the management of this species is complex. A diversity of human values and biological facts help guide the Division to a management strategy that preserves the lion as a contributing member of the fauna of the state, but also recognizes public safety issues, economic factors, and recreation values.

DIVISION PHILOSOPHY

The mountain lion in Nevada is considered to be a valuable wildlife resource. Like most wildlife resources, the mountain lion will be protected and managed for its intrinsic values and other benefits to residents of Nevada and the United States.

The mountain lion, by its very nature as a predator, kills other wildlife species to survive. Within Nevada the mule deer is the primary prey species of the mountain lion, although many other wildlife species are preyed upon at some time during the year. The mountain lion will be managed to allow it to fulfill its ecological role as a major predator within Nevada. In some specific instances, mountain lion predation may jeopardize another wildlife population. When this occurs, specific mountain lion populations may be reduced to allow the survival of the jeopardized wildlife population.

The mountain lion, also by its very nature as a predator, will occasionally kill domestic livestock (primarily sheep, cattle and horses). Within Nevada, efforts will be made to reduce the economic impact of predation from mountain lion on domestic livestock, but it is recognized that some livestock loss will occur, particularly on public lands within the State.

At the present time mountain lion populations are quite high. Mountain lions are periodically found in suburban and urban areas of the State. When mountain lions show up in these heavily populated areas, they may become a threat to humans and their pets. Mountain lions have no place in these highly populated areas, and when they inhabit these suburban and urban areas, and are judged to be dangerous, they will be killed.

The mountain lion is classified as a game mammal in Nevada. Under normal circumstances the mountain lion will be hunted for sport under the rules of fair chase. The

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use of hounds is considered to be a legal and ethical method of hunting mountain lions in Nevada. Harvest levels will be controlled to maintain viable mountain lion populations in all suitable habitats.

The mountain lion is a secretive predator and is rarely observed by most human beings. Nevertheless, mountain lions are recognized as having substantial aesthetic and educational values. Aesthetic and educational use of mountain lions will be allowed and encouraged as long as the animals remain essentially wild in natural habitats and their use does not jeopardize the maintenance of sustainable wild populations.

Background

Records indicate that the mountain lion was an uncommon denizen of the Great Basin before 1920. Hall (1946) found ample data to indicate that the lion was widely distributed by 1936 but did not find evidence of high densities, or for that matter, many accounts of the animal in Nevada prior to his studies. Historical records do not provide evidence of high lion numbers. Noxious animals were bountied from 1873 through 1938 to address depredation or perceived depredation. The mountain lion, termed the "California Lion" was intermittently included and then removed from the noxious animal list, even though domestic sheep production was very active in the State.

Mountain lion populations appeared to rise in concert with the mule deer populations that increased dramatically in the 1930's and 1940's. By the 1950's, the lion harvest by Animal Damage Control (ADC) had increased from 46 animals killed between 1917 and 1931 to an average of 90 lions per year in the 1950's.

In 1965 the mountain lion was given the status of "game animal." During the mid to late 60's this status did not afford a great deal of protection to the lion, however, regulatory mechanisms were in place for more restrictions if they were warranted. In 1968 tags were required to harvest a lion, and in 1970 a limit of one lion per hunter per year was established. Also, in 1970 the agency began to require a mandatory checkout of each harvested lion.

The Division of Wildlife conducted a significant study on mountain lions in Nevada from 1972 - 1982. The work was chronicled in 1983 with Biological Bulletin # 8, titled Mountain Lions of Nevada. Most of work dealt with an exploited lion population in Elko county and a lightly harvested population in Central Nevada. A set of policies and recommendations were proposed in the document, and these practices have guided the Division to the present.

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Lion populations may have declined in the 1970's, but by the late 1980's populations were near record highs. The lion population has remained high into the mid-1990's.

LIFE HISTORY

Description

The mountain lion (*Felis concolor*) is the largest member of the cat family in North America, with the exception of the jaguar (*Panthera onca*), the latter found occasionally in the southwestern United States. Adult pelage color of the mountain lion varies from tawny to rusty brown or gray. Kittens up to six months old have similar pelage color but exhibit spotting. In Nevada, the average adult male mountain lion weighs 137 pounds, and the average adult female weighs 98 pounds (Ashman et al. 1983). The average total body length of adult male mountain lion is 7 feet 10 inches. Females average slightly less total length at 6 feet 7 inches. The forepaw has five digits while the hind paw has four. All paws have a tri-lobed heel that forms a distinguishing track. The eyes have enlarged pupils and lenses to facilitate extraordinary night vision, a keen depth of perception, and wide field of view. The mountain lion possesses speed, strength, and power with specialized teeth and claws, massive muscles in jaw and legs, thus enabling it to efficiently bring down its prey.

Genetic and Subspecies Status

Taxonomists have identified three separate mountain lion subspecies thought to occur in Nevada. The subspecific status is based on perceived geographic isolation and morphometric variability. *F. c. californica* is described for California and extending into the eastern Sierra Nevada Range of Nevada; *F. c. kaibabensis* occurs throughout the Great Basin region and is the major subspecies inhabiting Nevada; *F. c. browni* is a speculated subspecies thought to occur along the Colorado River from the Baja of California to extreme southern Nevada. Genetic research is currently being conducted to evaluate subspecies validity, but final results are not available at this time. Preliminary work indicates that there is little genetic variability among North American mountain lions (McIvor et al. 1994). This is likely a result of lions dispersing long distances, allowing continued gene flow from region to region.

Population Distribution

Mountain lions are adapted to the wide variety of habitat and environmental conditions that exist in Nevada. They have been observed to live or wander through almost every mountain range from the Mojave Desert in extreme southern Nevada to

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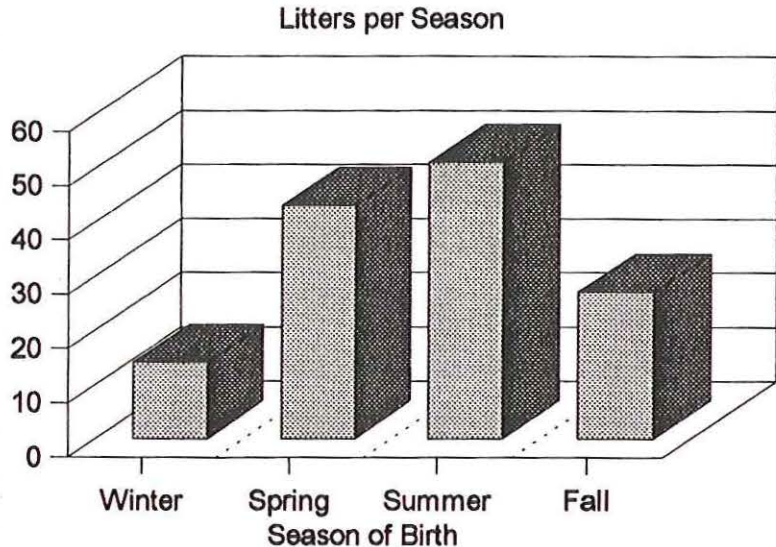
alpine forests at the highest elevations in the northern part of the state. Distribution appears to be primarily influenced by prey availability.

Reproduction

Female mountain lions in Nevada reach maturity at approximately 29 months of age (Ashman et al. 1983). Females are usually in estrus eight days (Rabb 1959). Gestation period averages 90 days (Robinette et al. 1971) during which time the female carries an average of three kittens (Ashman et al. 1983). Due to stress from inadequate food supplies, social conflicts, and other events, there is an average 2.2 kittens per litter that survive to be 12 months of age or more (Ashman et al. 1983). Mature females average

17.4 months between successive litters due to the fact that female mountain lions breed every other year but occasionally breed each year. Based on a sample of 135 litters in Nevada, kittens are born in every month of the year, with a peak birth pulse occurring in June and July.

Birth Season

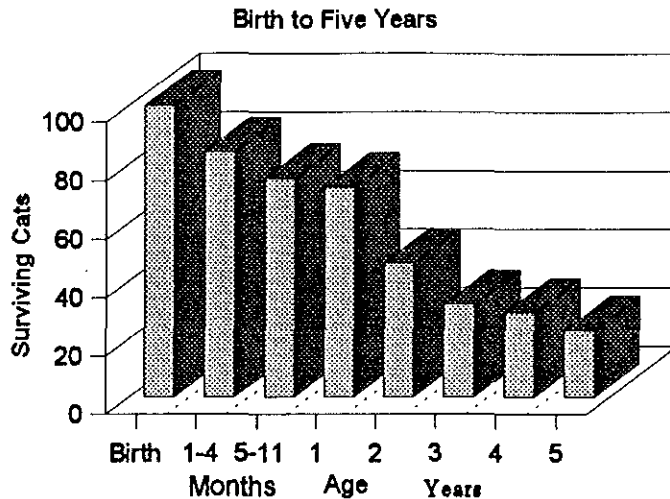


Survival

Ashman et al. (1983) observed a 73% survival rate for kittens from prenatal stage to 12 months of age. Kittens and dependent juvenile mountain lions less than 16 months of age are particularly susceptible to injury and death without the protection and care of their mother. Based on 20 male and 22 female lions radiomarked in Colorado, Anderson et al. (1992) estimated the annual following survival rates, without harvest mortality, for the following age classes: 64% for 12-24 months, 69% for 24-36 months, 92% for 36-48 months, and 80% for 48-60 months. Ashman et al. (1983) found over the course of six years in the Ruby Mountains, a 70% annual survival of individuals in a hunted mountain lion population.

Food habits and prey relationships

Mountain Lion Survival



Mountain lions are at the top of the food chain, and consequently, eat a variety of prey species ranging in size from woodrats (*Neotoma spp*) to elk (*Cervus elaphus*) (Robinette, et al. 1959). Where abundant, mule deer are the primary prey species of mountain lions. In some areas feral horses are often preyed upon. Bighorn sheep (*Ovis canadensis*), can be an important prey species where deer are sparse or do not occur. Other prey species include beaver (*Castor canadensis*), cottontail (*Sylvilagus spp.*), jackrabbit (*Lepus spp.*), domestic livestock, other carnivores, and blue grouse

(*Dendragapus obscurus*) (Ashman et al. 1983).

Where cattle and domestic sheep are readily available, individual mountain lions may prey heavily on livestock. The degree of lion depredation on cattle is likely related to livestock husbandry practices and the relative abundance of prey species (Shaw 1987). Losses are greatest where calves are born in lion habitat, especially if deer densities are relatively low. The majority of cattle killed are calves, but all age classes of sheep are taken. Lambs seem to be selected more often, possibly due to their active behavior, thus triggering lion attacks. Suminski (1982) estimated that even though the annual loss of domestic sheep in Nevada is only 0.29% of the statewide total, those losses involve only a few livestock operators, which individually may be greatly affected.

Home Range and Movement

Based on eight family groups monitored in Nevada from 1972 to 1982, juveniles from 10.5 to 19 months of age separated from their mothers and became independent or remained in their maternal home range for a short time before dispersing (Ashman et al. 1983). Average dispersal distances for males and females were 31 miles and 18 miles, respectively. In 1994, a young male lion radiomarked in Idaho moved 250 miles to central Nevada (unpubl. data).

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Males spend a longer time than females as transients when attempting to establish a home range. Resident mountain lions, if displaced from their original home range, will become transients. Therefore, not all transients are juveniles. Dispersal of independent juveniles can be a vital component to some mountain lion populations where high mortalities occur and population numbers are maintained primarily by ingress and not reproduction.

Radio telemetry follow-up information collected on thirteen lions in the mountain ranges of central and eastern Nevada from 1972 to 1982 showed male lions had home ranges three to four times as large as females. The average size was 225 square miles for males as compared to 55 square miles for females (Ashman et al. 1983). Male and female home ranges overlapped somewhat, while home ranges between members of the same sex showed less overlap. Adult lions showed high site fidelity to their home ranges. Males were occasionally observed to fight and generally were intolerant of intrusions into their home ranges by other male lions. Mountain lions normally moved to lower elevations during the winter to prey on wintering deer herds. The elevational zone of highest mountain lion use in eastern Nevada was between 6,500 and 8,500 feet, where deer and other prey species were most abundant.

Behavior

Mountain lions are essentially solitary, spacing themselves throughout the habitat. However, uncommon interactions can occur during breeding, transient activity, or when large prey are found in high densities (Lindzey 1987). Communication of lion presence to conspecifics is mostly through scrapes (scratches) found in soft soils under prominent trees (Shaw 1987).

Aggression among lions was found to occur more frequently in a desert population in New Mexico than in a population in the Great Basin of Idaho (Logan et al. 1994). Dominant and young male lions would occasionally be injured or killed during aggressive attacks by other dominant male lions. One possible reason for this behavior is limited food in the desert may cause more aggressive behavior by the lion to defend kills and home ranges containing prey. Also, aggressive behavior may benefit lions in promoting genetic fitness.

Another behavioral difference of desert populations is that kittens raised in the desert may not spend as much time learning from their mother to kill small prey species. Lions to the north require longer periods of time with their mother, learning to kill bigger prey like elk. This may contribute to a larger percentage of mountain lion populations being transient at any particular time in a desert environment as compared to those of a Great Basin environment.

MOUNTAIN LION ECONOMICS

The 1986 "Survey of the Economic Value of Trophy Big Game and Deer Harvest" report was the only known attempt at putting dollar values to Nevada's mountain lion resource. Due to survey problems the hunter data was considered preliminary and no attempt was made to expand results. Only hunter expenditures were tabulated in this survey and no Department economics were analyzed.

The information that will be presented in this synopsis was derived from the 1986 survey, analysis of the Division's cost accounting system and interviews with Division personnel. A complete analysis of economic data, even within the Division, is not possible at this time without more in depth research. Inconsistencies in coding procedures among the different bureaus precluded tracking mantime expenditures for law enforcement and some administrative personnel for work that related directly to mountain lion duties.

DIVISION REVENUE

Tag Sales Trends and Income

Years	Resident	Nonresident	Totals
1989-90	439 x \$20 = \$8,780	284 x \$155 = \$44,020	\$52,800
1990-91	420 x \$20 = \$8,400	111 x \$155 = \$17,205	\$25,605
1991-92	603 x \$20/55 = \$12,205	161 x \$155 = \$24,955	\$37,160
1992-93	348 x \$55 = \$19,140	149 x \$155 = \$23,095	\$42,235
1993-94	404 x \$55 = \$22,220	139 x \$155 = \$21,545	\$43,765
1994-95	403 x \$55 = \$22,165	151 x \$155 = \$23,405	\$45,570

Division revenue is derived from a number of sources not listed above. Income is fairly consistent from one year to the next. The following table displays the various types of income sources and the their relative contribution to the overall lion program:

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Division Revenue
Mountain Lion Program Income

Income Classification	Number	Fee	Total
Resident License	40	\$20.50	\$820.00
Nonresident License	145	\$101.50	\$14,717.50
Resident Tags	403	\$55.00	\$22,165.00
Nonresident Tags	151	\$155.00	\$23,405.00
Federal Aid	3	\$8,722.00	\$26,166.00
Guide	49	\$250.00	\$12,250.00
Sub-Guide	41	\$75.00	\$3,075.00
Lion Pelt Salvage	76	\$137.89	\$10,479.64
Total			\$113,078.14

The above figures will vary annually. For the last five years, tag sales have averaged 442 for residents and 169 for nonresidents.

Determining the number of resident hunting licenses sold for the sole purpose of lion hunting would be difficult, but it is probably safe to assume that a majority of resident hunters also hunted at least one other species of Nevada wildlife.

Pelt salvage figures will be dependent upon the number and condition of hides recovered from ADC. The cost of professional preservation of the pelts would be necessarily deducted from pelt sales (fleshing, salting).

The numbers of master guides and subguides will likely remain constant.

DIVISION EXPENDITURES

The following data are derived from a combination of information assimilated from each Bureau and Region. Each of those Bureaus made a concerted effort to provide lion related costs. As stated earlier, due to coding differences it was not possible to tabulate game warden or Regional secretary mantime spent on lion projects. Both of those categories would increase estimates of overall Divisional expenditures.

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LION PROGRAM COSTS
(manpower, operating, etc.)

	Administration	Game	Law Enforcement	Conservation Education	Totals
Region I	\$4,452.17	\$10,755.00	\$13,320.00	\$0.00	\$28,527.17
Region II	\$4,657.91	\$9,440.00	\$13,320.00	\$0.00	\$27,417.91
Region III	\$4,551.80	\$6,314.00	\$13,320.00	\$500.00	\$24,685.80
Headquarters	\$17,432.35	\$6,329.00	\$0.00	\$500.00	\$24,261.35
Wildlife Control	\$0.00	\$8,433.00	\$0.00	\$0.00	\$8,433.00
Coordination	\$0.00	\$2,053.00	\$0.00	\$0.00	\$2,053.00
Totals	\$31,094.23	\$43,324.00	\$39,960.00	\$1,000.00	\$115,378.23

HUNTING EXPENDITURES

During the 1986 NDOW economic survey mountain lion hunters reported spending an average of \$1,014.17 per hunt. The average hunter expended 12 days at a cost of \$84.56 per day. Nonresident hunters spent \$2,435.62 for hunts lasting an average of 11 days (\$221.42 per day). Resident hunters reported spending \$684.27 for a 13 day hunt at a daily cost of \$52.67.

The expenditure data collected in 1986 had a sample size of 53 hunters and measured the costs associated with the hunt. Hunters that maintain dogs and other equipment for the purpose of lion hunting tended to underestimate the total costs associated with this activity. The following table illustrates the expenditure data for hunting lions in Nevada during the 1994-95 season.

Lion Hunting Expenditures
1994-95

Hunter	1986 Cost Per Hunter Day	CPI	1995 Cost Per Hunter Day	1995 Hunter Days	Projected Expenditures
Resident	\$52.64	244.5	\$71.70	4,099	\$293,898.30
Nonresident	\$221.42	244.5	\$301.43	806	\$242,952.58
Totals				4,905	\$536,850.88

MANAGEMENT HISTORY

In its simplest interpretation, the mountain lion has been and is merely laying claim to the land within Nevada that it has freely roamed since the Pleistocene epoch. The relatively recent invasion of its realm by the modern American and his livestock, followed by the bounty hunter, the fur hunter, the sport hunter, and others, contradicted that claim and resulted in a reduction of Nevada's mountain lion populations during the early years of settlement. In more recent years (since 1965) an increasing awareness of the value of mountain lions has resulted in increasing regulation designed to protect and manage this resource more effectively while at the same time protecting other human interests.

The mountain lion's legal classification was changed by regulation from unprotected (predator) to game animal in 1965. The initial impact of this classification was the requirement of a valid hunting license to hunt mountain lion, along with some restriction in the method of taking. This provision precluded the taking of lions at any time other than from sunrise to sunset and also defined legal weapons as shotgun, rifle, or bow and arrow. The season was defined as either sex, year-round, and no limit was set nor was a tag required. Mountain lion harvest management has changed substantially from 1965 to the present.

In 1968, a tag requirement was instituted, and although no limits were established, it became possible to record sport hunter harvest. Another major change occurred in 1970, when a limit of one lion per person was set, and a six-month season was established. During that year, the requirement that all harvested lions be validated by a representative of the Department within five days after the kill was also established. This regulation presented the Department the first real opportunity to collect biological data from the mountain lion.

In 1972, the Nevada Department of Wildlife initiated a study of the mountain lion as a part of the Ruby-Butte deer project in eastern Nevada. The objective was to determine the status of lion populations within this highly valuable deer area, and, to evaluate them in relation to deer populations. Within two years, this objective was changed to: a) establish population estimates of mountain lions by mountain range or management area statewide, b) establish basic habitat requirements, c) establish a harvest management program. From that period on, increased emphasis was placed upon lion capture and marking with the more sophisticated telemetry devices which were being manufactured. This program involved lion monitoring from both land and air and was instrumental in expanding our life history information base, as well as providing an approach toward estimating the annual population status in key mountain ranges. The findings from this study were then utilized in formulating an approach toward estimating statewide lion

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populations. This ten (10) year study formed the basics for most management activities that have been implemented since publication of this study in 1983.

In 1976, 26 mountain lion management areas were described statewide, and a harvest quota established for each to control the sport harvest. This Controlled Quota Hunt was the most restrictive season ever established for mountain lion in Nevada.

In 1979, the Controlled Quota Hunt was modified utilizing six management areas whereby a harvest objective was established which allowed the hunting of lions in each of the six areas until the predetermined number of lion were taken. In 1981, the Harvest Objective hunting season concept was applied statewide. Initially this system required a hunter to obtain a free hunt permit for the opportunity to hunt in one (1) management area. In 1994, hunters were allowed to obtain a free hunt permit that authorized the hunter to hunt in two (2) management areas until the established harvest objective was reached. Both of these permit systems allowed hunters to change management areas at will as long as the harvest objective had not been reached in the desired management area(s).

In 1995, the hunt permit approach was modified to eliminate the physical issuance of a permit in favor of establishing an 1-800 telephone number. This system allows hunters to hunt in any management area in which the harvest objective has not been reached. The hunter must, however, call the 1-800 number before starting to hunt to determine which management area(s) are still open to hunting.

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Mountain Lion Comprehensive Management Plan

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THE LAWS WHICH GOVERN MOUNTAIN LION

The laws and regulations that govern or affect the management of mountain lions are U.S. Public Law, Nevada Revised Statutes (NRS), Nevada Administrative Code (NAC), and Commission General Regulations (CGR). The regulatory bodies that promulgate these laws are U.S. Congress for U.S. Public Law, Nevada Legislature for NRS; and the State Board of Wildlife Commissioners for both NAC and Commission General Regulations. The Division of Wildlife makes no laws or regulations. The following is an annotated list of laws and regulations that form the "side boards" for the formation of this mountain lion plan.

NEVADA REVISED STATUES

501.110 Classification of wildlife.

1. For the purposes of this Title, wildlife must be classified as follows:

(a) Wild mammals, which must be further classified as either game mammals, fur-bearing mammals, protected mammals or unprotected mammals. * * *

501.181 Duties; regulations. The commission shall:

The commission shall:

1. Establish broad policies for:

~~a~~) The protection, propagation, restoration, transplanting, introduction and management of wildlife in this state. * * *

3. Establish policies for areas of interest including:

~~a~~) The management of big and small game mammals, upland and migratory game birds, fur-bearing mammals, game fish, and protected and unprotected mammals, birds, fish, reptiles and amphibians. *

~~b~~) The control of wildlife depredations.

c) ~~x~~) The acquisition of lands, water rights and easements and other property for the management, propagation, protection and restoration of wildlife. * * *

502.140 Tags used as method of enforcing limits; powers of commission; unlawful acts.

1. Tags may be used as a method of enforcing a limit of the number of any species which may be taken by any one person in any one season or year, and may be issued in such a manner that only a certain number may be used in any one management area, or that one tag may be used in several management areas, as designated by the commission. * * *

502.250 Fees for tags.

1. Except as otherwise provided in subsection 5, the following fees must be

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charged for tags: * * *

Resident mountain lion tag..... 15
* * *

503.090 Unlawful to hunt except during open season.

It is unlawful to hunt game mammals or game birds at any time during the year other than during an open season designated by the commission under the provisions of this Title.

503.150 Manner of hunting game birds or mammals.

1. Unless otherwise specified by commission regulation, it is unlawful to hunt:

(a) Any game bird or game mammal with any gun capable of firing more than one round with one continuous pull of the trigger, or with any full steel, full steel core, full metal jacket, tracer or incendiary bullet or shell, or any shotgun larger than number 10 gauge.

(b) Big game animals in any manner other than with a rifle, held in the hand, that exerts at least 1,000 foot-pounds of energy at 100 yards, or with a longbow and arrow which meet the specifications established by commission regulation. * * *

(f) Any game bird or game mammal with the aid of any artificial light.

(g) Any big game mammal, except mountain lions, with a dog of any breed.
* * *

503.595 Prevention or alleviation of damage caused by wildlife.

After the owner or tenant of any land or property has made a report to the division indicating that such land or property is being damaged or destroyed, or is in danger of being damaged or destroyed, by wildlife, the division may, after thorough investigation and pursuant to such regulations as the commission may promulgate, cause such action to be taken as it may deem necessary, desirable and practical to prevent or alleviate such damage or threatened damage to such land or property.

504.295 Prohibited acts; regulations; licenses; inapplicability to alternative livestock.

1. Except as otherwise provided in this section and NRS 503.590, or unless otherwise specified by a regulation adopted by the commission, no person may:

(a) Possess any live wildlife unless he licensed by the division to do so.

(b) Capture live wildlife in this state to stock a commercial or noncommercial wildlife facility.

© Possess or release from confinement any mammal for the purposes of hunting.

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2. The commission shall adopt regulations for the possession of live wildlife. The regulations must set forth the species of wildlife which may be possessed and propagated, and provide for the inspection by the division of any related facilities.

3. In accordance with the regulations of the commission, the division may issue commercial and noncommercial licenses for the possession of live wildlife upon receipt of the applicable fee.

4. The provisions of this section do not apply to alternative livestock and products made therefrom.

NEVADA ADMINISTRATIVE CODE

502.370 Mountain Lion tags; Eligibility; harvesting; report of accidental trapping or killing.

1. Unless otherwise specified by regulation of the commission or Title 45 of NRS, any resident of Nevada, nonresident or alien is eligible to apply once for a mountain lion tag in any year.

2. A person who harvests a mountain lion shall, within 72 hours after harvesting it, personally present the skull and hide to a representative of the division for inspection. The representative shall affix the seal of the division permanently to the hide.

3. It is unlawful for any person to:

(a) Transport the hide of a mountain lion from this state without a seal permanently affixed to the hide.

(b) Except as otherwise provided in subsection 2, possess the hide of a mountain lion without a seal permanently attached to it.

© Kill a female mountain lion which is accompanied by a spotted kitten.

(d) Kill or possess a spotted mountain lion kitten.

4. If a mountain lion is accidentally trapped or killed, the person trapping or killing it shall report the trapping or killing with 48 hours to a representative of the division. The animal must be disposed of in accordance with the instructions of the representative.

502.375 Mountain lion tags: Sale of unclaimed tags. Any mountain lion tags which have been reserved for nonresidents and are not sold by the opening day of the mountain lion season may then be sold on a first come, first serve basis to residents who apply for them.

502.410 Hunting questionnaire on mountain lions: Completion and return; penalty; reinstatement of privileges.

1. The questionnaire issued as part of a mountain lion tag must be properly completed and returned to the division no later than June 1 following the close of the season.

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2. Any person who fails to return the questionnaire within the period specified or who submits incomplete or false information on the questionnaire will be denied all big game tags for 1 year.

503.020 Game mammals. Game mammals include:

	Common Name	Scientific Name
1. Antelope	Pronghorn	<i>Antilocapra americana</i>
2. Bear	Black	<i>Ursus americanus</i>
3. Deer	Mule	<i>Odocoileus hemionus</i>
4. Goat	Mountain	<i>Oreamnos americanus</i>
5. Lion	Mountain (Cougar)	<i>Felis concolor</i>
6. Moose		<i>Alces alces</i>
7. Peccary		<i>Pecari angulatus</i>
8. Rabbit	Cottontail (Audubon)	<i>Sylvilagus audubonii</i>
	Cottontail (Nuttall)	<i>Sylvilagus nuttallii</i>
	Pigmy	<i>Sylvilagus idahoensis</i>
	Snowshoe	<i>Lepus americanus</i>
9. Sheep	White-tailed Jack	<i>Lepus townsendii</i>
	Bighorn	<i>Ovis canadensis canadensis</i>
		<i>Ovis canadensis nelsoni</i>
		<i>Ovis canadensis californiana</i>
10. Elk	Rocky Mountain	<i>Cervus elaphus nelsoni</i>

503.142 Firearms. The board of wildlife commissioners hereby establishes the following exceptions to paragraph (b) of subsection 1 of NRS 503.150:

1. A muzzle-loading rifle which is either flintlock or percussion and has a single barrel, open sights or peep sights, and a caliber of .44 inch or larger and which shoots a lead ball or conical bullet may be used to hunt big game animals. Such a rifle is not considered loaded if the priming compound or elements, such as priming powder or percussion cap, is removed. It is unlawful for any person to carry any other firearm or a bow and arrow while in the field hunting under regulations on muzzle-loaders.

2. A rifle which uses a center fire cartridge of caliber .22 or larger may be used to hunt big game animals.

3. A handgun may be used for shooting big game animals if it has a barrel length of 4 inches or more and:

(a) Uses a center fire cartridge of caliber .22 or larger with an overall loaded length of 2 inches or more; or

(b) Is of a caliber of .357 magnum, .41 magnum, .44 magnum or .45 magnum.

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5. A handgun, rifle, shotgun or longbow and arrow may be used to hunt mountain lion.

503.147 Hunting with a dog. It is unlawful to hunt, chase or pursue:

1. Any mountain lion with a dog except during the open season and under the authority of a hunting license, mountain lion tag and permit to hunt.
2. Any fur-bearing animal with a dog except during the open season and under the authority of a trapping license.
3. Any wild turkey with a dog from March 1 through June 30 of any year.

504.701 Guiding hunt for mountain lion. A master guide who is hired to guide a hunt for a mountain lion shall ensure that his client physically accompanies him or his subguide in the pursuit and killing of the mountain lion.

COMMISSION GENERAL REGULATION

MOUNTAIN LION 1995-96 AND 1996-97 SEASON 1995-96 SPORT HARVEST OBJECTIVES MOUNTAIN LION RESIDENT HUNT No. 5132 MOUNTAIN LION NONRESIDENT HUNT No. 5232

LIMIT:	One
SEX/AGE CLASS:	Either sex. NOTE: Spotted kittens and females with spotted kittens, prohibited. See NAC 502.370.
HUNTING HOURS:	Any time of the day or night.
SEASON DATES:	October 1 - April 30 or until the sport harvest objective is reached.
TAG QUOTA:	Unlimited.
SPORT HARVEST OBJECTIVE:	The sport harvest objective is the allowable harvest for each listed management area or unit(s). When the sport harvest quota has been filled in any management area or unit(s), that area or unit(s) will be closed to hunting. Depredation kill will not affect sport harvest objectives in the following hunt unit groups: 7, 8, 10, 11, 12, 13, 14, 15, 20, and 29.

AREAS	MT. LION MANAGEMENT UNIT GROUPS	HARVEST OBJECTIVE	AREAS	MT. LION MANAGEMENT UNIT GROUPS	HARVEST OBJECTIVE
1	Units 011 - 015	0	14	Units 141	2
2	Units 021 - 022	3	15	Units 151, 152	2
3	Units 031, 032, 034, 035	5	15	Units 154, 155	5
3	Units 033	0	16	Units 161 - 164	18
4	Units 041 - 046	7	17	Units 171 - 173	15
5	Units 051	7	18	Units 181 - 184	6
6	Units 061, 062, 064, 065, 067, 068	7	19	Units 192, 194 - 196	9
6	Units 066	2	20	Units 201 - 206	13
7/8	Units 071 - 079, 081	13	21	Units 211, 212	9
10	Units 102, 103, 104, 108	12	22	Units 221 - 223	15
10	Units 101, 105, 106	8	23	Units 231	10
11	Units 111, 112	10	24	Units 241 - 244	8
11	Units 113, 114, 115	10	25	Units 251 - 253	3
12	Units 121	10	26	Units 261 - 268	3
13	Units 131 - 134	8	27	Units 271 - 272	3
14	Units 142, 143, 144, 145	10	29	Units 291	7
TOTAL			240		

SPECIAL LION REGULATIONS

1. Mountain lion tags will be available to residents and nonresidents by application only.
2. There is no quota on the number of mountain lion tags that will be issued.
3. Each mountain lion management unit or unit group shall have a sport harvest objective.
4. The hunting season for mountain lion in each unit or unit group shall be open from the first day through the last day of the established season or until the sport harvest objective is reached for the specific unit or unit group, whichever occurs first.
5. Tagholders may hunt in any open unit within the established season where the sport harvest objective has not been reached.
6. It shall be the tagholder's responsibility to determine if the harvest objective has been reached in the specific unit or unit group.
7. Tagholders may call the Mountain Lion Harvest Information Hotline at any time to determine if a unit or unit group has been closed due to the harvest objective being reached. The hotline number is 1-800-800-1667 and is accessible 24 hours

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a day. Tagholders may also obtain information on the status of a unit or unit group by contacting the following divisional offices:

Region I Headquarters
380 W. "B" Street
Fallon, Nevada 89406
(702) 423-3171

Region II Headquarters
1375 Mt. City Highway
Elko, Nevada 89801
(702) 738-5332

Region III Headquarters
4747 W. Vegas Drive
Las Vegas, Nevada 89108
(702) 486-5127

Mountain Lion Comprehensive Management Plan

Nevada Board of Wildlife Commissioners

POLICIES

Nevada State Board of Wildlife Commissioners

Mountain Lion Species Management

Policies

1. Mountain lions will be managed by the Division of Wildlife for the protection and conservation of the species, and to maintain the values that mountain lions provide to the residents of Nevada.
2. The Division of Wildlife will facilitate the control of damage to livestock and other personal property caused by mountain lions. USDA-APHIS, ADC will be the primary control agent, however when appropriate a depredation permit will be issued to the affected party.
3. Mountain lions posing a legitimate threat to human health and safety, as determined by the division, will be killed. The Division of Wildlife will facilitate the necessary control measures in the most expedient manner.
4. Mountain lion hunting is a legitimate and desirable recreational use of the mountain lion resource. The use of hounds is a legal and ethical method of trailing lions in keeping with the concept of fair chase.
5. Maximize sport hunting **opportunity** by simplifying regulations whenever possible.
6. Mountain lion populations will be managed to provide a balance between predator and prey species. When evidence exists to show that mountain lions are a limiting factor to a wildlife population, the division shall implement a plan that will reduce localized mountain lion numbers. When mountain lions are in relative balance with their prey a moderate harvest strategy will be employed.
7. Lions will be managed on a broad geographic basis. Primary emphasis on harvest objectives will be by administrative region with secondary emphasis on management areas, units, or groups of units.
8. Mountain lion research will be encouraged. Reputable universities and research organizations will be encouraged to conduct independent research within Nevada. Division of Wildlife participation in research will be limited to research which provides information needed to enhance our management program.
9. Public education about the mountain lion in Nevada shall be emphasized, and the Division of Wildlife will assume a leadership role in furthering public education regarding this species.
10. Mountain lions will continue to be classified as a game animal in the State of Nevada.

Mountain Lion Comprehensive Management Plan

GOALS, STRATEGIES AND ACTIONS

Section	Page Number
Goal #1: To maintain mountain lion distribution in reasonable densities throughout Nevada.	D1
Goal #2: To control mountain lions creating a public safety hazard or causing property damage.	D1
Goal #3: To provide recreational, educational and scientific use opportunities of the mountain lion resource.	D1
Goal #4: To maintain a balance between mountain lions and prey	D2
Goal #5: To manage mountain lions as a metapopulation	D2

GOALS, STRATEGIES AND ACTIONS

1. **GOAL:** To maintain mountain lion distribution in reasonable densities throughout Nevada.
 - A. **STRATEGY:** Actively survey mountain lion populations for distribution and relative density.
ACTION:
 1. Implement Harvest Management Protocol.
 2. Implement the Survey & Inventory Protocol.
 - B. **STRATEGY:** Record public observations of mountain lions.
ACTION:
 1. Implement Survey & Inventory Protocol.
 - C. **STRATEGY:** Protect mountain lion resource from illegal activity.
ACTION:
 1. Implement Law Enforcement Protocol.
2. **GOAL:** To control mountain lions creating a public safety hazard or causing property damage.
 - A. **STRATEGY:** Identify, investigate and respond to all reports of mountain lion/human conflicts or property damage.
ACTION:
 1. Implement the Mountain Lion Conflict Protocol.
3. **GOAL:** To provide recreational, educational and scientific use opportunities of the mountain lion resource.
 - A. **STRATEGY:** Maintain a sport hunting program.
ACTION:
 1. Implement Hunt Administration Protocol.
 2. Implement Harvest Management Protocol.
 3. Implement Lion Validation Protocol.
 4. Implement Law Enforcement Protocol.
 5. Implement Hide Disposal Protocol.
 - B. **STRATEGY:** Educate the public about mountain lions.

ACTION:

1. Implement Conservation and Public Information Protocol.

- C. **STRATEGY:** Identify opportunities and encourage reputable researchers to conduct mountain lion research in Nevada.

4. **GOAL:** To maintain a balance between mountain lions and their prey.

- A. **STRATEGY:** Evaluate mountain lion population status in relationship to primary prey numbers or unique species.

ACTION:

1. Maintain and evaluate a prey species database in relationship to mountain lions.
2. Manipulate lion numbers or prey numbers to a more desirable balance.

5. **GOAL:** To manage mountain lions as a metapopulation.

- A. **STRATEGY:** Collect and assess mountain lion population characteristics primarily by administrative regions.

ACTION:

1. Implement Survey and Inventory Protocol.
2. Implement Harvest Management Protocol.

Mountain Lion Comprehensive Management Plan

PROTOCOLS

Section	Page Number
ML-P-1 Mountain Lion Conflict	E1
ML-P-2 Mountain Lion Validation And Check In	F1
ML-P-3 Mountain Lion Hunt Administration	G1
ML-P-4 Mountain Lion Harvest Management	H1
ML-P-5 Mountain Lion Survey And Inventory	I1
ML-P-6 Mountain Lion Law Enforcement	J1
ML-P-7 Mountain Lion Conservation Education And Public Information	K1
ML-P-8 Mountain Lion Hide Salvage And Disposal	L1

STATE OF NEVADA
DEPARTMENT OF CONSERVATION OF NATURAL RESOURCES
DIVISION OF WILDLIFE

WILDLIFE PROTOCOLS

Protocol: Mountain Lion Conflict
Index: ML-P-1

Ref: NRS 501.181,
NRS 503.595

I. PURPOSE

The Division of Wildlife is responsible by statute for controlling wildlife causing damage to personal property or endangering personal safety. The Division also has a responsibility to provide sport hunting opportunities to Nevada sportsmen. This protocol sets forth procedures to be followed in controlling and preventing lion damage, addressing public safety issues and responding to sport hunting opportunities. In carrying out this policy where mountain lion/human interactions are involved, agents shall have the discretion to choose the most applicable management option, following guidelines outlined in this protocol. All efforts will be directed at the individual lion causing the problem.

II. INTRODUCTION

Mountain lion/human interactions have increased throughout the West and in Nevada in the last several decades. During the same period, the number of depredation complaints and the number of lions taken on depredation complaints has also increased. The Division desires to reduce multiple depredations from the same animal and prevent harm to humans.

III. DEFINITIONS

The Division recognizes three distinct categories of mountain lions involved in human/lion interactions.

- A. **Nuisance Lion** - a lion involved in a direct meeting with a human but did not exhibit aggressive behavior toward the human, a lion repeatedly observed in an area, or a situation where personal property is at risk.
- B. **Depredating Lion** - a lion that has injured or killed livestock or domestic pets.
- C. **Dangerous or Aggressive Lion** - a lion which has exhibited aggressive behavior towards humans. A lion that has an unnatural interest in humans without

provocation and is perceived to be a threat to public safety. A lion located in a place or situation where human safety is of concern may be considered dangerous.

- D. **Nonlethal Tactics** - are techniques that may discourage a lion from continuing an undesirable behavior or becoming a greater threat. These tactics may include the use of scare devices for a livestock operator or excluding a lion from some sort of attractant.
- E. **Capture and Translocation Tactics** - include any technique where a lion is physically captured and moved from its previous location. Translocation may include the movement of a lion to an adjacent mountain range or removed from the population and placed in a research facility.
- F. **Lethal Control** - is the killing of a mountain lion. Control maybe effected by gunshot or lethal injection, dependant upon local circumstances.

IV. MANAGEMENT OPTIONS

- A. **Conflict Identification** - The Division employee responding to or assigned to handle a lion/human conflict will have the primary responsibility to assess mountain lion involvement in an incident and conduct the necessary investigation. Agents maybe required to make an assessment "on the spot" or if time permits make an assessment with consultation.
- B. **Conflict Prevention** - At all opportunities, the Division will provide educational and informational materials to individuals concerned with lion management and people-lion conflict prevention. These materials will include options for pet and livestock protection and avoidance of dangerous encounters with mountain lions. Site specific education and prevention efforts will be made in historic conflict areas.
- C. **Conflict Management** - A field response by either a Division employee or his/her designated agent is required for all lion/human interactions involving the categories of lions defined.
 - 1. **Nuisance Mountain Lions**
 - a. No management action combined with education effort.
 - b. Deterrent methods combined with education effort.
 - c. Capture, mark and relocate cougars if deterrent methods are unsuccessful or impractical.
 - Lions identified for relocation will be transported to the following release sites in priority order.

- Instate release locations within low conflict areas
- Out of state governmental agencies
- University or research facilities
- Zoological gardens or Zoos

- d. Nuisance lions will be destroyed if relocating or deterrent methods are unsuccessful or impractical.

2. Depredation Mountain Lions

- a. No management action combined with education effort.
- b. Deterrent methods including prevention materials (if applicable) combined with education effort.
- c. Capture, mark and relocate cougars if deterrent methods are unsuccessful or impractical.

- Lions identified for relocation will be transported to the following release sites in priority order.

- Instate release locations within low conflict areas
- Out of state governmental agencies
- University or research facilities
- Zoological gardens or Zoos

- d. Depredating lions will be destroyed if deterrent methods or live capture is unsuccessful or impractical.

3. Aggressive (Dangerous) Mountain Lions

- a. If a lion is dangerous because of its location and not its behavior it may be trapped, marked and relocated. If a lion is frequenting a city or town, it may be destroyed if capture methods fail or are impractical.

- Lions identified for relocation will be transported to the following release sites in priority order.

- Instate release locations within low conflict areas
- Out of state governmental agencies
- University or research facilities
- Zoological gardens or Zoos

- b. If the mountain lion is dangerous because it has exhibited aggressive behavior toward humans or is otherwise perceived to be a threat to

human safety, or if the lion is involved in an attack on a human, destroy and necropsy the lion. Lions exhibiting aggressive behavior in remote areas should not be killed but instead an aggressive publicity and educational campaign should be made to alert people of the danger in the remote area and promote human avoidance of the area over the short-term.

- c. A detailed narrative report on each incident involving handling of dangerous lions will be prepared by the agent in control of the incident and forwarded to the Supervising Regional Game Biologist. Mountain lion incidents involving attacks or injury to people will be immediately reported through the chain of command to the Regional Manager, Administrator, Chief of Game and Chief Game Warden. All lions destroyed will be reported on the 351 harvest form. A copy of the detailed report, including any necropsy, coroner's report or other supporting information shall be sent to the Game bureau staff biologist responsible for mountain lions. A lion/human interaction form will be completed for each interaction.

V. CONTROL METHODS

A regional list of persons who have requested consideration and are qualified to do control work, including private hunters/trappers and outfitters/guides will be a source of control, as well as U.S.D.A. APHIS/ADC personnel. Hunters/trappers, outfitters/guides or U.S.D.A. agents will not initiate control unless requested to do so by the Division.

A. Hunter/Trapper, Landowner Guidelines

Hunters or trappers may be authorized to control problem animals during open or closed seasons. The hunter or trapper will buy a license and tag for use during the open season until the hunter or trapper's tag is filled. The hunter may continue control work after the tag is filled only under the authority of a depredation permit. Hunting during a closed season will be conducted only under the authority of a depredation permit. Depredation permits will only be issued to landowners/livestock owners for the control of specific depredating lions. Hunters or trappers may keep the lion if harvested under the authority of a valid license and tag. All other lions become the property of the State.

B. U.S.D.A., APHIS/ADC

The USDA, APHIS/ADC, may be contacted to do control work any time of year. The APHIS/ADC agent shall attempt to control only the animal(s) causing damage. The agent will use discretion in the control of young animals. All lions taken by APHIS/ADC are the property of the State.

VI REPORTING

A MOUNTAIN LION HARVEST REPORT form number 351 will be completed for ALL mountain lion mortalities. A mountain lion/human interaction form will be completed for all lion/human interactions. Records of lion mortality and human/ lion interactions will be kept in computer databases in Reno.

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MOUNTAIN LION HARVEST REPORT

NOTE: 50.2370 requires that validation occur within 72 hours of harvest.

HARVEST INFORMATION

Application No. _____ Validation Seal No. _____ Type of harvest _____
(Sport, ADC, accident, natural, trapped, roadkill, priv.)
Location of kill: Mgmt. Area _____ Unit _____ Co. _____ Mountain Range _____
Creek, canyon, ranch _____ T _____ R _____ Sec. _____ N _____ E _____
Date of kill _____ Total days hunted _____ Method of hunt _____
Weapon used _____ Total number of lion tracks observed during entire hunt _____ Adults _____ Kittens _____
Number of lions pursued but not killed _____
Lion kills found (number and species) _____
Remarks _____

ANIMAL INFORMATION

Sex _____ Estimated age _____ Weight _____ (estimate or actual) Tip to tip length _____
Reproductive condition (fetuses, embryos, nursing) _____
Physical abnormalities (toes missing, scars, old injuries, etc.) _____

General physical condition (circle one based on body fat):
Excellent 5 Very Good 4 Good 3 Fair 2 Poor 1
Stomach contents _____
Lion parts saved _____
Tooth extracted? Yes _____ No _____ Tooth envelope number _____

HUNTER INFORMATION

Hunter's name _____
Address _____ City _____ State _____ Zip Code _____
Guide's name _____ License No. _____
Validated by _____ Position Control No. _____ Date _____

Original - Reno Headquarters
Pink Copy - Regional Headquarters
Yellow Copy - Area Biologist

Form 351 (Rev. 10-95)

STATE OF NEVADA
DEPARTMENT OF CONSERVATION OF NATURAL RESOURCES
DIVISION OF WILDLIFE

WILDLIFE PROTOCOLS

Protocol: Mountain Lion Validation And Check In
Index: ML-P-2

Ref: NRS 501.181
NAC 502.370, 502.410,
NAC 503.147 and
NAC 504.701

I. Purpose

The Division of Wildlife is responsible for the protection and management of mountain lions within the State of Nevada. In order to adequately accomplish Divisional management goals, lion hunter and harvest data must be collected with sufficient detail so as to provide a basis for sound biological decision. Nevada Administrator Code (502.370) requires that any person who harvests a mountain lion shall, within 72 hours after harvesting it, personally present the skull and hide to a representative of the Division of Wildlife for inspection. The representative must permanently affix a seal to the lion hide and collect all harvest and biological data. This policy outlines the standardized procedures for mountain lion check in and validation.

II. INTRODUCTION

Mountain lion management has become more controversial over the past several years. In order to collect pertinent biological and harvest data the Division wishes to update the standardized lion validation process.

III. DEFINITIONS

The Division recognizes the following categories of mountain lion harvest.

- A. Sport Harvest - a lion harvested under the authority of a valid tag and permit.
- B. Guided Sport Harvest - a lion harvested under the authority of a valid tag and permit when the tagholder was guided by a licensed Nevada outfitter.

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- C. Depredation - a lion harvested under the authority of the U.S.D.A. APHIS/ADC or other formal depredation permit or a lion taken legally in the protection of life or property. (NRS NAC)
- D. Other Mortalities - lions lost to vehicle collisions, trapping, natural causes, etc.

IV. MANAGEMENT OPTIONS

- A. Continue with current validation process.
- B. Discontinue sealing of mountain lion hides.
- C. Seal lion hides for law enforcement purposes only.
- D. Continue current validation with fees charged for seals.

V METHODS

- A. All mountain lion mortalities shall be validated and a form 351 completed (see attached).
- B. All mountain lions taken under authority of a valid mountain lion tag shall be validated within 72 hours of kill or prior to leaving the State, whichever is first. The lion hide shall be sealed with a metal tag attached to the distal end of the back side of a front leg, above the paw. To complete the validation process, the validator shall sign his signature and date across the face of the tag.
- C. All lions taken under the authority of a depredation permit shall be validated under the same procedures and regulations as sport harvest lions. Salvageable pelts will be sealed, stored and disposed of in accordance with Divisional Policy. The ADC Bear and Lion justification report shall accompany the 351.
- D. All "other" mountain lion mortalities will be investigated, validated and sealed if pelts are deemed salvageable by the Division representative. Pelts will be stored and disposed of in accordance with Divisional Policy.
- E. A form 351 shall be completed in its entirety for each mountain lion mortality. All game biologists and wardens are responsible for mountain lion validation.
- F. All harvest, both sport and depredation, will be reported to the Regional Office responsible for the area of harvest immediately after inspection of the harvested animal. All reports of harvest will be followed by mailing within one working day completed copies of Form 351 (Mountain Lion Harvest Report) to Game Division (white copy), the Regional Office responsible for the area of harvest (pink copy) and

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area biologist (yellow copy). Each Region will maintain an up-to-date Regional Lion Harvest Report Log (Forms 351, 353 and 354).

- G. The validation of mountain lions other than at Regional Offices and during normal working hours is at the convenience of the designated field agent and places the responsibility for validation requests and prior arrangement with the hunter.

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MOUNTAIN LION HARVEST REPORT COMPLETION INSTRUCTIONS

HARVEST INFORMATION

- Application Number:** applies to sport harvest, list application number from hunters lion tag.
- Validation Seal Number:** List year and individual metal lion seal number that is stamped on each seal.
- Type of Harvest:** List type of harvest, refer to definitions.
- Location of Kill:** self explanatory.
- Date of Kill:** self explanatory.
- Total Days Hunted:** list number of days hunter hunted during his entire season of hunting.
- Method of Hunt:** did the hunter use dogs, horses, snowmobiles, predator call, etc., for the harvested lion.
- Weapon used:** bow, pistol, rifle, muzzleloader, etc.
- Total Number of Tracks:** list number of individual lion tracks hunter observed throughout his/her lion season. Have hunter differentiate number of adults and kittens if possible, if validity of data questionable note on form.
- No. of Lions Pursued:** for entire season.
- Lion Kills found:** list # and species of animals the hunter observed that he/she believes were killed by lions.
- Remarks:**

ANIMAL INFORMATION

- Sex:** check each hide and carcass.
- Estimated Age:** use tooth replacement and wear to estimate age. Dentation charts and diagrams should be kept in each sealing kit for reference.

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- Weight:** weigh each lion validated if carcass is available. Note on weight whether animal was gutted, whole, hide and carcass weighed separately, etc. if not weighed list estimated weight.
- Tip to head length:** Note whether hide on carcass or skinned. measure to nearest ½".
- Repro. Condition:** Check teats for milk or signs of recent nursing. If carcass available check for embryos, fetuses.
- Physical Abnormalities:** note any scars, missing toes, chewed ears, broken teeth, etc.
- Physical Condition:** Use your professional judgement to evaluate the carcass for physical condition based on amount of body and cavity fat present. Circle the number of corresponding rating.
- Stomach Contents:** cursory examination of fresh stomach contents sufficient. list recognizable substances such as deer hair, sheep wool, etc.
- Lion Parts Saved:** Note whether hunter kept carcass to eat, carcass kept by NDOW for examination, etc.
- Tooth Extracted:** (instruction for tooth sampling to be developed by staff).

HUNTER INFORMATION:

- Hunters Name:** self explanatory
- Address:** Mailing address
- Guides Name:** be sure to list actual accompanying guide or subguide but note master guide for reference.
- License Number:** guides license number
- Validated by:** print name of person validating lion
- Position Control Number:** self explanatory
- Date:** date of validation

Aging Criteria

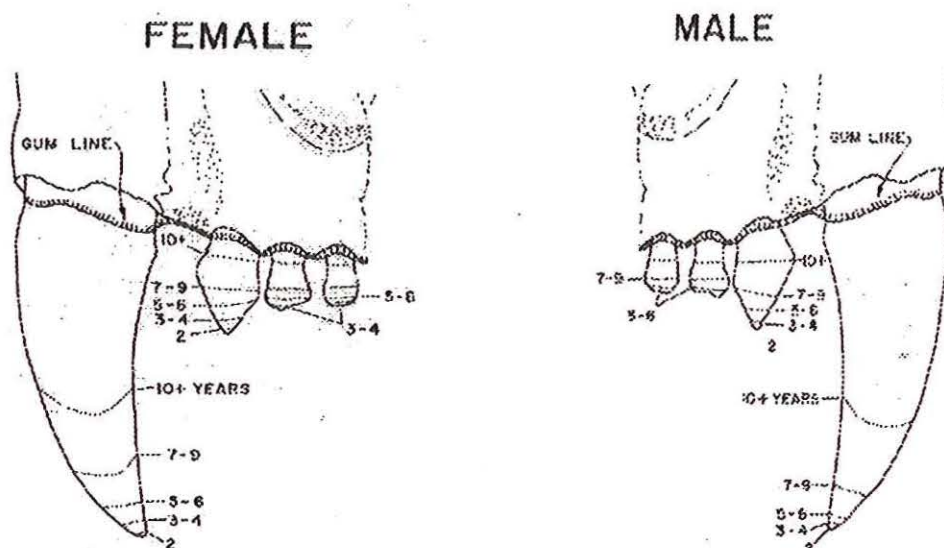


Figure 1. Frontal view of upper teeth of female and male mountain lions displaying relative wear by adult age classes.

A guide for estimating ages of mountain lion kittens by tooth eruption sequences.

Age in Months	Sequence of Permanent Tooth Eruption
2	Complete set of deciduous teeth. Permanent P ² & M ¹ erupt.
3	Permanent incisors erupt.
4	C ¹ , P ⁴ , & M ₁ erupt.
5	C ₁ erupts.
6	P ³ erupts.
7	P ₄ erupts, P ⁴ & M ₁ fully extended (stopped growing).
8	P ₃ erupts, C ¹ 50-60% extended from gum line (males: 16-18 mm, females: 12-14 mm).
9-10	P ³ and P ⁴ fully extended.
11-12	P ₃ fully extended. C ¹ 70-80% extended (males: 20-22 mm, females: 15-17 mm).
13-14	C ¹ 80-90% extended (males: 24-27 mm, females: 19-21 mm).
15-16	C ¹ fully extended (males: 28-31 mm, females: 23-25mm).

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Age criteria age classes and sex for adult mountain lions using relative wear and stain on the upper teeth.

FEMALE		MALE	
2-YEAR-OLD			
1.	Canines white, no staining	1.	Canines white, no staining
2.	Third incisor has spot of wear on highest point of crown (1-2 mm across)	2.	All incisors with no wear
3.	Incisors 1 & 2 with no wear	3.	Tips of canines no wear
4.	Tips of canines with slight wear)1 mm or less worn off)		
3-4-YEAR-OLD			
1.	Canines lightly stained	1.	Canines lightly stained
2.	Third incisor worn flat on highest point of crown, area of wear 3-4 mm across	2.	Third incisor with spot of wear on highest point of crown (1-2 mm across)
3.	Incisors 1 & 2 with slight wear along crown (1 mm or less worn off)	3.	Incisors 1 & 2 little or no wear
4.	Tips of canines have slight wear (1-2 mm worn off)	4.	Tips of canines with little or no wear (1 mm or less worn off)
5-6-YEAR-OLD			
1.	Canines moderately stained	1.	Canines moderately stained
2.	Third incisor worn to within 1-2 mm of crest of incisors 1 & 2	2.	Third incisor worn to within 3-4 mm of crest of incisors 1 & 2
3.	Incisors 1 & 2 show obvious wear	3.	Incisors 1 & 2 have slight wear along crown (1 mm or less worn off)
4.	Tips of canines worn flat with 3-5 mm worn off	4.	Tips of canines with obvious wear (3 mm worn off)
7-9-YEAR-OLD			
1.	Canines darkly stained	1.	Canines darkly stained
2.	Third incisor worn level with incisors 1 & 2 and to within 1-3 mm of gum line	2.	Third incisor worn level with incisors 1 & 2 and the within 2-4 mm of gum line
3.	Tips of canines worn rounded	3.	Tips of canines flattened to nearly rounded
4.	Dentine exposed on incisors and upper canines	4.	Dentine exposed on incisors
10+ YEAR-OLD			
1.	All incisors worn to or nearly to gum line	1.	All incisors worn nearly to gum line
2.	Canines worn blunted	2.	Canines worn rounded to blunt

MOUNTAIN LION HARVEST REPORT

NOTE: 50.2370 requires that validation occur within 72 hours of harvest.

HARVEST INFORMATION

Application No. _____ Validation Seal No. _____ Type of harvest _____
(Sport, ADC, accident, natural, trapped, roadkill, prvt.)
Location of kill: Mgmt. Area _____ Unit _____ Co. _____ Mountain Range _____
Creek, canyon, ranch _____ T _____ R _____ Sec. _____ N _____ E _____
(UTM's)
Date of kill _____ Total days hunted _____ Method of hunt _____
Weapon used _____ Total number of lion tracks observed during entire hunt _____ Adults _____ Kittens _____
Number of lions pursued but not killed _____
Lion kills found (number and species) _____
Remarks _____

ANIMAL INFORMATION

Sex _____ Estimated age _____ Weight _____ (estimate or actual) Tip to tip length _____
Reproductive condition (fetuses, embryos, nursing) _____
Physical abnormalities (toes missing, scars, old injuries, etc.) _____

General physical condition (circle one based on body fat):

Excellent 5 Very Good 4 Good 3 Fair 2 Poor 1

Stomach contents _____

Lion parts saved _____

Tooth extracted? Yes _____ No _____ Tooth envelope number _____

HUNTER INFORMATION

Hunter's name _____

Address _____ City _____ State _____ Zip Code _____

Guide's name _____ License No. _____

Validated by _____ Position Control No. _____ Date _____

Original - Reno Headquarters
Pink Copy - Regional Headquarters
Yellow Copy - Area Biologist

Form 351
(Rev. 3-00)

Draft

MOUNTAIN LION HARVEST REPORT

NOTE: 50.2370 requires that validation occur within 72 hours of harvest.

HARVEST INFORMATION

Application No. _____ Validation Seal No. _____ Type of harvest _____
(Sport, ADC, accident, natural, trapped, roadkill, privt)
Location of kill: Mgmt. Area _____ Unit _____ Co. _____ Mountain Range _____
Creek, canyon, ranch _____ T _____ R _____ Sec. _____ N _____ E _____
Date of kill _____ Total days hunted _____ Method of hunt _____
Weapon used _____ Total number of lion tracks observed during entire hunt _____ Adults _____ Kittens _____
Number of lions pursued but not killed _____
Lion kills found (number and species) _____
Remarks _____

ANIMAL INFORMATION

Sex _____ Estimated age _____ Weight _____ (estimate or actual) Tip to tip length _____
Reproductive condition (fetuses, embryos, nursing) _____
Physical abnormalities (toes missing, scars, old injuries, etc.) _____

General physical condition (circle one based on body fat):
Excellent 5 Very Good 4 Good 3 Fair 2 Poor 1
Stomach contents _____
Lion parts saved _____
Tooth extracted? Yes _____ No _____ Tooth envelope number _____

HUNTER INFORMATION

Hunter's name _____
Address _____ City _____ State _____ Zip Code _____
Guide's name _____ License No. _____
Validated by _____ Position Control No. _____ Date _____

Original - Reno Headquarters
Pink Copy - Regional Headquarters
Yellow Copy - Area Biologist

Form 351 (Rev. 10-95)

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WILDLIFE

WILDLIFE PROTOCOLS

Protocol: Mountain Lion Hunt Administration
Index: ML-P-3

Ref: NRS 501.050, 501.181
NRS 502.010, 502.140 and
NRS 503.090
NAC 502.370, and 502.410

POLICY

1. Mountain lion hunting seasons will begin on the first day of October and end on the last day of April each year.
2. Mountain lion hunting shall be open to residents and nonresidents.
3. The annual tag sales shall be unlimited; however, the harvest will be distributed by sport harvest objectives for each administrative region, with the possibility of distributing harvest to big game management units or a combination thereof.
4. It shall be the mountain lion tagholder's responsibility to know if a region, management area, unit, or unit group has been closed to mountain lion sport hunting because the sport harvest objective has been reached. The Division shall maintain a 24 hour telephone recording to report the status of sport harvest objectives throughout the mountain lion season. The Division shall update the recording as necessary to accurately reflect the status of sport harvest objectives.

I PURPOSE

To insure that mountain lion tags are issued in a manner consistent with statute and applicable commission regulation and policy, and to facilitate effective and responsible harvest management of the state's mountain lion resource.

III DEFINITIONS

Sport Harvest Objective: The goal level harvest by sport hunters in a region, management area, management unit or unit group. This number is only a target.

IV PROCEDURES

1. **Mountain Lion Tags** -- there is no set quota for the number of mountain lion tags that can be issued for an established season on a statewide basis. A hunter may obtain only one mountain lion tag per hunting season.
2. **Application and Eligibility** -- the application process for mountain lion tags shall be administered according to the Division's Policy and Procedure on Manual Tag Drawings. Mountain lion tag applications shall be mailed or hand delivered only to the license office of the Nevada Division of Wildlife in Reno.

Hunters will be restricted from obtaining a mountain lion tag if they have violated any law or regulation that provides for an eligibility restriction as part of its penalty. Hunters under the age of twelve may not receive a mountain lion tag.

3. **Sport harvest objectives** shall be established annually by the Board of Wildlife Commissioners for a regional, big game management area, unit, or unit group basis. The Regions shall be responsible for monitoring harvest and employing the use of a regularly updated telephone recording to apprise tagholders of the status of harvest objectives during the established mountain lion season. The Regions shall record all sport, depredation, accidental, or other types of mountain lion mortality on Division form 351 entitled "Mountain Lion Harvest Report". The mountain lion "harvest period" shall run from July 1 through June 30 of each year. The Regions have the responsibility of recording mountain lion mortality on a mountain lion hunt unit basis, monitoring the mortality compared to the sport harvest level objective, and initiating closure of an area/unit when the sport harvest is met or anticipated to be met. The Region shall maintain responsibility and authority for closing an area/unit to harvest once the harvest objective is achieved. The Region shall notify the other two administrative regions and the Reno office when the sport harvest objective is met and an area is officially closed. The Region shall bear the sole responsibility of updating the 24 hour telephone recording to apprise sportsmen of the closure of a region, management area/unit(s). Regions will maintain a log of updated recordings.
4. **The Regions will be responsible for mountain lion hunt administration for the following big game management areas:**

Region I: Management Areas -- 1, 2, 3, 4, 5, 18, 19, 20 & 29.

Region II: Management Areas --- 6, 7, 8, 10, 11, 12, 13, 14 & 15.

Region III: Management Areas -- 16, 17, 21, 22, 23, 24, 25, 26 & 27.

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5. Any employee who validates a harvested lion or documents a mountain lion mortality shall immediately complete a form 351 entitled "Mountain Lion Harvest Report" and notify the Regional Office by appropriate means in an expedient manner.

STATE OF NEVADA
DEPARTMENT OF CONSERVATION OF NATURAL RESOURCES
DIVISION OF WILDLIFE

WILDLIFE PROTOCOLS

Protocol: Mountain Lion Harvest Management
Index: ML-P-4

Ref: NRS 501.181,
NRS 502.140,
NRS 503.090, 503.150 and
NRS 504.295
NAC 502.370, 502.375, 502.375, 502.410,
NAC 503.142 and 503.147

I PURPOSE

To establish a standardized methodology for determining mountain lion harvest objectives and seasons.

GOALS

- ◆ Mountain lion harvest objectives will be calculated for each administrative region on an annual basis using standardized methodology.
- ◆ Harvest objectives will be calculated and recommended in order to achieve a specific management action over a short-term period (no more than two years). Management actions may be designed to increase, stabilize and maintain, or decrease mountain lion populations within each of the three administrative regions in Nevada.
- ◆ Calculations of harvest objectives by administrative region will incorporate the use of scientific data to determine the current population trend and population density. A "political index" may be employed to adjust harvest objectives within smaller geographic areas (big game management areas) in order to achieve the desired management goal.

II PROCEDURES

1. Biologists will utilize a "baseline" harvest objective for each administrative region. This baseline will 1) be equal to the average annual (July 1 - June 30) regional mountain lion total mortality recorded over the previous three-year period for the region, or 2) be equal to 25% of the current year's regional mountain lion population based on the current mountain lion population model for the respective region, whichever figure is lowest.

2. Biologists will make annual adjustments in harvest objective recommendations for each administrative region only after careful review of the following data and information that will be collected, assembled and distributed by the Game Bureau by October of each year.
 - A. Data used to assess population trend, including, but not limited to:
 - 1.) The current regional population model.
 - 2.) Sex, weight and age data from harvested mountain lions for the previous recording period (July 1 - June 30).
 - B. Data used to assess population density, including, but not limited to:
 - 1.) The current regional population model.
 - 2.) Data showing the unit of effort to observe or harvest mountain lions.
 - 3.) Average weight information, comparing weights of harvested animals by sex and cohort group to the long-term data set (1968-1994).
 - C. Data to quantify "bio-political" considerations, including, but not limited to:
 - 1.) A summary of the public safety complaint forms involving mountain lions as received by the Bureau for the previous recording period.
 - 2.) A report of damage to private property caused by mountain lions as annually prepared by ADC.
 - 3.) A prey species accounting spreadsheet as prepared by the region for the previous recording period. Adjustments from the baseline harvest objective level for each administrative region will be recommended in order to achieve the short-term (two-year) goal of maintaining, increasing, or decreasing mountain lion populations within the respective administrative region, utilizing harvest management as the primary tool to achieve the desired population goal.

**STATE OF NEVADA
DEPARTMENT OF CONSERVATION OF NATURAL RESOURCES
DIVISION OF WILDLIFE**

WILDLIFE PROTOCOLS

**Protocol: Mountain Lion Survey and Inventory
Index: ML-P-5**

**Ref: NRS 501.181
NAC 503.370**

I PURPOSE

To develop a set of standard methods for data collection, storage and retrieval.

II INTRODUCTION

The survey & inventory protocol outlines techniques for gathering, storage and analysis of data. These techniques are tools to be used for assessing the status and trend of mountain lions in Nevada. Some components of this protocol will be used each year in the MOUNTAIN LION HARVEST MANAGEMENT protocol (ML-P-4) for season setting. Other components may be used sporadically depending upon management needs or available funding.

III PROCEDURES

Procedure 1- Snow Track Survey

Purpose

To employ a reliable survey technique to assess the status of the mountain lion population in a specific geographic area. This technique will be utilized primarily in northern Nevada.

Methods

Aerial survey by a Bell Jet Ranger Helicopter of lion tracks in snow along parallel transect that are perpendicular to a ridge or baseline topography. Survey crew includes pilot, main observer, and second observer (data recorder).

I. Selection of Management Areas to be Surveyed

Initial Selection - Each region will select three management areas that have relatively high mountain lion densities based on harvest histories, good snow conditions down to low elevations, and that contain a series of ridges and drainages that allow for systematic searches of presumed lion travel corridors.

If an area does not meet the aforementioned criteria but has social, political, or biological significance, it can be added to the survey and sampled for trend data.

II. Establishment of Baselines and Transect for Systematic Sampling

Baseline must be a ridge or series of ridges at least 10 miles long that receives enough snow to maintain a 4-6 inch coverage occasionally throughout the year, but not in excess that would drive mountain lions and prey species out of the area for the duration of the winter.

Transect must be a minimum of 15 miles long and run perpendicular to the baseline and be parallel and spaced approximately 2 miles apart. There must be a minimum of 5 transect/sample area.

For each management area, there must be a minimum of 3 systematic sampling areas separated by a minimum distance of 30 miles.

III. Climatic Conditions Under Which to Conduct Survey

Primary condition is the sampling area must have a two-day old average snow coverage of 4-6 inches. Secondary conditions should include visible sun and calm to light winds.

IV. Time of Year

After the deer hunting season is over in November, and through March, surveys must be conducted on short notice and are to receive priority over other big game surveys, so as to take advantage of optimum tracking conditions.

V. Field survey procedures and data collection

The survey involves flying transect until a mountain lion track is intercepted. If the survey crew is uncertain or inexperienced with identifying lion tracks from the air, the crew may safely land and ground truth the lion tracks and which will help identify and confirm future lion track observations. Intercepted lion tracks are followed in both directions and the path recorded using a GPS/datalogger. Total distance traveled by the lion is recorded. After the track has been followed, the transect surveying is resumed at the point of track interception.

VI. Population Estimate Calculation

The estimate is based on probability sampling where the likelihood of observing actual lion tracks during transect surveys in relation to searching effort and relative visibility of the track provide an extrapolated measure or estimate of the number of other lion tracks that may exist with similar track attributes but that go undetected throughout a survey area.

Probability of track detection

$$p_i = x_i/(D/q)$$

Lion number estimate for area coverage by one systematic sample (multiple transect)

$$T_j = \sum(1/p_i)$$

Mean lion population estimate for an entire sampling area (multiple samples)

$$\bar{T} = \sum T_j/s$$

Variance of the lion population estimate

$$\text{Var}(T) = [\sum(T_j - \bar{T})^2]/[s(s - 1)]$$

where, p_i = probability that the i th lion is in a systematic sample; x_i = distance, parallel to the baseline, traveled by the i th lion; D = length of baseline; q = number of transect per systematic sample; T_j = population estimate for the j th systematic sample; \bar{T} = mean population estimate of systematic samples; and s = number of systematic samples

Reference

Van Sickle, W. D., and F. G. Lindzey. 1991. Evaluation of a cougar population estimator based on probability sampling. *J. Wildl. Manage.* 55:738-743.

Procedure 2- Waterhole Counts

Purpose

To employ a reliable survey technique to assess the status of the mountain lion population in a specific geographic area. This technique will be utilized primarily in southern Nevada.

Methods

Ground surveys in the vicinity of water sources in search of mountain lion tracks.

I. Decision to use Waterhole Counts

Waterhole counts are only to be used in mountain ranges that have low lion densities, have no perennial streams, and which information on lion presence is beneficial to both lion and ungulate management. Each biologist will make an assessment of the need to survey a mountain range with waterhole counts that meets the previous criteria.

II. Stratification of Mountain Range for Surveying

If a mountain range is to be surveyed through waterhole counts, locate all perennial spring sources and manmade water developments within a particular mountain range and adjacent foothills (considered a sampling area). Attempt to separate the sampling area into 3 subunits that contain equal area of mountain lion habitat and numbers of water sources. If the sampling area is less than 200 square miles, do not subdivide. Subunits must meet the following criteria: 1) contain a minimum of 2 springs, 2) springs or their outflow in one subunit must be at least 2 miles away from springs and outflow in adjacent subunits. Select one or two water sources/subunit or single sampling area to survey.

III. Field Survey Procedures and Data collection

Visit the water source a minimum of 3 times between June 1 and September 1 during one year. Determine site location initially with a GPS. Record all lions, bobcats, coyotes, and ungulates observed and their tracks. Also photograph and record all confirmed lion kill carcasses. If the ground surrounding the water sources does not provide good tracking conditions make a minimal effort to clear ground that will hold tracks. Spend no more than 1 hour within a 50 meter radius searching the ground for tracks at any one water source.

Take photographs of lion tracks initially observed at each water source to document the presence of a particular animal for future reference. Measure and record the width of each lion track observed.

At the end of each year, assess the value of the survey for a particular sampling area. If the waterhole counts are not providing an objective and accurate assessment of lion presence in a mountain range, discontinue them. Waterhole counts should be conducted on a biannual basis for mountain ranges selected to be surveyed.

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Procedure 3- Hunter Log Books and Hunter Return Cards

Purpose

To provide information on mountain lion density, trend and presence in mountain ranges of Nevada where lion hunters pursue mountain lions. To determine hunter success beyond the completion of the mortality form 351

Methods

I. Hunter Log Book:

Hunter log books will be distributed to hunters at the beginning of each hunting season with the purchase of a tag. Hunters will be encouraged to complete a data form in the log book for each hunting episode.

The data forms will be in the form of a postage paid post card and hunters will be requested to mail the completed cards to the division upon the completion of the hunt. The Game Bureau will collect completed data logs and will enter data into the mountain lion database.

The Game Bureau will prompt hunters to return data forms at the conclusion of each hunting season.

II. Hunter Return Cards

Hunters are required to complete a hunt return card by June 1st following the hunting season. The return cards are submitted to the application hunt vendor for key entry. Data that is entered into the division return card system is available to each person in the division for data analysis.

Procedure 4- Data Storage and Retrieval

Purpose

To develop and implement a standard statewide mountain lion data storage and retrieval system. The system will be computer based, accessible to each employee of the Division. The system will incorporate data from all elements of Divisional operations. Sensitive data will be secured and accessible by authorized personnel only.

Method

I. Location:

The Division will develop a mountain lion database on the one of the Division's file servers located at the headquarters. The database will be accessible to all employees in Reno through the Local Area Network. Remote users will receive database updates periodically until they either become part of a Wide Area Network or they can remotely access the Headquarter LAN.

Geographical data will be stored in the Division fileserver in the lion database; however, these data will also reside on the GIS workstation in the Biodiversity project.

License and tag data will be captured, processed and stored through the Hunt Application system. Applicable data will be downloaded from the Hunt Application System into the lion database. Return card data will be captured and stored on the Hunt Application System and downloaded into the lion database.

II. Software:

The database program will be written on Rbase version 4.5 ++ or higher. Data that are off loaded into application packages will be done at the discretion of the analyst.

III. Data

- a. Biological.
 - I. Houndsmen sight records
 - ii. General Sight Record
 - iii. Telemetry Observation Record
 - iv. 351 Harvest Report
 - a. Harvest information
 - b. Animal information
 - c. Hunter information
 - v. Survey & Inventory
 - a. Snow Track Procedure
 - b. Waterhole Procedure
- b. Hunt Administration Process
 - I. Application Data
 - ii. Return card hunt information.
 - iii. Harvest Tracking Program.
- c. Animal Damage Control
 - I. Incident Table
 - ii. Action Taken Table
- d. Human lion conflict
 - I. Human lion interaction form.

IV. Responsibility and Data Input Schedules

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Responsibility

The maintenance of the Statewide lion database will be the responsibility of the Staff Biologist charged with the lion program. The maintenance of the program nodes such as the Hunt Application Process will be the responsibility of the Hunt Application Program Officer. Data responsibility for the harvest tracking system lies within the responsible Region. Finally, data collected for law enforcement purposes remain the responsibility of the Enforcement Bureau.

Data Input Schedules

The fiscal year will provide the base year for lion data management operations. All lion databases should be closed and reconciled by July 30th of each year.

The following table delineates the various components of the data management system, input responsibility and input schedule.

Lion Database Management Schedule

Program Element	Input Frequency	Input Responsibility	Data Storage Location
Tag Application	On Demand	License/SCI	Fallon - SCI
Return Card	Batch/May	License/SCI	Fallon - SCI
Harvest Tracking	Upon Report of Harvest	Regions	Each Regional Office
Harvest Report 351	On Demand	Game Bureau	Reno LAN
General Sight Record	Batched	Game Bureau	Reno LAN
Houndsman Hunt Record	Batched	Game Bureau	Reno LAN
Human/Lion Interaction	Upon Incident	Game Bureau	Reno LAN
Animal Damage Report	Batched	Game Bureau	Reno LAN
Telemetry Observation	Monthly	Game Bureau	Reno LAN
Snow Track Survey	Batched	Game Bureau	Reno LAN

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Program Element	Input Frequency	Input Responsibility	Data Storage Location
Waterhole Counts	Batched	Game Bureau	Reno LAN
Enforcement??			

Data Retrieval

The lion data bases will be assessable to members of the Division and public within the limits of NRS.

Standard report formats will be developed to display data that are periodically required. Ad hoc reports and data queries may be developed or implemented for analysis.

Data Security

The element control personnel have data entry and modification authority. Any data that are exposed to remote entry will be password protected.

STATE OF NEVADA
DEPARTMENT OF CONSERVATION OF NATURAL RESOURCES
DIVISION OF WILDLIFE

WILDLIFE PROTOCOLS

Protocol: Mountain Lion Law Enforcement
Index: ML-P-6

Ref: NRS 501.181
NAC ???.

POLICY

1. Protection of the mountain lion is an important function.
2. Priority will be directed to those illegal activities which directly impact the resource through direct loss of animals.
3. Illegal activities that involve fraud, prohibited method, or prohibited procedures are the Division's second priority.
4. All necessary and available resources will be utilized when appropriate for protection of mountain lions.

I PURPOSE

The Division of Wildlife is responsible by statute for the protection of the mountain lion resource. This protection sets forth procedures to be followed in carrying out that responsibility as effectively and efficiently as possible. Appropriate efforts will be made based on recognition of our limited ability to carry out all aspects of a wildlife resource protection program.

II INTRODUCTION

Mountain lions have social, economic and recreational value. They are actively pursued and admired by both consumptive and nonconsumptive public. Poachers kill them for their head, pelts and claws, and profit. For this reason, we can anticipate a certain level of illegal activity. As occurs with other species, poaching is happening. Some studies have indicated illegal activity to be responsible for as high as a 20-25% loss of a mountain lion population. While

there is no indication of a similar ratio in Nevada, clearly we should do everything possible to prevent a high level of illegal activity

III DEFINITIONS

- A. Poaching means: the illegal taking of wildlife including killing or capturing without a license, over limits, killing or capturing prohibited animals, violation in taking an animal, and illegal commercial activities concerning the animal.**
- B. Direct loss of an animal means: the illegal take of a mountain lion that is not authorized and consequently exceeds any recommended, anticipated or expected harvest.**
- C. Fraud means: illegal activities that include providing false information, transferring/using/altering documents.**
- D. Prohibited method means: illegal activity that includes areas, weapons or service, vehicles, hours, animals; and**
- E. Prohibited procedure means: illegal activity that includes improperly using tags, harvest reporting, expired documents.**

IV. MANAGEMENT OPTIONS

A. Routine Patrol

The most basic tool in protecting the resource is patrol. This first line of defense against illegal activity simply involves a warden covering his assigned area. Effective efforts require the officer to know the access, topography, resource distribution, season of use, constituent and character of each management unit. Any significant changes which may affect the mountain lion resource must be determined and pursued to a conclusion.

B. Investigation

When an officer has an indication of a violation, it is important to begin follow-up work. A step-by-step patient inquiry and observation which traces, searches into, examines and inquires with accuracy the facts concerning the event. These are supported by the taking and examination of specific individual examples of the work including interviews, document research, completing reports, using forensic laboratory techniques and specialized equipment. Whenever an officer has reason to believe that an illegal event has occurred, an investigation should be conducted in pursuit of a conclusion.

C. Special Operations

The use of a specialized or directed enforcement team is an important mountain lion protection tool. When a problem such as continuous reports of illegal take is discovered, a team of officers can be assigned to work with the local officer on the problem. A specific plan of operation should be developed and adhered to to ensure, as best we can, a successful outcome.

D. Operation Game Thief (OGT)

Given the size of Nevada and the number of officers available to protect the resources, public support and involvement in anti-poaching efforts is critical. The OGT program allows concerned citizens to become the eyes and ears of the Division. This secret witness program provides a confidential, privately funded witness reward program to encourage the public to provide information leading to the arrest of poachers. Individuals wanting to report a poaching incident call a toll free number (1-800-992-3030). Calls are referred to the nearest local warden. No names are necessary and the witness is not asked to testify. If information leads to a conviction, a reward can be paid.

E. Undercover Operation

When patrols, investigation, and special operations are unsuccessful in curtailing illegal activities and frequently when illegal commercialization of the resource is occurring, the only consistently proven method is undercover operations. This method allows the officer to infiltrate poaching operations. This enforcement tool must only be conducted under rigid procedures and plans established well in advance by supervisory personnel.

V. CONTROL METHODS

All commissioned Division personnel are qualified and expected to participate in the protection program. Each officer will take the appropriate action necessary to arrest and convict those persons who participate in illegal activities.

Coordination and cooperation with numerous other law enforcement entities, such as the courts, prosecutors, and other law enforcement agencies, will be enhanced whenever possible.

VI. REPORTING

All officers will accurately and completely submit standard report forms in a timely manner. These include citations, incident report forms, court documents, field interview cards, poaching reports, OGT documents, time coding and harvest report forms. These records will be maintained in the headquarters office.

STATE OF NEVADA
DEPARTMENT OF CONSERVATION OF NATURAL RESOURCES
DIVISION OF WILDLIFE

WILDLIFE PROTOCOLS

Protocol: Mountain Lion Conservation Education and Public Information
Index: ML-P-7

Ref: NRS 501.181

I Purpose

To educate the public about mountain lions and lion ecology, inform the public of how to safely coexist with lions, and serve as a guideline for public response to a lion encounter.

II Goals

- ◆ To increase public awareness
- ◆ To increase respect of mountain lions
- ◆ To prevent harmful lion-human encounters
- ◆ To instill an understanding of mountain lion's function in the ecosystem
- ◆ To present options on how people may coexist with cougars

III Methods

I. EDUCATION AND SAFETY

- A. Press Releases - prepare standard release on general mountain lion ecology and management; modify and/or add material to satisfy the needs for a particular story line; ~~distribute releases on a semiannual basis in the late spring before cubs are born and early fall prior to hunting seasons;~~ distribute other times when appropriate such as for announcing the availability of informational materials (i.e., pamphlet or video).
- B. Outdoor Columns - Encourage stories that foster public awareness and/or safety of mountain lions and other wildlife.
- C. Radio Shows or Radio Guest Interviews - Encourage interviews with Division employees on local radio stations that foster public awareness and/or safety of

mountain lions and other wildlife; use Nevada Outdoors show to announce availability of informational materials (i.e., pamphlet or video).

- D. Television Guest Interviews - Encourage interviews with Division employees on local television stations that foster public awareness and/or safety of mountain lions and other wildlife; use weekly spots on news programs to announce availability of informational materials (i.e., pamphlet or video); attempt to schedule interviews during spring (females protective of cubs) and early fall (high potential for encounter by hunters) to promote public safety.
- E. Pamphlet - Publish and distribute "Living with Mountain Lions in Nevada"; make available in all public institutions (local, state, and federal) and distribute to businesses engaged in tourism and/or outdoor recreation sales and services.
- F. Project WILD - Design, develop, and implement the addition of a Project WILD activity around living with mountain lions in Nevada
- G. Video - produce 30-minute video presentation that covers mountain lion ecology including predator-prey relationships, man's influence on lion distribution and behavior, conservation and management of lions, and lion encounter prevention and resolution; distribute on loan to schools and nonprofit organizations, give lectures using video to civic organizations and community groups.

II. MEDIA MANAGEMENT OF LION-HUMAN ENCOUNTERS

- A. Develop and file a press release/fact sheet to hand to reporters prior to an interview regarding a mountain lion encounter.
- B. The designated Division spokesperson (as assigned by regional managers) is notified immediately in the event of a lion encounter that involved an aggressive mountain lion. Complete and accurate information on the encounter is provided to the spokesperson. All media inquiries regarding the encounter are handled by this individual.
- C. Spokesperson contacts all governmental agencies that were directly involved with or that have direct interest in the encounter (i.e., city, county, state, or federal land managing officials), to collaborate on consistent content of information to be distributed to the media, time permitting.
- D. If Division personnel other than the spokesperson are forced to speak with the media, provide the media with the press release/fact sheet and inform the media that "please be patient and wait until the Division's spokesperson is available for comment". Do not become baited into argument or controversy while waiting for the spokesperson.

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- E. Media coverage of an ongoing mountain lion encounter should be encouraged but must be managed by Division personnel as to not hinder efforts to secure the lion or maintain public safety. If a lion is immobilized or killed, it should be covered or otherwise kept from public and camera view.
- F. The spokesperson is the Division contact to the media throughout the development of a lion encounter story.

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WILDLIFE

WILDLIFE PROTOCOLS

Protocol: Mountain Lion Hide Salvage and Disposal
Index: ML-P-8

Ref: NRS 501.100
NRS 503.595
NAC 503.710

POLICY

1. Wildlife resources are the property of the people of the State of Nevada.
2. Public resources to be distributed in a fair and equitable manner.
3. Division has responsibility for collection, preservation, storage and disposal of salvageable wildlife or parts thereof.

I PURPOSE

The Division of Wildlife is responsible for the fair and equal distribution of wildlife resources found within the boundaries of the State of Nevada. This includes mountain lion hides that the Division acquires by means outside the legal sport harvest by licensed hunters during the regular hunting season as set by the Wildlife Commission.

II INTRODUCTION

The Division of Wildlife receives mountain lion hides as a result of ADC depredation harvest, road kills, confiscation by Law Enforcement and the result of kills made protecting property, lives or livestock. These hides have commercial value in the taxidermy market and value for museum and educational purposes. It is the responsibility of the Division to insure that these hides are properly cared for and disposed of in order to provide the best benefit for the State of Nevada.

III DEFINITIONS

- A. **Raw hide/pelt** - Lion that has been rough skinned often leaving the head and feet attached.
- B. **Preserved** - Skinning has been finished. Pelt is defleshed and salted.

- C. **Storage** - A dry even temperature location that is free of insects and rodents.

IV PROCEDURES

- A. **Receipt of lion.**

1. Upon receipt of any lion, the recipient will complete a form (351) and seal the lion. With each lion, attach a tag with the following information. Sex, age, date of harvest, general standard I.D. tag needed condition of hide and estimated weight of animal.
 - a. **Rough skinned lion.** Place in freezer for temporary storage or deliver to a taxidermist for preservation of the hide. If placed in freezer, deliver to taxidermist at earliest opportunity.
 - b. **Unskinned lion.** Rough skin, if able, and freeze for short term storage or deliver to taxidermist as soon as possible for preservation of hide. If unable to skin, freeze animal for short term or deliver to taxidermist as soon as possible for skinning and preservation. If placed in freezer, deliver to taxidermist at earliest opportunity.

- B. **Storage.**

1. Short term storage is intended to provide temporary protection of the hide and/or carcass. These should be frozen as soon as possible to prevent degradation/spoilage of the hide. Short term storage will not exceed a period of 45 days.
2. Long term storage is intended to store hides for a period of time not to exceed one year from time of acquisition. The hides will be preserved by the taxidermist prior to placing in long term storage.
 - a. For long term storage, a facility is needed that will provide a fairly even temperature (in extremes of hot or cold), and is free of insects and rodents.

- C. **Final Disposal.**

1. The Division will make available mountain lion hides and other parts to governmental entities and educational institutions within Nevada. Requests for specimens will be forwarded to the Chief Game Warden. Decisions regarding disbursement of hides to those institutions will be made by the Chief Game Warden.

2. The Division will annually make available to the general public mountain lion hides and other parts using the Nevada Trappers Association sale at Fallon to auction the lion hides procured during the year.
 - a. To insure that hides are available for sale, they need to be shipped to the statewide coordinator any time not to arrive after December 15th of each year.
 - 1) Long term storage is available at the Mason Valley Hatchery. The coordinator is Walter Mandeville at 44 Hatchery Way, Yerington, Nevada 89447.
 - 2) The statewide coordinator will maintain a file on all salvaged mountain lion hides or parts salvaged for the purpose of accounting for each individual item, noting the species, origin, condition, assigned inventory tag number, where stored, date offered for sale, to whom sold, amount sold for, to whom donated, date of destruction, etc. An annual accounting report will be forwarded to the State Game Warden by September 30th of each year.
 - 3) A listing of inventory will be mailed to licensed taxidermists and fur dealers in advance of the annual auction by the Law Enforcement Bureau.

Mountain Lion Comprehensive Management Plan

PROGRAM MANAGEMENT

Section	Page Number
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Nevada Mountain Lion Management Schedule

ID	Name	Total Cost	3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2n
			Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	Lion Project	\$130,940.63																						
2	Survey & Inventory	\$59,624.48																						
15	Harvest Management	\$22,189.23																						
16	Season Setting Protocol	\$7,999.84																						
17	Data Compliation & Anal	\$3,909.76																						
22	Recommendations & Writ	\$2,464.72																						
27	County Boards & Commis	\$1,625.36																						
32	License & Tag Admin	\$4,085.72																						
46	R-2 Trax	\$622.16																						
47	R-3 Trax	\$566.16																						
48	HQ Trax	\$810.24																						
49	Harvest Checkin	\$8,105.11																						
110	Law Enforcement	\$40,009.52																						
111	Coordination	\$1,475.76																						
112	Patrol	\$34,091.76																						
137	Investigation	\$4,442.00																						
142	Data Base Management	\$7,239.64																						
157	Program Reporting	\$1,877.76																						

Project: Lion Management
Date: 10/18/95

Critical 
Noncritical 

Progress 
Milestone 

Summary 
Rolled Up 

Lion Management

ID	Name	3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quar	
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Adams																				
2	Adkins																				
3	Albert	8h		16h																	
4	Allen																				
5	Allen W																				
6	Anacabe																				
7	Anderson																				
8	Angel																				
9	Atkinson	8h	8h																		
10	Baker																				
11	Barngrover		8h																		
12	Baughman																				
13	Beckstrand																				
14	Benolkin																				
15	Berntson																				
16	Bitton				4h	4h	4h	4h	4h	4h	4h										
17	Boardman																				
18	Bradley																				
19	Branzell																				
20	Brose																				
21	Bull																				
22	Buonomici	8h										40h									
23	Burgoyne																				
24	Burkholder																				
25	Burrell																				
26	Burton																				
27	Camera	104h																			
28	Campbell																				
29	Carter			24h																	
30	Cartwright																				
31	Chavez	8h																			
32	Clifton																				
33	Conradt																				
34	Copeland																				
35	Cox	80h	16h						16h					16h							
36	Crawforth																				
37	Cummings	65h	1h	1h	1h	4h	8h	8h	40h	8h	8h	8h	25h								

Lion Management

ID	Name	3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quar	
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
38	Curran																				
39	Dankowski					8h	24h	40h	40h	32h	16h										
40	Davidsaver																				
41	Dobel																				
42	Donham																				
43	Drake																				
44	Eaton	8h	8h	8h	4h	12h	56h	16h	16h	44h	8h	4h	40h	16h							
45	Eckhardt					8h	32h	40h	40h	32h	16h										
46	Eller																				
47	Ellington	8h																			
48	Elliott																				
49	Elliott																				
50	Erickson																				
51	Fitzmorris																				
52	Florence																				
53	Forbes																				
54	Force																				
55	Fraga																				
56	French																				
57	Fulton																				
58	Gallagher																				
59	Gamboa																				
60	Gant																				
61	Gause																				
62	Gebhardt																				
63	Gilbertson		16h					16h						16h							
64	Gray										40h										
65	Green																				
66	Gritman																				
67	Guss																				
68	Hampson																				
69	Hardenbrook																				
70	Haskins																				
71	Healy																				
72	Heap		8h																		
73	Heinrich																				
74	Heisler																				

Lion Management

ID	Name	3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quar	
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
75	Helicopter									24h											
76	Helicopter																				
77	Henson																				
78	Herndon																				
79	Herron																				
80	Hess		8h																		
81	Hildebrand																				
82	Hoffman				4h	4h	4h	4h	4h	4h	4h										
83	Holley	4h	32h	32h	20h	28h	28h	36h	36h	28h	44h	40h	40h								
84	Holliday			32h	16h	16h	16h	16h	16h	16h	16h										
85	Horsley																				
86	Horton																				
87	Hullinger			16h																	
88	Hunt																				
89	Hussey																				
90	Hutchings																				
91	Ince																				
92	Jackson																				
93	Jamison	8h																			
94	Jeffress																				
95	Jenne																				
96	Johnson																				
97	Johnson																				
98	Johnson																				
99	Junell																				
100	King																				
101	Klebenow					16h	40h	48h	40h	32h	16h										
102	Lackey																				
103	Laffins																				
104	Lamp																				
105	Lannen																				
106	Layton																				
107	Leach																				
108	Lee																				
109	Lienhard O																				
110	Lienhard T																				
111	Lovemark																				

Lion Management

ID	Name	3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quar	
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
112	Lusk									40h											
113	Mandeville	17h	1h	1h	4h	8h	12h	56h	16h	48h	8h	8h	36h								
114	Martinez																				
115	Maslach																				
116	McDaniel																				
117	McKelvey																				
118	McLelland																				
119	McMeen																				
120	McQuivey																				
121	Melnick																				
122	Messmann																				
123	Mills																				
124	Molini																				
125	Moore																				
126	Morse																				
127	Mortimore																				
128	Muncy																				
129	Nash																				
130	Neel																				
131	Nielsen																				
132	Nordan																				
133	Nuszbaum																				
134	O'okinda																				
135	Padilla																				
136	Pardew																				
137	Partee																				
138	Patula												40h								
139	Peterson																				
140	Pfiffner																				
141	Phenix																				
142	Pirkle																				
143	Podbourny																				
144	Quackenbush																				
145	Reimers																				
146	Remlinger																				
147	Retterer																				
148	Rice		8h																		

Lion Management

ID	Name	3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quar	
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
149	Roden					8h	32h	40h	40h	32h	16h		40h								
150	Saake																				
151	Sanger																				
152	Schneider																				
153	Scott																				
154	Scourby																				
155	Sevon																				
156	Shavinsky				4h	4h	4h	4h	4h	4h	4h										
157	Shepard																				
158	Sjoberg																				
159	Smith_D																				
160	Smith_G					16h	40h	48h	40h	32h	16h		40h								
161	Smith_L																				
162	Smith_R																				
163	Sollberger																				
164	Spencer																				
165	St.Clair					8h	24h	40h	40h	32h	16h										
166	State Printer																				
167	Stephens																				
168	Stern																				
169	Stevenson																				
170	Stiver	41h	49h	53h	33h	10h	12h	32h	16h	12h	16h	68h	17h	8h							
171	Sturtevant																				
172	Tanner	16h	56h																		
173	Tanner_B																				
174	Teske																				
175	Thompson																				
176	Tippary																				
177	Tomac					8h	24h	40h	40h	32h	16h										
178	Tomlinson																				
179	Toulouse																				
180	Trendler																				
181	Truck	104h																			
182	Varble																				
183	Wagner		8h																		
184	Warren																				
185	Weller																				

Lion Management

ID	Name	3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quar	
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
186	Wheeler																				
187	White																				
188	Wickersham		8h																		
189	William E					16h	40h	48h	40h	32h	16h										
190	Williams J																				
191	Williams M																				
192	Willmoth																				
193	Wright																				

Mountain Lion Comprehensive Management Plan

EVALUATION

LION PLAN REVIEW & EVALUATION

Upon adoption, or possibly before adoption, provisions of this plan will be implemented. In order to obtain maximum use and benefit from this plan, it must be reviewed and evaluated periodically to determine the appropriateness and effectiveness of various provisions in relation to goals and objectives.

To be most effective this review process will be both an informal and a formal procedure. The informal procedure will consist of a general review conducted by the Game Bureau in association with the biennial season setting processes. This review will be focused primarily upon the harvest and season setting aspects of the plan but can and should consider identified problems or concerns with other aspects of the plan.

Formal plan review will be conducted by a team of three Division employees appointed by the Division Administrator. These three employees will be drawn from three different disciplines within the Division. The review will consist of data review, interviews with Division employees and contact with the public to determine plan appropriateness and effectiveness in reaching defined goals and objectives. These formal review will be conducted on a schedule of two years after plan adoption, five years after plan adoption and every five years thereafter.

Formal plan review will be documented by an evaluation report, complete with recommendations, that will be submitted to the Division Administrator. The accepted plan review will be presented to the Board of Wildlife Commissioners and made available to the public.

Mountain Lion Comprehensive Management Plan

APPENDIX

Section	Page Number
Appendix I Mountain Lion Tag Sale, Sport Hunter Harvest, and Hunter Success by Class of Hunter 1969-1994	01
Appendix II Mountain Lion Depredation Harvest 1969-1995	02
Appendix III Mountain Lion/Deer Relationship - Lion Kill 1929-1994	03
Appendix IV History of Damage Control Activities Directed at the Mountain Lion in Nevada	04

Appendix I

MOUNTAIN LION TAG SALE, SPORT HUNTER HARVEST, AND HUNTER SUCCESS BY CLASS OF HUNTER

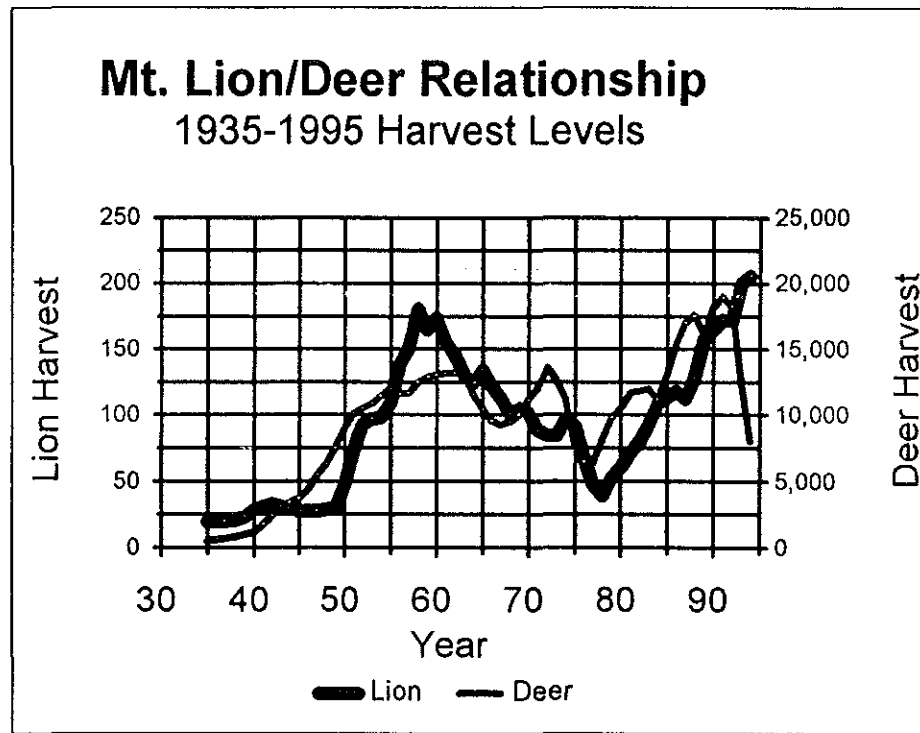
Mountain Lion Tag Sales, Sport Hunter Harvest, and Hunter Success by Class of Hunter									
	Tag Sales			Harvest			Hunter Success %		
Year	Resident	Nonresident	Total	Resident	Nonresident	Total	Resident	Non-resident	Total
1969-70	414	22	436	30	12	42	7.2%	54.5%	9.6%
1970-71	341	36	377	37	18	55	10.9%	50.0%	14.6%
1971-72	220	39	259	29	14	43	13.2%	35.9%	16.6%
1972-73	289	74	363	40	36	76	13.8%	48.6%	20.9%
1973-74	314	114	428	52	39	91	16.6%	34.2%	21.3%
1974-75	281	46	327	57	30	87	20.3%	65.2%	26.6%
1975-76	221	40	261	37	17	54	16.7%	42.5%	20.7%
1976-77	98	8	106	9	2	11	9.2%	25.0%	10.4%
1977-78	129	16	145	15	6	21	11.6%	37.5%	14.5%
1978-79	146	38	184	18	8	26	12.3%	21.1%	14.1%
1979-80	235	46	281	30	17	47	12.8%	37.0%	16.7%
1980-81	313	61	374	24	14	38	7.7%	23.0%	10.2%
1981-82	527	62	589	36	24	60	6.8%	38.7%	10.2%
1982-83	519	61	580	41	20	61	7.9%	32.8%	10.5%
1983-84	329	50	379	57	21	78	17.3%	42.0%	20.6%
1984-85	352	107	459	60	46	106	17.0%	43.0%	23.1%
1985-86	394	96	490	54	29	83	13.7%	30.2%	16.9%
1986-87	345	114	459	51	36	87	14.8%	31.6%	19.0%
1987-88	416	91	507	41	37	78	9.9%	40.7%	15.4%
1988-89	383	124	507	65	53	118	17.0%	42.7%	23.3%
1989-90	439	184	623	75	77	152	17.1%	41.8%	24.4%
1990-91	318	112	430	55	33	88	17.3%	29.5%	20.5%
1991-92	507	112	619	78	47	125	15.4%	42.0%	20.2%
1992-93	348	149	497	75	75	150	21.6%	50.3%	30.2%
1993-94	405	139	544	99	74	173	24.4%	53.2%	31.8%
1994-95	403	151	554	89	72	161	22.1%	47.7%	29.1%
Total	8,686	2,092	10,778	1,254	857	2,111			
Average	334	80	415	48	33	81	14.4%	41.0%	19.6%

Appendix II

MOUNTAIN LION DEPREDAATION HARVEST (Animal Damage Control) 1969-1995

Year	Male	Female	Unknown	Total
1969-70	28	19	14	61
1970-71	11	9	26	46
1971-72	8	10	2	20
1972-73	8	5	1	14
1973-74	4	7	0	11
1974-75	8	4	0	12
1975-76	10	10	0	20
1976-77	14	5	0	19
1977-78	10	7	1	18
1978-79	17	7	0	24
1979-80	16	8	0	24
1980-81	12	11	0	23
1981-82	19	3	0	22
1982-83	20	17	0	37
1983-84	11	10	0	21
1984-85	13	12	0	25
1985-86	12	16	0	28
1986-87	16	9	0	25
1987-88	22	15	0	37
1988-89	21	20	0	41
1989-90	26	23	0	49
1990-91	23	24	0	47
1991-92	37	20	0	57
1992-93	27	22	0	49
1993-94	32	17	0	49
1994-95	21	15	0	36
Total	446	325	44	815
Average	17.2	12.5	1.7	31.3

Appendix III



Year	Lion Kill	Year	Lion Kill	Year	Lion Kill	Year	Lion Kill	Year	Lion Kill	Year	Lion Kill
1929	3	1941	30	1953	96	1965	139	1977	39	1989	201
1930	22	1942	35	1954	111	1966	90	1978	50	1990	135
1931	24	1943	29	1955	122	1967	110	1979	71	1991	182
1932	20	1944	28	1956	185	1968	103	1980	61	1992	199
1933	22	1945	26	1957	146	1969	103	1981	82	1993	221
1934	20	1946	31	1958	211	1970	101	1982	98	1994	197
1935	20	1947	27	1959	138	1971	63	1983	99		
1936	20	1948	30	1960	173	1972	90	1984	131		
1937	20	1949	30	1961	156	1973	102	1985	111		
1938	23	1950	84	1962	109	1974	99	1986	112		
1939	28	1951	107	1963	127	1975	74	1987	115		
1940	35	1952	88	1964	137	1976	30	1988	159		

Lion Kill figures assumes a sport harvest of 20 mountain lions annually from 1930 - 1939, 25 lions annually from 1940 - 1949 and 30 lions annually from 1950 - 1959 and 40 lions annually from 1960 - 1966.

Appendix IV

HISTORY OF DAMAGE CONTROL ACTIVITIES DIRECTED AT THE MOUNTAIN LION IN NEVADA

The mountain lion, (*Felis concolor*), is native to Nevada. The population density has fluctuated since the geographical area now encompassed by the state boundary has been inhabited by European man. The mining and agricultural industries were responsible for attracting the first white settlers to the area. References made by these early settlers to the mountain lion in publications were infrequent, and when they were mentioned, indications are that sightings of mountain lion were rare. An example of this was an article published in the Territorial Enterprise on June 27, 1867, reporting that a "catamount" was killed in the Six Mile Canyon area by Captain De Shields, Superintendent of the Gould and Curry Mill. The writer stated in the article that "This is the first animal of its kind we have ever heard of in this region."

The earliest reference to the mountain lion in the Statutes of the State of Nevada was a result of the sixth biennial session of the Nevada State Legislature when a bill was passed on March 7, 1883, to allow for payment of a bounty on various species of predators including the "California Lion". At that time, the bounty was established at \$2.00, and the state would pay the bounty upon the receipt of the hide. Since the passage of that bill in 1873, the mountain lion bounty issue was dealt with in every subsequent biennial session of the legislature up to 1947.

In the 34th session of the Nevada Legislature, a bill was passed on March 29, 1929, "relating to and providing for the protection, propagation, . . . of wild animals, wild birds, and fish . . . Section 1 of the act read in part as follows:

"For the purposes of this act, wild animals shall be classified as follows: Game animals, furbearing animals and predatory animals . . ."

For the first time, the mountain lion was given formal legal classification in statute as a "predatory animal".

A review of all historical accounts available that might provide information on the relative number of mountain lions that inhabited Nevada since the mid-1850's indicates that the mountain lion population remained small well into the twentieth century.

Although mining was the initial primary attraction of settlers to the state, agricultural interests, and particularly the livestock industry, became well established as markets for meat and livestock products were developed, and transportation systems were built to deliver agricultural commodities to population centers in the expanding west.

The numbers of cattle on Nevada rangelands showed steady growth between 1850 and 1889, when a severe winter in 1889-90 resulted in the loss of an estimated 50% of the cattle using native ranges. Although herds of cattle were slow to recover after the hard winter, nomadic domestic sheep operations became more numerous and widespread in the state, particularly after 1900. Unprecedented numbers of livestock, a combination of both domestic sheep and cattle, were using Nevada rangelands by 1910, and the growth trend continued for approximately 30 years after the turn of the century.

The first government sponsored predator control program, aside from the previously mentioned bounty program established by the Nevada Legislature, came about when federal assistance was requested by Nevada to deal with an outbreak of rabies that occurred in the spring of 1915 in northern Nevada. By November 30, 1916, 89 persons were exposed to rabies and had received the Pasteur preventative treatment at the State Hygienic Laboratory at the University of Nevada in Reno. A conservative estimate of \$750,000 worth of livestock was lost due to the rabies outbreak in Nevada during 1915 and 1916. The Governor presided over several meetings to deal with the disease problem. Federal assistance was solicited, and the federal government sent E.R. Sans to Nevada to function as the District Agent for the Predatory Animal Extermination Campaign for the Division of Game Management of the U.S. Bureau of Biological Survey beginning in October, 1915.

As Nevada began to grow with increased agricultural and mining activity beginning in the 1850's, changes in the landscape began to materialize that favored growth of the apparently small mountain lion population that existed at the time. Prior to 1850, this large predator had available as primary prey the bighorn sheep and pronghorn that occurred in low to moderate numbers throughout the state, as well as very limited numbers of Rocky Mountain elk, mule deer, and feral horses and burros. The great Basin experienced significant transformation, however, when vegetational succession was effectively "set back" as man's land use practices began to affect the landscape. Widespread and intense livestock grazing, as well as extensive harvest of wood products for fuel and building materials, effectively set the stage for establishment of shrub communities where rangelands had previously been dominated by trees and perennial grass communities. These changes, along with unlimited market hunting and disease, resulted in declines of native prey species of bighorn sheep and pronghorn. The stage was set, however, for the establishment of shrub communities throughout the Great Basin. The native deer was the primary species to take advantage of this vegetal change, and mule deer populations throughout the Great Basin and northern Nevada began to prosper.

With unprecedented numbers of livestock using Nevada rangelands at the beginning of the twentieth century, in conjunction with mule deer populations expanding in distribution and numbers, the mountain lion population was in a position to respond with a positive growth pattern.

As opposed to the explosive population characteristics of mule deer, the state's mountain lion population likely responded more typical of a large predator population during the period of mule deer herd growth between 1920 and the late 1950's in Nevada. The mule deer herd growth has been reasonably well documented with hunter harvest records kept during this period, along with range and population surveys conducted by government agencies. The mountain lion population growth, however, can only be documented with harvest figures from bounty records kept by the county clerk's offices in Nevada between 1873 and 1947. Most of the records are thought to be fragmented, lost, or nonexistent. Very good records do exist, however, beginning in 1915 when E.R. Sans, the first District Agent with the U.S. Bureau of Biological Survey, began to report on the annual harvest of a variety of predatory species, including mountain lions, killed by state and federal hunters and trappers under his direction.

The predator control program in Nevada was undertaken in a cooperative venture between the state and the federal government beginning in 1915 with biennial funding provided by Congress and appropriations from the Nevada Legislature. Then, through an initiative petition approved in the general election on November 6, 1934, a Nevada statute was added providing for the payment of bounties for the destruction and eradication of predatory animals, prescribing the manner of payment, providing for cooperation with the federal government in such eradication by bounty payments, other matters relating there to, and repealing all previous acts and parts of acts in conflict with the current approved act. The bounty of mountain lions was established at \$20.00, and the total bounty payments for mountain lion, coyote and bobcat was not to exceed \$17,000 per year.

A significant part of the statute passed by initiative petition in 1934 was the direction given to the legislature, or the governor when the legislature was not in session, to enter into cooperative agreements with the federal government to jointly sponsor predator control activities. In that 37th session, provisions were made for the federal government to contribute not less than \$17,000 per year nor more than \$34,000 per year to augment the \$17,000 state budget for payment of bounties; however, the act specifically provided that the state would not be party to any agreement with the federal government where salaries instead of bounties were paid for the destruction and eradication of predatory animals.

As mentioned earlier, the federal government maintained records of any mountain lion harvest that resulted from government control activities. Records show that most animals were taken using traps or poison (strychnine), and the annual harvest between 1916 and 1940 averaged three mountain lions per year.

Based on annual reports prepared by the Bureau of Sports Fisheries and Wildlife, the agency responsible for federal predator control activities by this time, the problem of mountain lion predation on domestic sheep flocks was becoming more significant. This was likely due to several factors including: 1) a growing mountain lion population in response to a growing mule deer prey base, 2) increased value of livestock and wool due to the war effort, and 3) the high number of livestock, particularly domestic sheep, that were grazing on Nevada rangelands. Budget constraints prevented government response to this growing problem until 1949, when the Nevada Legislature passed two significant laws.

The 1949 legislature established the State Predatory Animal and Rodent Committee (PARC) as well as the State Board of Sheep Commissioners. The latter entity was given legislative authority to levy a tax on sheep, not to exceed 20 cents per head, with proceeds to be used for predatory animal control. The PARC first received and directed expenditure of state funds for predatory animal control work in 1953. Wayne Kirch, a member of the PARC representing the State Fish and Game Commission, was appointed the first chairman of the committee that was activated for the first time in January, 1953. This new legislation provided a more stable funding base for government sponsored predator control activities in Nevada.

A full time lion hunter was first employed in 1949 by the U.S. Bureau of Sport Fisheries and Wildlife and stationed in the Ely area. During his first year of work the agency reported killing 54 mountain lions, mostly with the use of trained hounds.

By 1950, the state's mountain lion population had grown to be quite large in numbers and distribution, likely in response to the viability of its primary prey species, the mule deer. The annual average Nevada mountain lion harvest reported by the Bureau of Sport Fisheries and Wildlife during the period of 1950 to 1960 was 102 mountain lions, and the highest harvest in a single year was in 1958 when 181 mountain lions were killed. During this period, at least two full time lion hunters were employed, and harvest was directed at all mountain lions, compared to the current practice where control efforts are directed at individual offending animals.

The annual damage control harvest of mountain lions during the period of 1960-1970 averaged 80 per year. The early 1970's was a different story, however, as mule deer numbers plummeted, probably reaching their lowest point in approximately 50 years in the mid-1970's. The state's mountain lion population, and the annual damage control harvest of mountain lions reached its lowest point since 1950, when in 1973, only 11 mountain lions were killed in control efforts.

A significant change in state law pertaining to the mountain lion occurred when, in 1965, the classification was changed by regulation from unprotected (predator) to game animal. When unprotected, they could be taken by any means. The initial impact of the game classification was requiring a valid hunting license to hunt mountain lion, along with some restrictions in the methods employed in taking. This provision precluded the taking of mountain lions at any time other than from sunrise to sunset, and also defined legal weapons as shotgun, rifle, or bow and arrow. It is important to note that Nevada was the first state to change the classification from the unprotected (predator) status to "game animal".

Beginning in 1968, a tag requirement was instituted, and it became possible for the Nevada Fish and Game Commission to record sport hunter harvest. No limits were established, however. A major change occurred in 1970 when a limit of one mountain lion per person per year was established, along with a six-month-long season. Additionally, a validation requirement was imposed so all harvested mountain lions were to be validated by a representative of the Department of Wildlife within five days after the kill. This regulation allowed the Department then to collect accurate harvest and biological data on both sport and depredation harvest of mountain lions.

In 1976, 26 mountain lion management areas were described statewide and a harvest quota was established for each to control the sport harvest. Additionally, new regulations allowed the Department to separate the sport harvest from Animal Damage Control and other depredation harvest. The Controlled Quota Hunt concept was the most restrictive season ever established for mountain lion in Nevada.

In 1979, the Controlled Quota Hunt was modified for six management areas whereby a harvest objective was established which allowed the hunt of lions in each of the six areas until a predetermined number of lions was killed. In 1981, the harvest objective concept was applied statewide. Shortly after full implementation of this new harvest management system, the Board of Wildlife Commissioners made some exceptions for depredation harvest, primarily in management areas with a history of depredation harvest, whereby the depredation harvest did not count against the sport harvest objective. This exception still exists today, although some variation in the exceptions have been applied year to year when seasons and harvest objectives have been established by the Commission.

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NEVADA REPORTED BY GOVERNMENT AGENCIES 1917 - 1994

Fiscal Year	ADC Harvest	Fiscal Year	ADC Harvest	Other Depredation
1917	8	1956	155	0
1918	5	1957	116	0
1919	6	1958	181	0
1920	2	1959	108	0
1921	3	1960	133	0
1922	2	1961	116	0
1923	0	1962	69	0
1924	3	1963	87	0
1925	4	1964	97	0
1926	1	1965	99	0
1927	2	1966	50	0
1928	5	1967	51	0
1929	3	1968	70	0
1930	2	1969	61	0
1931	4	1970	46	0
1932	0	1971	20	0
1933	2	1972	14	0
1934	0	1973	11	0
1935	0	1974	12	0
1936	0	1975	20	0
1937	0	1976	19	0
1938	3	1977	19	4
1939	8	1978	18	2
1940	10	1979	24	0
1941	5	1980	24	1
1942	10	1981	23	0
1943	4	1982	22	5
1944	3	1983	37	1
1945	1	1984	21	3
1946	6	1985	25	4
1947	2	1986	26	1
1948	5	1987	25	0
1949	5	1988	37	2
1950	54	1989	41	4
1951	77	1990	49	3
1952	58	1991	47	6
1953	66	1992	57	5
1954	81	1993	49	1
1955	92	1994	37	0
Total			2658	42
Average			34.1	2
High			181	6
Low			0	0