

TRANSACTIONS
OF THE
MOUNTAIN LION WORKSHOP

Nugget
Sparks, Nevada
January 13 & 14, 1976

Sponsor:

U. S. Fish and Wildlife Service
Region 1

Host:

Nevada Fish and Game Department

Co-Chairmen:

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CONTENTS

	<u>Page</u>
WELCOME	1
INTRODUCTION	3
ATTENDANCE ROSTER	4
AGENDA	7
DISCUSSION SESSIONS:	
REVIEW OF PAST & CURRENT MOUNTAIN LION STUDIES	9
BIOLOGY AND LIFE HISTORY	38
POPULATION INVENTORY TECHNIQUES	92
HARVEST	114
DEPREDATION	145
MOUNTAIN LION POPULATION MODELING	177
RESEARCH AND MANAGEMENT NEEDS	192
APPENDIX	
I - AGING TECHNIQUES COMMITTEE REPORT	197
II - STANDARDIZATION OF TERMS AND MEASUREMENTS COMMITTEE REPORT - Memorandum # 1 and 2	205

WELCOME

Glen Christensen, Nevada Fish and Game Department

I would like to express our Director's apologies for not being here today and I want to extend a warm welcome to you on his behalf. We certainly feel honored to have this group meet in Nevada and the subject of this workshop is timely.

I don't know how it is in your state, but Mt. Lions are a sensitive subject in Nevada. We are always walking the tightrope in relation to the demands of the livestock people (depredation problems), mountain lion guides (commercial exploitation), and the protectionist.

The Fish and Game Department is, as usual, caught right in the middle between all of these groups and attempting to come up with an acceptable management program. It is a difficult situation, as any of you who have worked with the management aspects are aware of. We have a long way to go and I hope this meeting will lead the way towards more progressive and definitive management programs.

Bob Fischer will fill you in a little later on with some of the background in relation to the workshop and how it originated. Actually, Bob is the one who initially sparked the idea to get this going, and he's put quite a bit of work into the program. As far as the mechanics of this workshop, it has been my feeling for many years in participating in various workshops with Fish and Game organizations that there are just too many of them that simply do not meet the mark. With this in mind, we have invited what I think is a very select group of people to attend this workshop. Any time you set up a meeting by invitation only, you are going to be subject to criticism, but I think it is going to be worth it if we can meet our workshop objectives, and if each of you have come prepared to make this a successful workshop through active participation. A workshop is just what it says--everybody should be in there with their sleeves rolled up, kicking the issues around, and trying to come up with a satisfactory solution. At the conclusion of this workshop, I hope that we have aired our common problems and have pointed a way toward trying to solve some of these problems without duplication of effort. There should be some committees formed to compile the background material as well as see some of the specific objectives through to conclusion.

I would like to see a representative of this group be able to go to the Western Association at a later date and show them that the workshop was functional.

(After some discussion concerning how to handle the minutes of the meeting, it was decided to tape the entire session and send the transcript relating to each discussion topic to the individual Discussion Leader. Nevada would be responsible for taping and transcribing. Federal Aid would pay for the secretary to transcribe. Bob Fischer would distribute transcriptions to the appropriate Discussion Leaders for editing. Final Copy to be edited by Bob Fischer and typed by Federal Aid in Portland.)

FIRST MOUNTAIN LION WORKSHOP
January 13-14, 1976
Sparks, Nevada

ATTENDANCE ROSTER

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MOUNTAIN LION WORKSHOP
Nugget
Sparks, Nevada
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AGENDA

<u>TIME</u>	<u>TOPIC</u>	
Tuesday, January 13, 1976		
8:00 a.m.	Welcome	Glen K. Griffith, Director Nevada Dept. of Fish & Game
8:15 a.m.	Introductions	Glen C. Christensen, Workshop Moderator
8:30 a.m.	Review of Past and Current Mt. Lion Studies.	Bob Fischer, Discussion Leader
10:00 a.m.	Coffee Break	
10:30 a.m.	Biology and Life History Standardization of Terms and Measurements. Aging Methods, Food Habits, Habitat Needs.	Maurice Hornosker Discussion Leader
12:00	Noon Lunch	
1:00 p.m.	Biology and Life History (Continued)	
2:00 p.m.	Population Inventory Techniques Aerial and Ground Surveys Tracking - Capture and Radio Monitoring.	Richard Poelker and Wally Macgregor Discussion Leaders
3:00 p.m.	Coffee Break	
3:30- 5:00 p.m.	Population Inventory Techniques (Con't.)	

TIME TOPIC

Wednesday, January 14, 1975

- 8:00 a.m. Harvest Ken Greer, Discussion Leader
 Extent of Allowable Harvest
 Levels of Hunting Pressure
 Protection of Females and Young
- 10:00 a.m. Coffee Break
- 10:30 a.m. Depredation Harley Shaw, Discussion Leader
 Loss Assessment
 Handling of Complaints
 Transplanting
- 12:00 Noon Lunch
- 1:00 p.m. Depredation (Continued)
- 2:00 p.m. Mt. Lion Population Modeling Ken Russel, Discussion Leader
- 3:00 p.m. Coffee
- 3:30 - Research and Management Needs Bob Tully, Discussion Leader
5:00 p.m. Discuss and List Research Needed
 to Solve Management Problems.
 Cooperative Efforts Between States
 Environmental Impact Statements
 Endangered Species Listings

DISCUSSION SESSIONS

Review of Past and Current Mountain Lion Studies

Bob Fischer,
Discussion Leader

As many of you know, the Division of Federal Aid, U. S. Fish and Wildlife Service, had many requests from State PR project biologists to sponsor this workshop. I'm not going to go into detail concerning the sequence of events in getting this workshop approved because it's a long story. Through it all I received a few wounds, which are slowly healing, but I'm reminded of what Dr. Durwood Allen told me quite a few years ago--that in this business one has to develop a thick skin in order to survive.

Well, we're here today to communicate. The main objectives of this workshop are to improve communication and to encourage the dissemination of current information of mountain lion management and research activities.

Some time ago a letter was sent to Western States and other selected agencies asking them to indicate their desire for or against a mountain lion workshop. It was at this time that Nevada graciously volunteered to host the workshop. I want to thank Director Glen Griffith and Glen Christensen, Chief of Game, for their time and effort in arranging this important get-together. The mail inquiry showed that seven of twelve States enthusiastically wanted a workshop; two were doubtful that anyone could attend because of travel restrictions; one questioned the need for the workshop and two did not reply. It is gratifying to see that all

of the Western State Fish and Game Departments, except Utah and Wyoming, are represented. I noticed that three game division people and private lion hunter from Idaho are here at their own expense. We certainly appreciate your attitude in believing that this meeting was important enough for you to absorb the expense of attending. In addition to State personnel, I see representatives from British Columbia, two Cooperative Wildlife Research Units, and the Fish and Wildlife Service.

In order to get a handle on the "Review of Past and Current Mountain Lion Studies," I wrote to each agency about a month ago requesting that they prepare for distribution a summary of past and current activities conducted on mountain lions in their respective State. So, to kick off this session, I will call on each State and agency to present this brief summary. So, to avoid missing someone, I'll call on each State in alphabetical order. First of all, I'll call on Arizona, Harley Shaw.

Arizona Game and Fish Department: Harley Shaw

I'm reporting mainly on research in Arizona rather than management programs. John Phelps is here today and he will have something to add on the management level now or later on in the program.

Very briefly we are presently completing a 5-year study of lion numbers, movements, and impact on prey species on a 150 square mile study area. Major prey species in the area are mule deer and cattle. Capture-recapture data are used for population estimates.

Lion kills are located during hunting efforts with dogs as well as by radio-tracking. Approximately 1000 radio-locations have been made covering movements of 15 different lions. These data have not yet been fully analyzed.

Suspension of field work is planned for the coming project year (July 1, 1976 - June 30, 1977) to allow for analysis and publication of data gathered to date, as well as planning of new research efforts. Possible areas of interest for future research involve evaluation of livestock losses under conditions of increased deer numbers and investigation of cattle management options which might alleviate losses to lions.

At present our interest areas so far as future research, assuming we continue on, involve evaluation of livestock losses under conditions where deer numbers are relatively high. Our study area is in a situation where the deer population is fairly low. Regarding the other aspect of it, we have some leads that we feel are along the lines of cattle management options which might alleviate losses to lions, assuming the ranchers are interested in this sort of thing and that the economics of it are feasible. We have quite a bit to learn about the ranching business, but we do have some insight in terms of management options that might help, and I think we'll get into those in the session discussions that will follow. That pretty well covers the research end of it.

California Fish and Game Department: Dick Weaver

Mr. Weaver summarized the following report:

Synopsis of California Mountain Lion Study

Historical Status

The mountain lion in California has had many changes in its status. It was classified as a predator with a bounty on its head from 1907 through 1963. During that period a total of 12,461 lions were bountied in California. In 1963 the California Legislature followed the recommendation of the Department of Fish and Game and removed the mountain lion bounty. From 1963 through 1969 the lion was classed as a nonprotected mammal. In 1969 it was reclassified as a game mammal with a license required to take them. The Fish and Game Commission was given authority to regulate the take. Sport hunting requiring hunting license and tags was in effect during the 1970-71 and 71-72 hunting seasons.

The Commission did prohibit the use of traps and poison which was formerly legal. It also prohibited the capture or possession of live lions without a permit. In 1971 the Legislature passed a bill which established a four-year moratorium (since then extended to 5-years) on the sport hunting of mountain lions and strict regulations on the taking of depredation lions. Lions could not be taken until they had caused damage and a investigation was made by the Department of Fish and Game. Then a permit could be issued for a ten-day period, which was good within ten miles of where the depredation had occurred. The Legislature directed the

Department to study the lion populations of the state, to determine the best methods of providing sound management.

Investigations

The Department of Fish and Game started a mountain lion study in April 1971. A population survey of the lions within California was done primarily through field interviews and field investigation of reported mountain lion areas. Lion hunters, houndsmen, Department field personnel, allied state, federal and wildlife personnel, ranchers, conservationists, and those individuals we were aware of who had information on local mountain lion populations were contacted. Data on lion density and distribution was obtained.

As a result of this survey, we have determined there are approximately 74,000 square miles of lion habitat within California with an estimated population of approximately 2,400 animals. The major areas of high lion concentration occur on the coast range from Mendocino County to Del Norte County and on the coast range from Monterey south to Ventura County.

Study Area

The second phase of our lion study was an attempt to capture and mark the lions in a designated area in southern Monterey County, follow movements, obtain indirect indices of population density and gather life history and other pertinent data.

The 170 square miles is principally chaparral and oak woodland.

The larger mammals present in the area include: domestic livestock, blacktailed deer, lion, coyote, bobcat, feral pig, blacktailed jackrabbit, cottontail rabbit, brush rabbit, bushy-tailed woodrat, gray fox, raccoon, opossum.

The area was estimated to have a population of approximately 15 lions in the statewide survey. We captured and marked fourteen adult lions and two cubs in the study area. Radio collars placed on these lions were powered by solar cells or lithium chloride batteries. Each animal was weighed, measured and examined for parasites and general condition. The mountain lions showed more overlap of range than was expected. Although not all the lions in the study area were caught. We estimate between 16-20 for the study area with a density of approximately 10 per 100 square miles.

Prey Species

The major mountain lion prey species in California is deer.

Conclusion

The status of the California mountain lion in California is secure with populations at the carrying capacity of the present habitat available.

Weaver: At the present time we have five transmitters functioning on mountain lions. We're gaining some valuable information and will continue monitoring as long as the radio collars are functioning. Past monitoring efforts were not of 24 hour duration or done on continuous days very often.

Shaw: The 15 lions captured, was that in your 150 square mile area?

Weaver: These are lions that are using it; they don't necessarily live within it. That other 50 square miles is the area that we have closed to lion hunting. Actually our study area is probably two to three times that size.

California: Ron Thompson, U. S. Fish and Wildlife Service

We assisted the California Fish and Game Department in their mountain lion study. We captured more than 14 lions, of which some were too small to collar and a few were recaptures. (Total captures were over 25 in the California Study Area--some taken by hired lion hunters). We were glad to be able to help them out.

Our program is rather small as far as depredation is concerned compared to some of the other states, but we believe that the selective removal of depredating lions by professionals is the best way to control livestock depredations. Otherwise ranchers may take things into their hands and kill many more lions than necessary. It's been our experience that usually only one or two lions are involved in the depredation. Ray Nelson is our professional lion hunter. He has dogs that he's bred and trained for almost 25 years. I'd like to introduce Ray. Ray, please stand up. And his supervisor, Bob Quiroz, from Hubbard, California, and my assistant from Sacramento, Darrel Juve.

Our records on depredation show that prior to March 1, 1972, 73 head of calves, sheep, and goats, valued at \$3,541 were killed. Since the legislature of California placed a moratorium on hunting lions on March 1, 1972, we've had six depredation requests from the Department of Fish and Game. We took five mountain lions on these six requests. There was one lion involved in each case.

Colorado Fish and Game Department: Bob Tully

Colorado had 36 years of the bounty system at \$50 per lion. Finally in 1965 the lion was classified as a big game animal with license fees set at \$5 for residents and \$10 for non-residents; in 1967 the fees were raised to \$25 and \$50. As of January 1, 1976, we've gone to \$25 resident and \$200 non-resident license fees. In 1965 we allowed a 5½ month season and at the present time there is about a 6 month season. This provides considerable hunting opportunities, but our regulations are becoming more restrictive each year. The entire state is on a quota basis but it's wide open as far as participation. When a harvest quota is reached by geographic area, we cut off the issuance of the permits. The annual harvest has been about 58 animals since 1965, and the take in 1975 of about 94 animals is the highest on record. Since 1965 we've paid out \$50,000 for 75 Just Claims of damage to livestock, and the incidents are primarily related to sheep, with 43 incidents; 14 to cattle,; 14 to horses; and 4 to a combination of goats and donkeys. We've had payments in excess of \$5,000 for damage to sheep. The landowners or livestock operators can still kill a lion to protect their livestock, and because of that the annual take varies from one to five animals. We're trying to transfer all the control efforts to sport hunting through various means. We've been fairly successful. Our lion population was estimated to be 750 in 1970 and the trend seems to be stable in some areas and increasing

in others. We now estimate that there are over 800 lions in Colorado; perhaps well over a thousand. Please understand that these are very gross estimates. The Colorado Cooperative Wildlife Research Unit, Ken Russell who's here, and Mary Jean Currier, are working with the Division of Wildlife professional hunter. With some funds from Game Conservation International, we have established a study area in an attempt to document the distribution, sex, and age composition of the population density in one of our three best lion areas. Also, the Cooperative Unit is working on a method to better determine the age of lions taken, and on the development of a population model.

Colorado Cooperative Wildlife Research Unit: Dr. Ken Russell

Bob briefly described the studies that we're engaged in. I'd like to introduce the two people who are really doing the work on those studies. Mary Jean Currier is conducting the winter census and aging technique work. She has one year's field work behind her and has several more years to go, in the aging work particularly. Steve Sheriff is just beginning work on a population model. We'll get into this in more detail as the workshop proceeds. The winter census was initiated last December. It has short range value in terms of documenting the density as best we can on a small geographic area in Colorado. This will have immediate application in terms of being helpful to management biologists in the Colorado Division of Wildlife and also being available as a public educational tool.

The aging study was initiated because of the absence of an acceptable aging technique for mountain lions. It has many problems. There are no guarantees that there is a technique by which mountain lions can be aged, so there's certainly risk involved there and many of you have worked with this aging problem yourselves. We're hoping to make some headway pursuing a more physiological than morphological approach, although we're certainly considering morphological data as well. The population model will be discussed at some length tomorrow but, very briefly, it is a utilization, an extension, of population model work that has been done at Colorado State in preceding years. Over the past five or six years, models have been developed and are now operational in setting harvest regulations. These have been developed by Jack Gross and his personnel working at the Coop Unit. So our population model really is not a new model. It is just a modification or will be a modification of existing operational models. I think that summarizes what our research program is like.

Idaho Fish and Game Department: John Beecham

Idaho really does not place much emphasis on mountain lion research. We feel like we have a pretty good data base from which to work, at least on the lion population. We do have two limited tagging projects going on at the present time that are unfunded directly since the supplies, equipment, etc., that we're using comes from my black bear research project. It's really a

pretty limited effort--strictly capture/recapture population census. As far as management is concerned, the legislature made the mountain lion a big game animal in April of 1972. We've had a pretty restrictive season since that time. We do have a mandatory checking system on all cats harvested. This has given us a very good data base to manage the cat. That's the extent of what Idaho has done in the last couple of years.

Idaho Cooperative Wildlife Research Unit: Dr. Maurice Hornocker

We've done the population work that John mentioned in the back country on a stable, unexploited population. We published some of the dynamics of that population, particularly on territoriality and depredation. We're still working on some of the life history and behavioral information. We are working closely with John and Gary Power on some of their work with exploited populations, and will get into that a little bit deeper later on during this workshop.

Montana Fish and Game Department: Ken Greer

Maybe some of you have gotten a few of our reports so you know what we have been doing. In 1971, the status of the lion in Montana was changed from predator to a game animal. I don't know how the legislature goofed, but they overlooked establishing a licensing system when they made the change. So we had to persevere for two years with no fee permitted to take mountain lions. After the word got out, quite a few people applied for the

no-fee permit. About 1900 residents applied. During those first two years there were about 50 to 55 lions taken. Since then, we've patterned the lion regulations after the grizzly bear regulations, with which we had pretty good success. These regulations required the hunter to turn in the hide and skull. In addition the hunter had to apply for a trophy license. It worked very well. I recall that the first year we tried it on grizzlies we didn't get too much response from the hunters and it took about three years before we got good results. So, when it was introduced for mountain lions in 1971, we had nearly a hundred percent response. After the legislature corrected the license fees the requests for licenses dropped. This will be the third year since the legislature made the change and we are continuing to get a small annual increase. Of course, there is some conflict about nonresident participation; however, we're just about at the turning point.

The harvest has increased somewhat in the past two years. It went up to 75 a year ago and about 91 to 95 the past year. We're just starting in on our fifth year of information and I don't know if we're going to be at the breaking point as far as what the population can stand. This past week we did contact about nine houndsmen who might be interested in trying to do some capture-tagging and marking for us. That's about the extent of our research. In Montana like some of the other states, lions are a rather low-priority animal as far as funding is concerned. There's too much competition for the dollar. However, I think if we can get a few

animals tagged in certain key areas the resulting information may eventually pave the way for providing a little bit of money to conduct future studies.

Nevada Fish and Game Department: Willie Molini

Prior to 1965 little attention was given to the mountain lion in Nevada. In 1965 the Fish and Game Commission at the request of the Department of Fish and Game made the mountain lion a game animal. This classification didn't do much at first for the lion; but it did establish a season, which was year-round. Probably the primary restriction was on harvest methods. The Commission established the legal hours of taking from sunrise to sunset; and made the legal weapons the shotgun, rifle, or bow and arrow, but outlawed the pistol. This has since been somewhat changed. Now lions can be taken at any time and the use of a pistol is allowed. In 1968 a tag was required and, although no limits were established at that time, it was the first time we had the opportunity to record sport hunter harvest. Probably the most important change occurred in 1970, when a limit of one lion per person was established and a tag was required. Also that all lions must be checked within 48 hours after the kill by a representative of the Department of Fish and Game. These requirements really gave us the opportunity to begin the collection of biological data. In terms of actual studies, prior to 1970 we really didn't do much. In fact, from 1965 to 1968 I think we were just kind of baffled since the

lion became a game animal and we knew nothing about it and didn't have much control on harvest. We just kind of floated along for two years. Then in 1968 we got the tag requirement and things began to develop. In 1970 we initiated a PR project entitled "Mountain Lion Investigations", which was designed as a five-year project. Some of the specific objectives of the project were to determine seasonal distributions through capturing and marking as well as aerial surveys and harvest records. We wanted to try to measure productivity through analysis of uterian tracts from harvested animals, to get a hand on food habits through examination of stomachs from harvested animals; and, of course, to keep an accurate measurement on all mortality, particularly that of harvest, through our mandatory tag validation. This project has, in fact, been underway for five years and the objectives have been only partially met. As I think I mentioned, we do have good data on harvest, including depredation take and other mortality from 1970-1975. We have a pretty good accumulation of base line age and sex data for some mountain ranges, and we have gained limited information of food habits and productivity. Under this project we did make some gains regarding population information. Two studies were done for us under contract by the Division of Wildlife Services, U. S. Fish and Wildlife Service. One study is located in the Santa Rosa Mt. Range of north central Nevada, and the other in the Grant Mt. Range of southeastern Nevada. The one in the Santa Rosas was pro-

bably our first attempt at a mountain lion census technique. It was accomplished in cooperation with the Division of Wildlife Services through ground surveys (looking for tracks) and by helicopter. It turned out pretty well. The most significant work to date has been accomplished under this project and under the predator density portion of our deer herd group review study. Under this we started some intensive population inventory work in the Ruby Mountains of Elko County in northeastern Nevada. By capturing and marking lions and by using radio telemetry, we've been able to obtain considerable knowledge of that particular mountain lion population. Over a four year period we've been able to capture and mark 33 animals and we've been able to determine several things about the population. These are , (1) the size of the base population, (2) the age and sex structure, (3) the number of resident lions by sex and age and, (4) the home ranges for several lions. We've gained some insight into interspecific competition between lions, an insight into prey species relationships, something about productivity and population recruitment, and have accurate measurements of total harvests. All in all, I think from that study we've gained the type of information that's necessary to make sound management decisions for that area. Unfortunately, this is the only mountain range in the state where we have that type of information. We have some population information on about six other mountain ranges, and this year we're embarking on a new study. It's probably rather ambitious. What we want to do is get at least a sound ball-park estimate of the total lion population in the state. Nevada probably lends itself to this

type of work better than many states because our lion habitat consists of long, narrow mountain ranges. We can work the periphery of these ranges on the ground, pick up sign, and then follow up with a helicopter. I think we can get some pretty good data. We don't have these broad, massive ranges that Idaho, Montana and parts of Colorado have that are a little more difficult to work with. I think the most important part of this new work is that we want to identify the impacts of harvest and relate this to the management of the lion populations. Basically that's what we're involved in in Nevada.

Nevada: Joe Miner, U. S. Fish and Wildlife Service

Most of the take records that are available prior to 1965 were those of the Fish and Wildlife Service; they were not depredation control. Since then research by the Fish and Wildlife Service has been in conjunction with the Nevada Department of Fish and Game. In all due respect for everybody, we'll have to recognize that Dick Hall was a key man because of his ability to take lions and his knowledge of the country. Everybody relied on Dick's knowledge and expertise at the beginning of these studies. It was because of his knowledge and ability that the research in Nevada was able to progress as well as it has. Additional input from us will be from Dick and from Mike Laughlin from the Elko area. I would like to have both of them stand up so you know who I'm talking about. Any questions?

Molini: Bob (Fischer - Discussion Leader), if I might, I would add that the Division of Wildlife Services, U. S. Fish and Wildlife Service, has really been instrumental in our work in Nevada, especially Dick's expertise. They are now involved in the State-wide project with us this year. They have really been a big help to us.

New Mexico Fish and Game Department: Wain Evans

The New Mexico State Legislature in 1971 assigned the Game Commission responsibility for management of the mountain lion and made it a game animal. When they did this, they gave us an animal about which we knew nothing, and at the time not very many other people knew much about the lion either. We were subjected to pressures from certain groups to close the season and from ranchers and sportsmen to open the season. The most immediate question at the time became just how many lions do we have to work with? To answer this question, or at least to provide a partial answer, we initiated a project in 1972 in the southwest quarter of New Mexico, where based on our depredation complaints we thought our greatest mountain lion population occurred.

We divided the area into 22 subunits and then randomly selected eight of these units for sampling. We had a crew of one biologist and one lion tracker. The primary objective for two years was to count and examine tracks, to try to determine the sex of the animal and if it was an adult or a juvenile. In this way we hoped to come up with a minimum estimate of the lion population

in the southwest quarter of the state. After two years of spending about twenty days in each one of these units this team counted some 268 nonduplicated tracks, by their judgment, and managed to capture 29 lions, which they marked, but did not put on radio transmitters. We projected these estimates for the rest of the quarter of the state and came up with a minimum population of about 500 animals, which was considerably larger than most people had thought prior to this. However, about 40% of these animals were immatures, and maybe 70% of these juveniles are dead by the time they should have joined the breeding population.

Our management of mountain lions in the state consists only of the setting seasons and bag limits. We have about a ten-month season. Hunting is restricted to the southwest part of the state and parts of the northeast. One of the problems we're having is that there has been a sudden surge in reported attacks of lions upon humans in New Mexico. In the last two years we've had four such reports. I suspect that unless these start to die down we're going to have trouble. Of the four attacks one was absolutely certain, and involved the killing of a small boy. One of the reports apparently was pretty doubtful, but two other reports seemed pretty certain. One involved a woman who was attacked on horseback. I have about 40 copies of these reports that were made out by the field personnel in case anyone wants them. One more thing. These attacks on people all occurred in the past two years. We looked

back through the records to see when the last known incident occurred and the last one was 1915. Now all of a sudden, this big surge. If anyone has any ideas, we sure would like to know about them.

Greer: Has anybody tried to bring any lawsuits against your state relative to these attacks?

Evans: They haven't yet . . . We, as you know, don't pay depredations.

Greer: But this is a little bit different than depredation. This occurred in Montana with the grizzly bears, and I'm sure we'll see a test case in relation to the Tort Claims Act of 1973. There are a lot of different lawsuits occurring for different reasons, and I just wonder what some of the states have experienced as far as personal injuries.

Evans: Well, I don't know how this will all work out. I think we're going to be in trouble unless these attacks drop off, but as it stands now our state isn't liable for what the wildlife does to people or animals.

Greer: This is interesting. It may be of interest to some of you, (and there may be some correlation with future mountain lion management) that the Technical Committee on the Grizzly Bear have a workshop working paper in which they are trying to find out where and what the vulnerability is of different states as far as bears are concerned.

Oregon Department of Fish and Wildlife: Dave Harcombe

The mountain lion was classified as a game animal in Oregon in 1967 by the Oregon State Legislature and has been managed since 1970 more or less to reduce livestock damage. My study was begun May 1, 1975, just eight months ago. I don't have a whole lot to contribute, but a lot to learn. The aspects of the study are (1) to delineate lion habitat, (2) to develop a population sampling technique, and (3) to estimate the populations in 66 management units in Oregon. From report cards I have good information on mountain lion range and something about the habitat, which includes old-growth timber. In Oregon about 52% of the land is administered by Federal agencies--the U. S. Forest Service and the Bureau of Land Management. Our depredation problem has not been very severe.

Molini: Do you have lions in all of the 66 management units?

Answer: Not all of them, no. The wheat lands in Central Oregon and the high desert in the southeastern part don't have many cougars.

Texas Parks and Wildlife Department: Jack K. Parsons

In general the mountain lion in Texas is found in an area along the length of the Rio Grande adjacent to the Republic of Mexico with the higher population being located within the Trans-Pecos Region.

At the present time, the status of the lion in Texas is neither as a game animal or a protected species. For years, he has

been considered a predator and, therefore, may be taken at any time by any method. In general, it has long been the practice of ranchers residing in areas inhabited by lion to eliminate them or at least keep the populations very low because of predation on domestic livestock.

Until only a few years ago, the lion population in the State was given only a passing thought by the Parks and Wildlife Department except in a few isolated instances. However, in 1974 a bill was introduced in the State Legislature which would have given the animal a protected status. This move caused some concern within the Wildlife Division and it was recommended by the Division Director that if a change of status was desired concerning the lion that it be made a game animal. No action was taken on the bill and the lion is still an unprotected species in the State. This interest in the animal did, however, bring to our attention that very little was actually known about the population dynamics of the animal. We have conducted no research, or tried any type of management except to control the numbers on our Black Gap Wildlife Management Area which is located along the Rio Grande adjacent to Mexico and the Big Bend National Park in the southern portion of Brewster County. Since 1960 we have been in the process of trying to restore the desert bighorn sheep to the Trans-Pecos Area of the State. A brood pasture was established on the Black Gap Area so that the sheep could be raised under protected conditions. Since the beginning of the Bighorn Project there have been from 5 to 15

transient lion trapped on the Area annually in order to keep them away from the brood pasture and release areas. To our knowledge no bighorn sheep were lost to predation by lion through 1973. Approximately 2 years ago, for reasons I will not mention, we stopped all trapping operations. During this two-year period, the situation changed from a transient population only to the point where the 100,000 acre Area now supports a resident population of from 20 to 25 lion. We are now facing a severe predation problem on all big game species located on the Area.

The above example was cited only to indicate what could possibly happen over a portion of the State if the animal was placed under a protected status. If such a population increase did occur over a large scope of country it could very well be greatly detrimental to game populations within that area. Therefore, it behooves our Department to learn all that we can about the management aspects of the lion and that is the primary reason for my being at this workshop.

I realize that I can contribute but little if any input into this conference; however, I feel that I can learn much from those of you who are researching, studying and/or managing the animal, and I certainly appreciate the opportunity of attending.

Fischer: Yesterday afternoon over a beer Jack mentioned that when he and Bill Martin were spotlighting deer they encountered a few lions. Would you mind relating that experience to the group, Jack?

Parsons: When I tell of spotting lions on deer census lines, most people are slightly more than a little dubious and, to put it mildly, tend to relegate the story to the "tall tales" file. However, this is one time I have a witness present that can back up my story.

To preface my remarks we are using a method of censusing deer on our Black Gap Area utilizing a system of night spotlight lines. During a recent inspection tour of the Black Gap Area Mr. Bill Martin, Federal Aid Inspector from Albuquerque, New Mexico, arrived on the Area during the period when such a census was being conducted. To make a long story short Bill accompanied a crew on a spotlight census and in the course of running a 9-mile line, 9 deer and 4 mountain lions were seen. There was no doubt about the type of animal seen because in each instance the entire lion was observed for several minutes. Such sightings have been the rule and not the exception on each census conducted during the past 1½ years.

Utah: Bob Oppenheimer, U. S. Fish and Wildlife Service

Rodney John, Utah Fish and Game Department did not come to the workshop as expected. I work in 13 counties in the southern part of Utah. I'd like to tell you about the lion population in that area. A build up of lions has occurred in every county of that area. We have quite a few depredation problems. We work with the Division of Wildlife Resources of Utah, and we check with them before we take any lions. I'd like to tell you how we changed our policies in the last few years since it became a game animal. A few years ago, about 1960, we were taking between 80 and 100 lions a year. At the present time when we have a complaint, we refer it to Wildlife Resources and go check on the report. We only take the lions that need to be taken. Last year we took 19 lions. This year so far we've taken ten lions, eight out of one area. We have a problem now along the park boundaries.

Question: What role has Utah Fish and Game taken on lions?

Answer: I sure don't know. I do know that it is a game animal now and the State has a few active studies. A lot of permits are being sold. Sport hunters with dogs certainly seem to be on the increase. Last year we took 19 lions, the livestock men took 5, and the sports hunters took 158.

Washington State Department: Richard Poelker

I've been involved in a basic look at the cougar population in the State of Washington for the last two years. I've worked alone generally, with a few local hound men in tagging and capturing animals, but we haven't gone a long way down the road. We tagged a few cougars, all of which are dead at this time.

We've put out quite an intensive effort by going to the hound clubs with our program. They all agree that they probably wouldn't shoot a tagged animal, but the spirit of the hunt overcomes all good intentions, evidently. We're hopefully going to get into some radio tracking in the next year. We have homemade radio collars on hand that should work and we'll try to get some radio tracking done. We haven't had the response we hoped on the tagged animals. The objectives of the program was to try to estimate the population of the cougar within the state; to examine the current management program in relation to management alternatives which are available and those which are desired by sportsmen, the public, the Game Department personnel themselves; and to come up with management recommendations. We also wanted to examine the cougar harvest, the harvest reporting procedures, and the present control that we have over the current hunter take. Basically the cougar study was designed to terminate this summer. However, we plan to continue the field surveys as a minor part of an expanded cat study. We plan two more activities, one on bobcat and one on lynx. The bobcat will take about 75% of my time,

the cougar about 15%, and the lynx about 10%. We're going to switch emphasis to the bobcat. Since we couldn't differentiate when we had a strike with the hounds whether we had a bobcat or a cougar most of the captures we made with the hounds were bobcat. Tracking conditions are usually poor. The bobcat is becoming a management bonfire in our state because of high fur prices and conflicts between trappers and hound hunters.

Molini: How is the bobcat classified?

Answer: It has a dual classification as both a furbearer and a game animal, so it can be taken by licensed trappers and by sport hunters.

Question: I read your last progress report. My impression was that you had a voluntary tag return attached to the license?

Answer: We don't sell a tag. We have a mandatory reporting procedure. If you kill a cougar you have to report it within seven days to a Game Department representative. We're getting about a 45% return of harvested animals. We're probably maintaining a harvest in the neighborhood of 200-210 sport-killed cougar per year.

Question: You're getting roughly half of these back?

Answer: We're getting about half of the actual reports back. We're finding out about the others through examination of taxidermists' records because we license all taxidermists in the state and through our general hunter questionnaire.

Question: Do you enforce this?

Answer: Yes, they have been issuing citations for failure to report a cougar kill. It's a misdemeanor. It's sometimes difficult to enforce but I think several desirable management alternatives for cougar look good on paper but are very difficult to enforce, such as not killing kittens, not killing females accompanied by kittens, etc.

British Columbia: Daryll Hebert, Fish and Wildlife Branch

Daryll introduced Percy and Penny Dewar, and Jack Ray. We are probably considerably further behind than most states in terms of research and management. Just listening to some of the people here I think we are probably equal in terms of getting the cougars up to game animal status. Our hunter restrictions and season restrictions are probably about the same as most states. British Columbia Fish and Wildlife Branch initially started out to look at populations on about a thousand square miles area on Vancouver Island. Efforts have been somewhat reduced to looking at female family groups and radio tracking females and some kittens. In the Province of British Columbia about 500 cougar hunters kill around 300-350 animals per year. I don't intend to represent all

of British Columbia. There's quite a diversity of habitats throughout the province and we on Vancouver Island probably have more cougars than most other regions. We initiated a mandatory reporting system this year and as yet we don't know how it's going to work. As of this year, our province is now divided into over 200 management units.

Alberta not represented. (Mail strike likely prevented notification on time).

Saskatchewan: Terry Rock, Provincial Fish and Game. (Terry is in graduate school, University of Nevada Reno).

. . . . I don't think we have the mountain lion in Saskatchewan.

Dr. Carl Koford, University of California, Berkeley

We're mainly interested in determining distribution and numbers through track counts and identification. We've been working at this about two years now; tracked about 2500 miles. We have six study areas where we made intensive searches periodically to try to find out all the cats that are there by their tracks and then we made road and trail surveys for as many miles as we can in order to get a relationship between the numbers of animals found on the road in relation to numbers for that square mile area. Using this road count method plus calibration of the study area, we come out with

a ratio of about 6/10ths. In other words, if we find 3 cats for 100 miles of road, this roughly corresponds to about 6/10ths times 3 or 1.8 cats per 100 square miles. We don't count kittens; we count only large juveniles and independent cats.

Bob Davidson, Expedition Films, Inc., Springdale, Utah

We've become interested in mountain lions recently with the idea of doing a life-cycle study on film, not of the nature that you find on "Wild Kingdom," but of a more detailed, involved study. That's no reflection on "Wild Kingdom" because I have helped them do some of their programs also. Three years ago we obtained two kittens, which we have hand raised. One was from the Arizona Sonora Desert Museum and the other from the Great Plains Zoo in South Dakota. We would appreciate any help and would like to work with you on recording on film the life history of the mountain lion.

Christensen: Let's move into our discussion sessions. The next session will cover "Biology and Life History of the Mountain Lion." Lloyd Oldenburg, Idaho, wasn't able to be here as discussion leader. Maurice Hornocker has graciously accepted the responsibility for this session. Maurice Hornocker, Leader, Idaho Cooperative Wildlife Research Unit.

