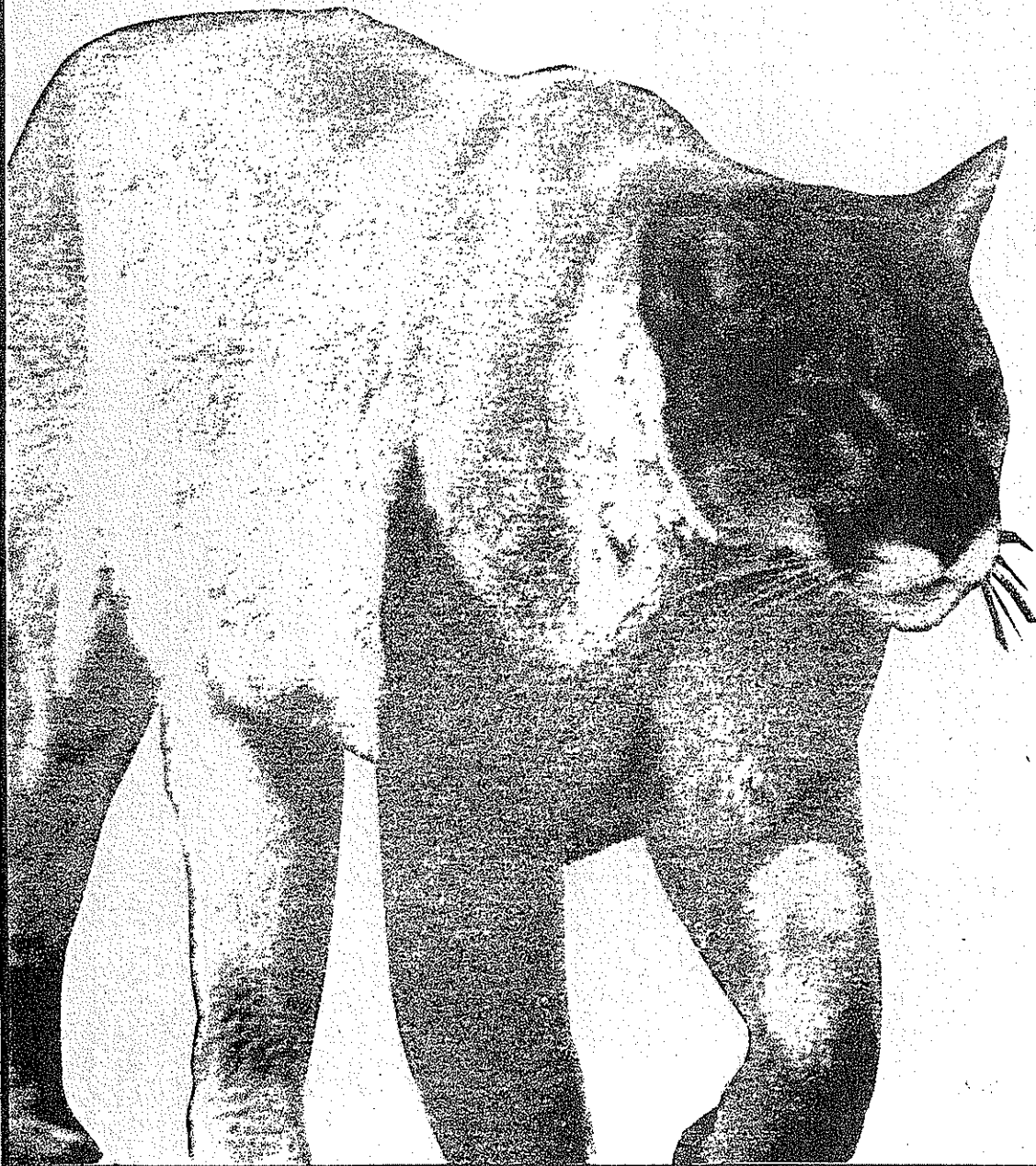
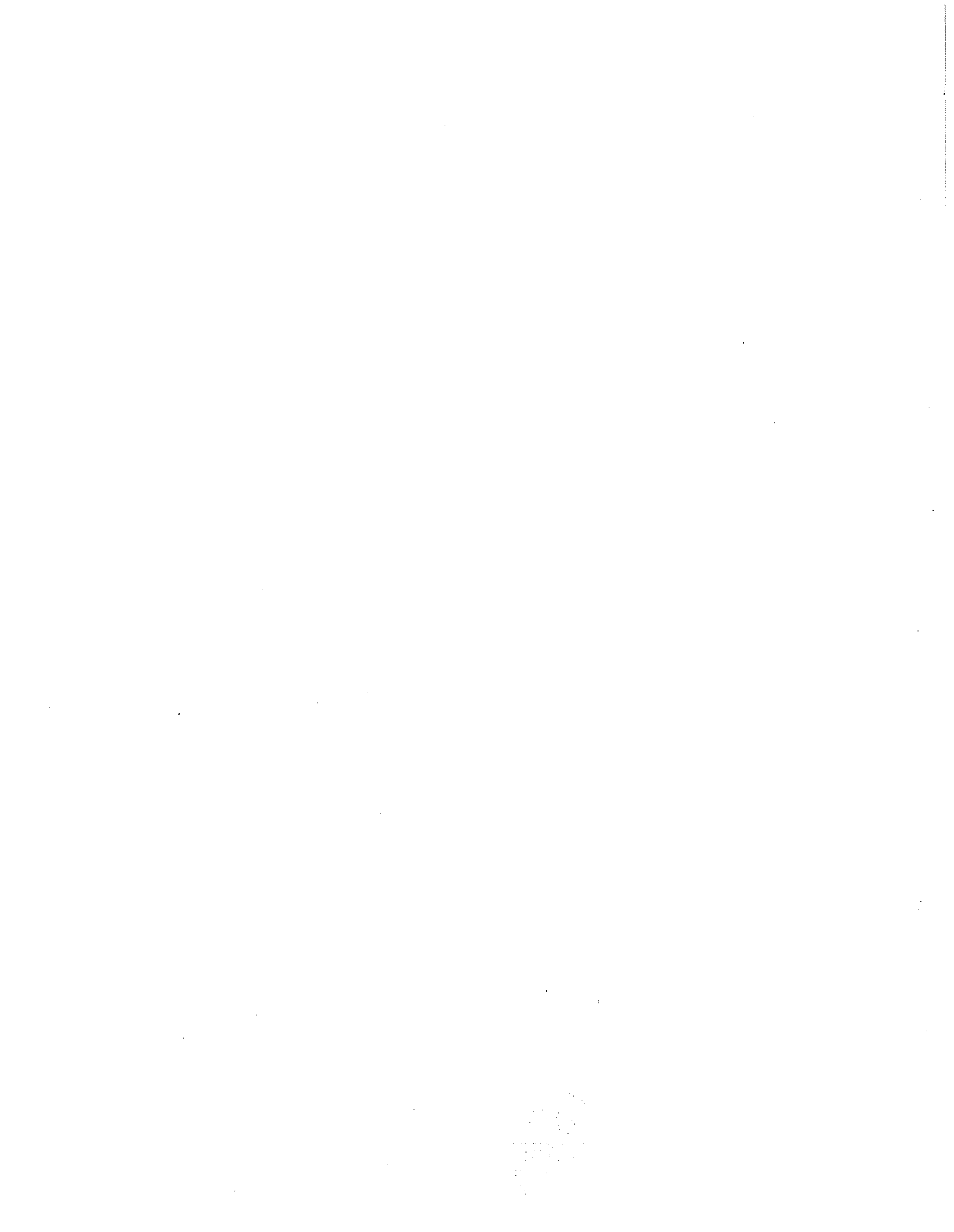


1987  
OREGON  
COUGAR  
MANAGEMENT PLAN





**COUGAR  
MANAGEMENT PLAN**

**Oregon Department of Fish and Wildlife**

**Randy Fisher**

**Director**

**Adopted December 11, 1987**



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## INTRODUCTION

This plan summarizes the history of cougar and their management in Oregon. It lists current concerns and the strategies to be used in addressing identified problems.

Strategies provide management direction for Department of Fish and Wildlife staff and inform the interested public of how Oregon's cougar will be managed.

## REPRODUCTION AND PRODUCTIVITY

Research studies place the first breeding of female cougar at 22 months (Eaton and Velander 1977) to 29 months (Rabb 1959, Ashman et al. 1983). Hornocker (1971) believed "a female will not breed until she is established on a territory." Eaton and Velander (1977) stated it was "probably safe to assume that wild puma in good health are sexually mature by 24 months of age, and if a female were territorially established she would normally give birth by the age of 36 months."

Cougar will breed and give birth the year-round, but studies in Nevada and Utah (Robinette et al. 1961), Nevada (Ashman et al. 1983) and central Idaho (Seidensticker et al. 1973), reported that most births occurred during the late spring and summer months following an approximate 90-day gestation period. Most female cougar are believed to give birth at approximately 24-month intervals, with some giving birth every 12-15 months.

One to six young per litter is common, with an average of two to three per litter. Litter size for Oregon's cougar averages 2.6 kittens. Good kitten survival, coupled with a relatively high reproductive potential, indicates cougar can quickly replace individuals that may be removed from the population. Robinette et al. (1977) reported annual mortality of 32 percent in their Utah study, while Ashman et al. (1983) noted a sustained annual mortality of at least 30 percent on their Nevada study areas. The latter authors believed that under "moderate to heavy exploitation (30%-50% removal)" the cougar populations on their study areas had the "recruitment capability of rapidly replacing annual losses." Insufficient information has been analyzed in Oregon to allow recruitment rate determination.

It is difficult to age cougar and no system of age classification has been widely adopted. Ashman et al. (1983) presented "criteria for a general classification of mountain lion age groups" where they categorized kittens as being 0-16 months, subadults ranging from 17-23 months and adults being



24 months or over. They listed five or six physical characteristics to be noted when attempting to place cougar into one of the three age groups.

### MOVEMENT

Hornocker (1970) reported litters of wild cougar remaining with their mother until 12 to 20 months old. Robinette et al. (1961) recorded kittens with their mother until about 24 months of age. Once separated from their mothers, kittens or subadults will eventually begin searching for a new home range. Such transient animals may establish a home range adjacent to their mothers or at a considerable distance from where they were raised. They become resident animals within their newly established home range. Males generally use larger areas than females, and their territories may overlap those of one or more females. Dispersal of kittens or subadults is an important contributing factor in maintaining viable cougar populations. In areas of heavy exploitation, the influx of transient cougar is necessary to stabilize a population. This movement, characteristic of many wildlife species may offset attempts to alleviate damage problems.

### FOOD HABITS

Throughout the west, deer are the staple food for cougar, and Oregon is no exception. Cougar in northeastern Oregon (Maser and Rohweder 1983) were using, in order of decreasing frequency, mule deer, Rocky Mountain elk, porcupine, snowshoe hare, and deer mice. Natural winter foods of cougar in Oregon's Cascade Range (Toweill and Maser 1985) were principally black-tailed deer and porcupine. Deer, elk and porcupine were the most common winter food items in another Oregon study (Toweill and Meslow 1977).

## HABITAT

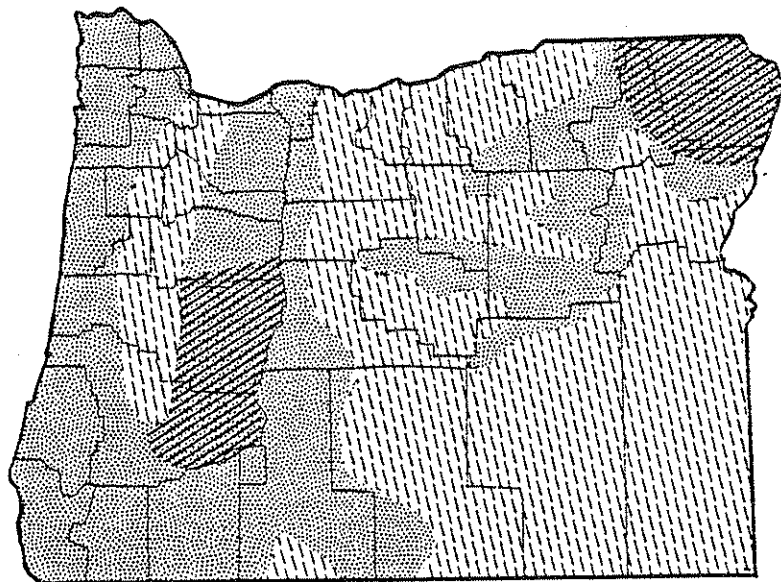
Cougar are widely distributed and use a broad spectrum of habitats ranging from desert to alpine environments. They are, however, very closely associated to deer winter and summer habitats because of their dependence upon deer for food. Solitude and freedom from human interaction generally characterize the more productive habitats. However, some western Oregon cougar (most noticeably in Douglas County) seem little affected by man's activities.

Harcombe (1976) thought western Oregon's most productive cougar habitat was the Douglas fir-trailing blackberry type, with old-growth forest being a desirable component of the habitat. The best eastern Oregon habitat is the open mixed-conifer type of the Blue Mountains, including the pine-bunchgrass type and the canyon country of eastern Wallowa County. Both offer relatively low density understory and good visibility felt to be necessary for the stealth hunting used by cougar.

Human disturbance and major habitat alteration can strongly influence cougar behavior and habitat use as found in northern Arizona where the effects of logging and other human activities on cougar were measured (Van Dyke et al. 1986). Dispersing cougar selected areas for residence characterized by "(1) an absence of timber sale areas; (2) lower than average road densities and (3) few or no permanent human disturbance sites." Resident animals did not appear to be much affected by logging as long as "(1) sale areas are not overly large in proportion to the lion's home area and (2) adjacent, uncut areas are immediately available..."

Results of the Arizona work may be applicable to portions of eastern Oregon.

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PRESENT COUGAR DISTRIBUTION

ESTIMATED DENSITY



HIGH



MEDIUM



LOW

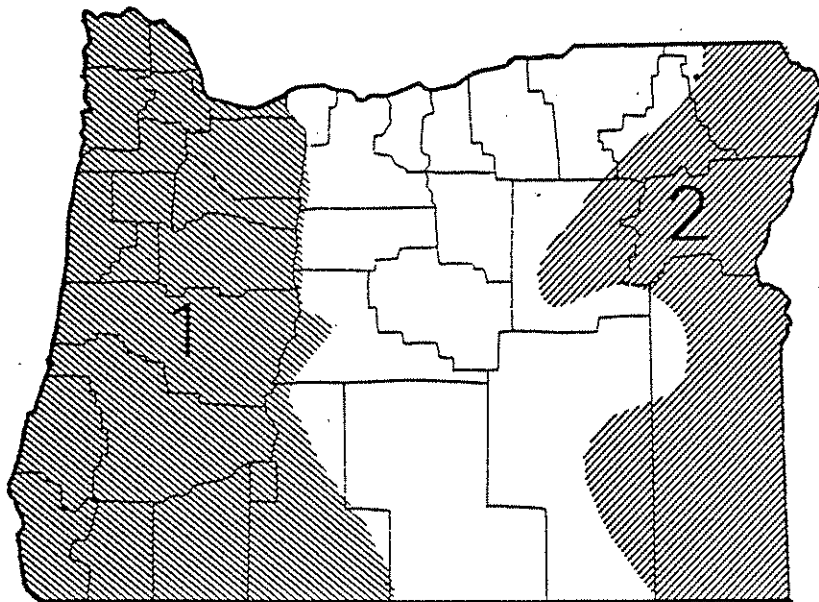
A department planning update in 1980 delineated 44,740 square miles of Oregon as cougar habitat. This was occupied by an estimated 1,800 cougars; 1,100 of which were in western Oregon. Increasing cougar observations, road kills and damage complaints lead department staff to believe the statewide cougar population has increased since 1980.

Bounties were placed on cougar and other "predators" as early as 1843 and continued to be paid until 1961, when the bounty system was repealed by the legislature. Between 1900 and 1930, it was not uncommon to have 200 or more cougar bountied in one year. Bailey (1936) reported that during FY 1930, the Biological Survey took 17 cougar on damage, indicating a substantial decrease in cougar numbers by that time. In 1961, the final bounty year, 13 cougar were bountied (Figure 1 and Table 1). All were western Oregon animals. During the 56-year period (1918-1973), a minimum of 6,831 cougar were taken in Oregon (Nowak 1976). Largest number of bountied cougar came from Douglas, Lane, Curry and Coos counties.

## HISTORY OF COUGAR MANAGEMENT IN OREGON

The cougar (*Felis concolor*) is the largest member of the cat family in Oregon, and is known by several other names including panther, puma, and most commonly, mountain lion. One of the least common of Oregon's native mammals, the cougar is viewed as a symbol of wildness and the western backcountry landscape.

Cougar were characterized as abundant or common throughout most of the forested parts of the state in the 1800's and early 1900's (Bailey, 1936). Settlement of the state, an expanding timber and agricultural industry resulting in loss of cougar habitat, and bounty payments had negative impacts to the population. By the 1930's, cougar numbers had declined and continued to decrease through the late 1960's. Classification as a game animal in 1967 and tightly regulated hunting since 1970 have allowed cougar numbers to increase (Appendix A).



Range of two forms of mountain lions in Oregon:  
1, *Felis concolor oregonensis*; 2, *F. c. hippolestes*.  
From Bailey, 1936.

Figure 1: Oregon recorded cougar take, 1913-1964

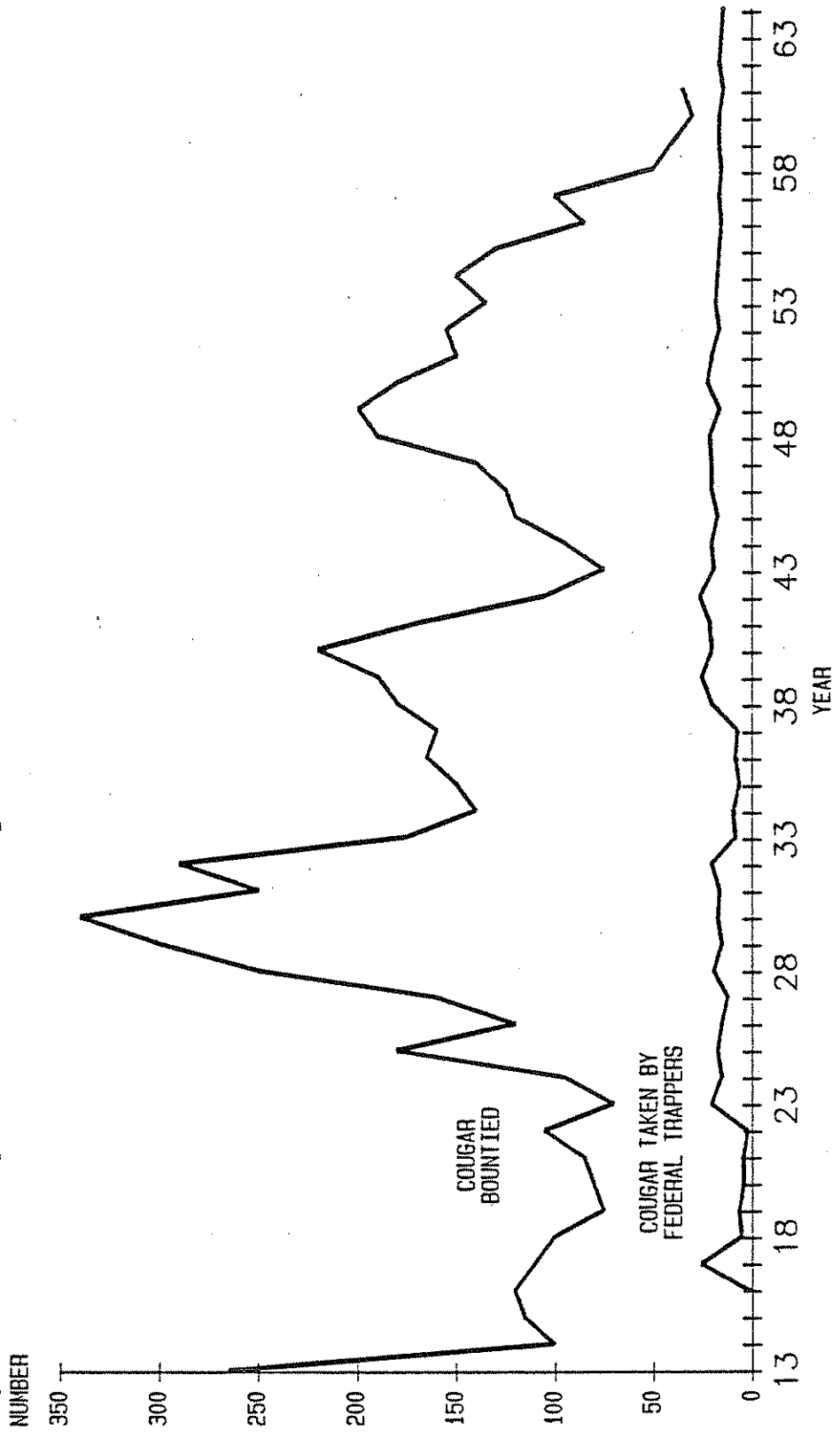


Table 1. Recorded cougar take in Oregon, 1912-1963\*

County	Total Trapped and Bountied 1912-1963	Last Year Bounty Paid By State/No. Bountied
Baker	29	1960 - 2
Benton	30	1960 - 1
Clackamas	403	1959 - 2
Clatsop	81	1960 - 1
Columbia	114	1949 - 1
Coos	502	1961 - 2
Crook	16	1948 - 1
Curry	1,044	1961 - 1
Deschutes	9	1960 - 1
Douglas	1,869	1961 - 2
Gilliam	0	None since 1912
Grant	54	1958 - 1
Harney	29	1940 - 1
Hood River	18	1956 - 1
Jackson	384	1960 - 1
Jefferson	30	1959 - 1
Josephine	349	1961 - 1
Klamath	9	1956 - 1
Lake	9	1956 - 1
Lane	1,286	1961 - 3
Lincoln	115	1960 - 1
Linn	296	1960 - 1
Malheur	4	1959 - 1
Marion	81	1959 - 1
Morrow	4	1952 - 1
Multnomah	67	1961 - 2
Polk	86	1961 - 2
Sherman	0	None since 1912
Tillamook	139	1959 - 1
Umatilla	9	1960 - 1
Union	50	1960 - 1
Wallowa	84	1960 - 1
Wasco	34	1959 - 1
Washington	23	1940 - 1
Wheeler	6	1956 - 1
Yamhill	44	1956 - 1

\* Extracted from Oregon Cougar Study, Oregon Department of Fish and Wildlife, 1976.

Concern for maintenance of the cougar population resulted in its classification as a game animal in 1967. This placed management responsibility with the Oregon State Game Commission (now Fish and Wildlife Commission). For the next two years (1968 and 1969), there were no open hunting seasons.

Controlled cougar hunting began in December 1970 when 25 tags were available for use in the Snake River, Imnaha, and a portion of the Minam wildlife units. Controlled hunting has been authorized every year since. Tag numbers have been gradually increased to the present level of nearly 460 tags valid for a one to two and one half month season each year (Figure 2, and Tables 2A and 2B). Hunter participation has averaged 55 percent, with statewide hunter success averaging slightly above 40 percent. Historically, the department has found that one cougar will be harvested for every five tags issued. Demand for cougar tags has been high with applicants having only a 10 to 20 percent chance of drawing a tag. Substantial tag number increases since 1983, combined with a stable demand of 1,700 to 1,800 first-choice applicants\* have resulted in improved drawing chances. The 1987 applicant decline (Table 2C) may be partly attributed to a new requirement of purchasing a controlled hunt application card which includes the cost of a cougar tag to enter the drawing. A decline of applicants is anticipated for the 1988 drawing as a result of the resident cougar tag fee increasing from \$20 to \$50 on January 1, 1988.

Hunter success will vary markedly from year-to-year depending upon snowfall during the hunting period and hunter access. Dogs are used to take most cougar, and availability of dogs (90 percent of hunters use dogs) will strongly influence hunter success and annual harvest.

\* Their first of a possible four hunt choices that may be written on the application card.

Figure 2: Cougar hunting seasons

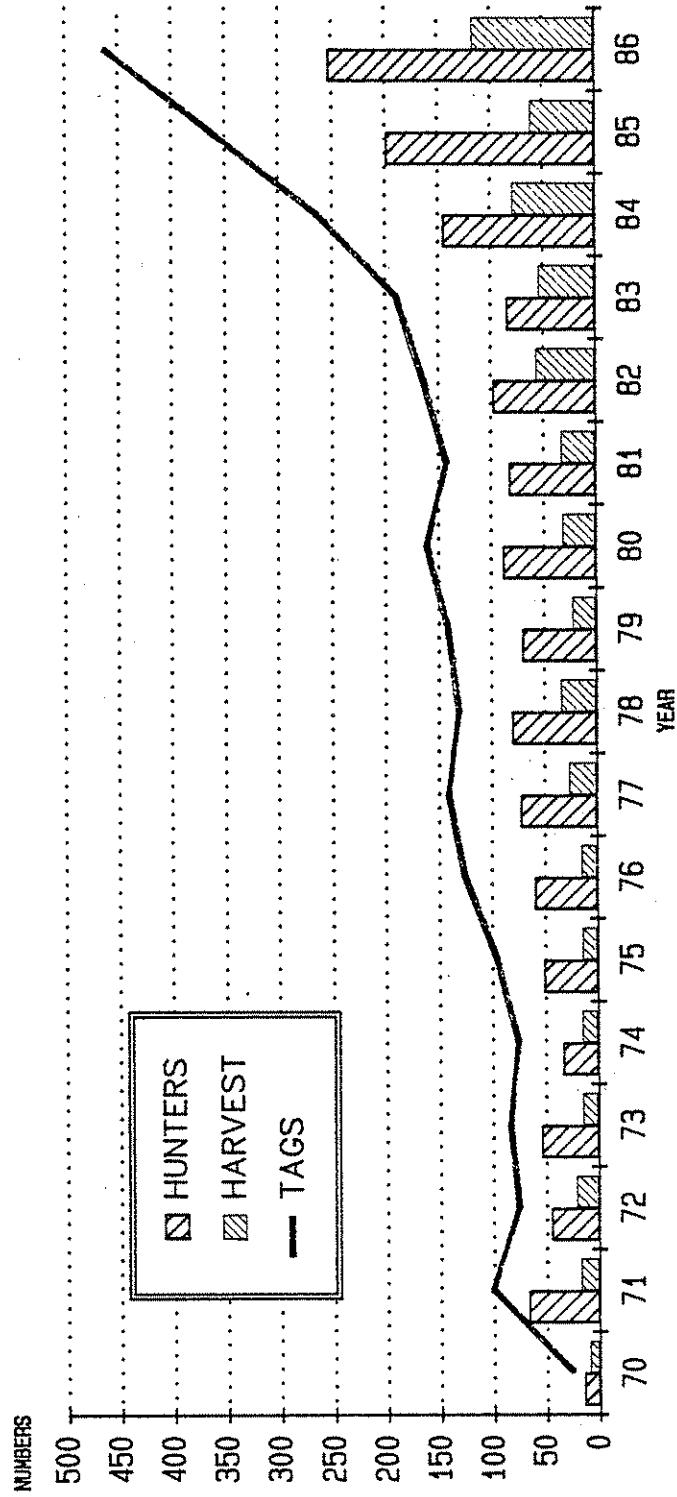




Table 2A. Cougar hunting seasons and harvest.

Year	Season dates	Number of hunts	Tags Available and Issued	Number of hunters	Harvest			Hunter success	Days/ hunter	Days/ cougar
					Males	Females	Unknown Total			
1970	Dec. 1-31	1 (NE)	25	16	4	6	10	56%	--	--
1971	"	1 (most of state)	100	68	8	10	18	26%	--	--
1972	"	1 (NE)	75	46	10	12	22	48%	--	--
1973	"	5	83	56	7	9	16	29%	5.7	19.9
1974 <sup>a</sup>	"	4	75	34	11	5	16	47%	4.4	9.4
1975	"	3	80	52	4	11	15	29%	--	--
1976	"	6	125	60	10	6	16	27%	--	--
1977	"	7	140	73	16	11	27	37%	5.3	14.4
1978	"	7	130	81	16	18	34	42%	4.8	12.6
1979	Dec. 1-Jan. 15	7	140	71	9	14	23	32%	6.6	20.3
1980	"	7	160	72	10	14	32	33%	--	--
1981	Dec. 1-Jan. 31	9	161	53	17	13	33	57%	--	--
1982	"	11	168	83			57	58%	--	--
1983	"	12	188	85			54	47%	--	--
1984*	"	15	263	149	39	38	79	--	--	--
1985*	"	21	362	155 (est)			62	--	--	--
1986	"	22	462	307	52	65	117	38%	7.2	18.8
1987	"	20	457							

\* No hunter survey taken.

<sup>a</sup> Spotted kittens and females with spotted kittens protected starting in 1974.

SP/p

Table 2B. Cougar harvest summary, 1970-1986.

YEAR	EASTERN OREGON			WESTERN OREGON			STATE TOTAL			PERCENT SUCCESS
	TAGS AUTHORIZED	HUNTERS	HARVEST	TAGS AUTHORIZED	HUNTERS	HARVEST	TAGS AUTHORIZED	HUNTERS	HARVEST	
1970	25	16	10				25	16	10	56
1971			15			3	100	68	18	26
1972	75	46	22				75	46	22	48
1973	83	55	16				83	55	16	29
1974	75	34	16				75	34	16	47
1975	95	52	15				80	52	15	29
1976	115	52	14	10	8	2	125	60	16	27
1977	115	54	25	25	19	2	140	73	27	37
1978	105	65	24	25	16	10	130	81	34	42
1979	115	54	19	25	17	4	140	71	23	32
1980	120	56	17	40	33	15	160	89	32	36
1981	98	52	25	43	31	8	161	83	33	38
1982	117	69	43	46	29	14	168	98	57	58
1983	132	51	41	56	34	13	188	85	54	64
1984*	167	--	42	96	--	37	263	--	79	--
1985*	207	--	36	155	--	26	362	--	62	--
1986	232	161	61	230	146	56	462	307	117	38

\* No hunter survey taken.  
NG/J

Table 2C. Cougar hunting demand, 1980-1987.

Year	Tags Authorized	Applicants	% Chance Being Drawn	Applications per Tag
1987	457	835	55	1.8
1986	462	1,685	27	3.6
1985	362	1,759	21	4.9
1984	263	1,788	15	6.8
1983	188	1,732	11	9.2
1982	168	1,674	10	10.0
1981	161	1,487	11	9.2
1980	160	1,063	15	6.6

While sport hunting is probably the greatest cougar mortality factor, some animals are also taken as a result of damage control activities, although numbers of such animals are quite low (Figure 1). The damage take has been closely associated with the problem area. Animal Damage Control (ADC) personnel of the Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, conduct most of the cougar damage control work in Oregon while acting as an agent of the Oregon Department of Fish and Wildlife.

Animal Damage Control personnel became involved in responding to cougar depredation of livestock in 1984, when the department authorized ADC to act as their agent in this control effort. In 1984, ADC took ten cougar in response to livestock damage, seven in 1985, five in 1986 and 21 through November 1987. All of this effort was concentrated in southwest and northeast Oregon.

Douglas County conducts its own predator control program in response to complaints from county residents. Cougar taken by this program totaled 20 during the eight years from 1980 through November 1987. Oregon Department of Fish and Wildlife personnel receive numerous cougar complaints annually. Department biologists handled 27 complaints in 1985 and 23 in 1986. Some of these are solved simply by discussing the situation with the complainant and offering control advice. No damage cougar were taken by department personnel. Under ORS 498.012, a person may, without benefit of any permit from the department, take a cougar that is doing damage on property he owns or lawfully occupies.

As a result of 1985 legislative action, ORS 498.012 was amended to allow landowner designation of an agent to take damaging cougar. Landowners or their agents may not pursue cougar off the property where damage is occurring. The amended statute now requires immediate notification of any cougar taken to "a person authorized to enforce the wildlife laws..."

ORS 635-43-080 allows the hunter to retain for personal use, the skull and hide of any cougar taken when damaging livestock. The items cannot be sold.

Knowing cougar are present in parts of Oregon is satisfaction enough for many people. Observing cougar, however, is extremely difficult because of the animal's secretive nature and reduced activity during daylight hours.

Considerable misunderstanding about cougar and their activities exists. Most commonly this is concern about being attacked by cougar. There has been only one documented cougar attack on a human in Oregon; however, several states have recently documented instances where cougar have attacked humans. Increasing numbers of sightings are being reported as cougar become more common in inhabited areas.

## MANAGEMENT CONCERNS AND STRATEGIES

Concerns associated with the present cougar management program are shown to acquaint the reader with problems and needs of the program. Strategies are the means by which the department will address a management need or solve problems.

1. Concern - Cougar population characteristics are not well-known.

### Strategy

- a. The department will incorporate meaningful results of current research into its management program, and will, within budgetary and personnel constraints, initiate one eastern Oregon cougar study prior to 1992. This study will determine population density and cougar movement patterns within the Catherine Creek wildlife unit.
- b. The department has assisted with an on-going research project in Douglas County, and will encourage continuation and expansion of western Oregon cougar research.

2. Concern - Information gathered from prior years' hunter harvest and damage taken cougar has not been adequately analyzed and a need for additional population information exists.

Strategy

- a. Mandatory check of all hunter harvested cougar will continue, and prior years' information on population characteristics will be analyzed before December 1988.
- b. Progress toward development of a cementum annuli aging technique will continue. Aging techniques previously developed and used in other states will be reviewed, and if applicable, will be utilized until adoption of a useable cementum annuli technique.
- c. Illegal cougar take is an unknown mortality factor. The department will request the Oregon State Police attempt to determine the extent of such loss prior to December 1989.
- d. The department will utilize information available from hunter surveys to the extent practical to gain additional population information.

3. Concern - Controlled hunting seasons occur between mid-November and January 31. Harvest statistics, damage complaints and cougar sightings indicate an increasing population in some areas with insufficient harvest, while other populations are being exploited.

#### Strategy

- a. No harvest season will begin prior to November 15.
- b. In areas or units where additional harvest is desired, consideration will be given to extending the harvest season beyond January 31, but no later than March 31.
- c. The current three-year "wait period" for successful hunt applicants will be eliminated. This will help insure adequate applicant numbers to utilize authorized tags.
- d. Establishment of an allowable harvest (quota) system for some or all hunt areas will be investigated and considered for adoption prior to January 1990. Such a harvest strategy would be based on removal of no more animals than the annual recruitment. The system would consider both sport and depredation harvest.
- e. Males and females are being harvested at equal rates. Recommended hunting season bag limit will be "one cougar except spotted kittens and females with spotted kittens are protected." Males are more commonly harvested during the latter part of a season (January), therefore, consideration will be given to establishment of a later hunting season if it is deemed necessary to reduce female harvest and shift harvest to males.



4. Concern - Amount and timing of snowfall strongly affects annual cougar harvest. The result is erratic annual harvest.

Strategy

- a. Substantial fluctuations in cougar harvest are expected; therefore, the department will manage for a three-year running average trend. No regulation changes will be made in response to a single years' data collection except in an emergency situation.
5. Concern - The only effective method for hunting and taking cougar is with the use of trailing hounds. Many hunt applicants are not aware of this and do not have access to trained dogs.

Strategy

- a. The department will continue to allow the use of dogs.
- b. The department will include information in the annual hunting regulations informing potential hunters of the demands of cougar hunting and the necessity of trailing hounds for a successful hunt. This will discourage people without access to hounds from applying for cougar tags.

6. Concern - Current statutes allow private and public landowners to take damage-causing cougar without a department permit.

Strategy

- a. The department will not seek any changes in current statutes.
- b. The department will encourage improved husbandry practices as a means of reducing cougar damage on domestic livestock.
- c. The department will continue to work closely with ADC personnel of APHIS, USDA, and private landowners, in solving cougar depredation problems. Coordination between the department and ADC will be prescribed in a Memorandum of Understanding (MOU) to be developed during FY 1988. The department will request that ADC agents respond to cougar damage complaints when necessary. Their ability to rapidly respond to complaints greatly improves damage control efficiency. Once a complaint has begun to be worked by ADC, no private or other agency control personnel will be used on that complaint.
- d. The department will explore the use of sport hunters for cougar damage control, especially in counties not participating in the APHIS program.
- e. All cougar taken on damage must be reported to the department as required by ORS 498.012.
- f. The department will develop a program to effectively handle urban area cougar complaints by July 1988.

7. Concern - Maintenance of cougar habitat is necessary for continuing healthy populations.

Strategy

- a. Cougar are generally very dependent upon deer or elk for their food; therefore, the better habitats will be those that support healthy deer or elk herds. The department will continue to work with landowners and land managers to insure maintenance of satisfactory ungulate and cougar habitats. Where necessary, this will include continued efforts to prevent excessive road access into these habitats. Effects of man's activities and human disturbance will also be evaluated.

8. Concern - Cougar and their needs are mostly unknown to the majority of Oregonians. Increasing cougar populations indicate greater chance for future human/cougar encounters. Such random meetings now create fear among some people.

Strategy

- a. The department will, through various media, provide the public with information on cougar; distribution, habitat needs, behavior, etc. Fear for personal safety, though largely unfounded, will be addressed.
- b. Opportunities for cougar observation are virtually nonexistent, but the department will provide interested observers information on "watchable" opportunities.

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## Appendix A

### History of Cougar Management in Oregon

- 1843-1912: First bounty offered by territorial government in 1843. Bounty in 1911 was \$10.00.
- 1913-1961: Cooperative government hunter program began in 1915. Between 1915 and 1961 federal hunters killed 442 cougar.
- Bounty increased from \$10.00 to \$25.00 in 1925. The "Depression" forced a reduction to \$20.00 in 1933. Bounty increased to \$50.00 in 1939, and was paid until 1961.
- Between July 1, 1915, and August 8, 1961, a total of 6,718 cougar were submitted for bounty payment. Numbers bountied ranged from a high of 337 in 1930 to 27 in 1961.
- 1962-1967: Government hunters took 31 cougar on damage complaints.
- Sport hunting became more popular as road construction increased and more efficient snow-travel equipment was developed.
- The 1967 Legislature granted the Oregon State Game Commission authority to declare cougar a game animal in areas where game damage was not expected. Bounties were no longer in effect (ORS 610.205).
- 1968-1969: Sport hunting for cougar was closed. A total of 26 cougar was taken on damage complaints.
- 1970: Controlled season for 25 tags was authorized from December 1-31 in parts of Wallowa County. A total of 9 animals was harvested with 80 percent being immature.
- 1971-1974: Controlled hunts continued to be offered with all or varying portions of the state open to hunting. In 1974, the bag limit was changed from one cougar to "one cougar except kittens and females with spotted kittens are protected."
- 1975-Present: Controlled hunts continued. Varying parts of the state were open.

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