

Status of Cougar in Utah, 1988

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INTRODUCTION

The cougar (*Felis concolor*) is one of the most controversial wildlife species in Utah. The diverse interests of user groups affected by cougar, such as environmentalists, sport hunters, guides, and livestock operators, present a challenge to those charged with mountain lion management.

Soon after the Mormon pioneers settled the Salt Lake Valley in 1847, they began to have problems with wild predators killing their livestock. An extermination party of 84 men was organized to reduce depredation by wolves (possibly coyotes), foxes, and mountain lion (Rawley 1985). From 1888 until 1960, bounties ranging from \$2.50 to \$30.00 were paid to persons killing a cougar. Professional hunters and trappers working for Animal Damage Control (ADC) also killed cougar to protect livestock prior to 1967. From 1913 to 1967, an average of 106 cougar were killed annually by ADC personnel or bounty hunters.

In 1967, the cougar was made a protected animal in Utah. The harvest of cougar has been regulated by the Utah Wildlife Board since then. A small game license and a cougar permit has been required since 1969. Season lengths have varied from 3 to 12 months in different units, with the majority of the state having a 7-month season. The bag limit has been one cougar, except that 2 cougar could be taken in some units in southern Utah from 1980 to 1986.

Cougar continue to be taken in depredation situations by Animal Damage Control. All kills are reported to the Division of Wildlife Resources. All control is intended to take the offending animal. Control work must be initiated within 30 days of the livestock losses, and must be completed before livestock are removed from the range. Preventative control is prohibited. Livestock operators can also take cougar that are molesting livestock. All kills must be reported to the Division within 72 hours. A \$25.00 damage permit may be purchased after the kill to allow the livestock operator to keep the cougar.

CURRENT STATUS

Distribution

Cougar are found statewide in Utah, except for low desert and salt flat areas in western Utah, living in habitat types ranging from rugged desert areas to near timberline. Populations are generally denser in mountainous areas and lower in desert areas. Seasonally they follow the

movements of their main prey, mule deer, and move to lower elevations in the winter.

Two subspecies of cougar are found in Utah. *F.c. hipolestes* is found in the mountainous regions of northern Utah and in the Uinta Basin in northeastern Utah. *F.c. kaibabensis* is found in the Great Basin in western Utah and the Colorado Plateau in southern Utah.

Population Levels

Population information on cougar is difficult and expensive to obtain, due to their elusive and secretive nature. Two research projects have given estimates of cougar densities in Utah. Hemker (1980) found a density of 0.01 cougar/mi² in the Boulder Mountains in southern Utah. The Division of Wildlife Resources conducted a mark-recapture study in a high cougar density unit in central Utah where a density of 0.05 cougar/mi² was found.

Cougar densities were estimated for other management units by comparing harvests and similar habitats. The average number of cougar killed/mi² was used to group management units into similar densities. Cougar density estimates and habitat similarities from studies in

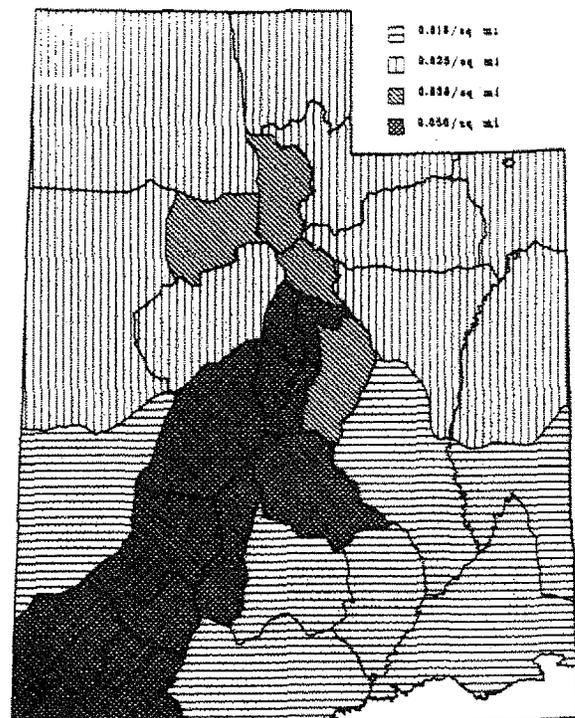


Fig. 1. The density of cougar in Utah.

Idaho (Hornocker 1970) and Nevada (Ashman 1976) were used to further refine their estimates.

Based on these densities (Fig. 1), Utah is estimated to have approximately 1,070 cougar inhabiting 36,869 mi². Estimates vary from 904 to 1,177, depending on varying density estimates by unit. Actual confidence limits cannot be determined on available data and these estimates are not considered to be precise. Actual population data from more units are necessary before better estimates can be made. However, based on a population model by Lindzey (1986), Utah would need to have a population of 1,009 cougar to maintain the average harvest of 220 it has had for the past 10 years.

MANAGEMENT PROGRAM

Utah has a 7-month cougar hunting season, beginning January 1 and ending July 31, in most of the state. However, 3 units in southern Utah are open to hunting year-round to help reduce depredation on livestock and desert bighorn sheep. Twelve units in northern Utah are open to Restricted Area permit holders only. These areas are near human population centers and subject to intense hunting pressure. Ninety-one permits were issued for 1989 in these areas.

The cougar pursuit season begins on December 1 and ends concurrently with the hunting season on July 31. Utah residents may purchase a \$25.00 pursuit permit, which allows them to chase, but not kill, cougar statewide. Non-residents may not purchase a pursuit permit. Fees for kill permits are \$25.00 for residents and \$250.00 for non-residents. Permit holders must also purchase a small game license, which costs \$12.00 for residents and \$40.00 for non-residents.

Cougar population trends are monitored through harvest statistics. All cougar killed must be checked in with a Division officer within 48 hours of kill. Pertinent harvest information is recorded at that time. Questionnaires are sent to all permit holders at the end of the season to obtain additional information.

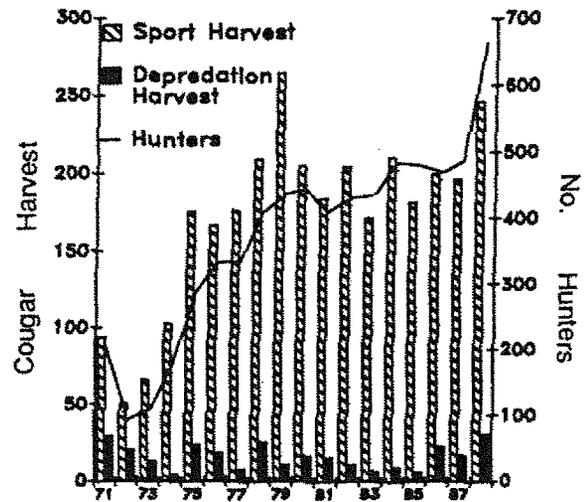


Fig. 2. History of cougar harvest in Utah.

Interest in cougar hunting in Utah has increased steadily since 1971 (Fig. 2, Table 1), from a low of 92 hunters in 1972 to 662 in 1988. The harvest has been fairly consistent since 1975, and averaged 207 per year since 1979. The number of days afield by cougar hunters increased to its highest level in 1988, estimated at almost 5,700 days.

The behavior of cougar hunters makes the interpretation of data difficult. Not all hunters are trying to harvest a cougar, but buy a kill permit to chase lions, and harvest one only if they tree a large trophy, or if necessary to protect their dogs. As a result, the number of cougar treed per hunter day is being used to monitor cougar populations, particularly on a unit basis.

While many resident hunters choose not to harvest a cougar, most non-resident and guided resident hunters do. In 1988, 45% of the hunters were guided, and they took 65% of the harvest. Hunter success for non-residents was 56%, while it was only 29% for residents.

Table 1. Cougar harvest and hunter effort in Utah, 1979-88.

Year	Sport Hunters	Days Afield	Sport Harvest	Percent Success	Pursuit Hunters	Total Treed/ Hunter Day	Depred. Harvest
1979	436	2312	265	61	82	---	11
1980	442	3081	205	49	62	---	17
1981	411	2496	185	45	--	---	16
1982	432	3526	205	47	84	---	11
1983	435	3278	172	40	73	---	7
1984	484	3874	211	44	102	---	10
1985	488	4893	182	37	74	---	6
1986	469	3785	200	43	88	0.344	20
1987	486	4657	197	41	141	0.334	17
1988	662	5690	246	37	131	0.342	27
Average	475	3759	207	44	93	0.340	14

The number of cougar taken in livestock depredation situations since 1971 has varied from 5 to 30, and averaged 14/year since 1979. In 1988, 22 cougar were taken by Animal Damage Control and 5 by livestock operators for a total kill of 27. Four other cougar involved in killing livestock were harvested by sportsmen. While the number of confirmed livestock losses to cougar for 1988 are not available yet, these losses averaged 335 animals per year from 1985 to 1987.

While harvest statistics provide some insight into cougar population trends, actual field data is necessary to insure proper management. Utah will be using mark-recapture surveys to estimate cougar densities in the future. Initial efforts have been successful in determining densities in central Utah. Beginning in 1990, 3 units will be sampled per year, and results will be compared to harvest statistics to determine trends statewide.

Although sportsmen report cougar densities are as high as they have ever been, the current trend in increasing hunter pressure is a cause of concern for Utah biologists. In 1989, personnel involved in cougar management will examine various harvest strategies to determine if such a system is necessary to control harvest. Holders of 1988 cougar permits were asked which harvest system they would prefer if it was needed. Results were nearly split between a limited permit system (36%), the quota system (34%) and other systems such as a shorter season or tom-only season (29%).

ECONOMIC VALUES

The approximate economic value of each cougar harvested in Utah in 1988 was estimated using the amount spent on permits and guiding fees. Hunting activities have other economic values to local communities from sales of gas, food and hunting supplies. However, this estimate does not include these values.

Cougar hunters in Utah in 1988 spent \$74,615 for 755 cougar permits, 147 pursuit permits, and 196 non-resident small game licenses. About 45% of the 662 hunters used a guide, paying an estimate of \$1,500 each. Guide fees in Utah range from \$900 to \$2,500 per hunt. These hunters spent approximately \$447,000 on guide fees in 1988. Adding these two totals and dividing by the 246 cougar harvested results in an estimated \$2,120 spent for each cougar harvested.

RESEARCH

The Utah Division of Wildlife Resources has funded a research project conducted on the Boulder Mountains in southern Utah since 1978. The project leader for this research has been Dr. Fred Lindzey, now with the Wyoming Cooperative Fish and Wildlife Research Unit, but formerly with the Cooperative Research Unit at Utah State University.

Research topics addressed by this study include: population characteristics and movement patterns (Hemker 1982); cougar predation and ecological energetics

(Ackerman 1982); vulnerability of cougars to hunting (Barnhurst 1986); and the effects of logging activities on mountain lion presence (Van Dyke et al. 1986). Current research topics being addressed include: mountain lion replacement in a hunted population; night-time habitat utilization; efficacy of various census techniques; and the effects of excessive pursuit on cougar survivability. This project is due to be completed in June, 1989.

SUMMARY

Interest in cougar hunting in Utah is increasing. Harvests have been fairly stable the past 10 years, averaging 207 per year. With increased pressure, Utah may need to change its management system. Hopefully, with the aid of information obtained through research and from the experience of other states, the best system will be implemented that will insure that cougar populations will be managed at levels consistent with available habitat.

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