

Oregon Mountain Lion Status Report

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Cougar (*Puma concolor*) occur at varying densities across the majority of the Oregon landscape (Fig. 1). Persecuted to near extirpation by the mid 1960s, the then Oregon State Game Commission was given management authority by the 1967 Oregon Legislature. Oregon's first Cougar Management Plan was developed in 1987 with revisions in 1993, 1998, and 2006. The most recent 2006 revision established 5 guiding objectives for cougar management in Oregon:

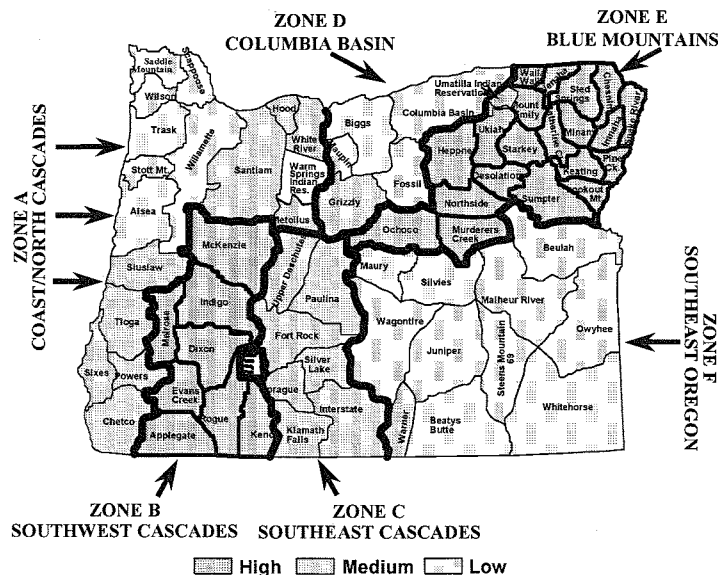


Figure 1. Current distribution and relative density of cougar in Oregon by Big Game Management Unit and Harvest Quota Zone.

- 1) Oregon Department of Fish and Wildlife (ODFW) will manage for a cougar population that is at or above the 1994 level of approximately 3,000 cougars statewide.
- 2) ODFW will proactively manage cougar-human conflicts as measured by non-hunting mortalities and ODFW may take management actions to reduce the cougar population.
- 3) ODFW will proactively manage cougar-human safety/pet conflicts as measured by human safety/pet complaints and ODFW may take management action to reduce the cougar population.
- 4) ODFW will proactively manage cougar-livestock conflicts as measured by non-hunting mortalities and livestock damage complaints and ODFW may take management actions to reduce the cougar population.
- 5) ODFW will proactively manage cougar populations in a manner compatible and consistent with management objectives for other game mammals outlined in ODFW management plans.

Within these objectives, a number of zone-specific criteria are established that trigger management actions and are used to monitor progress toward objectives (Table 1). Proactive management of cougars may include intensive, administrative removal of cougars in targeted areas where zone specific criteria have been met.

Importantly, the plan also established an Adaptive Management process for plan implementation. Within an adaptive framework, management actions will be planned to address 1 of 4 hypotheses and evaluated by monitoring specific criteria:

Table 1. Specific management criteria associated with the 2006 Oregon Cougar Management Plan Objectives

Zone	Population \hat{N}		Non-Hunt Mortality		Human/Pet Conflicts		Livestock Conflicts	
	Desired \hat{N}_{min}	Modeled \hat{N}_{2007}	Desired Max	2007 Observed	Desired Max	2007 Observed	Desired Max	2007 Observed
A Coast/ N Cascades	400	805	15	46	191	33	102	70
B Southwest Cascades	1,200	1,499	11	51	84	54	69	60
C Southeast Cascades	120	556	5	5	28	14	24	8
D Columbia Basin	80	352	5	28	20	3	12	11
E Blue Mountains	900	1,605	13	71	22	16	25	8
F Southeast Oregon	300	849	11	26	54	5	27	6
Statewide Total	3,000	5,666	60	227	399	125	259	163

- 1) Increased cougar mortality near human habitation will reduce cougar-human conflicts to desired levels. Criteria to measure conflict will primarily be non-hunting mortality and secondarily number of complaints received.
- 2) Increased cougar mortality in areas with low ungulate population levels will increase ungulate recruitment or survival and allow population objectives to be met. Criteria to measure elk recruitment will be based on spring calf:cow ratios. Trend counts or population modeling will determine attainment of ungulate population objectives.
- 3) Areas with low – medium cougar harvest will act as source populations to maintain cougar populations at or above minimum levels. Criteria to measure cougar population status will be based on known cougar mortality (total mortality, age and sex ratios, average age of adult females), research results, and population modeling.
- 4) Increased cougar mortality near areas of livestock concentrations will reduce cougar-livestock conflicts to desired levels. Criteria to measure conflict will primarily be non-hunting mortality and secondarily the number of complaints received.

Management actions will be implemented, and monitoring will be conducted within the established cougar management zone framework in Oregon. Total mortality is monitored using quotas delineated based on landscape characteristics, prey populations, and relative density (Fig. 1).

Hunting Seasons and Harvest Trends

Cougar hunting in Oregon has evolved from no regulation, through complete protection and tightly controlled limited hunting, to a liberal general season. Currently, statewide general

cougar seasons are 10 months long (1 Jan – 31 May, and 1 Aug – 31 Dec annually), year-round general season hunting is allowed in southwestern Oregon to help reduce high conflict levels, and use of hounds is allowed only by agency personnel when addressing specific conflict or management needs. A mandatory check-in is required for all known cougar mortalities. Harvest and total mortality are managed using quotas by Management Zone (Fig. 1, Table 2).

Table 2. Harvest/mortality quotas for cougar management zones in Oregon, 2000 – 2007.

Quota Zone	2000	2001	2002	2003	2004	2005	2006	2007
A Coast/N Casc.	91	91	93	116	128	132	120	120
B SW Cascades	104	104	106	133	146	150	165	165
C SE Cascades	36	36	37	46	51	53	65	65
D Col. Basin	13	13	13	16	18	19	62	62
E Blue Mtns.	96	96	98	123	135	139	245	245
F SE Oregon	60	60	61	76	84	87	120	120
Totals	400	400	408	510	562	580	777	777

Quotas were revised in 2006 concurrent with revision of the Cougar Management Plan and all known mortalities count toward quotas as a protective measure for cougar populations. Total number of hunters with cougar tags continues to increase (Fig. 2). This increase is related to a reduction in the cougar tag price, inclusion of a cougar tag in a reduced price multiple-tag package available to resident hunters. A second tag has been available statewide since 2006. Concurrent with increasing cougar hunter numbers, overall hunter success rates have dropped from 40-50% when hounds were legal to $\leq 1\%$. However, hunter harvest has continued to slowly increase to levels greater than when hounds were legal for hunting (Table 3). Between 85 – 96% of the cougar harvest occurs incidental to hunting other species such as deer and elk. From 48 – 62% of the harvest are males.

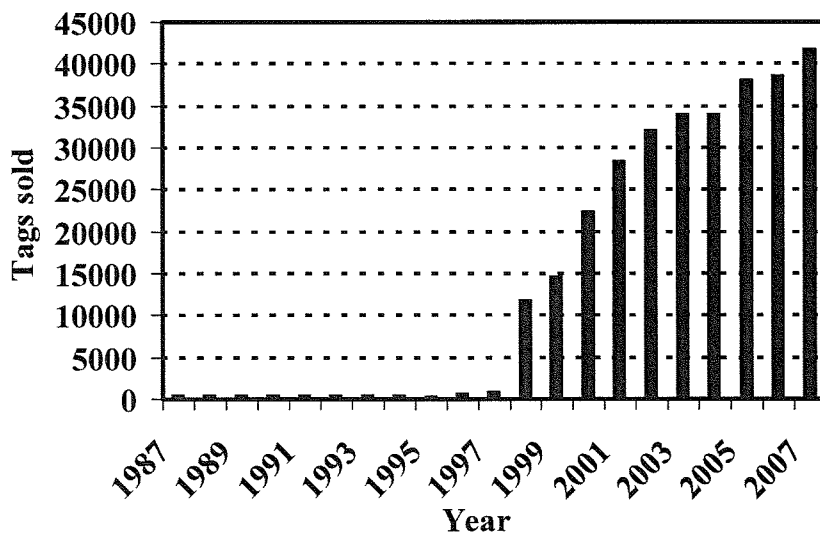


Figure 2. Cougar tag sales trend in Oregon, 1987 – 2007.

Table 3. Cougar mortalities in Oregon by source of mortality, 1987 – 2007.

Year	Hunting	Human/Pet Safety	Livestock Conflict	Administrative Removal	Other	Total
1987	129	2	8	0	3	142
1988	136	3	13	0	10	162
1989	116	1	15	0	13	145
1990	201	3	29	0	18	251
1991	124	4	22	0	12	162
1992	184	3	17	0	22	226
1993	162	7	20	0	21	210
1994	199	11	29	0	20	259
1995	22	22	41	0	12	97
1996	43	34	64	0	25	166
1997	61	20	82	0	18	181
1998	110	20	93	0	17	240
1999	169	39	91	0	25	324
2000	188	27	120	0	17	352
2001	220	27	98	0	21	366
2002	232	25	111	0	35	403
2003	248	28	110	0	25	411
2004	265	28	95	0	35	423
2005	224	28	125	0	30	407
2006	289	26	105	0	32	452
2007	308	21	113	52	41	535

^a Proactive administrative removal in selected targeted areas began in 2007.

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Population Status and Trend

Status of cougar populations in Oregon is monitored using a deterministic computer model (Keister and Van Dyke 2002) adapted to represent population changes at the regional level, characteristics of the harvest, and trends in non-hunting mortalities. Modeled population trend continues to increase (Fig. 3). However, as total mortality has increased (Table 3), and populations approach assumed density dependence limits in the model, growth rate in the modeled population has declined and is approaching zero (Fig. 3).

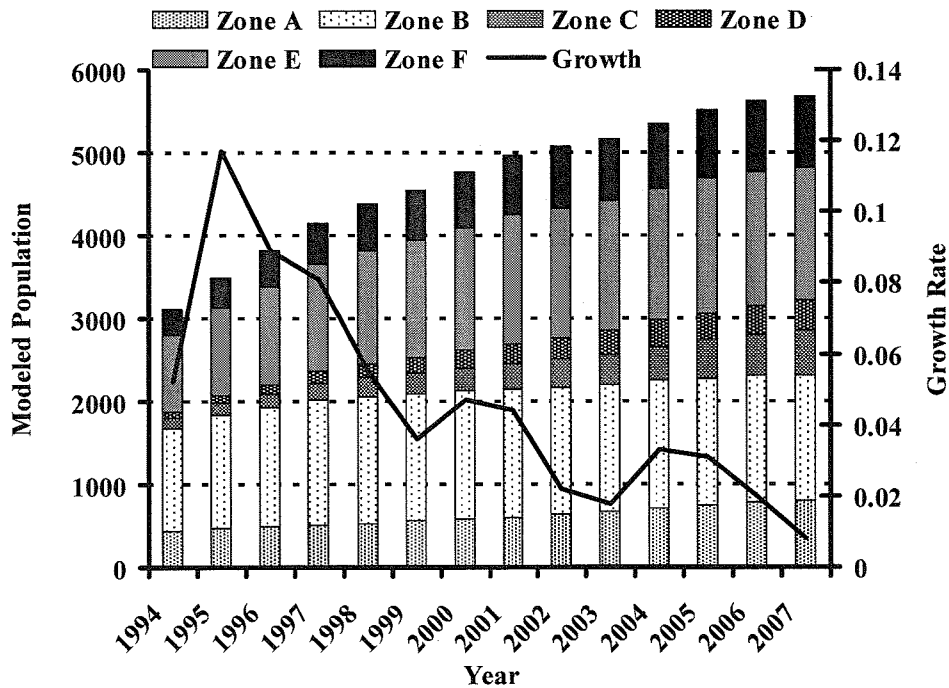


Figure 3. Modeled (Keister and Van Dyke) cougar population growth in Oregon, 1994–2007.

Conflict

Number of cougar related conflicts is declining in Oregon (Fig. 4). Human safety concerns and livestock complaints are the dominant form of incident reported. Number of cougars killed as a result of conflict with humans also has increased with most cougars killed in response to conflict with livestock (Table 3). Because of recent changes in recording protocols in Oregon, the number of incidents reported as just a cougar sighting is no longer monitored.

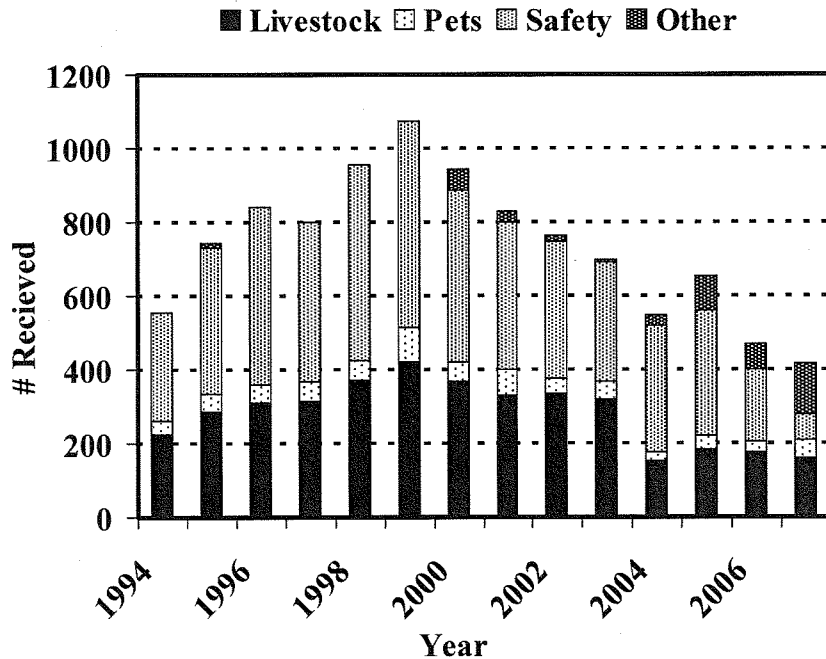


Figure 4. Trend in incidents of human-cougar conflict for Oregon, 1994–2007.

Management Conclusions

In general, the Department feels cougar populations recovered from the extremely low levels in the 1960s and are distributed throughout the state of Oregon. The Department recently revised its Cougar Management Plan. Direction established by the revised plan focuses primarily on reducing and managing conflict within an adaptive management approach where we can learn from actively addressing issues.