

Pilot Cougar Control Program

2008 Legislative Report



Wildlife Program
600 Capitol Way North
Olympia, Washington 98501-1091

Phone: (360) 902-2515
Email: wildthing@dfw.wa.gov

Washington Department of Fish and Wildlife

Pilot Cougar Control Program

January 17, 2008



*Washington
Department of*
**FISH and
WILDLIFE**

Jeff P. Koenings, Ph.D., Director

Table of Contents

<u>CHAPTER</u>	<u>Page</u>
EXECUTIVE SUMMARY	2
I. INTRODUCTION.....	3
History of Cougar Management	3
Biological Impacts.....	4
II. SUBSTITUTE SENATE BILL 6118.....	7
III. PILOT COUGAR HUNT WITH THE AID OF DOGS.....	8
IV. FIELD PROJECTS	11
Cougar DNA Project	11
Washington State University Projects.....	12
V. HUMAN-COUGAR COMPLAINTS	16
Cougar Complaint Trend.....	16
Behavior Modification	18
VI. RECOMMENDATIONS.....	19
LITERATURE CITED	24
APPENDIX 1	25
APPENDIX 2	29

Executive Summary

Substitute Senate Bill (SSB) 6118 authorized a 3-year pilot program to pursue or kill cougar with the aid of dogs in five counties of northeastern Washington (i.e., Chelan, Okanogan, Ferry, Stevens, and Pend O'reille counties). The primary goals of the pilot program were three fold: 1) to enhance public safety, 2) to enhance protection of livestock and pets, and 3) to assess cougar populations. In response to the legislation, the Fish and Wildlife Commission adopted WAC 232-28-285 – Pilot cougar hunting seasons with the aid of dogs.

Washington Department of Fish and Wildlife (WDFW) administered the pilot cougar program for three years: from the 2004-05 winter through the 2006-07 winter. During the three years, 241 cougars were killed, of which about 64% were killed with the aid of dogs. During the same period, the number of human-cougar complaints (including pet and livestock depredation) declined from 119 to 89 over the five counties, whereas the number of complaints increased from 203 to 286 in the remaining portion of the state. However, from a statewide perspective, complaints have declined dramatically (~60%) since 2000. Two research teams from WDFW and Washington State University (WSU) investigated the population impacts of cougar hunting. Research findings suggest cougar populations in the five counties have been heavily hunted and harvested and now occur at relatively low densities. However, we were not able to establish a cause-and-effect relationship between cougar population reductions and reduced human-cougar conflict.

The pilot program provided evidence that the use of dogs to hunt cougar can be an effective and flexible tool for addressing management objectives like limiting female harvest, total harvest, and reducing population size. Given the results of the pilot program, the Department believes the use of dogs is critical for an effective cougar management program and recommends that the use of dogs be allowed in specific geographic areas as identified by rule of the Fish and Wildlife Commission.

Introduction

History of Cougar Management

Cougar (*Puma concolor*) management has been in a state of transition for about 11 years in Washington, largely due to Voter Initiative 655, which banned the use of dogs to hunt cougar in 1996. Prior to the initiative, the majority of cougars were harvested with the use of dogs. Once a hunter found a cougar track (typically in snow), dogs were used to track the cougar and chase it up a tree (herein referred to as treed). Because most cougar hunting was associated with using dogs, prior to I-655 cougar seasons tended to overlap the winter months (Dec.-Mar.), when snow conditions were suitable for tracking. In the 6-years prior to I-655, cougar harvest was managed through permit-only seasons; that is, limited participation by lottery drawing.

Immediately following I-655, the Department was concerned that without the use of dogs to hunt cougar, cougar harvest would decline and human-cougar conflict might increase. Given the concern, the Department made substantial changes to cougar hunting seasons between 1997-1999; season length increased from about 3 to 7 ½ months, permit-only seasons were replaced with general seasons, the bag limit increased from 1 to 2 cougar per year, and the cost of a cougar transport tag decreased from \$24 to about \$10 (offered as a bear-cougar package for about \$20). Collectively, these changes resulted in cougar harvest levels higher than harvest levels prior to I-655 (pre I-655 = 156 kills/year; post I-655 = 195 kills/year). It's difficult to say exactly what caused the higher harvest. However, from a hunting season standpoint, the combination of overlapping cougar and deer/elk seasons, plus the reduced tag cost, significantly increased the number of cougar hunters; the number of cougar transport tags sold increased from about 1,500 to greater than 50,000. While the odds of encountering a cougar while deer or elk hunting are low, the sheer number of deer and elk hunters with a cougar tag likely was the reason for higher harvest levels compared to pre I-655 trends.

Within two years after I-655, substantial increases in reports of human-cougar complaints (including cougar depredation on livestock and pets) were documented (Fig. 1). By 1998, human-cougar

interactions increased to around 900 annually. In an effort to address the increasing trend in complaints while preserving the intent of I-655, the 2000 Legislature passed ESSB 5001, which allowed licensed hunters to use dogs to kill cougar, but only in portions of a GMU with a documented history of human-cougar interactions. This legislation authorized the Fish and Wildlife Commission to create *public safety cougar removals*. Between 2000-2003, confirmed complaints declined from 936 to 347 statewide. However, in some areas of the state the number of complaints was still above socially acceptable levels and as a result the 2004 Legislature passed SSB 6118. SSB 6118 allowed

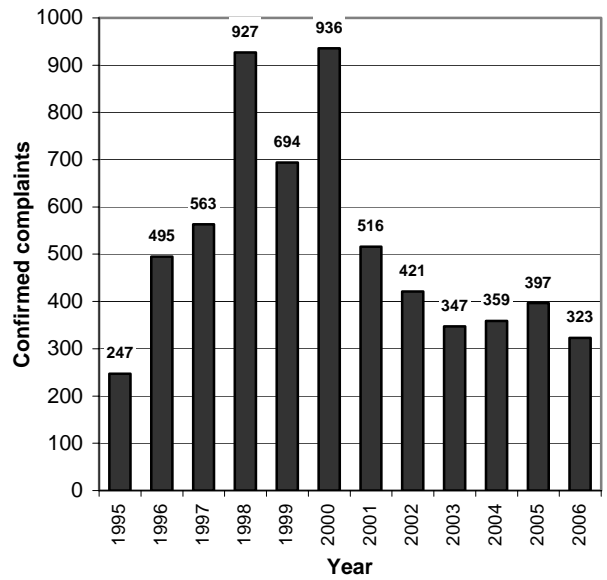


Figure 1. Total confirmed cougar complaints in Washington, 1995-2006 (includes confirmed human safety and pet / livestock incidents and sightings).

licensed hunters to use dogs to hunt cougar in five counties in northeastern Washington. SSB 6118 had two key differences compared to ESSB 5001; first, in terms of addressing complaints, SSB 6118 was viewed as proactive because it did not require a documented history of cougar complaints prior to implementing a hunt, and second SSB 6118 attempted to address and improve the management of cougar from a biological perspective. From SSB 6118, the Commission authorized the *pilot cougar hound hunt* in 2004 (see page 8).

Biological Impacts

There are important differences in the biological implications between cougar seasons with the aid of dogs compared to cougar seasons without dogs. Cougar harvest steadily increased when dogs were banned by I-655 (Fig. 2). The increase is most likely attributed to the dramatic increase in the number of cougar tag holders after I-655. This in turn created a situation where the majority of the harvest was by deer and elk hunters that harvested a cougar incidentally during their deer or elk hunt.

What's important about this is that the hunting method shifted from a more selective method (i.e., hunters using dogs to tree cougar usually look it over before deciding whether or not to shoot it) to one that was probably non-selective. Consequently, during seasons when dogs were allowed, hound hunters tended to kill fewer total cougar and the harvest was skewed toward older animals, particularly older males (Figures 2 and 3A). During seasons when dogs were not allowed, total harvest increased and more females and younger cougar were harvested (Figure 3B). In terms of potential biological impacts, cougars killed without the use of dogs are more likely to be females and younger animals, which can equate to a greater impact to population growth (Martorello and Beausoleil 2003).

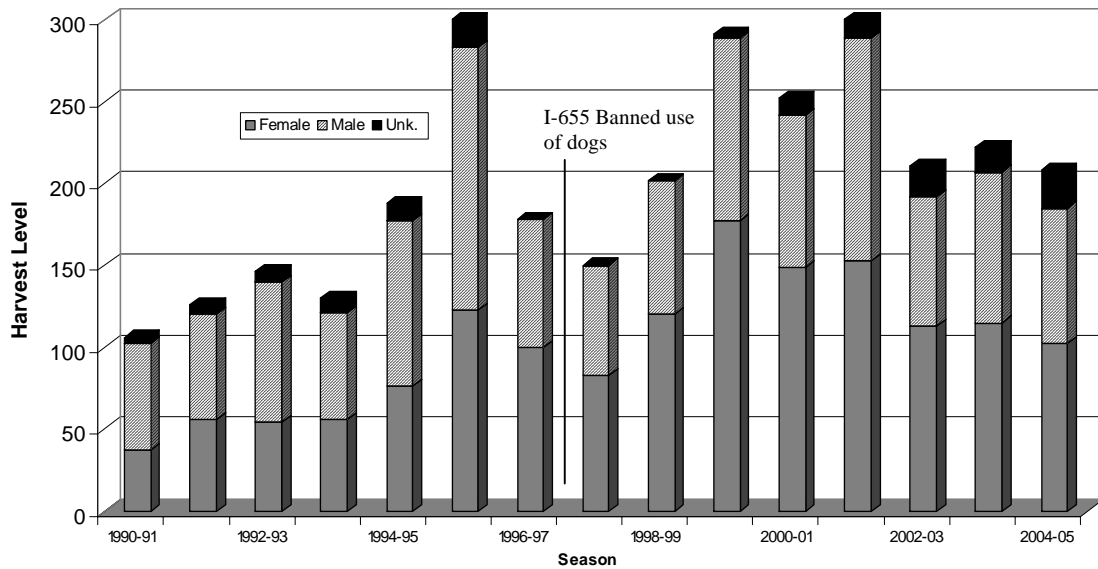


Figure 2. Cougar harvest composition, 1990-2004, Washington State.

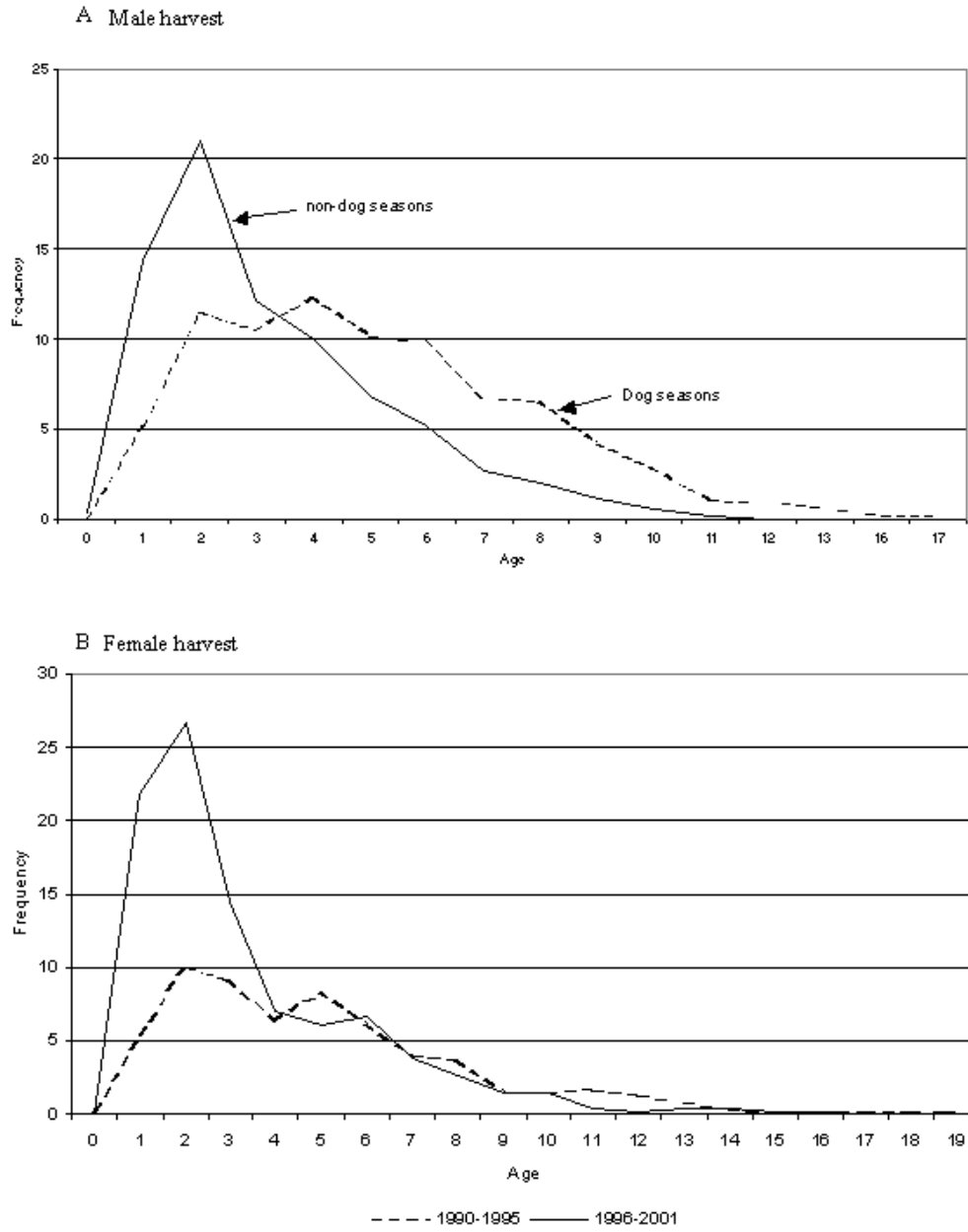


Figure 3. Age structures of harvested male (A) and female (B) cougar during dog seasons (1990-1995) and non-dog seasons (1996-2001), Washington, 1990-2001.

SSB 6118: AN ACT Relating to a Pilot Program for Cougar Control

Substitute Senate Bill (SSB) 6118 was signed into law by Governor Gary Locke on March 31, 2004 (Appendix 1). The bill authorized a 3-year pilot program to pursue or kill cougar with the aid of dogs in five counties of northeastern Washington (i.e., Chelan, Okanogan, Ferry, Stevens, and Pend O'reille counties). The primary goals of the pilot program were three fold: 1) to enhance public safety, 2) to enhance protection of livestock and pets, and 3) to assess cougar populations (Sections 1, line 14; Appendix 1). The bill requires WDFW to submit a report at the conclusion of the pilot program to the Fish and Wildlife Commission and appropriate Legislative committees. The focus of the report is to provide recommendations for:

1. A more effective and accurate dangerous wildlife reporting system,
2. A summary of how the pilot project aided in the collection of data useful for making future wildlife management decisions, and
3. A recommendation as to whether the pilot program would serve as a model for effective cougar management into the future.

The bill also requested suggestions for wildlife management techniques aimed at modifying cougar behavior, the identification of non-lethal ways to minimize interactions between cougars and humans, and an analysis of opportunities for minimizing interactions between cougars and humans by controlling the abundance and location of cougar prey species.

This document serves as the report fulfilling the request in SSB 6118. This report was drafted by WDFW staff and reviewed by internal cougar research staff, County Commissioners from the five collaborating counties, and cougar researchers with Washington State University. More detailed information is available by contacting Washington Department of Fish and Wildlife, 600 Capitol Way North, Olympia, WA 98501-1091.

Pilot Cougar Hunt with the Aid of Dogs

To address the two goals of SSB 6118 that deal with enhancing public safety and protecting pets and livestock, the Department developed seasons that were designed to reduce cougar populations in the five counties (see page 87 in Game Management Plan). The concept was that a substantial reduction in the cougar population would result in reduced opportunity for humans and cougars to come into contact, thus reducing the likelihood of negative interaction. It's important to be aware that this is a "hypothesis". To date, there is no empirical evidence that identifies the level of cougar population reduction that would significantly reduce conflicts. In fact, one hypothesis is that heavy hunting may actually increase human-cougar interactions; researchers at Washington State University are currently investigating that hypothesis.

The use of dogs to hunt cougar was selected to address the behavior modification component of SSB 6118 and to test whether the use of dogs could be a more effective tool for managing the biological components of cougar populations. To that end, the Department collaborated with the five counties and their respective local authorities, and recommended a cougar hunt with the aid of dogs to the Fish and Wildlife Commission for rule adoption. The Commission adopted the rule that included the following:

- Establishment of 4 separate hunt zones (Fig. 4)
- Establishment of both kill and pursuit-only seasons
- Establishment of a total kill quota and a female kill sub-quota for each hunt zone
- Management of the number of hunters by permit-only restrictions
- Participation was limited to cougar hound owners only
- A bag limit of 2 cougar
- Permit hunters were required to maintain a data log book of their hunting activity

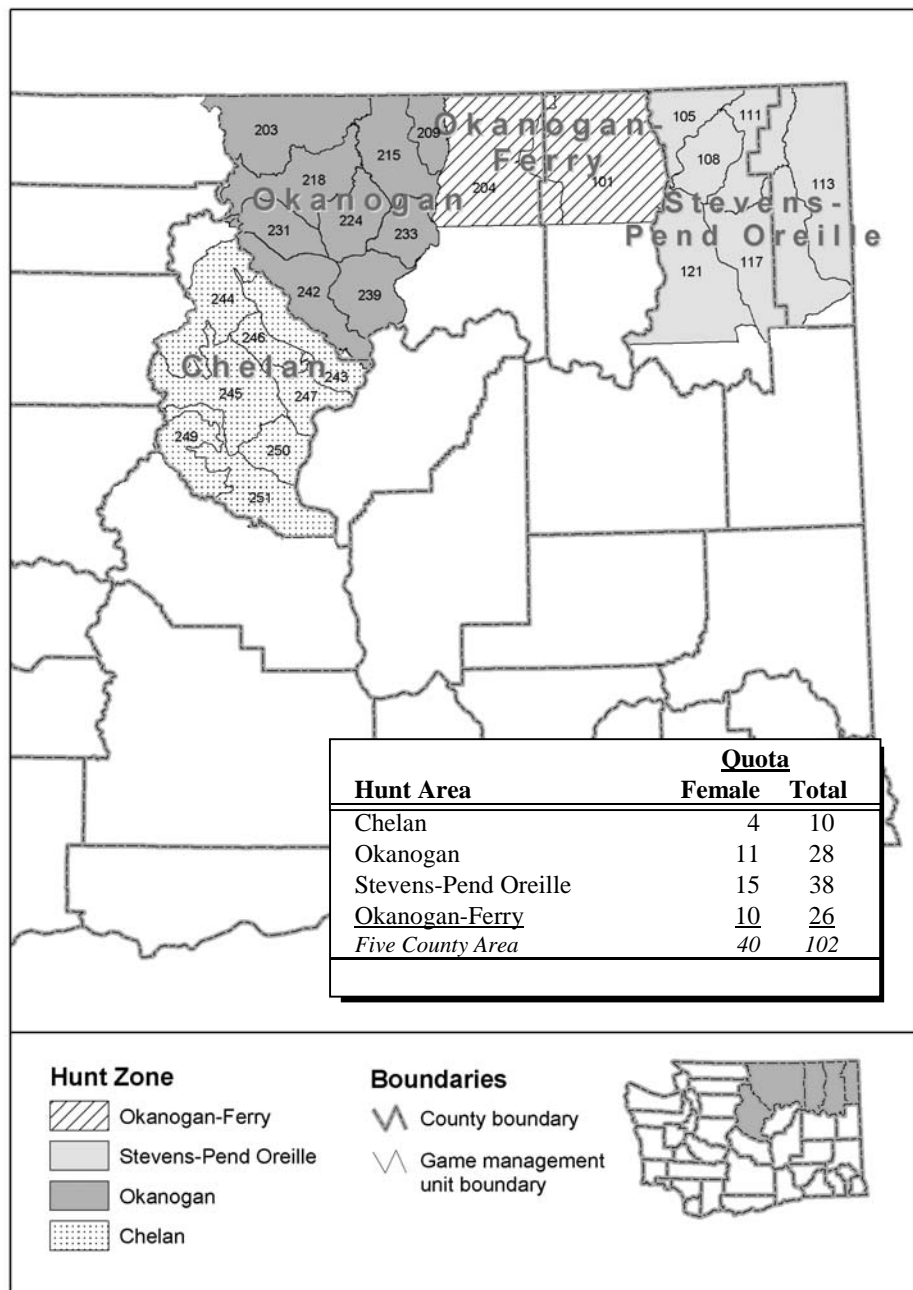


Figure 4. Four hunt zones and associated quotas for pilot cougar hunt, 2004-2007.

To facilitate the pilot cougar hunt with the aid of dogs and minimize harvest by other means, the length of the general cougar season (without dogs) was reduced to four months, from Aug. 1–Nov. 30. The new pilot hunt with the aid of dogs occurred from Dec. 1– Mar. 31 (except in the Ferry-Okanogan Zone where, due to a DNA project, the season was Jan.1–Mar. 31). A quota system limited the total kill and female kill. This quota system allowed the Department to issue more permits than the targeted

removal level. Under this model, all hunters were required to call a toll-free hotline within 24-hours prior to their hunt to see if the season was still open for kill. Hunters were also required to call within 24-hours to report a kill. Under this system, the Department closed the kill segment of the hunt once the total number of allotted cougars (or allotted female cougars) were harvested. If and when a zone reached it's quota, the zone was closed for killing cougar, but permittee's could continue to pursue cougar. Details on the pilot cougar hunt rule are attached in Appendix 2.

The total kill quota for the pilot area was 102 cougars or 40 female cougars, which would result in about a 20% decline in the cougar population in three years. All kills, including kills from the general hunt and depredation permits, contributed toward the quota tally. However, the Department reserved the right to take a cougar causing damage or creating a safety issue, regardless of whether the quota was reached. During the 3-year pilot period, 241 cougars were killed, of which 154 (64%) were killed with the aid of dogs as a part of the pilot program (Table 1).

Table 1. Kill statistics for 3-year pilot cougar hunt with the aid of dogs.

Hunt Zone	General Season	Pilot hound seasons	Depredation/kill permits/poached	Total harvest (M & F)	Hunt Quota (female subquota)
<i>2004-05</i>					
Chelan	1	2	1	4	10 (4)
Okanogan	7	18	8	33	28 (11)
Okanogan-Ferry	5	14	1	20	26 (10)
Stevens-Pend Oreille	11	21	1	33	38 (15)
Annual Total	24	55	11	90	102 (40)
<i>2005-06</i>					
Chelan	1	3	0	4	10 (4)
Okanogan	5	17	2	24	28 (11)
Okanogan-Ferry	4	15	3	22	26 (10)
Stevens-Pend Oreille	6	26	3	35	38 (15)
Annual Total	16	61	8	85	102 (40)
<i>2006-07</i>					
Chelan	0	4	2	6	10 (4)
Okanogan	6	9	3	18	28 (11)
Okanogan-Ferry	5	12	0	17	26 (10)
Stevens-Pend Oreille	11	13	1	25	38 (15)
Annual Total	22	38	6	66	102 (40)
3-Year Total	62	154	25	241	306 (120)

Cougar Field Projects

The third goal of SSB 6118 was to assess cougar populations in the five counties. The Department used three projects to assess local cougar populations and the impacts of the pilot hunt on the population; a project conducted by WDFW using mark-recovery techniques combined with DNA genotyping (Beausoleil, personal communication), a project investigating cougar population growth (Lambert et al. 2006), and a project investigating the source-sink dynamics of cougars (Robinson et al., In Print).

Mark-Recovery DNA Project

The objective of the mark-recovery DNA project was to estimate cougar population size in a portion of the five counties. The experimental design was a standard capture-recapture methodology, but using DNA rather than traditional capturing, handling, and marking of live animals. The area selected was Game Management Units (GMUs) 101 and 204, two GMUs in the middle of the pilot area. The design used hound hunters to collect DNA samples from as many live cougars as possible during the "capture" phase of the project. To accomplish this, approximately 10 hound hunters were deployed throughout the project area with CO² powered rifles and special biopsy darts. Once a hunter treed a cougar, they would shoot the animal in the rump and the biopsy dart would extract a single core of skin and subcutaneous tissue (3-4mm in diameter) and fall to the ground; the cougar would then be allowed to run off without being physically handled. Following the 47-day dart phase of the project, cougar seasons opened in the area and DNA was also collected from all harvest cougar; this served as the "recapture" or "recovery" phase. All tissue samples collected were analyzed using a DNA genotyping (fingerprinting) technique called microsatellite analysis. The probability of incorrectly identifying an animal in a random sample is 1:1.5 trillion. Population size was estimated from the proportion of cougars in the harvest sample that were previously treed during the biopsy dart phase. The mark-recovery DNA

project was conducted for four consecutive years between 2003 and 2007. Samples were collected from 163 animals, resulting in 100 individual cougar (Table 2). We used a simple closed capture analysis in program MARK to estimate cougar population size from the mark-recovery data. Preliminary estimates indicate the average population size for the study area was 43 cougars (95% CI = 40-55 cougars) after the removals.

Table 2. Mark-recovery DNA project results, 2003-2006, Game Management Units 101 & 204, Washington Department of Fish and Wildlife, 2007.

Year	No. Dated	No. killed	No. killed previously dated
2003-04	30	12	2
2004-05	29	17	4
2005-06	31	18	8
2006-07	18	15	2
Total	100	62	16

Washington State University Projects

WSU has completed two cougar research projects in northeastern Washington. The first study investigated cougar population dynamics in the extreme northeastern corner of Washington, and a portion of Idaho and British Columbia, Canada (Fig. 5). The following excerpt is the abstract reproduced from the peer-reviewed publication resulting from the study (Lambert et al. 2006):

“Increasing reports of human/cougar conflicts may suggest that cougars are increasing in the Pacific Northwest. We determined minimum relative densities and average fecundity, survival, and growth rate of an apparently increasing cougar population in northeastern Washington, USA; northern Idaho, USA; and southern British Columbia, Canada, from 1998 to 2003. Minimum relative densities declined from 1.47 cougars/100 km² to 0.85 cougars/100 km². We estimated average litter size at 2.53 kittens, interbirth interval at 18 months, proportion of reproductively successful females at 75%, and age at first parturition at 18 months for a maternity rate of 1.27 kittens/adult female/yr. Average survival rate for all radiocollared cougars was 59%: 77% for adult females, 33% for adult males, 34% for yearlings, and 57% for kittens. Hunting accounted for 92% of mortalities of radiocollared cougars. The annual stochastic growth rate of this population was $\lambda=0.80$ (95% CI=0.11). Contrary to accepted belief, our findings suggest that

cougars in the Pacific Northwest are currently declining. Increased conflicts between cougars and humans in this area could be the result of the 1) very young age structure of the population caused by heavy hunting, 2) increased human intrusion into cougar habitat, 3) low level of social acceptance of cougars in the area, or 4) habituation of cougars to humans. To help preserve this population, we recommend reduced levels of exploitation, particularly for adult females, continuous monitoring, and collaborative efforts of managers from adjacent states and provinces.”

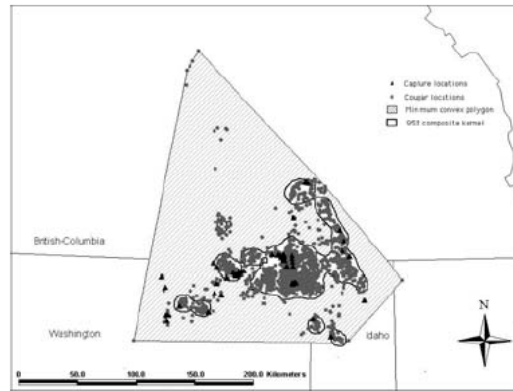


Figure 5. Study area in the Pacific Northwest. Blank and hatched polygons represent the 95% adaptive kernel and minimum convex polygon composite home ranges of all cougars monitored from 1998 to 2003 (reproduced from Lambert et al. 2006).

The second study was conducted in GMU 105. This triangular-shaped mix of public (Colville National Forest) and private land is bounded to the north by the Canadian border, and to the east and west by the Columbia and Kettle rivers, respectively, and is often called the “wedge”. The following excerpt is the abstract from the study that has been submitted for publication (Robinson et al., In print):

“Carnivores are widely hunted for both sport and population control especially where they conflict with human interests. It is widely believed that sport hunting can be effective to reduce carnivore populations and related human/carnivore conflicts whilst maintaining viable populations. However, how carnivore populations respond to harvest can vary greatly depending on their social structure, reproductive strategies, and dispersal patterns. For example, hunted cougar populations have shown a great degree of resiliency. Although hunting cougars on a broad geographic scale (>2000 km²) has reduced densities, hunting of smaller areas (i.e. Game Management Units <1000 km²), could conceivably fail because of increased immigration from adjacent source areas. We monitored a heavily hunted population from 2001 to 2006 to test for the effects of heavy hunting at a small scale (<1000 km²) and to gauge whether population control was achieved ($\lambda \leq 1.0$) or if hunting losses were negated by increased immigration

allowing the population to remain stable or increase ($\lambda \geq 1.0$). The observed growth rate of 1.00 was significantly higher than our predicted survival/fecundity growth rates of 0.89 (deterministic) and 0.84 (stochastic), with the difference representing an 11-16% annual immigration rate. We observed more juveniles in the population than predicted by the stable age distribution, no decline in the total or adult population density, and a significant decrease in the average age of independent males. We found that the male component of the population was increasing ($\lambda_{OM} = 1.09$), masking a decrease in the female component ($\lambda_{OF} = 0.91$). Our data support the compensatory immigration sink hypothesis; cougar removal in small game management areas (<1000 km²) increased immigration and recruitment of younger animals from adjacent areas, resulting in little or no reduction in cougar densities and a shift in population structure toward younger animals. Hunting in high quality habitats may create an attractive sink, leading to misinterpretation of population trends and masking population declines in the sink and surrounding source areas”.

Collectively, these studies suggest that cougar populations in the 5 counties have declined due to hunting. Moreover, the population estimate from the mark-recovery DNA project for 2004-2007 was consistent with the predicted declines from Lambert et al. (2006) in 1998-2003. In terms of the Department's objective to reduce cougar density, these data suggest the Department was successful at reducing cougar populations. In fact, cougar density in the 5-county area appears to be low compared to other populations in the West and further declines may impact the population stability of cougars (Figure

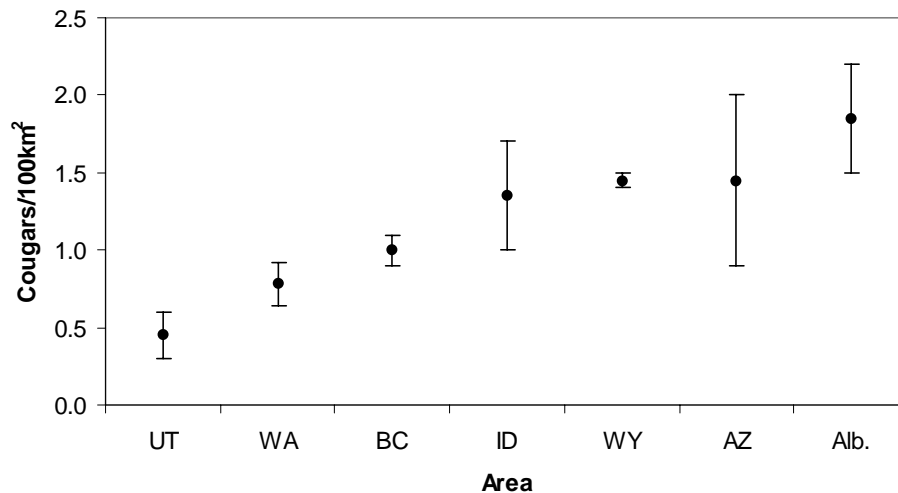


Figure 6. Cougar densities for selected areas on western North America (Washington data from Lambert et al. 2006 and Beausoleil (pers. Comm.).

6). The high harvest level appears to have also changed the sex and age structure of the population (Robinson et al., In Print). The implication of the changed sex/age structure on potential human-cougar interactions is unknown and is being investigated by WSU.

Human-Cougar Complaints

Cougar Complaint Trend

One of the biggest challenges WDFW faces is understanding and managing wildlife conflict. Several factors contribute to human-cougar complaints and they are likely intermixed. For example, levels of cougar complaints are likely influenced by cougar density, the sex and age structure of cougar populations, prey availability, human density, a landowners knowledge about how to avoid conflict, and local public attitudes. As a result, the impacts for managing just one of those factors cannot truly be assessed unless all other factors remain constant; a scenario that is virtually impossible. That being said, the following trend in human-cougar complaints cannot be directly tied to hunting per se; this is, the two (cougar hunting and/or density and complaint levels) cannot be viewed as a cause-and-effect relationship. For the purpose of this summary, human-cougar conflict includes all negative encounters with people, livestock depredation, and pet depredation. Finally, the process for documenting complaints was revised in 2000. The revision included better definitions of the various types of complaints as well as the validation methods used to classify complaints. Given the revision, caution should be used when making comparisons between complaints prior to 2000 to those after 2000. The revision would not bias the trend data since 2001.

Overall, statewide human-cougar complaints have dramatically declined (~60%) since 2000. Since the pilot program began, complaints in the five counties are now less than half of historic high levels. Complaint levels in the remainder of the state during the same period of time have been more stable (Fig. 7, Table 3). It's unknown whether the declines in complaints statewide (from 2000-2003) and in the five counties were from cougar population reductions. The most notable decline in complaints occurred before the pilot program began; suggesting the use of dogs may not be the only factor involved. In fact, cougar populations were likely already declining in the area due to heavy hunting during general seasons (Lambert et al. 2006).

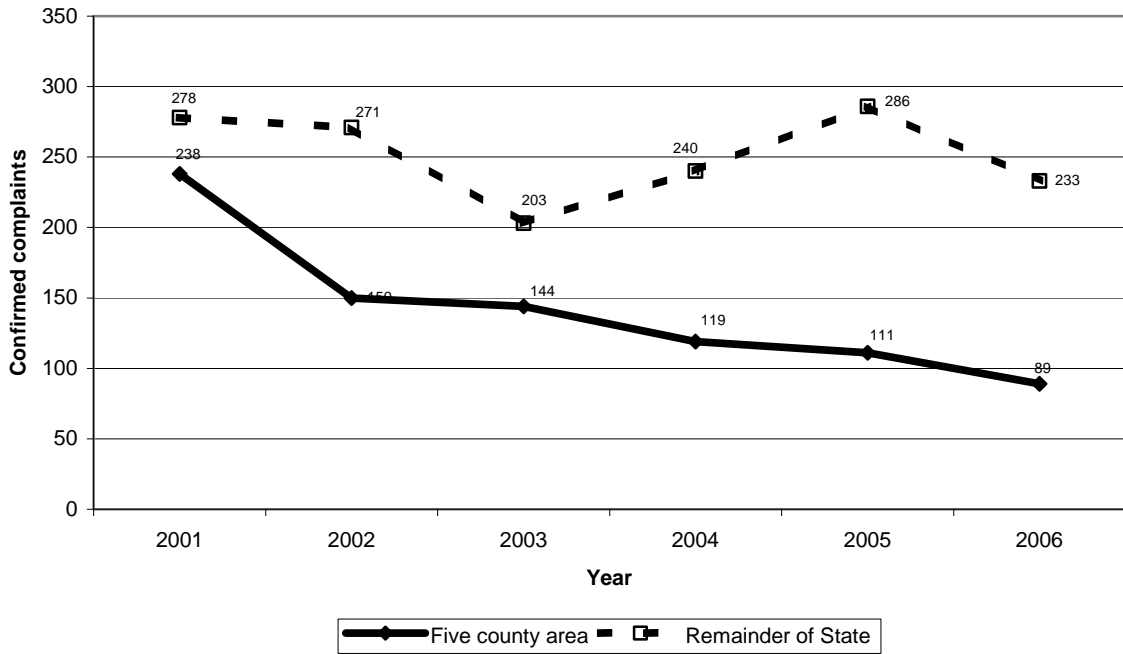


Figure 7. Trend in human-cougar complaints in pilot cougar hunt area and remainder of Washington, 2001-2006.

Table 3. Complaints for 5-county area and rest of state by complaint type (confirmed complaints only), 2001-2006, Washington.

Year	Depredation	Chance encounter or incident	Nuisance	Sighting	Other	Total
<i>5-county area</i>						
2001	90	35	32	73	8	238
2002	29	22	29	68	4	152
2003	42	22	5	72	4	145
2004	31	22	13	54	0	120
2005	31	15	16	52	0	114
2006	26	13	8	41	2	90
<i>Rest of state</i>						
2001	70	33	28	136	16	283
2002	70	36	26	131	7	270
2003	49	34	8	112	2	205
2004	66	30	16	141	13	266
2005	50	38	16	180	2	286
2006	71	25	3	126	8	233

Behavior Modification

One belief is that pursuing cougar with the aid of dogs will teach them to avoid people and high human use areas. Similar behavior patterns have been well documented with black bears (*Ursus americanus*) in scenarios where bears are harassed due to nuisance behaviors (e.g., raiding camp grounds or apiaries). However, a key difference is bears are negatively stimulated (e.g., hit with projectile, shocked, trapped, chased with dogs) while in the act of doing the nuisance behavior. In theory, the animal makes a cognitive connection between the nuisance behavior and the negative stimulus, and thus learns to avoid that particular behavior. The Department is not aware of any published studies that suggest cougar change their behavioral patterns towards people when randomly harassed with dogs. To definitively test that hypothesis would require an elaborate study design with the ability to control several confounding factors.

The Department was not able to test this hypothesis directly, but the pilot program was set up in a way to indirectly assess behavior modification in cougars. Each permit hunter was issued a data logbook to record their daily hunting activity, such as number of days afield and number of cougar treed. From those data, we calculated the number of cougar treed per hunter-day. The hypothesis is that the more times a "population" of cougar are treed the more human-cougar conflicts should decline. As such, we tested for a correlation between the number of cougar treed per hunter-day and annual complaints in the five counties. Although we found a moderate correlation ($R^2 = -0.6702$) between annual complaint levels and the number of cougars treed per hunter-day, the range among the number of cougars treed per hunter-day was too narrow (0.42-0.47; range = 0.05) to form any conclusions. This method also assumes cougar density was constant over the 3 years, an assumption that was likely not realistic. A second and likely more reliable method for assessing behavior modification is to evaluate a collared cougars' movement patterns before and after pursuit. In our ongoing cougar research efforts, we typically tree each collared cougar 1-3 times per year. We did not observe shifts in home range boundaries or utilization within a home range following pursuit activity.

Recommendations

1. Recommendation for a more effective and accurate dangerous wildlife reporting system.

During the pilot project in Stevens, Pend Oreille, Ferry, Chelan, and Okanogan Counties responses to cougar incidents were reported using either Washington State Patrol (WSP) communications or 911 county dispatching. Unlike Ferry, Stevens and Pend Oreille Counties where local WSP communication district offices were used, in Okanogan and Chelan Counties cougar incidents were reported using existing 911 dispatching. Geographically, the cougar pilot project worked in these two counties because a majority of the pilot area was under their dispatching umbrella. Combined with a low call volume for 911 dispatching services, WDFWs response to cougar calls were easily facilitated. However, 911 dispatching could not be administered elsewhere unless the characteristics in Okanogan and Chelan Counties were similar throughout the state. For instance, Stevens, Pend Oreille, and Ferry Counties, due to high call volume and demand for 911 dispatching, could not support a cougar reporting function.

An effective reporting system must have 24-hour operation. Whether it's the expansion of 911 dispatching for cougar incidents in other counties across the state, or if the continued use of WSP district offices, the public must have direct connection to communication personnel that are in radio contact with WDFW Enforcement personnel. Therefore, local WSP district offices are the best choice to receive and forward cougar incident calls. WDFW could cooperatively administer this function with WSP so the response to each cougar call is uniform in how it's received and delivered to personnel in the field. In the past, calls that were received were either discarded or dumped in a voice box for a WDFW officer to receive at a later time, thus eliminating our ability to respond quickly. Although this is not indicative of every situation, these inconsistencies would need to be resolved in order for this cougar reporting system to work.

2. Summary of how the pilot project aided in the collection of data useful for making future wildlife management decisions.

The pilot project provided a number of data collection tools that made it possible to evaluate the success of the project in terms of meeting objectives. Hunter logbooks allowed the Department to collect data on the number of cougar treed 1) through time, 2) in particular areas, 3) males versus females cougar treed, and 4) the rate of treeing cougar. This information was useful for evaluating behavior modification in cougar, relative population size, and hunter effort.

Another data collection tool associated with the pilot project was the toll-free hotline for checking the status of the seasons and reporting cougar harvest. The hotline allowed the Department to collect harvest data on a daily basis and close the kill portion of the cougar season once the allotted numbers of cougars were taken (i.e., the quota was reached).

Lastly, the pilot project provided a data collection method for estimating population size. Within the mark-recovery DNA study, the “recovery” segment for collecting cougar DNA was obtained by hunters using dogs.

3. A recommendation as to whether the pilot program would serve as a model for effective cougar management into the future.

An advantage of the pilot program was the ability to use kill quotas and the success of the quota system was directly linked to the ability to use dogs. By using dogs, hunters could routinely get close enough to a cougar to determine the sex of the animal prior to harvesting it. A quota system coupled with the use of dogs is a flexible and adaptable management tool. Using a quota system with dogs, managers can adapt to various population objectives by predetermining the allowable harvest of both sexes. For example, on one extreme a quota system can be used to manage for long-term sustainability at carrying-capacity by limiting female

harvest, or conversely to reduce cougar populations by increasing total harvest and female harvest.

Given the flexibility of the pilot program model, the Department believes the use of dogs is a valuable and needed component of an effective cougar management program, and recommends that dogs be allowed under rule of the Fish and Wildlife Commission. That being said, the Department also believes that using dogs to hunt cougar may not be the preferred management tool in all regions of Washington. For example, the use of dogs would likely be ineffective in areas with low snowfall. The use of dogs also is probably not socially acceptable in the Puget Sound lowland areas. Recognizing these geographical differences, the Department recommends managing cougar on a zone-management basis (Fig. 9). Utilizing a zone approach, cougar management tools, such as hunting methods and season design, would vary based on the population objective for the zone integrated with local public values.

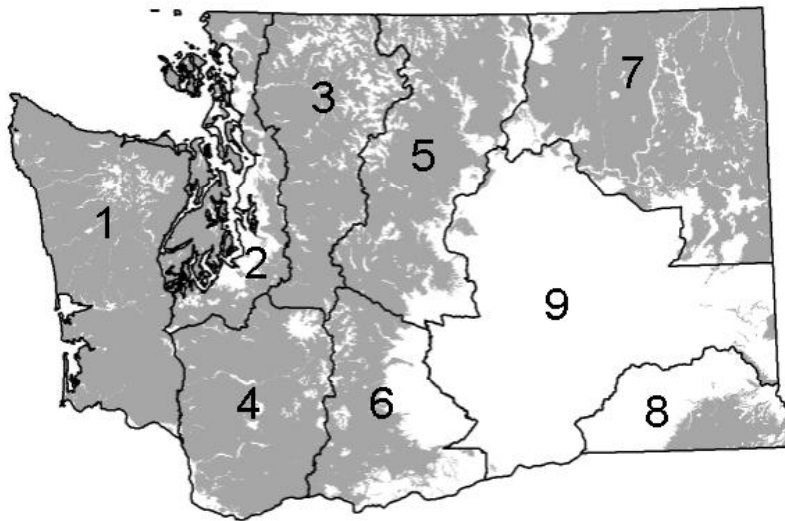


Figure 9. Potential cougar management zones in Washington.

4. Suggestions for wildlife management techniques aimed at modifying cougar behavior.

The Department is not aware of any techniques, other than pursuit seasons, aimed at modifying cougar behavior. As such, the Department supports the use of pursuit seasons (combined with cougar hunting with the aid of dogs) for potentially modifying cougar behavior, as well as other benefits. However, the Department cautions the use of pursuit seasons solely for this reason because there is no scientific evidence demonstrating that pursuit teaches cougars to avoid people. If answering this question is a priority, the Department recommends developing a research project with the appropriate study design to specifically test this hypothesis.

5. Identification of non-lethal ways to minimize interactions between cougars and humans.

Unfortunately, there are no practical non-lethal ways (i.e., fencing, hazing, relocation) to minimize interactions between cougars and humans that can be implemented on a broad geographic scale and at a reasonable cost. The use of pursuit seasons as a non-lethal tool has potential at this scale, but as described above, the benefits have not been documented. The Department believes that educating the public on steps they can take to avoid conflict with cougar is the best and preferred non-lethal tool for minimizing interactions. As such, the Department has developed a series of educational materials and programs to help inform the public. These include brochures with tips on avoiding negative cougar interactions, refrigerator magnets with local contact phone numbers, bumper stickers to remind people to be cougar aware, news releases timed with periods of cougar conflict, and school K-12 citizen science programs highlighting cougar education.

6. Analysis of opportunities for minimizing interactions between cougars and humans by controlling the abundance and location of cougar prey species.

The primary prey items for cougar are deer and elk. There have been no attempts to reduce these species to specifically address human-cougar interactions on a broad scale. However, a cougar study conducted by WSU did attempt to reduce a white-tailed deer population to measure the impacts to the local cougar population. Results from that effort suggest that reducing the prey population (white-tailed deer in this case) to a level that might result in a detectable difference in cougar populations is difficult to achieve.

Literature Cited

- Lambert, C. M. S., R. B. Wielgus, H. S. Robinson, D. D. Katnik, H. S. Cruickshank, R. Clarke, and J. Almack. 2006. Cougar population dynamics and viability in the Pacific Northwest. *Journal of Wildlife Management* 70: 246-254.
- Martorello, D. A., and R. A. Beausoliel. 2003. Cougar harvest characteristics with and without the use of hounds. Pages 129-135 *in* S. A. Becker, D. D. Bjornlie, F. G. Lindzey, and D. S. Moody, editors. *Proceedings of the 7th Mountain Lion Workshop*. Wyoming Game and Fish Department, Lander, USA.
- Robinson, H.S., R.B. Wielgus, H.S. Cooley, and S.W. Cooley. *In Print*. Implications of sink populations in large carnivore management: cougar demography in a hunted population. *Ecological Applications* 0:000-000.

CERTIFICATION OF ENROLLMENT
SUBSTITUTE SENATE BILL 6118

Chapter 264, Laws of 2004
(partial veto)

58th Legislature
2004 Regular Session

COUGAR CONTROL

EFFECTIVE DATE: 6/10/04

Passed by the Senate March 8, 2004
YEAS 34 NAYS 14

BRAD OWEN

President of the Senate

Passed by the House March 4, 2004
YEAS 90 NAYS 5

FRANK CHOPP

Speaker of the House of Representatives

Approved March 31, 2004, with the
exception of section 2, which is vetoed.

GARY F. LOCKE

Governor of the State of Washington

CERTIFICATE

I, Milton H. Doumit, Jr.,
Secretary of the Senate of the
State of Washington, do hereby
certify that the attached is
SUBSTITUTE SENATE BILL 6118 as
passed by the Senate and the House
of Representatives on the dates
hereon set forth.

MILTON H. DOUMIT JR.

Secretary

FILED

March 31, 2004 - 3:14 p.m.

**Secretary of State
State of Washington**

SUBSTITUTE SENATE BILL 6118

AS AMENDED BY THE HOUSE

Passed Legislature - 2004 Regular Session

State of Washington 58th Legislature 2004 Regular Session

By Senate Committee on Parks, Fish & Wildlife (originally sponsored by Senators Morton, Stevens, Deccio, Mulliken, Roach and Swecker)

READ FIRST TIME 02/05/04.

1 AN ACT Relating to a pilot program for cougar control; and creating
2 new sections.

3 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

4 NEW SECTION. **Sec. 1.** (1) The department of fish and wildlife, in
5 cooperation and collaboration with the county legislative authorities
6 of Ferry, Stevens, Pend Oreille, Chelan, and Okanogan counties, shall
7 recommend rules to establish a three-year pilot program within select
8 game management units of these counties, to pursue or kill cougars with
9 the aid of dogs. A pursuit season and a kill season with the aid of
10 dogs must be established through the fish and wildlife commission's
11 rule-making process, utilizing local dangerous wildlife task teams
12 comprised of the two collaborating authorities. The two collaborating
13 authorities shall also develop a more effective and accurate dangerous
14 wildlife reporting system to ensure a timely response. The pilot
15 program's primary goals are to provide for public safety, to protect
16 property, and to assess cougar populations.

17 (2) Any rules adopted by the fish and wildlife commission to
18 establish a pilot project allowing for the pursuit or hunting of

1 cougars with the aid of dogs under this section only must ensure that
2 all pursuits or hunts are:

3 (a) Designed to protect public safety or property;

4 (b) Reflective of the most current cougar population data;

5 (c) Designed to generate data that is necessary for the department
6 to satisfy the reporting requirements of section 3 of this act; and

7 (d) Consistent with any applicable recommendations emerging from
8 research on cougar population dynamics in a multiprey environment
9 conducted by Washington State University's department of natural
10 resource sciences that was funded in whole or in part by the department
11 of fish and wildlife.

12 ***NEW SECTION. Sec. 2. A county legislative authority may request**
13 ***inclusion in the pilot project authorized by this act after taking the***
14 ***following actions:***

15 (1) ***Adopting a resolution that requests inclusion in the pilot***
16 ***project;***

17 (2) ***Documenting the need to participate in the pilot program by***
18 ***identifying the number of cougar/human encounters and livestock and pet***
19 ***depredations; and***

20 (3) ***Demonstrating that existing cougar depredation permits, public***
21 ***safety cougar hunts, or other existing wildlife management tools have***
22 ***not been sufficient to deal with cougar incidents in the county.***

*Sec. 2 was vetoed. See message at end of chapter.

23 **NEW SECTION. Sec. 3.** After the culmination of the pilot project
24 authorized by this section, the department of fish and wildlife must
25 report to the fish and wildlife commission and the appropriate
26 committees of the legislature:

27 (1) Recommendations for the development of a more effective and
28 accurate dangerous wildlife reporting system, a summary of how the
29 pilot project aided the collection of data useful in making future
30 wildlife management decisions, and a recommendation as to whether the
31 pilot project would serve as a model for effective cougar management
32 into the future. The report required by this subsection must be
33 completed in collaboration with the counties choosing to participate in
34 the pilot program.

35 (2) Recommendations for a new and modern cougar management system
36 that focuses on altering the behavior of wild cougars, and not solely

1 on controlling cougar population levels. These recommendations must
2 include at a minimum suggestions for wildlife management techniques
3 aimed at modifying cougar behavior, the identification of nonlethal
4 ways to minimize interactions between cougars and humans, and an
5 analysis of opportunities for minimizing interactions between cougars
6 and humans by controlling the abundance and location of cougar prey
7 species.

Passed by the Senate March 8, 2004.

Passed by the House March 4, 2004.

Approved by the Governor March 31, 2004, with the exception of
certain items that were vetoed.

Filed in Office of Secretary of State March 31, 2004.

Note: Governor's explanation of partial veto is as follows:

"I am returning herewith, without my approval as to section 2,
Substitute Senate Bill No. 6118 entitled:

"AN ACT Relating to a pilot program for cougar control;"

This bill requires the Department of Fish and Wildlife (DFW) to recommend rules to establish a three-year pilot program to allow for the pursuit and killing of cougars with the aid of dogs. The pilot program is limited to the counties of Ferry, Stevens, Pend Oreille, Chelan, and Okanogan. The bill also requires that these rules ensure that the hunts are designed to protect public safety, reflect cougar population data, and are consistent with recommendations on cougar population dynamics currently under development at Washington State University.

Section 2 of the bill would have allowed other counties to participate in the pilot project. This section expands the pilot's purposes beyond the limited geographic scope of the underlying bill and undermines the thoughtful research purposes of the pilot approach. As stated in section 3 of the bill, DFW is to follow the pilot with "a recommendation as to whether the pilot project would serve as a model for effective cougar management into the future." The pilot should be allowed to run its course, and future cougar management decisions should be based on the results and recommendations of this pilot project. Should unique human-cougar interactions arise in counties not subject to the pilot, the Commission already has some authority to authorize the use of dogs to combat the problem.

For these reasons, I have vetoed section 2 of Substitute Senate Bill No. 6118.

With the exception of section 2, Substitute Senate Bill No. 6118 is approved."

As used in this section and in the context of pilot cougar hunting seasons, the following definitions apply:

"Accompany" means the dog handler and permit hunter must be in the physical presence of each other at the time dogs are released from a leash or unrestrained or starting a cougar track.

"Pursue" or "pursuit" means dogs are:

- Not on a leash or restrained; or
- Starting a cougar track; or
- In the act of tracking a cougar; or
- At a treed cougar.

Transporting dogs in a motorized vehicle or walking a dog on a leash is not pursuit.

"Dog owner" means a person that owns and hunts with dogs that are capable of detecting, tracking and treeing a cougar.

"Quota" means the targeted harvest goal. The actual harvest level may exceed the quota.

"Kill permit" allows a hunter to pursue or kill cougar.

"Pursuit permit" allows a hunter to pursue cougar.

(1) The pilot cougar-hunting season will allow use of dogs to hunt cougar. The hunts will consist of pursuit-or-kill seasons and pursuit-only seasons, and are allowed only in Chelan, Okanogan, Ferry, Stevens, and Pend Oreille counties.

(2) Pursuit-or-kill seasons:

Cougar may be pursued or killed with the aid of dogs from December 1, 2007, until the female zone quota has been killed, the total zone quota has been killed, or March 31, 2008, whichever occurs first; EXCEPT GMUs 101 and 204 where cougar may be pursued or killed from January 1, 2008, until the female zone quota has been killed, the total zone quota has been killed, or March 31, 2008, whichever occurs first.

(3) Pursuit-only seasons:

(a) If a zone quota is killed prior to March 31, 2008, cougar may be pursued with dogs in all or portions of that zone until March 31, 2008. Hunters may only pursue cougars in designated pursuit only areas identified on their kill or pursuit-only permit. Hunters may not kill cougar during pursuit-only seasons.

(b) Hunters selected for the pursuit-or-kill season (accompanied by up to three of their identified handlers) may participate in a pursuit-only

season. Permit hunters that harvest a cougar under a kill permit may continue to pursue cougars until March 31. If a zone quota is killed, the department will also issue pursuit-only permit to hunters drawn at random from the unselected pool of applicants. The director will identify the number of pursuit-only hunters selected.

(4) Hunt areas and kill quotas:

Cougar seasons will be based on a quota system, where permit hunters using dogs may hunt and kill cougar until the allotted numbers of cougar have been killed from each hunt zone or March 31, 2008, whichever occurs first.

(a) Kill quotas start September 1 and will include all cougar killed during seasons with and without the aid of dogs, including cougar seasons under this section, cougar seasons without the aid of dogs authorized under WAC 232-28-272, depredation permits, landowner kill permits, and WDFW depredation authority.

(b) Individual problem cougar will continue to be killed on an as-needed basis utilizing depredation permits, landowner kill permits, and WDFW depredation authority even if these kills result in exceeding a zone quota.

				QUOTA	
CMU	Hunt Choice	Hunt Zone	Area Description	Total	Female
East Cascades North	9001	Okanogan	Those portions of GMUs 203, 209, 215, 218, 233, 224, 231, 239, and 242 within Okanogan County	28	11
	9002	Chelan	Those portions of GMUs 243, 244, 245, 246, 247, 249, 250, and 251 within Chelan County	10	4
Northeastern	9003	Ferry-Okanogan	GMUs 101, 204	26	10
	9004	Stevens-Pend Oreille	Those portions of GMUs 105, 108, 111, 113, 117, 121 within Stevens and Pend Oreille counties	38	15

(5) Quota hotline:

Permit hunters participating in a pursuit-or-kill season must call the toll free cougar quota hotline within twenty-four hours prior to each day hunting cougar to determine if the zone quota has been killed and the zone is closed. Hunters who hunt more than one consecutive day must call the quota hotline once daily to determine if the zone quota is killed. Hunters who harvest a cougar with the aid of dogs must notify the department within twenty-four hours of kill (excluding legal state holidays) and provide the hunter's name, date and location of kill, and sex of animal. The raw pelt of a cougar, with proof of sex naturally attached, must be sealed by an authorized department employee within five days of the notification of kill. Any person who takes a cougar must present the cougar skull in such a manner that teeth and biological samples can be extracted to an authorized

department employee at the time of sealing.

(6) Kill or pursuit-only permit eligibility:

(a) To apply for a kill or pursuit-only permit under this section, individuals must sign an affidavit provided by the department, certifying under penalty of false swearing under RCW 9A.72.040 that they are a dog owner. The affidavit must be mailed to WDFW by the date and time identified by the director. Individuals not registered as a dog owner will not be issued a permit.

(b) To apply for a kill or pursuit-only permit under this section, individuals must purchase a cougar permit application and submit the application in compliance with WAC 232-28-291 by a date and time identified by the director.

(c) To be eligible for a permit, the participant must be a Washington resident who at the time of application for a permit possesses a valid big game license with cougar as a species option. The permit holder must use dogs while participating in a cougar hunt under this section.

(d) A permit will not be issued to any person who has been convicted of unlawful use of dogs under RCW 77.15.245 within the five-year period prior to December 1, 2004. Any person issued a permit and who is subsequently convicted of any wildlife offense while participating in a pursuit-or-kill or pursuit-only season, or who violates any condition of the permit, will have the permit revoked and will be ineligible to participate in the remainder of the pilot program.

(7) Permit issuance procedure:

(a) The number of kill permits for a pursuit-or-kill season with the aid of dogs may be established by the director, but will not exceed two times the total cougar quota for each hunt zone.

(b) The department will issue kill or pursuit-only permits to the persons whose applications are drawn at random. Individuals selected will be notified by telephone or mail. Individuals selected must return the signed affidavit to the department's wildlife program in Olympia within fifteen days of being notified. Failure to return the completed affidavit to the department will result in forfeit of the permit. Kill and pursuit-only permits may not be sold or reassigned.

(c) If a female zone quota or total zone quota is not killed in a hunt zone by January 15 (or sooner as identified by the director), then the department will issue kill permits to additional hunters. Hunters will be drawn at random from the unselected pool of applicants and must be a resident of one of the five counties.

(8) Qualifications for participation and requirements:

In addition to the provisions applicable to all cougar hunters:

(a) Successful applicants must complete a training program prior to participating in a pursuit-or-kill season or pursuit-only season with the aid of dogs.

(b) Participants must have their permit issued by the department in their possession while hunting cougar.

(c) Individuals selected for a kill permit may kill and possess two cougar per permit and only the permittee may kill the cougar(s). However, a kill permit holder may not kill a second cougar in a hunt zone until January 15 (or sooner as identified by the director).

(d) Individuals selected for a cougar kill or pursuit-only permit may use dog handlers. However, no more than three handlers may accompany the permittee while hunting or pursuing cougar. Dog handlers may not pursue cougar when the permit hunter is not present at the time the dogs are released from a leash or unrestrained. Dog handlers must have a dog handler identification card, issued by the department, in their possession while participating in a pursuit-or-kill season or pursuit-only season.

(e) Dog handlers must be a Washington resident and possess a valid hunting license.

(f) It is unlawful to kill or possess spotted cougar kittens or adult cougars accompanied by spotted kittens.

(g) Participants must have a vehicle placard issued by the department. The vehicle placard must be placed in the permittee's and dog handler's vehicles and be visible from outside the vehicles at all times while hunting or pursuing cougar.

(h) Kill and pursuit-only permit hunters are required to maintain and return to the department a pilot cougar hunting season logbook. At the end of each day hunting cougar, the permit hunters must record their hunting activities, including that of their dog handlers, in their logbook. If requested by department staff, permit hunters must provide the logbook for inspection. Logbooks must be mailed to the department at WDFW-Pilot Cougar Hunt, 600 Capitol Way North, Olympia, WA 98501-1091 by April 10, 2008. A violation of this requirement under this subsection is punishable as an infraction under RCW 77.15.160.

(9) The permit belongs to the state of Washington. The permit holder may be required to return to or turn over to the department the permit when, in the judgment of the department, the permit holder violates any conditions of the permit, violates trespass laws while acting under this permit, or violates any other criminal law or hunting regulation of the state while acting under this permit. If the permit holder is required to return to or turn over to the department the permit, the permit holder may request an appeal of that action in accordance with chapter 34.05 RCW. Appeal request shall be filed in writing and returned within twenty days of the date of action and be addressed to WDFW Legal Services Office, 600 Capitol Way North, Olympia, Washington 98501-1091.

[Statutory Authority: RCW 77.12.047. 07-22-102 (Order 07-273), § 232-28-285, filed 11/6/07, effective 12/7/07; 06-17-095 (Order 06-196), § 232-28-285, filed 8/15/06, effective 9/15/06; 05-17-098 (Order 05-174), § 232-28-285, filed 8/15/05, effective 9/15/05; 04-21-036 (Order 04-284), § 232-28-285, filed 10/14/04, effective 11/14/04.]