



GENERAL MEETING MINUTES OCTOBER 13, 2010

1. Introduction

Meeting called to order at 6:30 p.m. with the Pledge of Allegiance, USVEMG President David Willson presiding. A quorum of the board of directors were present including: David Willson, Jim Gildersleeve, Jeff Dideon, Don Hacherl, Tom Kemp, Maura Callahan, and Pat Young. Also present Chris Moszeter, enforcement officer, DFW; Christine Jensen assistant for King County Council member Kathy Lambert.

Printed copies of the September meeting minutes were available for review. Mr. Hacherl motioned to approve the minutes. Mr. Gildersleeve seconded the motion. The motion passed with a unanimous vote.

2. Education and Outreach (E&O) Committee Report by Kalli Willson, Committee Chair

Meeting scheduled next weekend with Mount Si High School horticulture and biology teacher Nick Kurka. Also the technology teacher would like to discuss working with the elk group to have students produce a video documentary of an elk collaring to be shared with the public on the local cable access channel.

Russell Link has requested that the elk group provide the wording for the educational objectives in the revised North Rainier Elk Herd Plan. We have been reviewing initial drafts of the plan.

There are also plans for field trips involving middle school teachers. The goal is to target a more appropriate age group.

3. No-Shooting Zone Discussion

Mr. Gildersleeve: King County has a no-shooting ordinance, where voters and residents can petition the council to establish or remove no-shooting zones. A public notice is circulated in the newspaper of record and a hearing is conducted about the matter before the council if there is no objection the zone is established or removed. There is an exception in the ordinance. For areas in unincorporated King County persons cannot shoot within 500 feet of a structure which can be occupied except with written permission of the owner. Granted this exception, any bullet must be contained within the property boundary. Terrain or elevated shots can be considered to meet these control requirements.

Ms. Jensen: There is no process to notify property owners when their property has become part of one of these zones. A map is provided on the Internet which is used to show the current boundaries. Awareness requires a proactive search by property owners.

Mr. Gildersleeve: Only ten partition signatures are required. A landowner can petition to exempt his property from the area. Some zones are open to shooting for the purpose of hunting during the hunting seasons; others are completely open during the hunting season. The local situation is that the elk herd has increased over the last ten years and there has been significant property damage as a result. In 2009, there were 35 known collisions with elk on I-90 and SR-202. It is roughly a figure four times higher than Department of Transportation (DOT) figures estimated. The high figure is of concern to them. The same year, Special Hunt Area 4601 was established with 42 cow permits. 25 cows were harvested last year, the same number of permits were authorized for 2010. So far, we know of four cow elk harvests. There are huge sanctuaries for elk in the valley, about 2000 acres where the elk are safe from hunting all the time. More land needs to be open to hunting while still maintaining the level of safety desired by many citizens.

Mr. Gildersleeve offered his opinion that controlled, limited hunting is needed in rural parks and natural areas. It is essential to hold the population stable while a major study is being conducted.

Ms. Jensen: We've been getting a lot of feedback lately about the current policies in the no-shooting zone code. Whether or not the policies are sort of what they should be and if there are any different ways we should be approaching that, I am going to take the comments that I've heard back to Kathy. Short term, you have the option to petition to either change ability to hunt during hunting seasons or to just remove any no-shooting zone from being a no-shooting zone at all and moving it back to an open shooting zone. Long term, we're looking at re-writing the code.

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4. Cougar Study, Brian Kertson, Idaho Fish and Game

Interest expressed in what impact predation has on elk in the valley. Five years involved in a cougar project in the North Bend area up in the Snoqualmie Forest to US-2 south to Maple Valley and the 490/485 Game Unit boundary. A lot of time was spent with cats in and around this area. Harold and others expressed interest in not just potential impacts, but also some general findings and research methodologies that I used. What I have is the bulk of my dissertation work. I'll try not to make it too jargon heavy.

Primarily I'll address:

- How much time they spend in residential areas.
- How they use the landscape and move through it.
- Some predation findings. Overall findings, predation near people, and in wildlife settings. How much predation actually occurs.
- Cougar and human interactions
- Management implementations relevant to elk.

Historically, the cougar is thought of as a wilderness/wildland species, an animal that needs large tracts of unbroken habitat largely devoid of human presence. Much of what we know has been crafted in that context from a wildland habitats relationship with prey. Ultimately, we're coming to find out that cougars can and do use areas with an extensive residential presence. Also, large urban centers have implications and consequences for cats and wildlife that extend well beyond city limits.

Within a broad and increasingly urban context, we have four primary management research objectives:

1. Broad ecological Objective. To examine cougar ecology behavior in this wildland/urban environment. How much time is spent in residential areas? What sort of behaviors are they engaging in? What are the interaction levels and patterns?
2. Human Interactions: Whether or not a specific segment of the population is more or less likely to use residential areas and interact with people. Based on a broad demographic standpoint such as male/female, young/old, and resident/transient.

Resident: Actively established a home range and defends it.

Transient: A floater in the population. Haven't actually established a home range but looking to set one up.

3. Space Use Model (probably of most interest to the elk group). Developing a predictive model of where cougars are going to be and how often. Make sure it is tied to their behavior. So it is interesting to compare whether or not wildland or biological variables are more important than anthropogenic factors like residential development and so forth. Also, to see how much variation there is between individuals in the population. Ultimately, how well does the model predict cougar/human interaction? Looking at how they use residential environments versus how they use wildland environments, are they doing different things in different parts of the landscapes or are they doing the same thing and don't care?
4. Predation. What are cats eating in this type of environment? How does it compare where there are people versus places where there are no people? Broad characterization of what types of ungulates the cougars are eating. Ultimately, these make up the bulk of the cougar's diet.

The study area is 3500 square kilometers (1370 square miles) with the Upper Snoqualmie Valley in the middle. It is the focus of our cougar captures. It doesn't mean that our cats stayed in the study area. They wandered quite far and wide. This is where we centered our activities and our research.

Much like a lot of cat studies, if you want to get the information you need to answer your questions, you spend a lot of time trying to capture animals. Captures conducted between 2003 and 2008. They were ramped up in 2005 and 2006 when we got additional financial support.

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The primary capture methodology was using trained dogs and a skilled houndsman that has dogs capable of hunting on dry ground or more likely rainy wet ground situations. We would drive roads, wind a cat that had passed through the area within ten hours, then it would be "off to the races." Another method we got good at doing: we captured a number of cougars in large steel traps baited with road kill or cougar killed deer or elk and in some cases beaver.

All cats captured were given a broad physical exam, weighed, measured, a DNA sample taken, blood sample for disease screen, and ear tagged. Ultimately, the cougars were outfitted with GPS collars, six with standard VHF collars when the project ran out of money for the more expensive GPS collars. Electronix GPS collars run about \$3300 each.

Monitoring: We engaged intensive monitoring because we wanted to see where they went and how often but we wanted to tie that to behavior. That's very important because ultimately we know not just the "where" and the "when" but "why," the behavioral component.

The GPS collars were programmed to attempt a satellite fix every four hours for 180 seconds. Ultimately, this is about maximizing the performance of the collar. It is a way to make sure you get as much battery life out of the collar as you can while still acquiring as much data as you can. More research is showing that the more satellite attempts that you have, the collar will have a more successful fix rate at smaller intervals like every half hour than like a six hour interval because the collar itself uses various algorithms to remember what the (satellite) constellation in the sky was (in the prior fix). Ultimately, I didn't want to go to recapture cats, the same cat every six month. So it balances out.

On the screen: GPS Data from a single female over a two year period in which we monitored here showing about 2400 locations in the Snoqualmie Forest.

VHF telemetry: All of this was done using a ground-based methodology, an attempt to locate one or two times per week. Usually, they were approached at a very close distance. Over 75% of locations were within 100 meters of the animal.

Spatial: A big part of this research is spatial, representing the need to characterize where animals are and how often.

Utilization Distribution: Quantifies an animal's relative use of space.

Looking at residential use, this is done using a GIS format. We had to delineate wildland/urban interfaces. This is where open space wildland habitat, areas that do not have residential development, run into areas that do have residential development. Here in the valley, those areas are very clearly defined. I overlaid that utilization distribution over that wildland/urban interface and measured how much time the animal spent in the wildland area versus the residential area for the population as a whole and the individual classes themselves.

We captured 32 adult or sub-adult cougars. These were monitored for a highly variable amount of time which generated variable data sets because some cats stay alone for a very long time and their collars do very well. Other cats were killed or died very quickly or their collars failed. Early on, we used Televilt collars, which are made in Sweden. I will not buy anything again made in Sweden. Vectronix collars are made in Germany, and like all things made in Germany, they tend to be made fairly well.

Use of residential areas by cougars is common. It is actually more uncommon that individuals did not use residential areas. 93% of 27 cats that generated enough data actually used residential areas, some more than others. About 17%* of their time was spent in residential developments. In terms of home range overlap with residential areas it is about 18%.

* Note that this figure for time spent in residential areas is really variable, a significant standard deviation applies which means that the actual amount of time cougars could be much higher or much lower, refinement of this figure is achieved using a larger sample set.

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Most of residential use is in exurban areas. Exurban is defined as extremely low density, about 25 homes per square kilometer (64 homes per square mile or homes on a minimum ten acre lots). Cougars also use areas where there are higher densities, primarily at the woodland/urban interface, and most of this on the fringe of home ranges. When these animals were in residential areas, they did everything cougars do in wildland areas. They engaged in a whole suite of natural behavior: hunting, resting, raising offspring, marking territory, etc. This is different than what has been observed in similar residential areas elsewhere on the continent where this has been analyzed, such as Arizona and California.

Why? Reflection of the landscape itself. Here in Western Washington, a lot of suitable habitat is interspersed in residential development. The vegetation is so thick, so dense, it is easy for cougars to get into relatively close proximity to development and not be disturbed by human activity; not detected by people.

When we look at the average use relative to the wildland/urban interface. Most of the use is concentrated close to the interface (boundary), within 2 kilometers. For the cats we studied, high use on the wildland side. Of individuals that never did use residential areas, they have home ranges far from residential developments; primarily females.

Actual demographics: Age is the big factor. Young cats are 2.5 times more likely to use residential areas than older cats. Whether male or female doesn't matter. Every male (in the study) uses residential areas, and has a huge home range area. For females, either they use it an awful lot or they use it very little. For those that do use residential areas, they spend a lot of time there. Considering the transients, there is a high variable between resident and transient cougars. A larger sample size is needed to validate any difference in use comparing resident cougars to transient cougars. The overall trend is that the young males and the young females are spending time in residential areas.

Utilization Distributions:

The primary method used for the utilization distribution model is known as "Resource Selection Function." This is similar to the method used to form elk model demonstrated by Andrew Duff to the elk group earlier this year. We looked space used in the home range and individuals that spent at least 1% of their time in residential areas. I built separate "roughs" for wildland areas and residential areas and compared how they did that. I put the models together on an individual basis. Estimated "roughs" for each individual then average to get the population. You can still look at how different individuals use the landscape.

We also looked at movement rates based on the GPS collars for a subset of cats that had relatively high fix rates with their collars to minimize the effect of missed locations:

- Effect of location: wildland versus residential
- Time of day: nocturnal (at night), crepuscular (twilight hours), diel (middle of the day)
- Interaction of location and time

These were examined to see how these factors impact movement rates.

Ideally, to build a model for cougar space use, you would have three variables, and only three:

1. Stalking and security cover
2. Prey availability
3. Proximity to other cougars on the landscape

These will tell you everything you need to know about where a cat is and why. These are logistically difficult or impractical to measure. Therefore, surrogate measures are needed. We looked for good predictors of prey availability and cover, and because this is a wildland/urban environment also capture the human element (distance to road and residential density).

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Analysis is based on one square kilometer scale (about 230 acres). It was found that four variables had a high correlation to cougar use:

- Early successional forests (young forests)
- Conifer forests
- Perimeter area ratio (increased landscape complexity)
- Areas with higher slope

Some variables demonstrated an inverse relationship (as these increase, predicted cougar use decreases):

- Distance variables
- Residential density
- Elevation
- Total forest

The multiple regression equation was mapped across the landscape using four quartiles predicting cougar use. High use, medium use, medium use, and low use. Low use was predicted for the Upper Snoqualmie Valley, and the Alpine Lakes Wilderness, the latter perhaps can be explained by high elevation, mostly rock, not forested and under 15 feet of snow for much of the year. Higher use was predicted for areas like the Cedar River Watershed. Applying the model to a broader region, generally the western slopes of the Cascade Range predict high use, and those drainages snaking up into the mountains.

Specific maps of generated by these models are available in Brian Kertson's dissertation from the University of Washington.

Standardized Coefficients; comparing values together: Of eleven covariants used in the model, only five were significant, and important predictors of cougar use. The other six you could do without. The significant covariants were: early successional forest, amount of conifer forest, residential density, distance to road, and elevation. Compared to each other, forest metrics and distance to road are not statistically distinct. The same can be said of residential density and elevation. So residential density and elevation were the most important parameters in the model.

Use by individual cougars was extremely variable. No two cougars in our study used landscape in exactly the same way. This is called interanimal variation and it accounted for more than 99% of the variation in our model.

Aside from education, cats are basically using wildland and residential portions of the landscape in exactly the same way. Also, supported by movement analysis, only time of day was a significant predictor of movement ratios. With cats moving at higher movement rates during the night.

People think of cougars as nocturnal. This is not the case. They move at lower rates during the day, but they are moving. They are very day-active. In the study, when cats move more than 500 meters per hour in a residential area, it was always at night.

Predation data. Two methods are used. One is intensive radio telemetry. Follow an animal around for a two to three week period, perhaps backtrack them in the snow, hopefully find a kill site. The other method, less pleasant, is to analyze their scat, see what's in it.

A "Cluster Site Investigation" method was used to locate a kill site. Data is downloaded from the collars every two to four weeks. The data points are analyzed to find clusters of data points. Cougars are always moving and might get short periods of rest. But if a cat is in the same place for more than eight hours, there's a good chance that there is a kill there and the cat is feeding, gorging, napping, grooming. Once they have their fill, they are on their way. Find one of those clusters then estimate the center of the cluster, program the coordinates into a GPS unit, then use that to find the location. Usually there is a kill and often within sight of the estimated coordinates. However, in two to four days, scavengers can remove much of the kill. DNA analysis of remains could not be used for lack of funding to cover the expense.

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Two thirds of the cougar's diet is ungulates, the majority of that is black-tailed deer. Elk is 9% of the diet, over 20% of the diet is beaver. There are 17 prey items identified in the study. In residential areas some of the deer and beaver are swapped for those animals living closer to people such as raccoons, coyotes, opossum, and domestic species (livestock and pets). Livestock and pets represent about 2% of cougar diet. Cougars are surviving near people but they are getting more calories for prey they find farther away.

Frequently there's this idea that predators only take the weak and the sick and that sort of thing, and that's not always the case. In particular, that's not necessarily the case for cougars. That's because they're a stalking predator. They kill their prey by approaching them unseen or undetected, and whether or not that animal is in really bad shape may or may not make a difference in their ability to be preyed on.

We investigated human interaction reports. We would visit homes, ask to search the property and look for signs of cougar activity. We would try to capture a cougar and look at demographics of individuals involved. In all, 73 reports were investigated, very few of these were confirmed as a cougar.

What made it a confirmed report? What is the criteria?

Actual physical evidence such as visual sighting, scat, tracks. We'd use a Karelian bear dog to confirm scent. We'd also accept multiple eyewitness accounts, but not from any one individual unless the cat had a distinguishing mark such as an ear tag.

Officer Chris Moszeter: The vast majority of reports are not cougars.

What are they confusing as cougars?

Mr. Moszeter: Coyotes

Regarding predation concerns, these are mainly goats, sheep, and llamas. Of 16 confirmed cases, 89% of these were attributed to poor animal husbandry. An example of this would be letting a goat wander around the forest on the slopes above the Tolt River just east of Lake Joy... in the middle of the night. It is uncommon for a cougar to hop a fence in the middle of the day and grab a sheep from the barn. It happens but the incidents are rare. Considering llamas, the staple of the puma's diet in Chile is the guanaco and vicuña, wild version of the llama. 75% of predation reports are within 2 kilometers of the wildland/urban interface. There are 1.6 incidents reported per 1000 radio days which is considered to be a relatively low rate.

We had 2300 independent observations within 500 meters of residential developments. They generated interaction reports less than 0.01% of the time or 1 interaction report for 10,000 independent observations (GPS collars, telemetry, so forth) where the cougar was in a residential area. It means that people didn't have any idea that these animals were very close to their residence. They (the cougars) are very good at not being detected.

Reviewing a map of showing the area south of I-90 between North Bend and Rattlesnake Lake: These greenbelts, corridors, and forest patches have wildland like habitat that cougars are using and are connected to larger habitats such as Rattlesnake Mountain and the Cedar River Watershed. The same areas also host ungulates. That's why cougars are using it.

Cougars have the largest geographic distribution of any terrestrial animal in the Western Hemisphere – Patagonia to Northern Yukon. They are a highly adaptable animal.

Increasing residential development was a significant negative predictor of cougar use, so they are limiting their exposure to people. Anthropogenic factors discussed earlier were important drivers of where cougars are on the landscape. Cats tend to exploit food sources available in their home range. Within a wildland/urban environment, cats are maximizing their predation opportunity and minimizing their exposure to people.

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What we didn't find was that cougars actually shifted their spacing pattern to take advantage of that attainable prey within the residential area. To get a cougar to change its behavior, a raccoon or coyote does not provide enough nutrition. Ungulates, that might be a different story. This is the tail end of the research. Prior to 2007, I didn't find elk kills by cats in the Snoqualmie Forest. In 2007 and 2008 they were starting to kill elk in the south end of the Snoqualmie Forest. How much that reflects population growth and spatial expansion of the population, we don't know. But an elk provides a lot of nutrition. If habitat conditions are right, it might be enough for cats to shift their patterns. Of course, cats don't have perfect knowledge of what's happening in the landscape.

Cougars in Western Washington employ an extremely efficient hunting strategy. Over 90% of the kills documented were within 100 meters of water: creeks, rivers, and wetlands. It can go into a wetlands area and hunt three things at once: elk, deer, and beaver, all optimum food sources.

What is the impact to elk in the valley? There is limited predation risk from cougars. The greatest risk is going to be just inside the wildland near the wildland/urban interface, the south end of the Snoqualmie Forest, and the riparian areas. Rattlesnake Mountain is also great cougar habitat.

Animals don't use the landscape randomly. In wildlife management and urban planning, we can make some landscapes less conducive to cougar user. The same thing could be done for elk. Some of the solutions to reduce interactions would be to cluster development. What that does is both minimize the amount of land that is impacted by development while the probability of use is exceptionally low. Ideally developments have hard edges. This means higher density developments as opposed to single residences on five or ten acre parcels.

The project was funded by the Washington Department of Fish and Wildlife and proudly affiliated with the Washington Cooperative Fish and Wildlife Unit at the University of Washington.

Questions:

How many cougars are there? There are about 2000 cats statewide, the figure is debated among biologists as there is no standard methodology used to measure populations.

How successful are the cougar hunts? Of 32 cats in the study, there were 20 documented mortalities. Of those, 20% were attributed to legal hunters. A number were killed by feline leukemia, many by cars and in particular SR-18, at least one was shot by a property owner.

Do hikers need to be armed? Just because you see a cougar doesn't mean it's about to attack. Generally, cougars are not interested in people. Keep eye contact with the cat, don't make any sudden movements. Pepper spray is a good deterrent, but mind the wind. In the several years of the study, there was more hazard from outbound logging trucks and paper wasps.

How big is a cougar's home range? About 200 square miles for males and about 65 square miles for females.

5. Treasurer's Report

No change since the October General Meeting.

Motion to approve the report by Jeff Dideon, seconded by Tom Kemp. The motion was passed with a unanimous vote.

6. Elk Research and Management Committee Report by Tom Kemp

No active trapping is taking place presently, the trap is tied open. There has been a crippled bull at Pat Young's property. The other trap is in need of repair. Volunteers are needed for the repair work.

Long term weather forecasts suggest the coming winter could be severe, bringing heavy snow. Starvation of the elk herd might be a possibility. There has been some discussion about making contingent plans to feed the elk hay if that happens.

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Mr. Gildersleeve noted that any such activity would need to be arranged through the Department of Fish and Wildlife. Ms. Willson asked if this was a public relations concern and why we would want to feed them; if it was an effort to shield people from the natural processes and give them a warm-and-fuzzy feeling. Mr. Gildersleeve noted that in an ice storm many years ago the elk abandoned the Meadowbrook farm for awhile, they eventually returned but in smaller numbers. The matter was tabled for further information gathering.

8. Fundraising Committee Report by Jim Gildersleeve, Committee Chair

No report.

9. People and Land Management (PLM) Committee Report by Jim Gildersleeve

Attending: Harold Erland, Roberta McFarland, Jim Gildersleeve, and Alan Mainwaring.

Alan Mainwaring: Request the elk group participate in forming a proposal to authorize a spring bear hunt at the CCC Flats location due to significant bear damage there. Bears are killing the trees by stripping bark. The DNR offers to provide permittees with access to the gates. Mr. Gildersleeve circulated an aerial photograph showing an area where the DNR has lost several thousand trees to bear damage.

Another matter was discussed regarding nighttime speed guidance on SR-202 across Meadowbrook farm. Mr. Erland noted that the cities regulate speed limits and are not willing to change the limits. However, Mr. Willson reiterated that this is not a speed limit, rather it is guidance like the ones posted on a curve sign and is not specifically related to the established speed limit. Such signs might cost \$50 to \$100 each and read "NIGHT 35."

David Kimmitt from King County parks had been investigating state law regarding firearm use in park areas for the hunting controversy at the Island Forest County Park on Vashon Island. It is a property conveyed to the county with the stipulation that it would remain open to hunting. Prior to closure, the county had been providing non-hunting park patrons orange vests to wear. There was some discussion about how similar arrangements might be made for rural park-managed properties in the Upper Snoqualmie Valley.

10. Reducing the number of General Meetings

Proposal to amend the bylaws was read. A member asked why fewer meetings was requested? The general meetings are generally business oriented. There are also limitations to the amount of time to prepare meetings. Committee meetings are not affected. The rule is just modified to have as few as six general meetings for year.

11. For the Good of the Order

Next meeting is 6:30 p.m., Wednesday, November 17 at the North Bend Ranger Station Conference Room

Meeting was adjourned at 9:05 p.m.
