THE HUMANE SOCIETY OF THE UNITED STATES

11 April 2006

ODFW Cougar Plan
3406 Cherry Ave. NE
Salem, OR 97303

RE: Comments on the 2006 Oregon Cougar Management Plan

To Whom It May Concern:

On behalf of The Humane Society of the United States (HSUS), and our more than 9 million members and constituents, over 120,000 of which reside in Oregon, we appreciate the opportunity to comment on the revised 2005 Cougar Management Plan proposed by the Oregon Department of Fish and Wildlife (ODFW). The following comments offered by The HSUS should be considered in addition, and as a supplement, to its prior comments, both verbal and written, and any additional future comments submitted pursuant to this Notice.

We applaud the ODFW for responding to the previously submitted comments and amending the proposed 2005 Cougar Management Plan. We recognize that the ODFW has made an effort to clarify and expound upon many of the questions and concerns raised about the 2005 cougar management draft plan. However, despite major format changes to chapter V, further clarification of the population model, and a smattering of additional qualifying and explanatory paragraphs throughout, the major oversights within the plan remain virtually unchanged. The methods for estimating cougar populations that are the cornerstone of this plan are inadequate and inaccurate, and reliance on any conclusions that are based on the faulty methodology are, at best, unreliable and unsubstantiated. The dearth of hard data on Oregon cougar and ungulate populations, as well as the complete lack of information on accurate and acceptable methods of population estimation that have been used successfully for mountain lions and other carnivores elsewhere, translates into a plan that remains inadequate and scientifically depauperate.

Cougar Population Estimates

The most recent draft went so far as to clarify the source of the 1961 Oregon cougar population estimate of 214 animals, but it did little to validate its accuracy. The model on which the 1961 estimate was based was derived from bounty hunting data from 1928 – 1961. All of the other population estimates and density assumptions after that point are based on biological data, non-hunting mortality, complaints, and research. Non-hunting mortality and complaints cannot be considered as two different factors.

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The majority of non-hunting mortalities is based on complaints and complaints cause non-hunting mortality so these two factors are essentially one in the same and still a completely imprecise measure of population density. Virtually all biological data are collected from animals that have been removed from the population via human- caused mortality. The research outlined in this plan is telemetry-based and is aimed at monitoring population densities, population parameters, and predation effects, not actual population numbers. Basically, all of the population estimates for the entire plan are solely based on data collected through the removal of individual animals. No other methods have been employed to collect any population data for the creation of this plan.

The problems associated with the “removal” method of population estimations have been recognized and discussed for at least the past 50 years. [i] Not only does this method require that at least 60% of a population of 1000 animals be removed in order to get an estimate that is accurate within 10% of the actual population number, it also requires a population reduction of at least 36% to be at all detectable under nearly uniform removal efforts. [i, ii] Additionally, this methodology requires that the removal period be as short as possible to insure a closed population. If the percentage or proportion of animals removed is too small or if the removal period is prolonged, the use of this method may result in gross over or under estimations in populations, or, in some cases, total model failure. [iii]

Another population assessment issue that is not discussed but will definitely skew any population estimate is the extrapolation of population density data from a small area to a much larger area.[iv] The new plan turns this issue inside out and upside down. First, it extrapolates both spatially and temporally from a statewide population estimate probably taken from a very small area of the state that was the cougar’s last refuge under intense hunting pressure. This 1961 approximation is then inflated to a statewide 1994 estimate. This estimate is then subdivided into zones whose density parameters were not based on any recorded data sets.

Although the most recent draft repeatedly states that female cougars are extraordinarily fecund and they may produce anywhere from one to six kittens with an average of two to three per litter, it provides no information on kitten survivorship. This is vital information since known mortalities produced by non-hunting removals will virtually never include young kittens. Furthermore, the 2005 draft plan states that “…a large proportion of adult females in some populations could be reproductively sterile.” This assertion is absent from the most recent plan, as is the fact that female cougars tend to produce the largest litters during their first reproductive year and that this number tapers off in later years.[v] Both kitten survivorship and decreased female fecundity with age are two key factors that were not considered in the creation and implementation of the cornerstone population model.

Predator – Prey Interactions

The intimate relationship between mountain lion populations and their prey species is not satisfactorily investigated. The most glaring omission is that of the well-known relationship of predator and prey population cycles. Commonly referred to as the Lotka - Volterra model of predator prey interactions, this model, developed independently by two mathematicians, has been reflected in numerous long term data sets. This model predicts the reciprocal oscillations of predator and prey species as well as a time lag in the predators' response to reduced prey populations.[vi, vii] There is actually an unpublished, long-term (1930 – 2000) data set of mountain lion and mule deer harvests superimposed on one another that illustrates the population oscillations of these species. [viii] Although the causes of these cycles are not solely due to the relationships between predator and prey (prey food availability and weather cycles also have an effect), the fact that there are definite, natural cycles in predator and prey populations is completely omitted from this plan. [ix]

Furthermore, the effects of mountain lion predation on their ungulate prey's populations can be beneficial. There are numerous historical records of ungulate populations outstripping their resources and subsequently crashing in the absence of predation. Research has revealed that mountain lions can actually reduce the intensity of these population fluctuations by preventing a prey species from reproducing beyond its biological carrying capacity.[x] The 2006 draft offers no hard data to bolster their claims of mountain lion populations having a possible negative impact on mule deer or elk populations in any zone. Any recorded reductions in elk or mule deer populations may also be attributed to increased hunting pressure, intense forest management practices, human population growth, and / or climatic effects in the zones under examination.

The claim that mountain lions have a negative impact on translocated and reintroduced bighorn sheep populations is misleading. Big horn sheep have undergone massive population reductions in the past century primarily due to human activities including habitat degradation and disease transmittal by livestock and complete habitat transformation through human recreation, fire suppression, home construction, and canal digging. Generally, big horn sheep do not adjust well to any form of human disturbance. [xi] Bighorn sheep evolved in the presence of mountain lion predation, but not in the presence of human civilization. Additionally, in cases where mountain lions have been implicated in the reduction of translocated bighorn sheep numbers, the proximity of alternate prey items in the form of domestic livestock has been suggested as the key to the mountain lions' continued survival in areas of low prey availability. [xii] Without the presence of livestock, cougars would move out of bighorn sheep areas due to insufficient prey numbers and the related risk of starvation.

Alternate Methods of Population Estimation

In order to create a feasible cougar management plan, ODFW must have an accurate, statistically sound means of estimating cougar populations. As discussed above, removal methods are not considered to be accurate due to their insensitivity to population fluctuations and their high levels of inaccuracy unless over 50% of a population is removed. Therefore, we suggest alternative methods of population evaluation that are commonly used and accepted.

The utility of molecular techniques cannot be understated. DNA analysis of mountain lion fecal samples has been used in the past, and individual genotypes are clearly distinguishable using standard techniques. [xiii] Researchers who use fecal DNA genotyping on coyotes recommend this technique as an invaluable tool for the continuous monitoring of population dynamics, provided that is coupled with an appropriately designed population model. [xiv]

Another type of non-lethal molecular technique that has been successfully used in the monitoring of other carnivore populations is the use of hair samples. This technique has been employed extensively in the study of grizzly bears, and such samples can be passively and cheaply ($2 per bear hair snare) collected using modified snare traps. [xv] Another non-lethal population estimation technique is the identification of individuals by pug-mark (track) analysis. [xvi]

One of the most widespread means of estimating populations and densities is through the use of radiotelemetry and its related demographic data. It is striking that the current management plan neglects to mention a thorough and scientifically sound cougar population estimate study recently conducted in the Pacific Northwest. This is the master's thesis of Catherine Marie Sarah Lambert of Washington State University.[xvii] This thesis is currently in press at the *Journal of Wildlife Management* and represents one the best effort to date to systematically measure cougar population demographics and utilize these data to construct a population model.

Lambert used demographic data collected from tracked individuals and their kittens to create a model to estimate annual stochastic population growth with a 95% confidence interval. She found that the vast majority (92%) of all cougar mortality at her study site (encompassing parts of British Columbia, Washington, and Idaho) was due to hunting. She also found that only 75% of all females were reproductively successful and that kitten and yearling survivorship were lower then previously estimated (57% for kittens and 34% for yearlings). The population model (based upon these data) revealed that, contrary to popular theory, cougar populations at her Pacific Northwest study site were declining. Furthermore, the model predicted that, at the current rate of decline, the cougar population at the site would undergo demographic collapse in approximately 8.5 years and total extirpation in 25.9 years.

Similar data is currently being collected from the animals involved in both the Catherine Creek and Jackson Creek studies outlined in the plan. Yet, the ODFW has made no efforts to use these data to create a more accurate and verifiable population model.

Conclusions

Overall, the most recent draft of the Oregon cougar management plan fails to address many of the faults previously exposed in the 2005 draft. The deficiencies of the cougar population estimates, the lack of data on ungulate populations, and the complete absence of alternative, non-lethal population evaluation methods translate into a weak and ineffective plan that only serves to further the interests of a small group of eager sport hunters. Before any management action involving the subject cougars is taken, the plan must be completely revised to include scientifically feasible methodologies and robust data sets that are properly analyzed. . Failure to do so will mean that any action taken against the cougars will not be based on sound scientific principles and analysis, will be arbitrary and capricious, and will not be in accordance with law.

Once again, thank you for the opportunity to comment on this important proposal. I can be reached at the contact information below regarding this matter.

Sincerely,

Lauren E. Nolfo – Clements, PhD
Wildlife Scientist
Wildlife and Habitat Protection
The Humane Society of the United States
2100 L Street NW
Washington DC 20037
301-258-3147
fax: 301-258-3080

Endnotes

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