Prepared August, 2024

Revised 2nd DRAFT

Opinion of the El Dorado County Fish and Wildlife Commission on Human/ Cougar Conflict in El Dorado County

CONCLUSIONS AND RECOMMENDATIONS

1. Cougar/Human conflict has dramatically escalated in El Dorado County since 2023. The change is NOT due to chance. Furthermore, the conflict is escalating and increasingly dangerous.

2. The 2020 changes in California Department of Fish and Wildlife policy on cougar depredation permits to non-lethal hazing is not supported by the scientific literature as an effective response to cougar depredation.

3. The 2020 changes in California Department of Fish and Wildlife policy on cougar depredation permits to require two kills on the same parcel prior to issuing a permit reduces the effective control of a depredation permit program.

4. El Dorado County is excellent habitat for cougars and shares the settlement patterns and landscape characteristics that set the stage for human/cougar conflict, which is a problem to continuously manage not to ever "solve". El Dorado County shares this characteristic with many other rural counties. We recommend that El Dorado County reach out to other rural counties where cougar conflict potential is high to inquire about their experience with human/cougar conflict and combine with those counties in a united voice to seek changes at the state level in cougar depredation policy for their regions.

5. El Dorado County has a problem with people feeding wild deer populations, potentially changing the distribution and abundance of deer to bring them closer to residential populations of humans and livestock. This potentially increases the risk of conflict with the apex predator on that deer population. Deer feeding should be recognized as a conflict risk factor and aggressively discouraged by the county.

BACKGROUND

Maintaining a healthy and viable cougar population is important because cougars are an apex predator that have a profound influence on ecosystem function through top down influences on deer populations however cougars can sometimes present a risk to human safety and livestock. Effective science based management of this risk is in the interest of both humans and cougars.

- The State of Washington Fish and Wildlife Commission conducted a formal and rigorous review of the scientific literature on human/cougar conflict in 2022[1], examining how the scientific literature could answer 8 questions about the human/cougar conflict. The EDC Fish and Wildlife Commission recently reviewed this work. The review by Washington State found equivocal and conflicting findings on five of the questions: Do cougar removals effect conflict, do growing cougar populations increase conflict, does the abundance of natural prey effect conflict, does increasing human population increase conflict, does new technology and human wariness increase sightings of lions, and does competition with other large carnivores affect conflict.

- The Washington State review found spatial ecology to be the best understood facet of cougar conflict. Notably conflict is enhanced in exurban or rural residential settings because these habitats provide both abundant native prey and stalking cover or they retain enough native landcover, connectivity and prey to support cougar use but with a human presence at a level that does not deter cougars. This perfectly describes much of El Dorado County and indeed all Sierran foothill counties. Current state policy on depredation seems more in tune with protecting urban lions that live in isolated natural lands surrounded by urban development than the high conflict rural landscape of El Dorado County and other rural counties.

- Kertson and Keren (2021)[2] yielded 2 key takeaways relevant to Question of cougar abundance: 1) a growing cougar population does not necessarily translate into a greater number of interactions because the increased growth rate manifested primarily as subadults with a propensity to emigrate outside of the residential/wildland interface study area to the larger wildland matrix rather than recruiting to the study population and, 2) the effects of cougar population size or trajectory are likely mediated or mitigated by other ecological and anthropogenic factors (e.g., the distribution and abundance of people and prey). However, we legitimately wonder if the carrying capacity for mountain lions is being supplemented with hobby livestock, or if deer are being concentrated through supplemental feeding by the public, or if migratory deer declines at higher elevations occur, then perhaps conditions for a larger denser population with smaller cougar territories occurs in the rural foothills? Unfortunately these are not questions which have been adequately researched.

- Alldredge et al. (2019) found important logistical considerations for hazing of cougars. Specifically, they concluded aversive conditioning needs to be proactive not reactive to be effective and occur before rewards are gained by an individual cougar to be most effective on that animal. Current policy permits hazing only after livestock are killed or if human safety seems threatened. Historically it was permissible to tree mountain lions with hounds without actual taking of lions. This may have historically contributed to conditioning lions to fear humans. Other research found flashing lights to be an effective hazing technique to deter cougar predation of Alpacas. We conclude that the

current reactive non-lethal hazing policy of poorly thought out hazing efforts is not well supported by science.

- Much of the weakness in human/cougar conflict research arises from the inherent difficulties of working with a dispersed and secretive apex predator with complex social organization, and being able to make statistically robust conclusions requires working across large areas for long periods of times. This is labor-intensive, expensive, logistically difficult, and frequently prevents the use of replicate study areas. Manipulating a cougar population for either intentional decline or growth is often controversial despite that it may provide valuable experimental controls and strengthen scientific inference; thus, not infrequently, researchers must employ less powerful observational methods. Consequently, many of the studies are done using post hoc data that was collected for other purposes and conclusions are often not robust. Consequently, there are many unanswered research questions about human/cougar conflict and how to manage it and we lack basic data on cougar population size, distribution and structure at the county level.

- How many cougars are there? A recently completed 7 year study not yet published and peer reviewed has produced three population estimates of the number of cougars in California with three different methods. The count was conducted by state and university scientists who used GPS collar data and genetic information from scat samples to model population densities. One estimate suggests there are 4,511 cougars and the other two estimates suggest the number is roughly 3,200. Most California cougars were found to live either in the coastal forests of Humboldt and Mendocino counties or in the Sierra Nevada.

- In El Dorado County the most accurate, statistically significant and policy relevant data we may have on cougars of any kind, is that pulled together by the County Agriculture Commissioner, LeeAnne Mila and presented to the County Board of Supervisors on July 16 2024. The data presented by Commissioner Mila shows that the average number of confirmed domestic animals killed by cougars between 2010 and 2022 was 35.5 with a standard deviation of 7.9. In 2023 there were 97 domestic animals killed by cougars and in the first six months of 2024 there were 98. Double that for a full year and you have a projected kill of 196 domestic animals in 2024. Also, quite tragically, we had one human fatality and one human mauling by a cougar in March of 2024. The average number of domestic animals killed per year in 2023/24 is 146.5 if you double the first half of 2024. Generally statistical significance is achieved when differences between two group averages exceeds two standard deviations. Statistical significance means the differences between two groups are not due to chance alone. The 23/24 mean of domestic animals killed per year is 14 standard deviations greater than the 2010-2022 average. We can confidently say something has changed with human/cougar conflict in El Dorado County in the last two years and this change is both dangerous and NOT due to chance.

- What has changed that might explain the increase in conflict? In 2020 the California Department of Fish and Wildlife initiated an aggressive statewide program with an expansion of conflict biology positions. These were term positions due to hiring restrictions by law. Simultaneously they changed the policy on cougar/human conflict to emphasize non-lethal hazing as a response to depredation by cougars. Additionally depredation permits, for hazing, could only be issued after two kills on the same parcel rather than neighborhood. Due to a crisis in the state budget and the fact that most conflict biologists were two year term employees the department's conflict biology program nearly went away in 2023, just as conflict began to rise.

Bibliography

1. Human-Cougar Interactions Science Review Team. 2022. Human-Cougar Interactions: A Literature Review Related to Common Management Questions. Washington Department of Fish and Wildlife, Olympia, Washington, USA. 78 pp.

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3. Alldredge, M.W., F. E. Buderman, and K. A. Blecha. 2019. Human–Cougar interactions in the wildland–urban interface of Colorado's front range. Ecology and Evolution 9: 10415- 10431.