



Midpeninsula Regional Open Space District

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May 9, 2018

County of San Mateo Planning & Building Department
Attn: Agricultural Advisory Committee
455 County Center, 2nd Floor
Redwood City, CA 94063

RE: Livestock Depredation by Mountain Lions in San Mateo County

Dear Chairman Marsh and Committee Members:

The Midpeninsula Regional Open Space District (Midpen) recognizes that depredation of livestock is an ongoing issue in the Santa Cruz Mountains and has taken proactive steps towards addressing the difficult challenge of protecting agricultural interests while maintaining habitat for wildlife, including carnivores. Midpen is currently working to create and adopt a Carnivore and Livestock Protection Policy that will address issues of depredation of livestock in conservation grazing areas on Open Space Preserves. In addition, we have collaborated with organizations like the California Department of Fish and Wildlife (CDFW), The Santa Cruz Puma Project, Pathways for Wildlife, and Felidae Conservation Fund to facilitate monitoring efforts and obtain the best available scientific data regarding mountain lions in the region. We are firmly committed to developing a policy that is grounded in science and that can provide economically viable and sustainable solutions for the District's agricultural partners. We also recognize that we are in a unique position to fill essential gaps in knowledge with respect to preventative measures that may be able to reduce wildlife and human conflict.

Midpen has reviewed the draft letter regarding mountain lion (*Puma concolor*) depredation in San Mateo County that the Agricultural Advisory Committee (AAC) is considering on May 14, 2018. While reviewing this draft letter, we identified a number of points that we would like to provide commentary on for the committee's consideration.

The letter begins with the statement of "In regard to the increased presence of Mountain Lions within the County's Planned Agricultural District..." The District is currently collaborating on research efforts to estimate the population of mountain lions in the region with the California Department of Fish and Wildlife (CDFW), however, currently no estimates exist of the current or historic populations of mountain lions within the Santa Cruz Mountains region. Furthermore, it is unclear what time period is

being referred to in this assertion. The research conducted by CDFW (conservation canine scat surveys) last year should be yielding results within the next 6 months that will result in a statistically relevant estimate of the lion population in the Santa Cruz Mountains. Only after the study is repeated, will there be enough data to begin to make accurate statements regarding trends in the regional mountain lion population.

Paragraph two states that mountain lions are considered not to have existed in San Mateo County “throughout most of the last 100 years”. No data source is provided to back this claim. Historic references to mountain lions in San Mateo County, and nearby Santa Cruz and Santa Clara Counties, are readily available. We have included excerpts from, and attachments of, a few such historic records below;

- Attachment 1 is a photo of a historic record of a mountain lions skull that was found in Gazos Creek, San Mateo County, in the Spring of 1939.
- Attachment 2 is a letter from W.B. Lawrence granting permission to hunt mountain lions at Crystal Springs in 1913.
- Historic accounts from the U.S. Forest Service records from La Honda dated to 1879 when “...Charles Sears, brother of La Honda Founder John Sears, shot a mountain lion that was 7 feet in length while the lion was eating a young calf.” (Dougherty, 2007).
- Spanish soldiers reported seeing “...Many tracks of elk, deer, coyote, mountain lion, grizzly bear...” in the late 1700’s in what is now known as San Lorenzo Village in Northern Santa Cruz County (Marciel, 2006).
- Mountain lion remains have been documented in Ohlone grave sites in South San Jose “...In addition to the wolves, parts of the following animals were found in the graves of particular individuals: squirrel, deer, mountain lion...”. These cemeteries have been dated to 3000 and 1500 years before present (Field, & Leventhal, 2003).

The lion depredation permit numbers that are referenced in the second paragraph of the AAC letter are accurate and do corroborate an increase in issuance of depredation permits in San Mateo County. However, the calculation supporting “**Officially documented incidents of mountain lion predation now exceeds 50 times that of pre-2012 levels**” is unclear. We offer the following calculation, using the dataset provided on the CDFW website, titled 2001-2017 Mountain Lion Depredation Summary (which presumably is where the AAC is getting its data). Using this data, we calculate an annual rate of depredation permits, issued over the six year period from 2012 to 2017, of 5.7 per year. In the previous six-year period, from 2006 to 2011, the rate was 0.17 depredation permits issued per year. Comparing these rates, we find that the increase is 33 times that of the previous time period of equal length.

While we understand that the focus of the AAC request is San Mateo County, we also feel that it is worthwhile to compare the number of depredation permits issued within San Mateo County to the total number of depredation permits issued at all counties across the state from 2001 to 2017. This comparison shows that those issued in San Mateo County only make up 1.1% of the total (36/3191).

Similarly sized counties like Napa and Calaveras Counties make up 3.1% and 6.6% respectively (Napa 100/3191, Calaveras 210/3191).

Hiring Wildlife Services to provide services through their Integrated Wildlife Damage Management Program would need to be carefully evaluated and implemented to intended goals prescribed by the AAC. Similar programs have been implemented in other counties with mixed results. Mendocino County had a similar contract with Wildlife Services in the past. They were sued in 2014 for not producing an Environmental Impact Report (EIR), under the California Environmental Quality Act, in support of their contract with Wildlife Services. Mendocino canceled their lethal predator control program in 2016 in order to settle the lawsuit. Furthermore, literature suggests that heavy take of mountain lions may actually increase livestock depredations by increasing young male immigration and social disruption of lion populations (Peebles et al., 2013)

Prevention of depredation of livestock through non-lethal means may be more socially acceptable, and more effective. Marin County, who also previously worked with Wildlife Services, began a Livestock Protection Program in 2001 that uses non-lethal control methods, cost share funding, and reimbursement for verified livestock depredation for ranchers participating in the program. We believe that these types of programs should be explored in conjunction with evaluating contracting with Wildlife Services.

Midpen appreciates the opportunity to review the letter and proposal of the AAC and looks forward to continuing to work with you as we progress in developing our Carnivore and Livestock Protection Policy. As stated previously, we are firmly committed to developing a policy that is grounded in science and to sharing that science with the community to assist in developing economically viable and sustainable solutions.

Sincerely,



Kirk Lenington

Natural Resources Manager

Attachments

cc: Board of Directors
Ana Ruiz, Acting General Manager
Brian Malone, Acting Assistant General Manager
Elaina Cuzick, Acting Land and Facilities Manager

Sources Cited

Dougherty, B., 2007. *La Honda*. Arcadia Publishing.

Field, L.W. and Leventhal, A., 2003. "What Must It Have Been Like!": Critical Considerations of Precontact Ohlone Cosmology as Interpreted through Central California Ethnohistory. *Wicazo Sa Review*, 18(2), pp.95-126.

Marciel, D., 2006. *Images of America, San Lorenzo*. Arcadia Publishing

Peebles, K.A., Wielgus, R.B., Maletzke, B.T. and Swanson, M.E., 2013. Effects of remedial sport hunting on cougar complaints and livestock depredations. *PLoS One*, 8(11), p.e79713.

No. 7823 Subject MV2 #4919 ♀ California Mountain lion (*Felis concolor californica*) Skull

Date Spring 1939 Locality San Mateo Co, Calif. (Phot. MV2.) Photograph

Publ. Jour. Dent. Res., Vol. 19, No. 2, 1940.

E. R. Hall.



7823

EXECUTIVE DEPARTMENT
SPRING VALLEY WATER COMPANY
375 SUTTER STREET

WATER DIVISION

FILE

Wickham Havens

SUB.

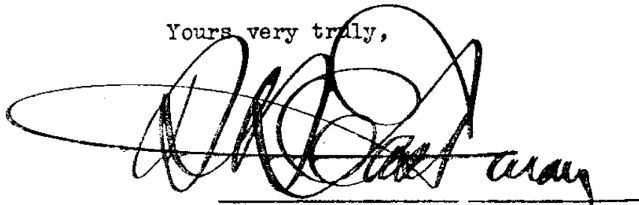
SAN FRANCISCO, CAL. May 28, 1913.

W. B. Lawrence, Esq.,
Supt., Water Division,
Millbrae.

Dear Sir:-

With reference to hunting mountain lions on the Crystal Springs property: I have no objection if Mr. Keys with Wickham Havens, hunt for them providing it is thoroughly understood that they kill no other birds or animals, except varminths. It will be an accomplishment to the benefit of the community and ourselves if we can get rid of these pests.

Yours very truly,



W. B. Lawrence

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SANTA BARBARA • SANTA CRUZ

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May 10, 2018

Dear San Mateo County Agricultural Advisory Committee,

Thank you for the opportunity to comment on your recent letter about mountain lion/livestock conflict in San Mateo. I hope that my comments are helpful in steering you to the right decision about the problems you are encountering with mountain lions. I am a wildlife ecologist and professor of environmental studies at UC Santa Cruz. My lab and I have been studying mountain lions in the Santa Cruz Mountains since 2008. During that time we have tracked 95 animals with GPS and/or VHF radio collars, primarily in Santa Cruz and Santa Clara counties (but we have tracked 7-10 animals extensively in San Mateo County as well). This has allowed us to better understand their movement patterns, prey habits and ultimate causes of mortality. Also, for the past 3 years, we have deployed a network of about 100 trail cameras over a roughly 1700 km² portion of the Santa Cruz Mountains in an effort to calculate the population of mountain lions using a statistical procedure called mark-recapture which is a standard way of counting wildlife. Preliminary analysis of our camera data suggests a population of about 3-4 mountain lions per 100 km².

While we only began our attempts to systematically estimate the mountain lion population in 2013, nothing in our extensive data suggests that the population of mountain lions has changed appreciably since 2008. When we began our study, all mountain lion territories appeared to be filled, and various metrics that might vary with population size such as territory size appear to be the same now as they were then. One major change I have noticed, however, is the widespread deployment of digital trail cameras by everyone from homeowners to researchers. When we began our study, these cameras were just beginning to make their way into the hunting and research communities. Now they are ubiquitous and used by all. This increase in cameras paired with posting of mountain lion photos by neighbors on social media, has created a perception that mountain lions have greatly increased in abundance. Surely there are many more lions since Ronald Reagan imposed a state-wide moratorium on hunting them in 1973, but we see no evidence of an increase in population since 2008 when our study began.

As for mountain lion diet, after visiting 1000's of potential mountain lions kill sites, we can report with high certainty what they like to eat. They derive upwards of 95% of their calories from deer, and the rest largely from raccoons, domestic cats, and an occasional possum. That said, they will kill goats opportunistically, but they usually pay dearly when they do. The largest source of mortality in adult pumas in the Santa Cruz Mountains is due to legal depredations for killing

people's goats. We have seen very little killing of cows or calves by mountain lions, though our primary study area has less ranch land than does San Mateo County.

Given this background on our study and knowledge of mountain lions, I have a number of comments and questions about the letter from the Agricultural Advisory Committee:

The letter reports an increase in depredation permits from 2 in the 11 years prior to 2012 to 10 per year over the last three years. If these data are correct, it suggests a number of possibilities. First - there could be a larger population of mountain lions in San Mateo County now than there were prior to 2012. Given our research, this is highly unlikely as the population of mountain lions throughout the entire Santa Cruz Mountains does not appear to have changed much since at least 2008. Second - this could be due to one or two problem animals that developed a taste for livestock. The letter does not report whether any mountain lions were lethally removed, only that permits were issued. It would be interesting to know how many mountain lions were actually killed, if any. Third - one or more landowners may have changed something about their operations. If this is the case, I would bet it has something to do with goats (or possibly sheep). In almost all of the cases I am familiar with where landowners had conflict with mountain lions - it has had to do with goats. That is not to say that they aren't capable of killing other types of livestock, but it would be helpful to know how many of the depredation permits were issued for goats vs cattle. If it was mostly to do with goats, then there are tried and true strategies for minimizing conflict with mountain lions, most having to do with penning goats at night in mountain lion proof enclosures (with a roof).

The letter states that over the last 12-16 months, 40 mountain lions have been depredated. This is simply not possible. Not only would it suggest widespread violation of the law (it is illegal to kill a mountain lion without a depredation permit from CDFW), but a violation of the laws of biology itself. With perhaps only 50-60 mountain lions in the entire Santa Cruz Mountain, it would be impossible to kill 40 animals in San Mateo alone. We have seen no evidence of such killing recently, nor have we encountered much illegal take of mountain lions in the Santa Cruz Mountains over the course of our 10-year study.

The letter discusses the possibility of preemptive depredation of mountain lions. This is not allowed under state law.

The letter discusses the possibility of entering into a contract with Wildlife Services to help control mountain lions at a cost of \$150,000 per year. This might include services unrelated to mountain lions, which I don't know much about. With respect to mountain lions, however, this would only cover depredation assistance to the landowner after a depredation permit has been issued. In our experience, many landowners are able to successfully depredate mountain lions on their own, but for others who are unsuccessful they might certainly appreciate the service. But for even 10 permits a year, the cost would be \$15k per mountain lion which seems quite high to me. In addition, the letter claims that landowners are taking mountain lions without going through the legal channels already established. As it stands, residents can get a depredation permit after they have caught a mountain lion killing or injuring their livestock or companion animals. If residents are not willing to use the legal channels already provided, paying for a Wildlife Services contract that people may not avail themselves of could be a waste of limited resources.

The letter discusses reducing mountain lion populations. This is not possible under CA law which limits take of mountain lions to depredation conflict. Mountain lions are naturally limited by the availability of prey, primarily deer.

The letter suggests a safety risk to children by having so many mountain lions. This is highly exaggerated. Since 1986 there have only been 14 attacks by mountain lions on people in all of California, only 3 of which were fatal. That is less than 1 attack per year in a state of nearly 40 million people and over 70,000 square miles of mountain lion habitat. As I often like to point out, many more people impale themselves on their toothbrushes and die per year (about 10) than are attacked by mountain lions.

The letter implies that deer herds as well as populations of bobcats, raccoons, skunks, coyotes, badgers and ground nesting birds have all been devastated by mountain lions. There is no evidence of this. Deer numbers have never been counted in the Santa Cruz. Anecdotally, I have talked with many community groups throughout the Santa Cruz Mountains over the past 10 years. Many complain of having too many deer, while others complain that the deer are all gone. This is the nature of black tailed deer populations. They cycle up and down and can vary dramatically in number from one place to another. But we simply don't know what is happening with deer in the Santa Cruz Mountains because they are so difficult to count given our rugged terrain. Throughout the west, there is concern about declining deer herds, but there is not yet a scientific consensus on what is driving it. In places where there has been robust research on the subject, deer appear to be more limited by food availability and habitat loss than by predators. A recent study out of Idaho for instance, compared deer populations in two adjacent habitats, one in which they killed every coyote and mountain lion they could, and the other in which they did nothing. The growth of the deer population in both places was identical. Finally, we see little evidence of mountain lions eating bobcats, coyotes, badgers or ground nesting birds in the Santa Cruz Mountains. They do compete with coyotes, which can have complex environmental implications for how these various species use habitat on a local scale, however there is little evidence that mountain lions have anything to do with overall changes in these populations.

The letter suggests adopting a compensation program for ranchers that have lost livestock to mountain lions. This is potentially a good idea because it would minimize the disruption to the rancher's business and would be cost effective relative to a contract with Wildlife Services. These kinds of programs have been tried elsewhere with some success. I am not familiar with the intimate details of these programs, but I suggest contacting Defenders of Wildlife in Montana, as they ran such a program for many years post wolf reintroduction in Idaho and Yellowstone. Building a program like this could help making ranching in carnivore country more sustainable, while also creating partnerships between stakeholders with a wide variety of viewpoints. These kinds of collaborative projects can help shed light on what various groups need and want, build trust and understanding, and ultimately bring the community closer together.

Potentially even more helpful than compensating livestock producers for losses could be to help provide support for implementing depredation prevention strategies. It is often more effective and less expensive to prevent conflict than it is to deal with the fallout afterwards. One avenue for securing help on conflict prevention would be to have a local University of California Cooperative Extension Advisor or Specialist dedicated to the subject. This is an extremely timely conversation, as UC Cooperative Extension is currently considering whether a San Mateo County-based human-wildlife conflict position would be worth funding. It could be a very fruitful time to lobby for such a position.

I hope these comments help in coming to a decision on what to do with respect to mountain lion / livestock conflict in San Mateo county. Though the letter from the Advisory Committee contains a number of misstatements of fact that I have tried to address, I do think that the ultimate contention of the letter – i.e. that livestock owners are feeling financial pressure from

loss of animals to predators – is real and important to address. I think that some kind of compensation program, carefully considered, as well a UC Cooperative Extension position dedicated to human-wildlife conflict are promising potential next steps.

Sincerely,

A handwritten signature in black ink, appearing to read 'Chris Wilmers', with a stylized flourish at the end.

Christopher Wilmers
Professor