



LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

February 12, 2015

Michael Sutton
President of the Commission
California Fish and Game Commission

Subject: Banning the trapping of bobcat and Predator Management Reform in California.

Dear Mr. Sutton:

I write as an expert on the ecology and biology of large mammals (particularly large predators) and as co-founder and Principal of Live Oak Associates, Inc., (LOA), an ecological consulting firm based in California. During the last 35 years, I have conducted a number of studies on cougars and have participated in numerous public policy debates as a carnivore expert in several western states. I am experienced and versed in management options and conservation strategies for a variety of carnivores, including coyotes, bobcat, cougar, black bear and the federal and state listed San Joaquin kit fox. Most recently I have been using statistically robust spatial tools as a framework for predicting the effects that large perturbations or modifications of landscapes (e.g., several thousand to tens of thousands of acres) have on the suitable habitats and regional landscape connectivity for a suite of carnivore species.

I really think any discussion regarding predator control programs or killing of predators for sport or commercial venture needs to be framed within the ecological context of “need”. The famous and brilliant population ecologist Graeme Caughley once noted that the term overabundance is not an ecological term, but really a human expression embedded within a values framework. A sheep rancher will likely have a very different perspective (values) regarding the abundance of coyotes in and around his/her ranch than a resource ecologist would have that is in charge of maintaining ecosystem function within a large preserve or National Park. The evidence (or science of population dynamics) is not what is really in question, but instead the values of the individual that is considering the presence, distribution and abundance of the predator. Collecting more empirical evidence on the population dynamics of the coyote is not likely to satisfy rancher. The mere presence of coyote (regardless of its abundance) and the potential or real loss of sheep is all that matters in the rancher’s world.

Thus, in this case, it really boils down to a very simple question, is there a management need to trap or kill bobcats for recreational or commercial ventures in California? While sport hunting or killing of predators is often touted as a management tool, it rarely is; in essence we manage for the sport hunt, not by it. CDFW has what I believe an enlightened view on this matter, as they have noted in the past for example, that sport hunting of black bears is for recreational purposes only and the sport hunt does not in fact function in any measureable way to reduce human-bear conflicts.

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We kill medium and large carnivores through sport take and control efforts (e.g., wildlife services) *not* because hunting has been shown to be an important management tool, but because it is tradition. To argue that hunting is needed for population management is an overly simplistic argument about natural systems - one that is in conflict with both predation theory and evidence.

Wildlife managers typically manage single species of wild animals to establish sustainable yield and a condition of stasis (that is, stability) -- a goal that is neither achievable nor desirable. This concept -- treating wild animals as a harvestable crop -- is inconsistent with modern understanding of population conservation and ecosystem integrity concepts. This is why over the last decade, conservation biologists have tended to shun the North American Conservation Model (the sport hunting paradigm) for predators, in favor of implementing broad conservation measures that preserve and manage functionally intact, interconnected ecosystems (Nelson et al. 2011). Conservation strategies can have as explicit goals the preservation of predators within a functioning ecosystem while simultaneously reducing conflicts with humans. Many conflicts, particularly conflicts with black bears have more to do with human behavior than changes in bear populations (e.g., poor storing of trash, feeding of wildlife, feeding pets outside, bee hives operators not using electric fences to protect hives, etc.). Predator populations are usually limited by the availability of food resources and the spatial extent and connectedness of the landscape (Roemer et al. 2008); that is, their growth rates are determined by the availability of land and food. Given suitable land, as the extent and distribution of food resources decline so do their growth rates.

The notion that predator populations will grow unabated without human intervention (mortality through sport hunting or culling) is simply unfounded and lacks evidentiary support. In 1972 a blue-ribbon panel of experts produced a report on the state of predator control in North America (Cain et al. 1972). This report assailed the industry of predator control, and pointed out the faulty reasoning behind most (if not all) predator control operations, the lack of science supporting the industry and the failure to actually solve or reduce predator conflicts with humans. They concluded:

Our recommendations would change the present federal-state cooperative program drastically by concentrating on animals which cause damage, specifically by using non-chemical methods of control which would curtail the attrition against non-target species of ecological and social value. This remarkable program continues unabated in the face of criticism, largely on a basis of unvalidated assumptions (Cain et al. 1972).

This finding notwithstanding, the traditional predator control approaches championed by the those that mistakenly believe predators “must be controlled” and advocated by many wildlife agencies, including MIFW, still fail to heed this sage advice offered – actually, demanded – by these expert scientists. The traditional approach that relies on management of predators by prophylactic control measures or sport hunting is inconsistent with predation theory or the scientific literature.

Many game agencies and wildlife services engage in management schemes that were assailed by the Cain Report (and more recent analyses) as too costly and ineffective. Furthermore, the attitudes expressed by these agencies fail to recognize that predation is an important and critical ecological process, without which, many systems become unstable. Berger (2006) reported that the massive and expensive control programs (about \$1.6 billion in real dollars

from 1939 to 1998) aimed at reducing predator populations in and around domestic sheep herds have had little effect on the declining trends in the sheep industry. In fact, Berger found that the decline of the sheep industry was more closely associated with unfavorable market conditions rather than predator losses.

Intact predator populations serve an important role in maintaining full ecosystem function. For example, researchers in Southern California and elsewhere have found that coyotes serve an important function of maintaining the natural bird diversity (Crooks and Soule 1999). Their research demonstrated that coyotes were effective in reducing predation on native populations of birds by small carnivores thereby resulting in a healthier ecosystem (as defined by higher natural biodiversity). In turn, research in Yellowstone on the reintroduction of the wolf has found that restoring wolves has increased the growth rates of pronghorn populations, since wolves suppress their major predator, the coyote (Berger et al. 2001, Berger et al. 2008).

Taylor (1984) provides clarity in how wildlife management agencies tend to oversimplify the ramifications of predation theory. He argues that the wildlife profession largely relies on relatively short-term predator control studies and that while short-term predator removal may change the stability of the prey population, the average equilibrium density remains relatively unchanged. As of 1985, he was unmoved that the literature provided any evidence that predator removal studies demonstrated any long-term benefit.

A similar conclusion was reached a number of years later by the National Research Council (NRC 1997) for the on-going Alaska predator control and sport hunting effort where they reported “...there is no factual basis for the assumption that a period of intensive control for a few years can result in long-term changes in ungulate population densities.”

One of the consistent conclusions of the scientific literature over the last forty years is that efforts to lower carnivore populations to increase ungulate populations or reduce conflicts is not supported by the evidence (Taylor 1984, NRC 1999, Cougar Management Guidelines Working Group 2005). Hurley et al. (2011) provides another recent example as they unequivocally and succinctly conclude:

In conclusion, benefits of predator removal appear to be marginal and short term in southeastern Idaho and likely will not appreciably change long-term dynamics of mule deer populations in the intermountain west.

Their findings were based on an experimental control study that removed a significant number of coyote and cougar between 1997-2003 from large areas in Southeastern Idaho.

A good example of how sport hunting is an ineffective tool to reduce conflict with predators is found with black bears. Garshelis and Noyce (2008) argue that diversity in food resources is an important contributor to stability in bear populations. They caution that poor food years can increase sightings and conflict with bears, giving people the *perception* that bear numbers have increased, when in fact growth rates may have declined. In addition, some nuisance bears (e.g., breaking into cars or homes) are not as vulnerable to hunting as non-nuisance bears – thereby minimizing the effectiveness of hunting in reducing conflicts.

Conflicts with bears are more likely influenced by poor food years and the availability of human foods in or near human habitation. Thus, it is again an unsupported assertion that sport hunting will likely reduce conflicts with bears or as MIFW argues that the need to increase the

sport kill of bears is critical to maintain conflicts as low levels – an assertion in search of evidence.

California: a living laboratory

Francis Bacon, the father of modern science noted over 300 years ago, “...that the quilt of the senses is either two sorts, it destitutes us or deceives us.” In other words, our ability to understand natural systems is a constant struggle as we are confronted with biases and perceptions that color our ability to make robust inferences regarding the natural world.

A great example that highlights the failure of perception and bias as the foundation of analysis can be found in California with the cougar. Reliance on evidence dispels the notion that sport hunting is a critical management tool for predators as I will so aptly demonstrate using the cougar in California. Cougars have not been hunted in California since 1971 and California supports the largest amount of high quality cougar habitat in the North America and the greatest number of humans. About 110 to 120 cougars are killed annually in California mostly due to depredation on livestock or pets – a fraction of the kill total for most other smaller Western States (sport take in several of these states exceed 400 to 500 annually). If the assertions that sport hunting were an important “tool” one would assume that California would have substantially greater human-cougar conflict when compared with other western states that support aggressive sport hunt programs. Yet when normalized for the size of the cougar and human population in each state and western Canadian provinces, California does not rank 1st, but actually ranks 11th. In other words, the risk of an attack by a cougar is greater in ten other Canadian provinces and western states with aggressive sport hunting programs, and fewer humans and cougars.

Additionally, California supports about five million cattle and nearly a million sheep (more than all of western states except Texas), and yet the absolute number of depredation incidences places it about in the middle. If we consider depredation rate, California would rank near the bottom, as it does with attacks on humans. This completely contradicts the argument that sport hunting or predator control is a valuable and necessary management tool. This extensive analysis of attack statistics across North America has caused me to conclude that the intensity of sport-hunting cougars is not at all correlated with a concomitant change in the risk to humans or livestock. Nor has the lack of sport hunting resulting in a constantly increasing cougar population. In fact, by all measures the population of cougars has changed relatively little over the last 20 or so years. If anything, the population continues to loose habitat and its populations are becoming increasingly fragmented, as has been so aptly demonstrated in Southern California and the San Francisco Bay Area.

An interesting piece of research from Northeastern Washington has found that increased killing of cougars, while it has resulted in a short-term decline in the cougar population, also resulted in increasing conflicts with humans, as younger male cougars, which become more prevalent in hunted populations, are more prone to prey on livestock than older male and female cougars (Lambert et al. 2006, Robinson et al. 2008).

Conclusion on the importance and need of killing predators to “manage” them

While sport-hunting or trapping of predators is often touted as a management tool, it simply has not shown to be. In essence we manage for the sport hunt, not by it. Black bear or cougar hunting programs across North America, indiscriminate killing or aggressive control programs

for coyotes and other predators do not provide effective means to reduce conflicts between these predators and human interest.

It appears to me, that many state and federal game managers expend considerable energy ignoring the best available science that clearly demonstrates efforts to “manage” predators by broad lethal efforts fails. We have failed to heed the sound evidence- based recommendations of the scientific literature, as was part of the Cain Report and have not shifted our focus away from costly and ineffective programs aimed at killing predators to meet some ill defined objective. Traditionally across North America, policymakers find themselves unwilling to move from severely failed management schemes to more cost-effective and ecologically relevant ones. I believe California is better poised to integrate ecologically sound management of predators and move away from programs like trapping of bobcats that is not supported by the residents of California, nor by the majority of conservation scientists.

Thank you for the opportunity of addressing the Fish and Game Commission.

Sincerely,

A handwritten signature in black ink, appearing to be 'A. Hopkins', followed by a horizontal line.

Rick A. Hopkins, Ph.D.,
Principal and Senior Conservation Biologist

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