Attachment A
November 22, 2021 Letter to Commission

THE HUMANE SOCIETY OF THE UNITED STATES

November 22, 2021

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Samantha Murray, Vice President
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California Fish and Game Commission
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Re: Urgent request to review black bear (*Ursus americanus*) hunting in California, draft an updated black bear management plan, and conduct a population study to avoid jeopardizing California's black bears

Dear President Silva and Commissioners:

In light of the historic wildfires over the past several years (including the loss of more than a record three million acres from wildfires in 2021 alone[1]), and data recently released by the California Department of Wildlife (DFW), we are deeply concerned about the state of black bears in California.

In late October 2021, DFW posted its black bear "take" reports for the years 2017, 2018, 2019 and 2020. From the 2020 report, we are alarmed to see the agency suggest that the black bear population is 15,934 (±6,163) rather than the estimated population of 30,000 – 40,000 that DFW has suggested for years.[2] DFW now believes that *the California bear population could be as low as 9,771 individuals*, which would indicate a 67% decline in the number of bears from the previously reported lowest population range of 30,000 bears. A nearly 70% decrease in California's black bear population should spur the Commission to take urgent action to protect California's black bears from all harms, including an update to the 1998 black bear management plan.

A. California's climate crisis is acute and harms black bears

In 2021, California experienced record-level fires. According to CalFire, more than three million acres burned,[3] and in some areas, even soils experienced severe burn.[4] Because of erratic weather events from the climate crisis, including late season frosts or droughts, natural foods are increasingly unavailable to bears. For instance, in a Colorado bear study, the female cohort of the population declined by 57% because of human-caused mortalities from vehicle collisions, hunting and predator control, which coincided with widespread unavailability of natural foods. This would not have been detected by wildlife managers without the rigorous population monitoring study in place.[5] California has no such equivalent in population monitoring as we discuss below.

Climate change has resulted in a warmer climate, which causes bears to spend less time in their dens.[6] Because of all these factors, black bear biologists warn that wildlife managers must limit recreational black bear killing to reduce total mortality, and especially during years of poor natural food production, which is readily predicted by weather events.[7]

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B. Bears are slow to reproduce and thus are susceptible to overkill

Black bear biologists suggest that the total annual human-caused mortality that a black bear population can sustain is only between 4% and 10% of the population; more than that is simply super-additive mortality.[8] In other words, when there is additive mortality, the population will decline in number, and sometimes that decline is unsustainable because of black bear biology. For example, female bears rarely migrate—they prefer to live near their natal areas, and this compounds the harms to their populations from hunting, chronic wildfires and other sources of mortality that affect their populations.[9] The loss of females reduces a bear population's ability to bounce back as they are the key to sustaining the population.[10]

Human persecution of bears, such as through hunting and or predator control, causes "super-additive" mortality, meaning that kill rates exceed mortalities that would occur naturally.[11] This is because hunters like to target adult breeding animals,[12] which disrupts animals' social structure and leads to indirect effects, particularly increased infanticide resulting in decreased recruitment of young.[13]

Compared to other mammals, bears are slow to reproduce. Generally, females are not considered to be adults until they are 3 to 6 years old—and in the arid West, that timeframe is generally older at 4 to 5 years—but females are capable of breeding until age 21.[14] Fecundity varies with age.[15] Females generally give birth to litters of cubs only every 2-3 years. Cub survival in one Colorado study was about 55%.[16] Cubs die from many factors including vehicle collisions, predation or starvation.[17] The intervals are dictated by both bear biology and weather and climate. Bears will keep their cubs to 15-24 months (or longer if they are underweight). But if there are droughts or frosts, bears' foods can be unavailable to them—which both reduces reproduction potential and increases the intervals between litters of cubs and cub survival itself.[18] Thus, bears reproduce slowly,[19] and are highly susceptible to overkill[20]—including by hunters and predator-control agents.

Large-bodied carnivores such as black bears are sparsely populated across vast areas, invest in few offspring, provide extended parental care to their young and reproduce slowly. Bears are capable of self-regulation[21] and are regulated by habitat and climatic conditions. Considering these biological factors, they rely on social stability to maintain resiliency.[22]

Without social stability, bears experience sexually selected infanticide; that is, when a resident, adult male is removed, subadult males vie for his home range and mates. These newcomers kill the adult male's offspring in order to spur females back into breeding so the newcomers can pass on their genetic materials.[23] Gosselin et al. (2015) state: "In species with sexually selected infanticide ("SSI"), hunting may decrease juvenile survival by increasing male turnover." This study and others show that hunting mortality can harm social organization of species, because it promotes male turnover and thus increases sexually selected infanticide upon cubs of deceased males.[24]

Welfelt et al. (2019) in their study of Washington bears found bear densities range widely by region, and that managers had over-estimated the population of bears in western Washington—including cubs—by 50 percent.[25] The implications for California are particularly salient, given that black bear habitat in California is also widely varied by region, and black bears are a forest obligate.[26] Density estimates from studies conducted in optimal quality habitats where animals are abundant can only be extrapolated cautiously to larger areas with similar habitats and landscape characteristics.[27] DFW has failed to accommodate differences in vegetation, land use and topography to avoid overestimating bears, and particularly females.[28]

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In sum, around the world and in California, large carnivores face extinction from human factors,[29] thus it is incumbent upon the Commission to conserve California's black bears now, so they are not extirpated like grizzly bears had been. Expanded human development into bear habitats during the climate crisis (including wildfires) exacerbates bear mortalities; thus, the Commission should act to curb black bear mortalities and especially by hunting.[30]

C. DFW's black bear census does not rely upon best available science

Garshelis and Hristienko (2006) caution that many state wildlife managers fail to adequately investigate population sizes and trends, but rather rely on guesswork to estimate bear numbers.[31] Population trends must be determined using reliable methodologies; however, sightings, depredation events and kill levels are not reliable means to indexing a population.[32] In contravention to these principles for enumerating bears, the DFW's 2020 take report provides:

> To produce a population estimate for a given year, the Department uses an age-at-harvest model reliant on the age and sex of bears harvested that year. In 2013, the use of hounds in the sport take of bears was prohibited, which violated a key assumption in that model regarding consistent hunter effort. Annual bear harvests have been relatively lower since this ban . . . resulting in correspondingly lower population estimates . . . . The average population growth rate in the years following the ban (1.00 in 2013-2020) remains steady and on par with the average population growth rate in years before the ban (1.03 in 1993-2012) . . . . The Department estimates approximately 15,934 (±6,163: 95% CI) bears inhabited the black bear hunt area prior to the start of the 2020 bear hunting season . . .

In short, DFW admits is uses dead, hunted bears to estimate the number of live bears in California. This is not empirical science, according to many large-carnivore biologists.[33] And ignores the many benefits bears confer on their forest ecosystems[34] and their intrinsic worth.[35]

What we do know is: the numbers of black bears killed annually is in decline while the number of bear hunters themselves were a record 30,388 in 2020. See: Figures 1, 2 and 3. In the absence of empirical population data, the Commission must act to prevent the overkill of California's bear populations.

Also, the average number of bears hunted in California from 1998 to 2012 was 1,777 bears, and for the years 2013 to 2020, the average was 1,258 bears. On average, 519 bears *were not* killed by hunters each year since 2013 – making DFW's model particularly doubtful – because less bears were killed by hunters and yet the population is likely in decline.

What we do know is: the numbers of black bears killed annually is in decline while the number of bear hunters themselves has increased with a record 30,388 in 2020. See: Figures 1, 2 and 3. In the absence of empirical population data, the Commission must act to prevent the overkill and jeopardy of California's bear populations.

DFW's bear population analyses have no basis in sound science because they are not based on traditional population enumeration methods, but rather on a discredited method of using the numbers of dead, hunted bears to guess at the number of live bears. Yet, the agency had claimed between 30,000 to 40,000 bears in California on its website, then in its 2020 Annual Bear Take Report precipitously dropped that population figure

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to 15,934 (±6,163) – a population range between 9,771 to 22,097 individuals – even as the numbers of bears killed by hunters has simultaneously declined in California. Figs. 1, 2 and 3.

Figure 1. Black bears hunted in California, 2001-2020

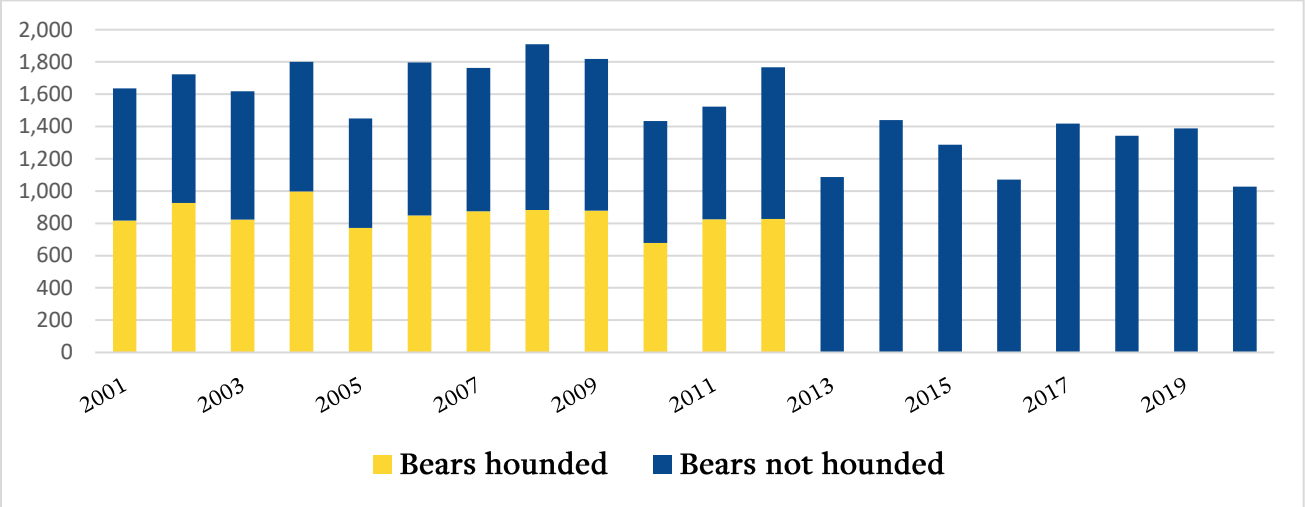
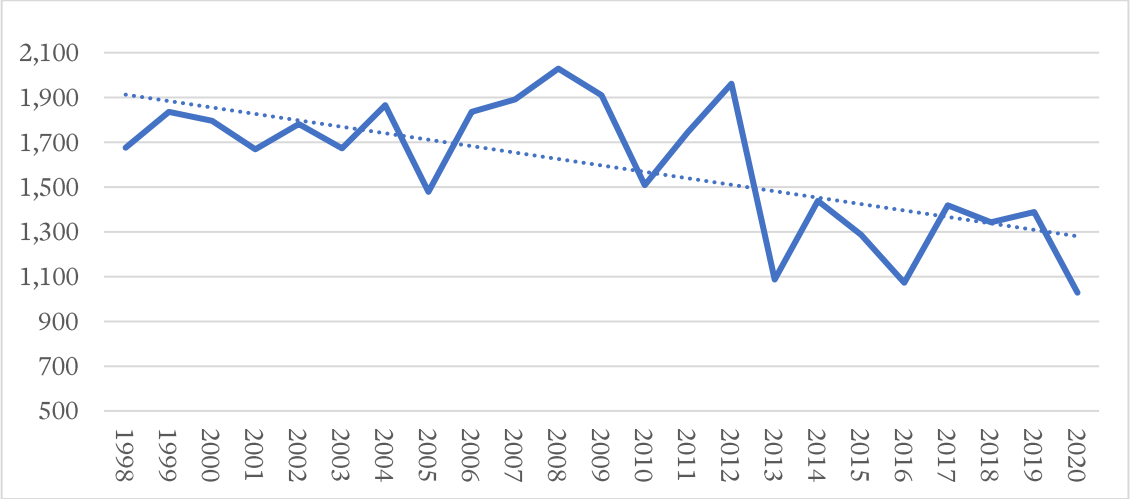


Figure 2. Trend of black bears killed by hunters in California



A. DFW's bear hunter data show that bear hunters are increasing while bears killed are decreasing

In the absence of bear population studies, the only data relied upon by DFW are the numbers of dead bears per year in California. While a record number of hunters turned out in 2020, 30,387 bear hunters, they killed an all-time low number of bears, 1,028, compared to most other years since 1998. Figs. 1 and 2.

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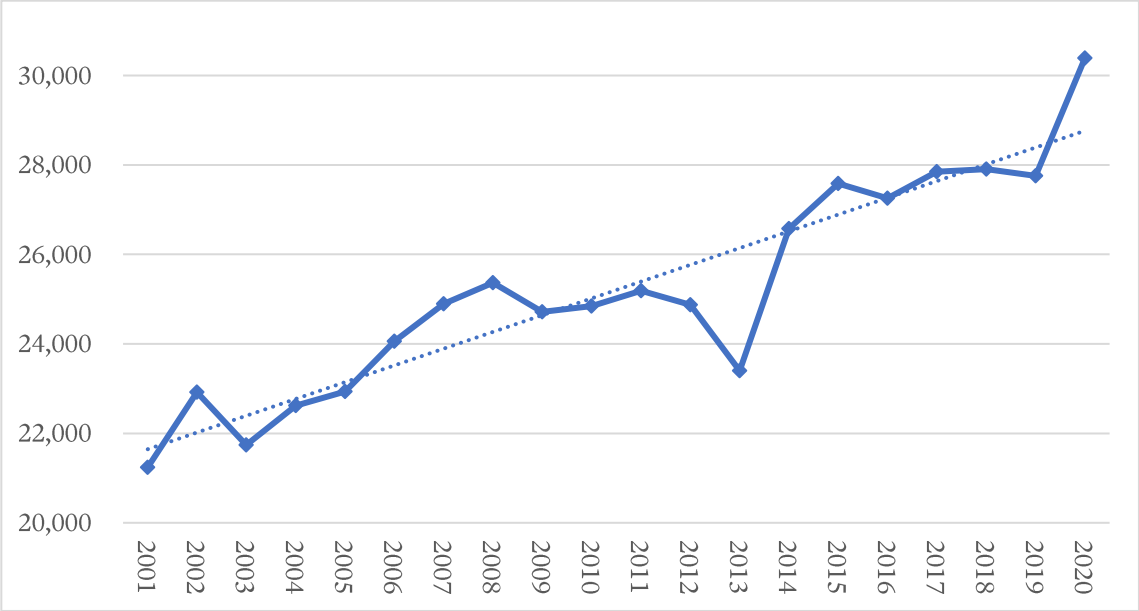
Figure 3. Trend of black bear hunters in California



DFW's data also show that since 2013 when hounding was banned, most California bear hunters are opportunistic deer hunters, 58%. Since 2013, only ~43% of bear hunters are dedicated to the activity. The DFW classifies 2% of bear hunters as "other."

Bear poaching is a major issue of concern in California. The 1998 black bear management plan, citing Sitton (1982), suggests that in some areas of California, poaching numbers equal that of legal killing.[36] The DFW's bear reports are silent as to the extent of poaching in California, so the public and the Commission are in the dark on this grievous issue. Again, the best available science indicates that bear populations can only withstand offtake in an amount under ten percent annually.[37]

B. Black bear hunting is unpopular amongst California residents

Bear hunting is highly unpopular with Californians. A 2020 Remington Research poll of likely 2022 California voters found[38]:

- A supermajority, 70%, do not want California black bears killed for sport. This includes majorities of residents in the top two bear hunting counties from 2020 – Shasta County and Trinity County – who oppose the hunting of bears for sport.
- A supermajority, 71%, agree that wildlife officials should place a priority of non-lethal methods to reduce conflicts between bears and people (e.g., public education, trash management or frightening devices used by game officers) rather than killing bears
- A majority, 62%, would support legislation to stop the hunting of black bears

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Figure 4. DFW's black bear hunt data

Year	DFW's bear population estimate	Bear-hunter mortality	% Female bears	# Bear tags sold	% Deer & bear hunters	% Bear Hunters only	% Other hunters	Hunter success rate (%)
2008	37,150	2,029	37	25,631	34	44	8	7.9
2009	31,432 (± 7,991)	1,910	40	24,805	34	56	10	ND
2010	31,432 (± 7,991)	1,508	40	24,859	37	56	8	ND
2011	26,390 (±6,889)	1,745	42	21,581	28	56	16	8
2012	34,002 (±5,561)	1,962	38	24,872	32	67	2	7.9
2013	34,385 (±6,443)	1,087	37	23,397	53	47	1	4.6
2014	35,101 (±6,444)	1,439	42	26,576	51	49	0	5.4
2015	35,484 (±6,444)	1,287	40	27,578	57	39	5	4.7
2016	35,867 (±6,444)	1,072	40	27,253	69	41	2	3.9
2017	23,397 (±7,176)	1,418	40	27,864	63	50	1	5.1
2018	20,801 (±6,269)	1,342	37	27,885	61	39	0	4.8
2019	21,529 (±6,231)	1,389	40	27,755	59	35	6	5
2020	15,934 (±6,163)	1,028	38	30,387	54	45	2	3

Conclusion

The harms from the recent wildfires on California's bear population are currently unknown, as are the effects of hunting and poaching on California's bear population, and the reason behind such a dramatic decline in the estimated population. Therefore, we respectfully request that the 2022 bear hunt be suspended by the Commission until an empirical population study can be conducted, the effects of the wildfires on California's bear population adequately studied, and the bear management plan updated to include the best available science, including social science.

Sincerely,

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