



March 30, 2022

Mr. Chuck Bonham, Director
 California Department of Fish and Game
 715 P Street
 Sacramento, CA 95814

**Re: Petition #2021-027 – Black Bear Hunting
 CDFW Review and Recommendation**

Dear Director Bonham,

As you are aware, at their February 17, 2022 meeting, the California Fish and Game Commission (Commission) referred Petition #2021-027 to the California Department of Fish and Wildlife (CDFW) for review and recommendation. Because Petition #2021-027 calls for a closure of California’s black bear

hunting season until CDFW has studied our black bear populations, the impacts of drought and wildfire on those populations, and has updated the Black Bear Management Plan, the outcome of this review is of great concern to undersigned wildlife conservation organizations.

To substantiate Petition #2021-027, the petitioners and their partner organizations claim there is a dearth of scientific research on black bears in California. Conversely, the undersigned wildlife conservation organizations hold firm that the best available data is robust and resolute in documenting California's current bear populations to be at historic levels. In support of this opinion, and in response to the many unsubstantiated and misleading claims expressed in the petition, we have compiled the following extensive, though not comprehensive, inventory of scientific research on black bears in California.

We urge CDFW to strongly consider the following when preparing a recommendation for action on Petition #2021-027, which the Department is scheduled to provide to the Commission at their April 2022 meeting:

Research on California Black Bears

Active Black Bear Studies in California:

1. Big Game Tooth Cementum Analysis
 - a. Organization: Matson's Laboratory
 - b. Year: 2019 – 2023
 - c. Purpose: To process tooth samples for age estimation. Data is incorporated into Age-at-harvest analyses for black bears
 - d. Budget: \$132,000 – (Note: analysis for more than black bear species)
2. Habitat Use, Home Range, and Denning of Black Bears in the Eastern Sierra
 - a. Organization: CDFW – Region 6
 - b. 2013 – 2023
 - c. Purpose: To evaluate survival, the seasonal home range, habitat use, and denning locations of wild black bears. Approximately 55 bears GPS-collared so far.
 - d. Budget: Unknown
3. Black Bear Encephalitis
 - a. Organization: CDFW – Wildlife Health Lab, Nevada Department of Wildlife, UC Davis
 - b. Year: 2019 – ongoing
 - c. Purpose: Determine the cause and effects of encephalitis cases on black bears.
 - d. Budget: Unknown

Prior Black Bear Projects in California:

1. Population Genetic Monitoring of Black Bears
 - a. Organization: University of Wyoming
 - b. Years: 2019 – 2021
 - c. Purpose: Population genetic monitoring of black bears in Los Angeles, and San Bernardino counties
 - d. Budget: \$547,020
2. Habitat Use, Home Range, and Denning of Black Bears in the Lake Tahoe Basin
 - a. Organization: CDFW – Region 1
 - b. Year: 2011 – 2014
 - c. Purpose: To evaluate the seasonal home range and habitat use by urban averted, urban control, and wild black bears, and to determine whether aversive conditioning is an effective tool in altering urban bear behavior.
 - d. Budget: \$178,000
3. Assessing the Efficacy of Camera Surveys for Monitoring Mule Deer and Black Bears
 - a. Organization: CDFW – Region 1
 - b. Year: 2012 – 2013
 - c. To augment efforts of the State Wildlife Grant funded Ecoregion Biodiversity Monitoring Project to monitor mule deer and black bear occupancy and demography trends at the Deer Assessment Unit scale through the use of baited camera stations.
 - d. Budget: \$52,000
4. Rush Fire Habitat Restoration Project in Lassen County
 - a. Organization: Bureau of Land Management – Eagle Lake Field Office
 - b. Year: 2013 – 2014
 - c. Purpose: To stabilize and rehabilitate big game habitats and water sources important to big game species on lands burned by 315,577 acre Rush Fire
 - d. Budget: \$322,660
5. Anticoagulant Rodenticide Monitoring in Game Animals
 - a. Organization: CDFW – Wildlife Health Lab
 - b. Year: 2013 – 2014
 - c. To determine the amounts of anticoagulant rodenticide residues in the edible muscle tissues of mule deer, black bear, and wild pigs.
 - d. Budget: \$60,750
6. Statewide Survey, Maintenance, and Reconstruction of Wildlife Water Sources
 - a. Organization: California Deer Association
 - b. Year: 2016 – 2017
 - c. Purpose: To survey, maintain, and repair wildlife water sources.
 - d. Budget: \$150,000
7. Fecal DNA Genotyping Service

- a. Organization: University of California Davis
 - b. Year: 2016-2018 and 2018 - 2020
 - c. Purpose: Genotyping of fecal DNA used for estimating abundance of mule deer, elk, and black bear
 - d. Budget: \$500,000; 2018 – 2020 \$1,000,000
8. Technical Support for monitoring of bighorn sheep, mule deer, black bear, and pronghorn
- a. Organization: Utah State University
 - b. Year: 2016 – 2019
 - c. Purpose: Technical support for population monitoring.
 - d. Budget: \$302,602

California Black Bear Literature

Peer-Reviewed Scientific Literature Covering California Black Bears

(Note: This list is not comprehensive)

Alex, C. E., E. Fahsbender, E. Altan, R. Bildfell, P. Wolff, L. Jin, W. Black, K. Jackson, L. Woods, B. Munk, T. Tse, E. Delwart, and P. A. Pesavento. 2020. Viruses in unexplained encephalitis cases in American black bears (*Ursus americanus*). *PLOS ONE* 15:e0244056.

Brown, S. K., J. M. Hull, D. R. Updike, S. R. Fain, and H. B. Ernest. 2009. Black bear population genetics in California: signatures of population structure, competitive release, and historical translocation. *Journal of Mammalogy* 90:1066–1074.

Elbroch, L. M., P. E. Lendrum, M. L. Allen, and H. U. Wittmer. 2015. Nowhere to hide: pumas, black bears, and competition refuges. *Behavioral Ecology* 26:247–254.

Furnas, B. J., B. R. Goldstein, and P. J. Figura. 2022. Intermediate fire severity diversity promotes richness of forest carnivores in California. *Diversity and Distributions* 28:493–505.

Fusaro, J. L., M. M. Conner, M. R. Conover, T. J. Taylor, and M. W. Kenyon. 2017a. Best management practices in counting urban black bears. *Human-Wildlife Interactions* 11:64–77.

Fusaro, J. L., M. M. Conner, M. R. Conover, T. J. Taylor, M. W. Kenyon, J. R. Sherman, and H. B. Ernest. 2017b. Comparing urban and wildland bear densities with a DNA-based capture-mark-recapture approach. *Human-Wildlife Interactions* 11:50–53.

Gore, M. L., B. A. Knuth, P. D. Curtis, and J. E. Shanahan. 2006. Education programs for reducing American black bear-human conflict: indicators of success? *Ursus* 17:75–80.

Greenleaf, S. S., S. M. Matthews, R. G. Wright, J. J. Beecham, and H. M. Leithead. 2009. Food habits of American black bears as a metric for direct management of human–bear conflict in Yosemite Valley, Yosemite National Park, California. *Ursus* 20:94–101.

Hopkins III, J. B., P. L. Koch, C. C. Schwartz, J. M. Ferguson, S. S. Greenleaf, and S. T. Kalinowski. 2012. Stable isotopes to detect food-conditioned bears and to evaluate human-bear management. *The Journal of Wildlife Management* 76:703–713.

Kellyhouse, D.G. (1980). Habitat utilization by black bears in Northern California. - *Bears: Their Biology and Management* 4: 221 - 227

Lovich, J. E., D. Delaney, J. Briggs, M. Agha, M. Austin, and J. Reese. 2014. Black bears (*Ursus americanus*) as a novel potential predator of Agassiz's desert tortoises (*Gopherus agassizii*) at a California wind energy facility. *Bulletin, Southern California Academy of Sciences* 113:34–41.

Lyons, A. J. 2005. Activity patterns of urban American black bears in the San Gabriel Mountains of southern California. *Ursus* 16:255–262.

Madison, J. S. 2008. Yosemite National Park: the continuous evolution of human-black bear conflict management. *Human-Wildlife Conflicts* 2:160–167.

Magstadt, S., D. Gwenzi, and B. Madurapperuma. 2021. Can a Remote Sensing Approach with Hyperspectral Data Provide Early Detection and Mapping of Spatial Patterns of Black Bear Bark Stripping in Coast Redwoods? *Forests* 12:378.

Matthews, S. M., R. T. Golightly, and J. M. Higley. 2008. Mark-resight density estimation for American black bears in Hoopa, California. *Ursus* 19:13–21.

Mazur, R., A. P. Klimley, and K. Folger. 2013. Implications of the variable availability of seasonal foods on the home ranges of black bears, *Ursus americanus*, in the Sierra Nevada of California. *Animal Biotelemetry* 1:1–9.

Mazur, R. L., R. M. Leahy, C. J. Lee-Roney, and K. E. Patrick. 2018. Using Global Positioning System Technology to Manage Human-Black Bear Incidents at Yosemite National Park. *Human–Wildlife Interactions* 12:8.

Mazur, R. L. 2010. Does Aversive Conditioning Reduce Human–Black Bear Conflict? *Journal of Wildlife Management* 74:48–54.

Mazur, R., and V. Seher. 2008. Socially learned foraging behaviour in wild black bears, *Ursus americanus*. *Animal Behaviour* 75:1503–1508.

Munk, B. A., J. C. Turner, and M. K. Keel. 2013. Mediastinal teratoma in a free-ranging American black bear (*Ursus americanus*). *Journal of Zoo and Wildlife Medicine* 44:1120–1122.

Spencer, R. D., R. A. Beausoleil, and D. A. Martorello. 2007. How agencies respond to human-black bear conflicts: a survey of wildlife agencies in North America. *Ursus* 18:217–229.

Stephenson, N., J. M. Higley, J. L. Sajecki, B. B. Chomel, R. N. Brown, and J. E. Foley. 2015. Demographic characteristics and infectious diseases of a population of American black bears in Humboldt County, California. *Vector-Borne and Zoonotic Diseases* 15:116–123.

Russell, W. H., K. Carnell, and J. R. McBride. 2001. Black bear (*Ursus americanus Pallas*) feeding damage across timber harvest edges in northern California coast redwood (*Sequoia sempervirens* [D. Don] Endl.) forests, USA. *Natural Areas Journal* 21:324–329.

Zielinski, W. J., R. L. Truex, F. V. Schlexer, L. A. Campbell, and C. Carroll. 2005. Historical and contemporary distributions of carnivores in forests of the Sierra Nevada, California, USA. *Journal of Biogeography* 32:1385–1407.

Master's Theses and PhD Dissertations Covering California Black Bears

(Note: This list is not comprehensive)

Creel, E. M. 2007. Effectiveness of deterrents on black bear (*Ursus americanus*) to anthropogenic attractants in urban-wildland interfaces. Master's Thesis, Humboldt State University, Arcata, CA.

Early, D. 2010. Intraspecific black bear spatial patterns and interactions at a small spatio-temporal scale. Master's Thesis, Humboldt State University, Arcata, CA.

Fusaro, J. L. 2014. Estimating baseline population parameters of urban and wildland black bear populations using a DNA-based capture-mark-recapture approach in Mono County, California. Master's Thesis, Utah State University, Logan, UT.

Mazur, R. L. 2007. Human-black bear conflict: An analysis of origins and solutions. PhD Dissertation, University of California, Davis.

Rodriguez, K. E. 2015. Modeling black bear-vehicle collision zones in Yosemite National Park. Master's Thesis, San José State University.

Matthews, S.M. (2002). Population attributes of black bear in relation with Douglas-fir damage on the Hoopa Valley Reservation, California. –Master's Thesis, Humboldt State University, Arcata, CA.

Additional Scientific Literature (i.e., Gray Literature) Covering California Black Bears

(Note: This list is not comprehensive)

Beam, S. 2003. Black Bear Returns. *Environment* 45:7.

Berrill, J.-P., D. W. Perry, L. W. Breshears, and G. E. Gradillas. 2017. Tree size, growth, and anatomical factors associated with bear damage in young coast redwood. Gen. Tech. Rep. PSW-GTR-258. Albany, CA: US Department of Agriculture, Forest Service, Pacific Southwest Research Station: 326-328 258:326–328.

Dietsch, A. M., K. M. Slagle, S. Baruch-Mordo, S. W. Breck, and L. M. Ciarniello. 2017. Education is not a panacea for reducing human–black bear conflicts. Letter to the Editor. Ecological Modeling 367 10-12.

Fulgham, K. O., and D. Hosack. 2017. Black bear damage to northwestern conifers in California: a review. Gen. Tech. Rep. PSW-GTR-258. Albany, CA: US Department of Agriculture, Forest Service, Pacific Southwest Research Station: 329-331 258:329–331.

Sherman, J., and H. Ernest. 2015. Population Genetics Study of California’s Black Bears in San Luis Obispo and Monterey Counties. California Department of Fish & Wildlife, Internal Report.

Taylor, T. Annual Human-black bear Conflicts Report for Mono County California. California Department of Fish & Wildlife, Internal Reports.

Below we highlight relevant scientific literature about black bears that refutes claims made by the HSUS and partner organizations. The structure follows the topics in the HSUS Petition (Attachment A)

Relevant Black Bear Scientific Literature by Topic

(Note: Citations may be listed under multiple topics for transparency)

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

HSUS statements derived from the Johnson et al. 2018 black bear research in Colorado:

- 1) *“...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... “*
 - a. The Johnson et al. 2018 article does not say wildlife managers must limit recreational black bear killing to reduce total mortality during years of poor natural food availability. The authors actually state that wildlife managers “increasing harvest near residential development could exacerbate bear population declines while having limited success in reducing conflicts.” They identify urban areas as a population “sink.” The authors explain the leading cause of mortality for the bears they studied are vehicle collisions and conflict removal (56%). Hunting contributed to 23% of bear mortality of GPS-collared bears.
- 2) *“...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...”*

- a. The authors of the Colorado study did not say the population declined by 57%; the authors state the leading cause of death of bears that were GPS-collared was vehicle collisions and conflict removal.
 - b. The authors suggest reducing conflicts by “implementing strategies that discourage bears from foraging around residential development” (e.g., deploying bear-resistant trash containers). The authors did not suggest a prohibition on bear hunting. They encourage strategies that take into account coexistence with carnivores in areas of residential development.
 - c. CDFW is actively working to reduce the primary causes of mortality identified in the Johnson et al. 2018 article. CDFW just updated their human-bear conflict policy that priorities using non-lethal techniques statewide to reduce human-bear conflicts. This year, CDFW hired human-wildlife conflict biologists specifically to execute the objectives of the new policy. Furthermore, CDFW is working with Caltrans and non-profit organizations throughout the state to build more wildlife crossings to reduce roadkill of bears and other wildlife.
- 3) *“California has no such equivalent in population monitoring”* referring to the Colorado study
- a. The CDFW does have equivalent studies including in South Lake Tahoe and in Mono County; where bears are GPS-collared and DNA-based survey techniques are used. Long term monitoring of black bears via GPS-collars also occurs in Yosemite and Sequoia & Kings Canyon National Parks.
 - b. It is also important to note that Colorado estimates their bear population to be between 17,000 and 20,000 statewide. There were 30,455 bear hunters who harvested 1,561 bears in Colorado in 2020. These are very similar numbers of hunters and harvest levels of California. California has more bears and more bear habitat.
 - Colorado Parks and Wildlife harvest reports can be found here: <https://cpw.state.co.us/thingstodo/Pages/Statistics-Bear.aspx>
 - CPW also has a bear management plan that is focused on reducing bear population sizes through hunting in many of their bear units. The plans for each unit can be found here: <https://cpw.state.co.us/thingstodo/Pages/HerdManagementPlans.aspx>

Below is a list of peer-reviewed scientific papers that highlight how fires affect black bears and their habitat. We recommend you read these in detail to formulate your own opinion on if fires result in a crisis for bears in California. We have summarized a few key points from some of the articles for you.

- a. Ecology, J. of A. 2016. High Intensity Fires – do they reverse bush encroachment or speed up the loss of tall trees? The Applied Ecologist. <<https://appliedecologistsblog.com/2016/08/09/high-intensity-fires-do-they-reverse-bush-encroachment-or-speed-up-the-loss-of-tall-trees/>>. Accessed 5 Feb 2022.

- High intensity fires can allow for regrowth of meadow systems and assist with pinon/juniper encroachment.
- b. Furnas, B. J., B. R. Goldstein, and P. J. Figura. 2022. Intermediate fire severity diversity promotes richness of forest carnivores in California. *Diversity and Distributions* 28:493–505.
 - Study Area: Northern California
 - Year(s): 2009 - 2018
 - Camera trap Survey – 1,451 sites in low, moderate, and high severity wildfire areas
 - Results: Carnivore richness was highest at locations with intermediate fire severity. Overall results suggest that carnivores would benefit from landscapes managed for greater, but not maximal, fire severity diversity. Our results also suggest that prescribed, low severity burns may provide ecological services to wildlife not otherwise provided by silviculture in a managed forest landscape. Highest number of sites (58%) detected black bears with next highest carnivore being gray fox located at 35.6% of sites. Predicted occupancy for black bears in the study area was approximately 76%. No statistically significant difference in use of low to high severity wildlife fires for black bears.
- c. Lara-Díaz, N. E., H. Coronel-Arellano, C. A. López-González, G. Sánchez-Rojas, and J. E. Martínez-Gómez. 2018. Activity and resource selection of a threatened carnivore: the case of black bears in northwestern Mexico. *Ecosphere* 9:e01923.
 - Desert adapted black bears indicates bears will persist through climate change
- d. Lundgren, E. J., K. T. Moeller, M. O. Clyne, O. S. Middleton, S. M. Mahoney, and C. L. Kwapich. 2022. Cicada nymphs dominate American black bear diet in a desert riparian area. *Ecology and Evolution* 12:e8577.
 - Desert adapted black bears indicates bears will persist through climate change
- e. Souliere, C. M., S. C. Coogan, G. B. Stenhouse, and S. E. Nielsen. 2020. Harvested forests as a surrogate to wildfires in relation to grizzly bear food-supply in west-central Alberta. *Forest Ecology and Management* 456:117685.
 - Black bears would have a similar response and likely do in harvested forests of northern California.

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

Many large mammals, generally speaking, are slow to reproduce, but there is no justification from what HSUS claims in this section of their letter that black bears “*face extinction*” and are susceptible to “*overkill*” from being hunted in California.

- 1) The fact that female black bears tend to live near their natal areas does not make them more susceptible to overkill from hunting, chronic wildfires, and other sources of mortality.
 - a. Female bears will move out of their home range if needed to find food if their home range has burned. Noyce and Garshelis (2011) describe in a study of

82 female and 124 male radio-collared black bears that both sexes commonly migrate to find food resources outside of their home ranges when food resources were scarce within their home range. Females whose body mass was close to reproductive threshold were most prone to migrate and migrating bears were less likely to be killed by hunters. The authors suspect migrating bears were more vigilant outside their home range.

b. Review the GPS-collar data from the Mono county and Tahoe GPS-collar studies. You will likely find similar movement patterns of bears responding to wildfires. Bears in Mono county have been documented moving long distances to take advantage of pinon pine crops in the Glass Mountains during years of wildfires in the Sierras. (Michael Brown, CDFW biologist, personal communication)

2) The HSUS state, *“Human persecution of bears, such as through hunting and or predator control, causes super-additive mortality ...”* They claim super-additive mortality is occurring in black bears because hunters who harvest adult male bears trigger infanticide (i.e., compounding mortalities) and this disrupts the social structure of bears.

a. Super-additive mortality is a term used by scientists for species who are threatened or endangered as is the case with some Grizzly and Brown bear populations.

b. All the research papers the HSUS used to support their claim are written about Grizzly and Brown bear populations, not black bears. They left out review of a well-known research paper on black bear infanticide and numerous others.

c. Here are key take-a-ways from the well-known Norton et al. 2018 paper titled, *“Female American black bears do not alter space use or movements to reduce infanticide risk,”*:

- The population studied was hunted and experienced relatively high male harvest (61% harvested were males).
- Females will mate with multiple male bears, which may occur as a strategy to reduce sexually-selected infanticide.
- Lack of avoidance behavior by females of males in this hunted population demonstrated by space use and movement patterns suggested that infanticide is not a great enough cause of behavioral changes in the population (i.e, no social structure change).
- Infanticide does not commonly occur where all cubs of the litter are killed and therefore the female is not capable of being breed again.
- Infanticide appears to be explained by nutritional gain or reduced competition rather than increased breeding opportunities.
- It is important to note from this paper that rates of infanticide can vary significantly from population to population. If hunting was causing infanticide and population declines, then many states would have detected this issue occurring. However, black bears are increasing in abundance across the U.S. where hunting has occurred for decades,

including in California. Black bears in California now reside in places they historically never occurred and have increased in abundance in places historical populations were low (Brown et al. 2009).

- 3) The HSUS claim *“DFW has failed to accommodate differences in vegetation, land use and topography to avoid overestimating bears, and particularly females.”* The HSUS also goes on to allude to the CDFW extrapolating black bear population estimates by region and making false claims about densities in certain habitats.
 - a. The Age-at-harvest model developed does not allow for regional population estimates. The CDFW does not claim the model does that. This is why the CDFW is conducting DNA-based surveys, GPS collaring bears, and testing other survey techniques to better understand regional populations.
 - b. To further support that the CDFW does understand differences in bear population density by region (i.e., habitat type) the CDFW developed a habitat suitability index for black bears that takes into account vegetation types, land use, and topography. This model was developed statewide to determine habitat quality for black bears. Furthermore, the CDFW conducted an analysis in 2011 that looked at the effects of climate change on California black bear distribution over the next 100 years (CDFW 2011). The report states *“although optimal bear habitat is predicted to shift toward the coastal ranges, much of the current bear range will still be considered suitable habitat and may support a viable and healthy bear population.”* The only habitats that do not currently support viable black bear populations are the highly agricultural Central Valley and the Mojave Desert; though young male bears have been reported moving through these landscapes looking for new home ranges.

- 4) The HSUS conclude this section with the following statement *“...around the world and in California, large carnivores face extinction from human factors, thus it is incumbent upon the Commission to conserve California’s black bears now, so they are not extirpated like grizzly bears had been.”*
 - a. Black bears are more abundant than all other species of bears combined (Servheen et al. 1999)
 - b. We are not aware of any large carnivore species in California that are facing extinction, including black bear, mountain lion, or bobcat and coyote. Even wolves are returning to California and showing signs of population increase and recolonization. Grizzly bears were extirpated from California due to unregulated hunting and direct policies to remove the species from the landscape. The loss of Grizzly bears is not akin to human factors we have today.
 - c. Brown et al. (2009) evaluated the population genetic structure of black bear populations in California. They determined the genetic diversity of black bears in California is on par with other populations of bears in North America (Paetkau and Strobeck 1998, Woods et al. 1999).

d. The northeastern California black bear population has increased enough to result in dispersal in Nevada. Lackey et al. (2013) used genetic analyses to determine the Nevada population of black bears came from California after >80 years of not having black bears. Nevada's population is increasing at an annual average of 16%. These data not only support that California's black bear population is healthy; California is acting as a source population for the neighboring state of Nevada and could be at carrying capacity in some regions. Moreover, CDFW veterinarian, Brandon Munk, hypothesized that the recently discovered bear encephalitis disease found in California could be a consequence of the basic principles of disease ecology (i.e., the population density could be too high; Brandon Munk, CDFW Veterinarian, personal communication).

Literature Cited:

Brown, S. K., J. M. Hull, D. R. Updike, S. R. Fain, and H. B. Ernest. 2009. Black bear population genetics in California: signatures of population structure, competitive release, and historical translocation. *Journal of Mammalogy* 90:1066–1074.

CDFW. 2011. Draft Environmental Document - Regarding Bear Hunting, California Department of Fish & Wildlife. <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=82753&inline>>.

Lackey, C. W., J. P. Beckmann, and J. Sedinger. 2013. Bear historical ranges revisited: Documenting the increase of a once-extirpated population in Nevada. *Journal of Wildlife Management*. <<http://onlinelibrary.wiley.com/doi/10.1002/jwmg.548/full>>.

Norton, D. C., J. L. Belant, J. G. Bruggink, D. E. B. Jr, N. J. Svoboda, and T. R. Petroelje. 2018. Female American black bears do not alter space use or movements to reduce infanticide risk. *PLOS ONE* 13:e0203651.

Noyce, K. V., and D. L. Garshelis. 2011. Seasonal migrations of black bears (*Ursus americanus*): causes and consequences. *Behavioral Ecology and Sociobiology* 65:823–835.

Paetkau, D., and C. Strobeck. 1998. Ecological genetic studies of bears using microsatellite analysis. *Ursus* 299–306.

Servheen, C., S. Herrero, and B. Peyton. 1999. Bears. Status survey and conservation action plan. IUCN/SSC bear and polar bear specialist groups. IUCN. Gland, Switzerland and Cambridge, UK.

Woods, J. G., D. Paetkau, D. Lewis, B. N. McLellan, M. Proctor, and C. Strobeck. 1999. Genetic tagging of free-ranging black and brown bears. *Wildlife Society Bulletin* 27:616–627.

C. DFW's black bear census does not rely upon best available science/ DFW's bear hunter data show that bear hunters are increasing while bears killed are decreasing

These two sections simply show the HSUS lack of understanding on how the Age-at-harvest population model works. We recommend the CDFW explain in detail how the model works. The model is not simply taking total number of dead bears to estimate population size. There are numerous variables added (e.g., age structure, sex, hunter success, and total harvested) into the model that get used to calculate the population estimate. The annual harvest reports articulate well the thresholds used to trigger a concern that the bear population is in decline.

- 1) The HSUS cite Garshelis and Hristienko (2006) to support the claim that CDFW does not use empirical data to determine population trends and rely on guesswork for population estimates.
 - a. This paper specifically states that the “guesswork” of some wildlife agencies is the result of using numbers of road killed bear and human-bear conflicts to determine population trends, not Age-at-harvest modeling. Also, some agencies do not estimate population sizes every year, which creates problems when interpreting population trends. These are not issues with CDFW’s methods where population estimates occur every year and empirical data is used from data collected from harvested bears.
 - b. The research paper explains that as black bear populations continue to increase nationally some states have room for improvement in population monitoring. The authors state *“This analysis does not condemn provincial or statewide population estimates as useless or unnecessary. Estimates may be functional for adjusting harvests and also for informing the public.... Agencies may be able to adequately manage harvests by considering the limits of precision in their estimates and by attempting to err on the side of caution.”* The authors also go on to say year-to-year interpretation of even empirical data should be done cautiously; as in the case of the 2020 CDFW bear population report. CDFW articulated the need to be cautious with interpreting the 2020 estimate.
 - c. The authors of the research paper explain *“Certainly, if populations were steadily declining this would have become apparent from long-term changes in harvest, hunting success, sightings, nuisance activity, and other potential indicators of population change.”* CDFW has trend data going back to the 1980s. The data and all indicators of population change show the population has increased over time.
 - d. CDFW is seeking room for improvement to better understand regional population dynamics via the numerous GPS-collaring studies and DNA-based survey techniques, while continuing to collect the overall trend data on a statewide basis via harvest data.
- 2) The HSUS claim poaching is a major issue in California

- a. They simply have no support on this issue. They cite Sitton (1982) to claim poaching is still a major problem. We advise the CDFW biologists to review sources of mortality of collared bears and consult with CDFW wardens in each region to determine if poaching is a major source of mortality.
 - o CDFW warden, Lieutenant Bill Daley, said in an interview with us that poaching is not common in Region 6, he has not assisted with a large case of poaching for over 15 years, and he is not aware of poaching being common elsewhere in California.

Literature Cited:

Garshelis, D. L., and H. Hristienko. 2006. State and provincial estimates of American black bear numbers versus assessments of population trend. *Ursus* 17:1–7.

Sitton, L. 1982. *The Black Bear in California*. California Department of Fish & Game.

D. Black bear hunting is unpopular amongst California residents

The Remington Research poll cited by the HSUS is not a reliable survey due to inherent biases written into the questions posed by the authors of the survey. We encourage the CDFW to review the following surveys conducted nationally to assist in understand the general public's opinions on hunting bears.

- a. Byrd, E., J. G. Lee, and N. J. O. Widmar. 2017. Perceptions of Hunting and Hunters by U.S. Respondents. *Animals: An Open Access Journal from MDPI* 7:83.
 - o 87% of respondents agree to hunting for food and 37% agree that hunting for trophy is acceptable.
 - o California law requires all hunters to bring out all meat from a harvested bear, so the HSUS claim that bear hunting is just for a trophy is unsubstantiated.
- b. U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2016 National Survey of Fishing, Hunting, and Wildlife – Associated Recreation.
 - o Good source for general information on participants who bear hunt nationally.

Here are key points that contradict the HSUS claim that bear hunting is unpopular and the validity of its relevance regarding whether or not bear hunting should be prohibited.

- o Bear hunters, and hunters in general, may be a minority group in California, however this should not be a determining factor in deciding whether to allow this North American tradition to continue – a point that was aptly made by President Murray during the last meeting of the Fish and Game Commission.
- o The incredible speed at which the State Senator, Scott Wiener, withdrew SB 252 that would ban bear hunting statewide is a true indication that Californian's do support bear hunting.

- Participation in all hunting has increased across the nation since the COVID-19 pandemic. Non-resident bear tag sales in California increased by a total of 36.6% from 2019 sales with resident bear tag sales increasing by 9.4% over 2019 sales.
- Hunting bears has become more popular in part because TV shows, such as “MeatEater” and social media influencers who focus on hunting have educated people on how good bear meat is to eat and the benefits of rendering bear fat.
- Hunting bears is a part of our culture and heritage. The HSUS is attacking our culture and heritage across the nation. Contrary to what HSUS says, just because there are not a lot of people who take part in harvesting bears does not warrant removal of that privilege.
- Continuing to harvest bears will provide the CDFW with much needed funding and data to continue to monitor statewide bear populations. We encourage the use of the revenue increase from the sale of additional bear tags bought in 2020 (i.e., \$136,890) be used to further conserve and monitor black bear populations.

The undersigned conservation organizations are united in our support of the North American Model of Wildlife Conservation, based on the Public Trust Doctrine, and that wildlife management and the discharge of wildlife policy must be founded on the best-available science. Should the science show that California’s bear populations could not sustain hunter harvest, the undersigned would support a halt of bear hunting. However, the above list of studies and projects clearly indicate that is not the case. We are confident that a thorough analysis of this material will demonstrate that the arguments made in Petition #2021-027 are inaccurate and misleading. We hope this report will be helpful when preparing your recommendation to the Commission for their action on Petition #2021-027.

Should you or your staff have any questions or would like to discuss any of the above information further, please contact:

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Sincerely,

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