Staff Summary for August 13-14, 2025

5. Regulation Change Petitions (Wildlife and Inland Fisheries) (Consent)

Today's Item **Information ☐** **Action ☒**

This is a standing agenda item for the Commission to receive new regulation change petitions and act on regulation change petitions received from the public at previous meetings. For this meeting:

(A) Receive new petitions for regulation change

(B) Act on previously received regulation change petitions

(C) Comments received on referred petitions not yet scheduled for action

Summary of Previous/Future Actions

(A) ***Petitions for Regulation Change – Scheduled for Action***

- Received Petition 2022-02 — February 2022
- Referred Petition 2022-02 to Department for review and recommendation — April 2022
- Received Petition 2025-04 — June 11-12, 2025
- **Today potentially act on petition** — **August 13-14, 2025**

(B) ***New Petitions for Regulation Change - Receipt***

- **Today receive new petitions** — **August 13-14, 2025**
- Potentially act on new petitions — October 8-9, 2025

(C) ***Comments Received on Referred Petitions (N/A)***

Background

(A) ***Petitions for Regulation Change – Scheduled for Action***

Petitions received at the previous meeting are scheduled for Commission consideration at the next regularly scheduled business meeting. A petition may be: (1) denied, (2) granted, or (3) referred to a Commission committee, staff, legal counsel, or the Department for further evaluation or information gathering. Referred petitions are scheduled for action once a recommendation is received. Today, two petitions are scheduled for action:

I. *Petition 2022-02*: Request to create a new class of deer hunting tags restricted to specified methods of take, such as traditional archery and muzzleloading shotgun and rifle (Exhibit A2)

II. *Petition 2025-04:* Request to allow the purchase of a second bear tag (Exhibit A3)

(B) ***New Petitions for Regulation Change - Receipt***

Pursuant to Section 662, any person requesting that the Commission adopt, amend, or repeal a regulation must complete and submit Form FGC 1. Regulation change petition

forms submitted by the public are “received” at this Commission meeting if they are delivered by the public comment or supplemental comment deadlines or delivered in person to the Commission meeting.

Under the Bagley-Keene Open Meeting Act, the Commission cannot discuss or act on any matter not included on the agenda, other than to determine whether to schedule issues raised by the public for consideration at future meetings. Thus, petitions for regulation change generally follow a two-meeting cycle of receipt and decision. The Commission will act on petitions received at today’s meeting at the next regularly-scheduled Commission meeting (October 8-9, 2025) following staff evaluation, unless the petition is rejected under the 10-day staff review as prescribed in subsection 662(b).

The Commission received no new petitions for regulation change by the comment deadline.

(C) ***Comments Received on Referred Petitions***

This agenda sub-item is for receiving public comments for any petition previously referred for review and recommendation, but not yet ready for Commission action. Action on any referred petition will be scheduled once the Commission receives a recommendation.

Today, there are no comments on previously referred petitions.

Significant Public Comments

1. Letter from Humane World for Animals and four other non-governmental organizations opposed to Petition 2025-04 that also includes a June 2024 letter to the Department from the Humane Society of the United States providing commentary on the Department’s draft black bear conservation plan, received July 30, 2025 (Exhibit C1).
2. The Commission received 3325 form email comments opposing Petition 2025-04 (see Exhibit C2 for sample email).

Recommendation

Commission staff: Deny Petition 2022-02 based on the Department's recommendation (see memo in Exhibit A4) to defer consideration of a new tag class until completion of the statewide deer plan. Further, the Department notes that the Commission adopted regulations addressing the petition's primary concern regarding hunting opportunities and retention of preference points. Deny Petition 2025-04, for reasons stated in Exhibit A1.

Department: Deny Petition 2022-02 for reasons stated in Exhibit A4.

Exhibits

A1. Summary of petitions for regulation change scheduled for action, with staff recommendations
A2. Petition 2022-02, received January 27, 2022
A3. Petition 2025-04, received April 15, 2025
A4. Department memo regarding Petition 2022-02, received July 23, 2025

C1. Letter from Humane World for Animals et al., received July 30, 2025

C2. Representative sample email from Tweed Conrad, received July 31, 2025

Motion

Moved by _____ and seconded by _____ that the Commission adopts the staff recommendations for items 3 through 6 on the consent calendar.

California Fish and Game Commission
Petitions for Regulation Change — Action (updated July 22, 2025)

CFGC - California Fish and Game Commission CDFW - California Department of Fish and Wildlife WRC - Wildlife Resources Committee MRC - Marine Resources Committee , MR - Marine Region
Grant: CFGC is willing to consider the petitioned action through a process Deny: Not willing to consider the petitioned action Refer: Need more information before the final decision

Tracking No.	Date Received	Name of Petitioner	Short Description	CFGC Receipt	CFGC Initial Action Date	Initial Staff Recommendation	Scheduled for Final Action	Final Staff Recommendation
2022-02	1/27/2022	Matthew White	Request to create a new class of "heritage-only" deer hunting tags, with flexibility to hunt zones A, B, and/or D during specified seasons, in exchange for restricting to specified methods of take such as traditional archery and muzzleloading rifle in sidelogck configuration only.	2/16-17/2022	4/20-21/2022	REFER to CDFW for review and recommendation.	8/13-14/2025	**DENY**, based on CDFW's recommendation to defer consideration of a new tag class, featuring broad zone validity and restricted methods of take, until the completion of the statewide deer plan. Further, CDFW also notes that, subsequent to the petition submittal in 2022, the Commission adopted regulations addressing the petition's primary concern regarding hunting opportunities and the retention of preference points following wildfire-related closures of specific hunting areas. See CDFW's memo, Agenda Item 5, Exhibit A4, August 2025 meeting.
2025-04	4/15/2025	David Bess, Backcountry Hunters and Anglers	Request to allow the purchase of a second bear tag	6/11-12/2025	8/13-14/2025	**DENY:** Bear hunting regulations are under active consideration in WRC. WRC's consideration of potential amendments to Commission regulations complies with California Fish and Game Code Section 106 and serves as a preliminary step prior to any formal rulemaking. The petitioner is advised to participate in that discussion at WRC, a pre-Administrative Procedure Act process for vetting options, including potential rulemakings.		

Tracking Number: (_2022-02_)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, (physical address) 1416 Ninth Street, Suite 1320, Sacramento, CA 95814, (mailing address) P.O. Box 944209, Sacramento, CA 94244-2090 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. **Person or organization requesting the change (Required)** Name of primary contact person: Matthew White
   Address: [redacted]
   Telephone number: [redacted]
   Email address: [redacted]

2. **Rulemaking Authority (Required) -** Reference to the statutory or constitutional authority of the Commission to take the action requested: CCR T14.

3. **Overview (Required) -** Summarize the proposed changes to regulations: This proposal is for the issuing of a new deer tag, Heritage Only, which would allow holders of the tag to hunt the A, B and D zones during their specified seasons. The additional geographic flexibility for these tag holders would come with a restriction of using only traditional weapons, defined as a longbow or recurve during the archery seasons or muzzleloading rifle in sidelock configuration only (matchlock, wheellock, flintlock or percussion) during the general seasons. Under this tag, deer hunters may not use modern weaponry, such as compound bows, in-line muzzleloaders or telescopic sights. See attached narrative for details.

4. **Rationale (Required) -** Describe the problem and the reason for the proposed change: This tag is being proposed to offer more hunters the flexibility to adapt to the closures of large swaths of public lands during the deer hunting seasons. Currently, only archery hunters hunting under an Archery Only tag have such flexibility. This proposed Heritage Only tag, with its restricted method of take of traditional archery or traditional muzzleloading rifle/shotgun, places similar limits on the hunters' effective range and ability to harvest a deer as a hunter using modern archery gear under an Archery Only tag. It is unlikely to affect the current harvest numbers in any zone. See attached narrative for details.

SECTION II: Optional Information : See enclosed proposal narrative.

5. Date of Petition: 01/27/2022

6. Category of Proposed Change

☐ Sport Fishing
☐ Commercial Fishing
☑ Hunting
☐ Other, please specify: Click here to enter text.

7. The proposal is to: (*To determine section number(s), see current year regulation booklet or https://govt.westlaw.com/calregs*)

XX☑ Amend Title 14 Section(s):
354 Archery Equipment and Crossbow Regulations
361 Archery Deer Hunting
☑ Add New Title 14 Section(s):
355 Muzzleloading Equipment and Regulations for Heritage Only Tags
362 Muzzleloader Hunting with Heritage Only Tags.
☐ Repeal Title 14 Section(s): Click here to enter text.

8. If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition Click here to enter text.
Or ☑ Not applicable.

9. Effective date: If applicable, identify the desired effective date of the regulation.
If the proposed change requires immediate implementation, explain the nature of the emergency: July 1, 2023

10. Supporting documentation: Identify and attach to the petition any information supporting the proposal including data, reports and other documents: See attached narrative with citations.

11. Economic or Fiscal Impacts: Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: No known impacts. Possible increase in deer tag revenue if more hunters decide to purchase an additional, Heritage Only tag, as a backup option if their primary hunting zone is closed. Revenue might be somewhat offset by the additional expense of creating any new educational materials, though those could be substantially mitigated by help from various non-profit organizations. See attached narrative for additional information.

12. Forms: If applicable, list any forms to be created, amended or repealed:

Deer tag application would be amended to offer this additional tag.

SECTION 3: FGC Staff Only

Date Received: 1/27/22

FGC staff action:

- ☒ Accept - complete
- ☐ Reject - incomplete
- ☐ Reject - outside scope of FGC authority

Tracking Number

Date petitioner was notified of receipt of petition and pending action: 02/04/2022

Meeting date for FGC consideration: _Receive 2/16-17/22; act 4/20-21/22__

FGC action:

- ☐ Denied by FGC
- ☐ Denied - same as petition _____
  Tracking Number
- ☐ Granted for consideration of regulation change
- ☒ Referred to DFW

Proposal for New Deer CA Deer Tag – Heritage Tag

January 27, 2022

Objectives

1. To allow CA deer hunters to adapt to new public land closures by allowing them to hunt multiple zones.
2. To allow hunters who employ more difficult methods of take the ability to hunt multiple zones.
3. To ensure that these increased opportunities do not adversely impact local deer herds by significantly increasing success rates.

Summary

The proposed Heritage deer tag would allow hunters to hunt the A, B and D zones during the existing seasons and with the same bag and possession limits of one buck, forked horn or better as holders of zone specific tags for these areas. In this respect, it would be similar to the current Archery Only tag. However, the key feature of this tag would be a method of take restriction that limits hunters to traditional weapons, defined as either longbow or recurve during the archery seasons and sidelock (wheel, match, flint or percussion ignition) muzzleloaders during the general seasons. This would expand the geographic flexibility that many archery hunters currently enjoy to some rifle hunters, though with equally restrictive methods of take to ensure that deer populations are not adversely impacted in any zone that remains open during a public land closure.

Why do we need another tag?

The last 2 years have seen both local and statewide closures of public lands during the deer hunting seasons. These closures are sometimes short in duration but can also last into the following season in areas within the burn scar. California's current tag system for non-lottery tags is geographically based – meaning that hunters are restricted to a tightly-defined geographic area when hunting deer. Because many people cannot simply move their hunt dates to accommodate these unpredictable events and may not be able to access their zone at all during the limited season, many tag holders must simply forego their planned hunts.

In 2013 the Rim Fire caused a tag quota reduction in zone D6, which ultimately led to the zone moving to a lottery drawing, locking some hunters out of this zone who would have otherwise hunted there. In 2020, the USFS closed down most of the D7 zone during the rifle season and parts of several other zones. 2021 several other fires closed down multiple D zones during the deer hunting season.

As fires and fire closures become more commonplace, we can expect that similar events will occur over the next decade that will adversely impact deer hunters who are limited to a tightly-defined geographic area. This may ultimately cause some hunter attrition or force hunters to conduct future hunts in other states, which may adversely affect tag revenues.

Although the public land closures that have occurred over the last two years are not instituted by CDFW or the FGC, the public often places the blame on CDFW since they are the main source of information about hunting. By offering a tag for rifle hunters that has more geographic opportunity, The FGC and

CDFW can show that they are listening and being responsive to hunters' needs under this new fire protocol while still acting responsibly in keeping harvest rates within allowable limits. While the current AO tag gives this geographic flexibility to those who limit themselves to any kind of archery equipment, there is no equivalent tag option for rifle hunters.

Why Traditional Weapons?

Modern compound bows have greatly expanded the effective range of bowhunters far beyond the effective range that was normal when archery seasons were first implemented. While this has given higher probability of harvesting a deer to those who use modern archery gear, it places traditional archers at a comparative disadvantage, especially during the general seasons. In general, traditional archers have an effective range of about 20-25 yards if they dedicate a significant amount of the year to practice. Modern archers, using compound bows, sighting aids and mechanical releases can double that effective range with just a few practice sessions per year. Success rates of hunters using modern archery gear are notably higher than those using traditional archery gear.

Similarly, technological developments in modern muzzleloaders offer little handicap to any open-sighted, single-shot, centerfire rifle. The shorter lock-time and simplicity of components allows these rifles to be quickly mastered, both expanding their effective range and lowering the required knowledge and skill barriers for their use in the field. In general, traditional, sidelock muzzleloaders have an effective range of about 80 yards while modern muzzleloaders are effective out to about 100-150 yards, assuming open sights are used.

As it happens, modern compound bows offer little disadvantage to traditional muzzleloaders since they have similar effective ranges. As hunting weapons, they are rough equivalents since the disadvantages of a compound bow, such as the extra motion of drawing the bow and the arrow flight time, also come with some significant advantages over traditional muzzleloaders, such as a bow's quieter flight (for possible follow-up shots), its resilience in wet weather and its more reliable firing. Yet, under the current tag offerings, hunters with modern archery equipment can hunt multiple zones under an AO tag while hunters wishing to use traditional muzzleloaders with similarly-limiting equipment cannot. If implemented, this proposal would allow hunters using similarly-limiting equipment a more similar opportunity.

Would a Heritage tag replace the current AO tag?

No. The proposed Heritage tag would be an additional tag offering, not a replacement of the current AO tag.

Does this proposal create a special season?

No. The Heritage tag would mirror the current season dates for each A, B and D zone.

Are there any changes proposed to the bag limit or possession limit?

No. Hunters would still be restricted to harvesting only one buck, forked-horn or better per tag, as is the norm for all the A, B and D zones.

What equipment would be permitted for the proposed Heritage tag holders?

As proposed, During the archery seasons, only recurve bows or longbows (including Asiatic horsebows and short, plains-style longbows) of 40 lb draw weight or greater would be permitted. Bows should have only a single string or cable that is attached to the limb tips, flexible limbs, an increasing tension (stack) as the bow is drawn (no let-off of draw weight) and have no solid "wall" that limits the draw length. Clickers or other draw checks that alert the archer that a specific draw length has been reached would be permitted so long as they don't prevent the bow from being drawn any further. Arrows should conform to existing regulations for archery deer hunting, as described in CCR T14-353.

During the general seasons only, muzzleloading rifles or shotguns with a closed breach and sidelock action that uses one of the following ignition sources:

- Wheel-lock
- Match-lock
- Flintlock
- Percussion/Cap-lock

Muzzleloading rifles and shotguns must also conform to the existing restrictions for caliber and projectiles, as described in CCR T14-353.

Archery equipment, as described above for use during the archery season under a Heritage tag would also be permitted during the general season.

Non-toxic and other projectile regulations

No changes to the current requirement for lead-free projectiles are proposed. Lead free projectiles are available from manufacturers. There are also lead free casting alloys that can be cast from home and effectively fired from traditional muzzleloaders. Likewise, arrows flung from traditional bows should conform to current regulations for archery equipment.

What equipment would be excluded for Heritage tag holders?

Compound bows, crossbows (except under a disabled archer's permit), sling bows, centerfire firearms, in-line muzzleloaders, underhammer muzzleloaders, electronic-ignition muzzleloaders, centerfire firearms that have been converted to muzzleloaders, telescopic sights or any sighting systems other than open or peep sights (except under a disabled scope permit).

What about access for the disabled?

Current regulations allow for hunters to obtain a disabled archer's permit to allow them to use a crossbow during the archery season or for hunting under an AO tag. No change is proposed to this system. However, a restriction of traditional crossbow (single string, no cams or pulleys, no let-off) can be used if desired.

Similarly, a disabled scope permit allows vision-impaired hunters to use a 1x scope during the state's muzzleloading-only hunts. Therefore, similar rules should be in place for Heritage tag holders.

Who benefits from this opportunity?

The main beneficiaries of this proposed Heritage tag are rifle hunters, who stand to gain an opportunity to hunt multiple zones if they limit themselves to these traditional weapons. Secondarily, traditional

archers would be able to continue to use their longbows and recurves during the archery seasons but would gain the ability to use traditional muzzleloaders during the general seasons. CDFW may see a nominal increase in tag sales if more deer hunters choose to purchase this Heritage tag as a second, backup option in case their regular zone is closed. The USFS may be granted a little bit of relief from hunters' complaints of forest closures if there are more geographically flexible options available.

Who is likely to lose from this opportunity?

Since no changes are proposed to the current AO tag and since AO tag holders already compete with rifle hunters during the general seasons, no archery deer hunter, whether using traditional or modern archery equipment, stands to lose any part of their existing hunting access or opportunities. Although users of modern muzzleloaders would not lose any of their existing opportunities, they would not benefit from this proposed Heritage tag.

What is being promoted by this new Heritage tag opportunity?

By making the Heritage tag available, CDFW will be promoting:

1. Responsiveness to the needs of our state's deer hunters to be able to move hunting locations based on fire closures.
2. Responsiveness to the USFS needs for localized closures due to wildfires.
3. Better woodsmanship among deer hunters.
4. Respect and reverence for ancestral and historical hunting methods over modern technological advantages.

Enforcement

Our regulatory system is largely based on voluntary compliance. Wardens may, when present, check hunter equipment and documentation. But there are few impediments to hunters using a firearm while hunting under an AO tag or for a hunter to possess a tag for one zone but take a deer in another. Therefore, since it is largely an honor-system now, the proposed Heritage tag does not cause any additional burden on law enforcement and no change is proposed to this system. Traditional archery and muzzleloading firearms are easily recognizable with distinct features that will not be an impediment to our wardens' understanding of the Heritage tag's restrictions.

What about potential increases in crippling losses?

By and large, crippling from hunter error is largely an issue of the hunter's mindset. In other words, hunters lacking in discipline or judgment will take unethical shots with whatever weapon they hold in their hands at the time. Those who are unwilling to invest the time and attention to learning the limits of traditional equipment are better suited to using the AO tag and a modern compound bow, which can be more quickly mastered. It is more likely that these unskilled hunters will simply fail to get close enough to take a shot at a legal buck at all than that they will take a shot and wound their prey since the limits imposed by traditional equipment give the animal a significant opportunity for escape without a single arrow loosed or shot fired.

What educational resources should be available for the public to learn about the proposed Heritage tag, its regulations and the limits of this kind of equipment?

The CA Hunter Education Program is currently building its library of webinars for the public and posting them on its website. Some of these videos are being produced by CDFW but there are also efforts to use videos made by non-profit conservation organizations, such as Backcountry Hunters and Anglers, at little to no cost to CDFW. While no deer tag offered today requires additional coursework, some area-specific hunts require a meeting to explain the limits and methods of these hunts. Similar orientation meetings may be offered for a Heritage tag system whereby hunters must participate in an online briefing before being issued their tag. Again, while there would be some cost to CDFW to produce such a video, working with non-profit conservation organizations could significantly reduce this expense. While requiring coursework may or may not be feasible, the Hunter Education Program should make every effort to educate hunters about this type of equipment, safety, its use and its limitations to promote safe and ethical practices.

Fire risks from muzzleloading firearms

Since the Heritage tag is being proposed as a partial response to public land closures stemming from wildfires, it is important to address the potential risk from sparks issuing from muzzleloading firearms. Thankfully, the USFS has published a research paper on this issue.[1] They determined that the risk was extremely low and they were unable to simulate a wildfire ignition during their tests. Therefore, it is very unlikely that the USFS would voice an objection based on increased risk of wildfire. The USFS report should be referenced if or when any other agency voices an objection based on fire risk.

Tag Quota

Like the the current AO tag, the proposed Heritage tag should have a generous quota. Success rates are likely to be very low – low enough to grant wide availability without any lottery. Currently there are 100,000 Archery Only Tags available for purchase with less than 10,000 purchased during the 2020 deer season. If the Commission or CDFW does not wish to create any additional tags, the proposed Heritage Only tag quota could be taken from the remaining 90,000 unused Archery Only tags with no effect on their availability. Splitting the 100,000 quota into 50,000 Archery Only and 50,000 Heritage Only would grant the wide availability of both and neither is likely to sell out.

Do other states have similar tags?

No other state has a tag that is identical to the proposed deer Heritage tag. However, several states have geographically-limited hunt units that allow extended seasons for hunters using only traditional archery or traditional muzzleloading rifles. A few examples are:

- *West Virginia Mountaineer Heritage Season* – an extended season in January for deer, bear and turkey hunters using recurve bow, longbow, flintlock rifle or percussion cap-lock rifle.[2]
- *Oklahoma* – McAllister Army Ammunition Plant – a deer hunt unit under a lottery system that has dedicated seasons for traditional archery only. Initially, the unit allowed any archery equipment to be used during the archery season. However, compound bows were excluded in 1989 due to the higher success rates (17.8% compound vs 10.7% traditional) of hunters using them.[3]

[1] https://www.fs.fed.us/rm/pubs_other/rmrs_2009_haston_d001.pdf
[2] https://wvdnr.gov/wp-content/uploads/2021/07/2021-22-Hunting-Regulations.pdf, page 34
[3] http://wp.auburn.edu/deerlab/wp-content/uploads/2014/05/591997-SEAFWA.pdf

- Idaho – dedicated primitive weapons hunts for elk, available by lottery within a specified geographic area.
- Pennsylvania – dedicated, 2-week flintlock-only season. Season has been in place since 1974.

Submitted by:

Matthew D White
[redacted]

Tracking Number: (2025-04)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, (physical address) 1416 Ninth Street, Suite 1320, Sacramento, CA 95814, (mailing address) P.O. Box 944209, Sacramento, CA 94244-2090 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

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SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. Person or organization requesting the change (Required)
Name of primary contact person: David Bess
Backcountry Hunters and Anglers Legislative/Regulatory Chair
Address:
Telephone number:
Email address:

2. Rulemaking Authority (Required) - Reference to the statutory or constitutional authority of the Commission to take the action requested: California Fish and Game Code Section 200

3. Overview (Required) - Summarize the proposed changes to regulations:
Adding a second bear tag to Cal. Code Regs. Tit. 14, § 708.12 - Bear License Tags. New language added in blue.

Cal. Code Regs. Tit. 14, § 708.12 - Bear License Tags

(a) Bear License Tags:
(1) With the exception of permits and tags issued pursuant to section 4181 of the Fish and Game Code, all bear license tags shall be available to the public through the department's Automated License Data System terminals at any department license agent or department license sales office.
(2) The department shall require that the specified fee provided for in section 4751 of the Fish and Game Code for such bear license tags be paid as a prerequisite to obtaining a bear license tag.
(3) The department shall charge a nonrefundable processing fee, as specified in Section 702, for each bear license tag.
(4) ~~Applicants may purchase only one bear license tag during any one license year. Any person who purchases more than one bear license tag may be denied bear license tags for the current license year.~~ Applicants may

purchase only two bear license tags during any one license year. Any person who purchases more than two bear license tags may be denied bear license tags for the current license year.
(5) Upon the killing of any bear, that person shall immediately fill out all portions of the tag including the report card completely, legibly, and permanently, and cut out or punch out and completely remove notches or punch holes for the month and date of the kill. The bear license tag shall be attached to the ear of the bear and kept attached during the open season and for 15 days thereafter.

4. Rationale (Required) - Describe the problem and the reason for the proposed change:

RESOLUTION DECLARING SUPPORT FOR SCIENCE-BASED MANAGEMENT OF CALIFORNIA'S BLACK BEAR POPULATION AND A SECOND BEAR TAG

WHEREAS pursuant to the Black Bear Conservation Plan published by the California Department of Fish & Wildlife (CDFW), "black bears are widespread and common throughout most forested habitats of California; they are one of the most commonly occurring large mammal species in California forests;" (California Department of Fish & Wildlife. (2025). Black bear Management Plan. State of California. p. 30); and

WHEREAS "common species, such as black bears in California, have substantial effects on the broader ecological community such that the conservation of common species should be considered alongside concerns about rare species (Gaston and Fuller 2007)" (California Department of Fish and Wildlife, 2025, p. 19); and

WHEREAS "within California, Monteith et al. (2014) found neonate mule deer (Odocoileus hemionus) born west of the Sierra Crest, where black bear densities are higher than east of the Sierra crest, were >6 times more likely to die of black bear predation than any other cause. High rates of black bear predation were thought to limit deer abundance in this area by causing a reduction in the proportion of deer that migrate to summer range, as deer trade off obtaining superior nutritional benefits to avoid predation (Monteith et al. 2014). Black bear predation is also a common cause of mortality for black-tailed deer (Odocoileus hemionus columbianus) fawns in the Mendocino National Forest (Wittmer et al. 2014)" (California Department of Fish and Wildlife, 2025, p. 30); and

WHEREAS "within the Mendocino National Forest, black bears frequently displace mountain lions from their kills, a behavior called kleptoparasitism. Elbroch et al. (2015) found black bears at 77% of mountain lion kills, and black bears displaced mountain lions from them 72% of the time. Black bear kleptoparasitism caused mountain lions to increase their kill rates substantially to recoup energetic losses to black bears (Elbroch et al. 2015, Allen et al. 2021). Collectively, high rates of predation on fawns and kleptoparasitism of mountain lion kills by black bears have likely contributed to a declining deer population in this area (Wittmer et al. 2014, Marescot et al. 2015)" (California Department of Fish and Wildlife, 2025, p. 30-31); and

WHEREAS "partnerships between CDFW and hunting-focused non-governmental organizations (NGOs) play important roles in habitat creation and protection that benefit a wide variety of species. Specific to black bears, hunters also provide CDFW with tooth samples from harvested animals (over 1,000 samples annually). Age estimates from these samples constitute a key source of scientific data that is critical to efficient estimation and monitoring of black bear populations throughout California." (California Department of Fish and Wildlife, 2025, p. 10); and

WHEREAS "Black bears are classified as a game mammal in California (FGC § 3950) such that regulated hunting of the species includes licensing, fees, harvest season and area, and other restrictions (Title 14 California Code of Regulations (CCR) § 365, 366, 367.5, FGC § 4750-4763)" (California Department of Fish and Wildlife, 2025, p.10); and

WHEREAS "Over the last 10 years (2014-2023), an average of 29,245 black bear tags were sold annually which generated $13.3 million in revenue, ranging from $1.0 million to $1.7 million per year. Additionally, pursuant to the Pittman-Robertson Act of 1937, a federal tax on firearms and ammunitions sales allocates between $10 and $30 million per year to wildlife and wildlife habitat conservation in California. CDFW uses a portion of these funds to staff its conservation and hunting programs for black bears and other game species. For example, over the last 10 years (2014-2023), the amount of these state and federal funds that CDFW has used annually for staff, contracts, and procurement of equipment such as GPS collars has varied between $500,000 and $4 million." (California Department of Fish and Wildlife, 2025, p. 27); and

WHEREAS "the maximum sustainable annual hunting mortality rate for black bears has been estimated to be as high as 15.9% (Miller 1990), although Pennsylvania, Virginia, and Wisconsin have reported increasing or stable black bear populations with harvest rates >20% (Hristienko and McDonald 2007). Based on current best estimates of black bear populations statewide and regionally, hunters harvest less than 5% annually of the bears present in any BCR of the state, and under 3% overall (see Section 4.2). This harvest rate is considerably lower than the maximum sustainable harvest rates discussed above and is also lower than recent harvest rates in nearby states such as Oregon (ODFW 2022) and Washington (WDFW 2022)." (California Department of Fish and Wildlife, 2025, p. 26-27); and

WHEREAS "black bears are culturally significant to many Native American Tribes, are a favored game species to many hunters, are sought after for viewing and photography opportunities, and are widely recognized for their intrinsic value and ecological role as an omnivorous predator. Black bears can also be a source of conflict when they use areas of high human activity (i.e., they become habituated to people), seek out anthropogenic food sources and cause property damage (i.e., they become food-conditioned), prey upon livestock, contribute to reducing ungulate populations (Monteith et al. 2014, Wittmer et al. 2014) below desired management thresholds, or threaten public safety through aggressive or predatory behavior," and CDFW currently estimates the black bear population to be 59,851 which is more than twice the previous population estimate that was used to establish an annual harvest quota of 1700 bears. (California Department of Fish and Wildlife, 2025, p. 9)

NOW, THEREFORE, BE IT RESOLVED THAT we the undersigned individuals and organizations respectfully request the California Fish & Game Commission uphold its commitment to science-based management of fish and wildlife by utilizing the powers delegated to it by the legislature and ensure sustainable harvest of black bears according to the quota established by the California Department of Fish &Wildlife;

NOW BE IT FURTHER RESOLVED THAT, we the undersigned individuals and organizations respectfully request the California Fish & Game Commission promptly receive and refer the petition from Backcountry Hunters & Anglers to implement a second bear tag for purchase to ensure additional funding for science-based management of black bears, opportunity for fair-chase hunting, a reduction in

human-bear conflicts, balanced predator-prey ecosystem dynamics, and a healthy food source for responsible hunters and their families.

SECTIONII: Optional Information

5. Date of Petition: 4/14/2025.

6. Category of Proposed Change

☐Sport Fishing
☐Commercial Fishing
XHunting
☐Other, please specify: Click here to enter text.

7. The proposal is to:(*To determine section number(s), see current year regulation booklet or*[*https://govt.westlaw.com/calregs*](https://govt.westlaw.com/calregs))

XAmend Title 14 Section(s):Click here to enter text.
☐Add New Title 14 Section(s): Click here to enter text.
☐Repeal Title 14 Section(s): Click here to enter text.

8. If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition

Or X Not applicable.

9. Effective date:If applicable, identify the desired effective date of the regulation.
If theproposed change requires immediate implementation,explain the nature of the emergency:**2025 hunting season if possible. If not, 2026.**.

10. Supporting documentation: Identify and attach to the petitionany informationsupporting the proposal including data, reports and other documents:See recently released Black Bear Conservation Plan.

11. Economic or Fiscal Impacts: Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: Increase in revenue from tags sold..

12. Forms: If applicable, list any forms tobe created, amended or repealed:

Click here to enter text.

SECTION 3: FGC Staff Only

Date received: 04/15/2025

FGC staff action:

☑ Accept - complete
☐ Reject - incomplete
☐ Reject - outside scope of FGC authority

Tracking Number

Date petitioner was notified of receipt of petition and pending action:_____

Meeting date for FGC consideration:_____

FGC action:

☐ Denied by FGC
☐ Denied - same as petition _____

Tracking Number

☐ Granted for consideration of regulation change

State of California
Department of Fish and Wildlife

Signed original on file
Received July 23, 2025

Memorandum

Date: July 10, 2025

To: Melissa Miller-Henson
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director

Subject: **Recommendation to Deny Regulation Change Petition No. 2022-002 to Amend Regulation 354, 361 to add novel hunting opportunities to hunters who use specific methods of take**

On April 21, 2022, the California Fish and Game Commission (Commission) referred Petition No. 2022-002 (Petition) to the Department of Fish and Wildlife (Department) for analysis and recommendation. In response to large-scale closures of public lands, the petition proposes to add a new class of tag, named Heritage Only, that would allow tagholders to hunt A, B, and D deer hunt zones during their specified seasons using methods of take the petitioner considers *traditional*. The petition defines traditional archery methods as longbow or recurve to be used during the existing archery season for the zones, and muzzleloading rifles in sidelock configuration only during the general season for the named zones.

The Department has reviewed the petition and recommends the Commission deny the request for regulation change. Existing mechanisms already address the petitioner's core concern, loss of access due to public land closures. The primary justification in the petition centers on the impact of wildfire-related closures. Since 2022, when the petition was received, the Commission has adopted a regulation to address this concern. CCR Title 14, Section 708.14 allows hunters to return tags for a refund or preference point reinstatement if 66% or more of the general season is inaccessible due to closures. This regulation provides a direct and equitable solution to access disruptions without introducing a new tag structure.

Considering wildfire-related public land closures, the petitioner is concerned with the limited geographic flexibility of California's "tightly-defined" deer zones. This characterization is not accurate. Zones such as A (covering much of the Central Coast), the B zones (spanning much of northwestern California), and D3–5 (which includes three adjacent zones) encompass millions of acres of public land. These zones are among the largest and most geographically diverse general season hunt areas in the western United States.

The Department is currently developing a comprehensive Statewide Deer Conservation and Management Plan. Introducing a new tag class with broad zone

validity and method-of-take restrictions would represent a significant policy shift. For this reason, we believe it is not appropriate to consider major structural changes to the deer tag framework until after the Statewide Deer Plan is completed. The planning process is intended to evaluate hunter opportunity, zone design, and biological sustainability in an integrated and transparent manner, and decisions of this magnitude should be guided by that framework once finalized.

Lastly, the Department acknowledges the desire to add novel hunting opportunities for big game in California. Big game species programs are working diligently to revive and bring novel hunting opportunities where feasible, while taking into consideration the use of staff time and greatest benefit to constituents.

If you have any questions regarding this matter, please contact Scott Gardner, Wildlife Branch Chief, at (916) 801-6257.

ec: Chad Dibble, Deputy Director
Wildlife and Fisheries Division

Scott Gardner, Branch Chief
Wildlife Branch

Mario Klip, Env. Program Manager
Game and Connectivity Programs

Regina Vu, Regulations Coordinator
Wildlife Branch

Outlook

Re: [EXTERNAL] RE: Resend! || Please use this version || OPPOSITION to Petition 2025-04

From: Wendy Keefover (she/her) <wkeefover@humaneworld.org>
Date: Wednesday, July 30, 2025 at 1:44 PM
To: Melissa Miller-Henson <[redacted]>
Cc: Ari Cornman <[redacted]>, fgc@fgc.ca.gov <fgc@fgc.ca.gov>
Subject: OPPOSITION to Petition 2025-04

Dear Melissa and Ari,

Hello! Hope you are both well! 😊

Please find comments attached in strong opposition to Backcountry Hunter and Angler's petition requesting a second bear tag. If you need anything else from us, please let us know!

Sincerely yours,

Wendy

Wendy Keefover
Senior Strategist, Carnivore Protection, Wildlife Department
(she/her)
wkeefover@humaneworld.org
humaneworld.org

July 30, 2025

Attn: Melissa Miller-Henson, Executive Director
Erika Zavaleta, President
California Fish and Game Commission
P.O. Box 944209, Sacramento, CA 94244-2090
fgc@fgc.ca.gov

Re: Petition 2025-04; OPPOSE request to allow purchase of a second bear tag

Dear President Zavleta, Vice President Murray and California Fish and Game Commissioners:

The undersigned groups respectfully urge the California Fish and Game Commission ("FGC") to reject Backcountry Hunter and Angler's (hereinafter "Petitioners") petition to allow for hunters to purchase a second bear tag, because the petition is based upon outdated science, disinformation and false assumptions. Hunting bears will not resolve human-bear conflicts nor increase California's deer numbers, according to sound science. Petitioners also raise their own concerns that the sale of two tags per person could increase law-enforcement violations on a species who is already poached in unknown numbers for illegal trade in body parts, particularly gall bladders and claws. Our response to the petition follows.

1. **Petitioners make erroneous assumptions based upon outdated science**

    A. **Black bears, California's largest remaining carnivore, are an uncommon, rare species**

By definition, apex carnivores such as black bears are *rare* on the landscape.[1] 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.[2] Bears are capable of self-regulation[3] and are also regulated by habitat and climatic conditions. Considering these biological factors, they rely on social stability to maintain resiliency.[4] (See the discussion in Humane World for Animals' attached comments, pages 9-12).

In fact, our most significant criticism with California Department of Fish and Wildlife's ("DFW's") *Black bear conservation and management plan for California* ("Plan") was the lack of credible density estimates, including the suggestion of a 116% increase over the state's previous estimate.[5] (See World for Animals (formerly HSUS's) comments on DFW's Plan attached hereto and submitted into this administrative record.) The Plan relies upon *10 antiquated* (and only two current) *studies* to make black bear density claims while also *using an untested model for California's black bears*.

DFW's new population model purports to find that 65,000 bears live in California. This figure is between a jaw-dropping 63% to 116% increase from the previous estimate of 30,000 – 40,000 bears. While we agree with DFW that the previous model had no basis in sound science and are appreciative of the steps the DFW has taken in developing a new one, the new model has yet to be proven as reliable. Thus, to protect California bears we urge the FGC to exercise caution and vigorously oppose more bear hunting as merely "recreational opportunities."[6]

Garshelis and Hristienko (2006) caution that many state wildlife managers fail to adequately investigate population sizes and trends but instead rely on guesswork to estimate bear numbers.[7] Population trends must be determined using reliable methodologies, and sightings, predation events, and kill levels are not reliable means to indexing a population.[8]
Humane World for Animals, in its comment on the Plan, provided several studies showing that the future for California black bears is anything but secure. California black bears face debilitating threats from climate change because of mega droughts and wildfires. Bears can be hunted at numbers that wildlife managers are unable to detect unless their populations are closely monitored, such as with GPS collars. Hunting bears also results in sexually selected infanticide when dominant, resident males, whom hunters seek, are removed. When breeding females are removed, cubs' ability to survive is exponentially reduced. Hunters remove some of the oldest, most fit bears from a population, which also changes bears' social structures. This limits population growth and increases juvenile mortalities. Bears who are hunted needlessly expend energy to flee hunters at the exact time they should be foraging to survive winter hibernation. Hunting also stresses bears, and costs them precious energy. In short, while DFW may consider it a "recreational opportunity," is not a benign activity for the bears.

We remain concerned about two of the four populations of California bears who, based upon research conducted nearly 20 years ago, were already facing inbreeding issues. No new genetic research has been conducted to alleviate these concerns. In short, California has no accurate population and genetic information about its bear populations. Given all the uncertainly, we urge the FGC to pump the brakes on more hunting "opportunities" that simply give special interest groups another prospect to kill our state's beleaguered bears.

The FGC must apply the precautionary principle here because habitat loss and corridor loss, mega droughts and fires have ravaged black bear habitats that DFW's Plan failed to meaningfully consider and address. As a result of all this uncertainty, it makes no sense for the FGC to grant Petitioner's wish to hunt two bears per person.

B. Petitioners use outdated, wrongly conceived predator-control arguments about bears and deer as the basis of their petition, and they must be rejected

Predator control is the idea that killing predators, like bears, will help boost deer and other prey populations. Hunters push for predator control because they believe that they "compete" with wild carnivores like bears, mountain lions, wolves and coyotes. In this petition, hunters claim they need a second bear tag to protect deer herds. The best available science, however, does not support this argument.[9] Deer herds in California face far more serious threats than from their natural predators: the loss of habitat and migration corridors, vehicle collisions, a warming climate resulting in mega droughts and wildfires that reduce their food —and perhaps most troubling, the coming pandemic of chronic wasting disease (which carnivores naturally mitigate). Ironically, human hunters account for most game animal deaths,[10] yet they continue to blame wild carnivores.

i. Scientific data show California deer are in trouble from a variety of problems that have nothing to do with their natural predators

Petitioners cite Montieth et al. (2014) to suggest that black bears harm deer populations. Indeed Montieth et al. (2014) state: "Black bear (*Ursus americanus*) predation was the main cause of mortality for west-side young (mortality rate = 0.63, SE = 0.97) compared with canid and felid predation for east-side young (0.29, SE = 0.076)."[11] But what DFW and Petitioners failed to mention was that authors also stated that: "**Nutritional condition of adult females in March also was the most parsimonious predictor of finite rate of population growth (λ) during the forthcoming**

year."[12] A Master's Thesis, published ten years later, echoed this same finding. Glenden Taylor (2024) examined six mule deer herds in the eastern Sierra Nevada, California using data since 2014. That author found that "increased body condition was connected to increased survival."[13] The data show that since 2014, bears along with canids (perhaps foxes, coyotes and wolves), accounted for only 14 out of a total of 792 deer deaths. Most mortalities came from either "undetermined" or "not investigated" causes. See Fig. 1.

Figure 1. Table 1 from Taylor (2024)

Table 1. Number of mortalities of collared adult females per cause and per biological year for all mule deer herds in the eastern Sierra Nevada, California, USA between 2014 and 2022. Years begin on June 1 and extend through May 31 of the following calendar year.

	Accident	Bobcat	Canid/Ursid	Lion	Malnutrition	Other	Undetermined	Not Investigated	Total
2014	1	0	0	1	0	0	13	2	17
2015	3	0	0	7	0	0	20	8	38
2016	6	0	2	12	1	0	35	10	66
2017	10	0	2	21	0	0	39	26	98
2018	4	0	2	18	0	0	74	22	120
2019	13	0	1	25	1	0	42	43	125
2020	6	5	3	57	0	0	25	41	137
2021	5	6	3	39	0	1	11	26	91
2022	5	0	1	30	2	0	26	36	100
Total	53	11	14	210	4	1	285	214	792

In a study published by U.C. Davis, Shilling et al. (2024), using California Highway Patrol data, found that mule deer were the top species involved in vehicle collisions.[14] Shilling et al. (2014) write:

> **We calculated that 48,442 deer are killed every year [by motor vehicles],** representing over 10% of an estimated 475,000 deer in the state (WAFWA, 2023). **This excess deer mortality on roads may explain the continuing decline of deer in California….**
>
> ***
>
> **Even common species like mule deer may be experiencing unsustainable levels of mortality from traffic.**[15]

Shilling et al. (2024) stated that these 48,442 mule deer mortalities because of vehicle collisions may represent 10% of California's mule deer population, a number that is twice the rate of deer killed by hunters.[16]

In another California study, White et al. (2023) found that climate change and fires affect deer diet usage of burn sites following a fire event. In the year following a major fire, deer diet was dominated by oak (rather than a diversity of plants that the study authors expected).[17] As we discuss herein, nutrition is key to deer survival.

Mule deer populations in the western United States have experienced population declines over the latter part of the last century because of myriad factors including habitat loss and fragmentation,

highway barriers, disturbance from recreationists, changes in forage quality, competition with other ungulates, disease, overhunting, poaching, stochastic weather events, fire suppression, noxious weeds, overgrazing by livestock, energy development, and fluctuations in hydrology caused by climate change—including reduced snow pack and increased temperatures.[18] Humans are also a "super predator" who kill far more deer than any other species on Planet Earth[19] (including by vehicles).

We also find Petitioner's concern over bear kleptoparasitism of mountain lions' caches overwrought. This behavior is simply part of a natural trophic cascade and bears' biology. Given the additional problems deer and other wildlife face in California and the West, this is hardly something to clutch pearls over. Even if the FGC were to be concerned about this behavior, killing bears to increase deer herds will not resolve the problems with declining deer in California.

Decades of study demonstrate that killing native carnivores to increase ungulate populations is unlikely to produce positive results.[20] **The key to mule deer survival is access to adequate nutrition and protecting breeding females—not killing their natural and necessary predators**.[21] In studies that involved predator control, those removals had no beneficial effect for mule deer.[22] If predators had been absent, deer would have died anyway from some other cause of mortality.[23]

In their long-term Colorado-based study, Bishop et al. (2009) determined that if deer had access to adequate nutrition, neither mountain lions nor coyotes negatively affected the mule deer population.[24] They also suggested that mountain lions selected for deer who were in poor body condition,[25] which makes sense because hunting prey larger than themselves is dangerous.[26] On the other hand, managing winter range and reducing weeds and reseeding can greatly benefit mule deer.[27]

In their review article that surveyed 48 predation studies involving mule deer, Forrester and Wittmer (2013) determined that, while predation was the "primary proximate cause of mortality for all age classes" of deer, predator removal studies indicate that "predation is compensatory, particularly at high deer densities, and that nutrition and weather shape population dynamics."[28] In other words, each year, some deer are "'doomed surplus'"; that is, some deer will die no matter what.[29] In their mule deer study, Monteith et al. (2014) found that both additive and compensatory mortality can occur in a single year.[30] Mountain lion predation on mule deer in California was likely additive during one time period of an increasing deer population, but it did not stop the growth of the population, which indicates that resource availability, particularly food, is important to mule deer.[31] The condition of the deer was strongly correlated with the availability of nutrition, and thus mountain lion predation during a deer decline was not an additive source of mortality.[32] Young animals who have access to fewer nutritional reserves are less likely to survive.[33] Mule deer foods can be hindered by weather, habitat loss, oil and gas development, fire suppression, and competition with domestic livestock and other ungulates.[34] To reiterate: The underpinnings of ungulates' densities is linked to their nutritional carrying capacity.[35]

California deer require fences and highway crossings to prevent vehicle collisions and their ranges and corridors protected from development, and adequate nutrition to survive—which is a struggle in an arid and drying climate prone to mega droughts and wildfires. What is abundantly clear from studies conducted in California and across the West is that predator control, including killing bears to grow mule deer, will simply not work.

2. **Hunters are largely helped by all others to pay for California's wildlife**

Petitioners wrongly claim that hunters pay for California's wildlife. However, according to data from the U.S. Fish and Wildlife Service and the U.S. Census Bureau, less than 1% of Californians, a mere 0.67%, hold resident hunting licenses.[36] Even fewer residents, about 0.08%, hunt black bears.[37] Most California bear hunters are also residents; in fact, they comprise 99% of bear hunters in California, according to DFW's data from its annual hunting license statistics and black bear take reports for the years 2001 to 2020. Additionally, those data show that since 2013, most bear hunters are opportunistic deer hunters who also purchase bear tags for a nominal fee.

According to a 2020 economic study by Dr. Cameron Murray, trophy hunters depend largely on funding provided by others in order to engage in their sport.[38] Dr. Murray found that federal taxes that all Americans pay support the federal lands (e.g., Bureau of Land Management, U.S. Forest Service and National Park Service) that most wildlife live on. Even state parks get funding from all Americans, only a small subset of whom are hunters and even fewer are trophy hunters.[39]

Taxes on gun and ammunition sales (Pittman-Robertson Act funds) and taxes on boating and fishing fuel and equipment (Dingell-Johnson Act funds) are paid by only a tiny fraction of Americans who trophy hunt—Dr. Murray estimates about 2% of the American population—so about 0.3% of all funding from taxes paid by trophy hunters to Pittman-Robertson and Dingell-Johnson.[40]

Managing hunting, fishing and trapping is expensive, as people are needed to set regulations, conduct law enforcement and wildlife population monitoring. Therefore, the costs of administering hunting and trapping can exceed the revenue from license sales.[41] Most people in California have told this body they do not want bears hunted at all. Therefore we ask that you deny Petitioner's petition.

3. Hunting bears does nothing to resolve negative human-bear interactions

Petitioners use disinformation, misinformation and fearmongering to claim bear hunting is necessary to keep people safe. That claim is unsupported by sound science. When people leave out unsecured garbage and bird feeders, hungry black bears are lured into neighborhoods. In rural areas, feed and farm animals (particularly chickens and bees) attract bears—but they can readily be secured by using electric fencing. Human-bear conflicts cost wildlife agencies' time and resources. Preventing conflicts in the first place better protects bears and property and keeps people and bears safe**.**

DFW cannot hope to hunt its way out of human-bear conflicts ("HBC"). Hunting as a tool to prevent conflicts has been debunked by a litany of studies. Lackey et al. (2018), in their review of human-bear conflicts, state:

> From a broad perspective, more bears mean more conflict, as bears encounter humans more frequently. **Yet the relationship between abundance and conflict is not consistent.** For a bear population near carrying capacity, lowering the population by 20% may have little effect on conflict depending upon the context of the conflict (e.g., urban vs. agricultural), availability of natural food, and prevalence of anthropogenic attractants. **Conversely, smaller bear populations or small components of a bear population can cause a great deal of conflict if anthropogenic food is readily available** and natural food is greatly diminished.[42]

In other words, agencies' continuous assertions that bear population size drives human-bear conflict is incorrect. Lackey et al. (2018) even suggest that small bear populations can cause a lot of conflict. The answer to human-bear conflict is not killing, but instead not attracting bears to human-dominated areas in the first place.

Furthermore, Northrup et al. (2023) found that while a new spring bear hunting season resulted in a "significant" increase in *harvest*, "there was no concomitant reduction in interactions or incidents and, in fact, these [interactions or incidents] were higher in areas with the new spring season relative to control areas."[43]

In a nationwide analysis of bears killed via hunting and bear attacks on humans from 2000 to 2017, Keefover and Murphy (2023) found that despite an approximate 3% average annual increase in the number of bears killed by hunters across the U.S., those increases had no influence on the frequency or distribution of bear attacks on humans (i.e., killing more bears did not reduce the number of bear attacks).[44] Off-leash dogs can also provoke black bear attacks.[45]

Numerous studies also cite the fact that killing bears does not stop human-bear conflicts, even as it does radically reduce bear populations.[46] And hunting bears does not make people safer, as hunters are not killing the bears attracted to people's yards because of unsecured garbage, bird feeders, pet food, and animal feed. Bear biologists Obbard et al. (2014) write: "We found no significant correlations between [black bear] harvest and subsequent HBC [human-bear conflicts]. Although it may be intuitive to assume that harvesting more bears should reduce HBC, empirical support for this assumption is lacking despite considerable research."[47] Obbard et al. (2014) cite six studies in addition to their own findings (Garshelis 1989, Treves and Karanth 2003, Huygens et al. 2004, Tavss 2005, Treves 2009, Howe et al. 2010, Treves et al. 2010). Since Obbard et al. (2014) published, many other biologists, who are cited here, have also confirmed that hunting bears does not reduce conflicts with humans, but it can harm bear populations.[48]

With regard to agricultural damage, Khorozyan and Waltert (2020) analyzed 77 cases from 48 studies to compare how well different methods worked to prevent bears from causing damage.[49] They viewed three main approaches: non-invasive methods (like electric fences), invasive methods (such as relocating bears), and lethal control (shooting). Their findings show that the **most effective solutions are electric fences, which reduce damage by 79–100%**. **Deterrents, like noise or lights, had mixed results, reducing damage by anywhere from 13% to 79%, so they recommend using them during times when bears are most active. Shooting had a short-term benefit, but its effectiveness dropped significantly over time**. They also looked at whether bear population size affected how well these methods worked but didn't find a clear link. This may be because bear populations are measured over large areas, while the effectiveness of these methods is usually studied on a smaller, more local scale.[50]

Wildlife management agencies often wrongly presume that an increase in human-bear conflicts is a result of a growing bear population, but bears may simply be modifying their behaviors in response to deleterious environmental circumstances, including a lack of food.[51]

As Johnson et al. (2018) and others suggest, because North American habitats are altered by human development and are changed by the climate crisis, wildlife managers must adapt and work to reduce human-bear conflicts, rather than rely upon lethal removals.[52] When bears must live alongside humans, their chances for survival decrease dramatically because of vehicle collisions and agency actions.[53] Large native carnivores face extinction,[54] so it is incumbent upon wildlife agencies to conserve rather than overexploit them, including by building safe passages through roadways and human-dominated landscapes.[55] Expanded human development into bear habitats during the climate crisis exacerbates bear mortalities, and then agencies (in other states that allow black bear trophy hunts) react by increasing hunting quotas when they should actually be taking steps to *reduce* overall black bear mortalities.[56]

In sum, human-bear conflicts are a "people problem," not a bear problem, and can be resolved and prevented through education and the application of simple non-lethal techniques like using bear-resistant trash cans, removing bird feeders while bears are out of the den, keeping dogs on leashes, and protecting farm animals (e.g., electric fencing). Therefore, the FGC must deny this petition.

4. Petitioners admit DFW will face vexing law enforcement issues concerning tag sales

As outlined in Humane World's comments on the Plan, black bear poaching is widely documented across the U.S. In Washington, study authors noted that approximately 20% of all hunted bears were poached. The 1998 California bear plan also suggested that in California, the illegal take of black bears likely equaled the amount of legal take because of the trade in traditional medicines. The 2025 Plan only noted that the possession of bear gall bladders for the purposes of sale would be a crime. We are already concerned about black bear poaching in California. This petition only adds to our concerns.

Petitioners themselves write: "Any person who purchases more than two bear license tags may be denied bear license tags for the current license year." This indicates that the DFW and its law enforcement team may have difficulties monitoring if someone has purchased more than two licenses. If someone is purchasing more than two bear tags, the punishment of losing the opportunity to buy a license in the current year is hardly a deterrent for would-be poachers and poaching rings. For this reason, FGC must deny the petition at hand.

5. Conclusion: No scientific or social science evidence exists supporting the petition

As we've shown herein, Petitioners failed to use the best science to back their Petition's claims. Moreover, allowing additional bear hunting in California will not be supported by most state residents. California is a state second to none with a proud history of protecting species from cruel hunting practices.

- In 2020, a Remington Research Group poll found that 70% of Californians believe that black bears should not be hunted for sport.
- In 2022, a Remington Research Group national poll on trophy hunting found that 76% of Americans oppose the trophy hunting of black bears.
- Dietsch et al. (2018) (the California report for the American Wildlife Values Project) found that less than 30% of Californians would want a black bear killed *even if a bear attacked a person*.

Black bears hold intrinsic value, according to Californians and Americans. That means citizens believe that black bears are inherently valuable beyond their benefits to society or even their ecosystems.

Black bears hold considerable ecological values and are necessary for California biodiversity. Black bears are an important umbrella species who increase the biological diversity of their ecosystems. Black bears eat fruits and deposit them across long distances (and mice assist by removing the seeds from bear feces where they would otherwise mildew and caching them in soil where some grow).[57] Black bears disperse more seeds than birds.[58] They cause small-scale ecological disturbance to the canopy that allows sun to filter to the forest floor creating greater biological diversity.[59] They break logs while grubbing, which helps the decomposition process and facilitates the return of nutrients to the soil, and they recycle carrion.[60] In one study, researchers found that black bears were the dominant species moving salmon from streams into riparian zones. Bears ate about half of the salmon, leaving remnants that contributed to greater tree ring growth.[61]

They also found higher plant growth along the riparian areas where bear trails existed and where bears' urine deposit was high.[62] Black bears also indirectly create trophic cascade benefits by protecting gray foxes from competition with coyotes and bobcats—who avoid bears[63]—and by their scavenging of mountain lions' cached deer carcasses.[64] Large carnivores prevent costly and deadly deer-vehicle collisions.[65] By changing the makeup of the smaller carnivores in the ecosystem, bears in turn can affect rodent populations and seed dispersal.[66]

Californians greatly value black bears; there is no reason to add a second bear tag.

For all these reasons, we ask you to deny Petitioner's petition.

Sincerely,

Jenny Berg
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[1] A. D. Wallach et al., "What Is an Apex Predator?," *Oikos* 124, no. 11 (2015).
[2] Ibid.
[3] Ibid.
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[30] Ibid.
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[32] Ibid.
[33] Monteith et al., "Life-History Characteristics of Mule Deer: Effects of Nutrition in a Variable Environment."; Pojar and Bowden, "Neonatal Mule Deer Fawn Survival in West-Central Colorado."; Watkins, Olterman, and Pojar, "Mule Deer Survival Studies on the Uncompahgre Plateau, Colorado 1997-2001."; Bishop et al., "Effect of Enhanced Nutrition on Mule Deer Population Rate of Change."
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June 14, 2024

Chuck Bonham, Director
Scott Gardner, Wildlife Branch Chief
Chad Dibble, Deputy Director of the Wildlife & Fisheries Division
California Department of Fish and Wildlife - Wildlife Branch
Attn: Black Bear Program
P.O. Box 944209
Sacramento, CA 94244-2090
BigGame@wildlife.ca.gov

Re: Black bear conservation plan for California

Dear Dir Bonham, Wildlife Branch Chief Gardner and Deputy Director Dibble:

On behalf of the Humane Society of the United States' (HSUS) California members and supporters, we thank the California Department of Fish and Wildlife ("DFW") for this opportunity to comment on the draft 2024 *Black Bear Conservation Plan for California* (hereinafter "Plan"). We appreciate that you included HSUS as a stakeholder in your public engagement process and thank you for the depth of citizen involvement that DFW allowed with regards to black bear management issues in the recent past.

In many aspects, the plan is well-conceived and understandable to a lay audience. On the other hand, the lack of population studies of California bears and information about the demographics of bears hunted – particularly adult females – remains a valid concern. The numbers of black bears killed by other non-hunting causes, including poaching, vehicle collisions, for predator control and from drought and fires, is also of concern.

Black bears are a much beloved California species who hold enormous intrinsic, biological and human value, yet face significant ongoing stressors from habitat loss and climate change. Maintaining their populations for future generations, and where their conservation and welfare has been well considered, is of paramount importance to the California public and to the Humane Society of the United States.

Affirmations for the Plan:

- We sincerely appreciate that the plan spells out goals for black bear conservation, as well as the forward-thinking approach for avoiding human-bear conflicts for homeowners and agriculturalists, particularly the emphasis placed on non-lethal mitigation
- We appreciate the extensive outreach DFW conducted to California's Tribes for their Traditional Ecological Knowledge and input
- We are grateful for the elements concerning the welfare of orphaned cubs and the treatment of research bears, as well as the promise to consider "the effects of hunting seasons and methods of take on animal welfare" (the Plan at p. 62)
- We appreciate DFW's acknowledgement that broad public support is necessary for contemporary wildlife management
- We value DFW's ongoing research to determine where wildlife crossings are appropriate to protect wildlife and people from dangerous and deadly collisions

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- We are grateful that DFW will not only periodically augment its bear conservation Plan with a full re-write every ten years, but also has committed to producing an annual report on the status of the black bear population by September 15th of every year.

Suggestions for Plan improvement:

- Despite receiving a significant amount of public comments and concerns about bear hunting in California, the Plan appears to privilege bear hunting and hunters while revealing little bear-hunting data – even as the agency has not issued bear-take reports since 2020.[1]
- DFW has few accurate population and density estimates for California's bear populations and its new model remains untested and without being ground-truthed
- The Plan claims, with underwhelming evidence, that hunting bears resolves human-bear conflicts
- The Plan appears to downplay threats to California bears' persistence and resilience from the climate crisis and human population irruption
- Deer declines stem from human activities, not predation

1. In its final Plan, DFW must more fully consider Californians' wildlife values and the value of black bears to California's ecosystems

While we appreciate the nod to Peterson and Nelson (2017) (Plan @ p. 9) as well as the acknowledgment for the necessity of further research on public values related to black bears (Plan @ p.56), we encourage DFW to better acknowledge and consider the perspectives of non-hunters by adding a robust discussion from social scientists about changing wildlife values.[2] According to data from the U.S. Fish and Wildlife Service and the U.S. Census Bureau, less than 1% of Californians, a mere 0.67%, hold resident hunting licenses.[3] Even fewer residents, about .08%, hunt black bears.[4] Most California bear hunters are residents, 99%, according to DFW's data from its annual black bear take reports for the years 2001 to 2020. Those data also show that since 2013, most bear hunters are opportunistic deer hunters who purchase bear tags for a nominal fee.

Californians hold diverse wildlife values, but the majority are "Mutualists." Dietsch et al. (2018) (the American Wildlife Values-California report), found that **most Californians, 47%, are "Mutualists,"** defined

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[1] CDFW, "Annual Black Bear Take Reports," *https://wildlife.ca.gov/Hunting/Bear#harvest-data* (2024).

[2] Michael J. Manfredo et al., "Social Value Shift in Favour of Biodiversity Conservation in the United States," *Nature Sustainability* 4, no. 4 (2021), http://dx.doi.org/10.1038/s41893-020-00655-6; Michael J Manfredo et al., "Bringing Social Values to Wildlife Conservation Decisions," *Frontiers in Ecology and the Environment* 19, no. 6 (2021), http://dx.doi.org/https://doi.org/10.1002/fee.2356; National Report from the research project entitled "America's Wildlife Values", *America's Wildlife Values: The Social Context of Wildlife Management in the U.S.*, by M. J. Manfredo et al. (Fort Collins, Colorado: Colorado State University, Department of Natural Resources, 2018).

[3] U.S. Fish and Wildlife Service, "Hunting Licenses, Holders, and Costs by Apportionment Year," accessed. https://us-east-1.quicksight.aws.amazon.com/sn/accounts/329180516311/dashboards/48b2aa9c-43a9-4ea6-887e-5465bd70140b. U.S. Census Bureau, "Quick Facts: California," *https://www.census.gov/quickfacts/fact/table/californiacdpmaryland,CA,US/PST045223* (2023).

[4] California Department of Fish and Game, "Hunting: Items Reported by License Year," *https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=178041&inline.* (2024).

as those who believe wildlife are "part of our social network" and believe that humans should "live in harmony" with wildlife.[5] In comparison, Deitsch et al. (2018) found that only **18% of Californians are "Traditionalists,"** those who believe wildlife should be used and managed for human benefit.[6] Two other value-type orientations found in California are "**Pluralists**," who believe in *both* domination and mutualism values—but prioritize their values depending on the specific context, and "**Distanced,**" those who are not keen on animal issues and do not see wildlife affecting their lives.[7] Fourteen percent of Californians are Pluralists and 21% are Distanced.[8] These values are displayed in regulatory and statutory frameworks.

Californians have a proud tradition of supporting regulatory and statutory protections for native carnivores. In 1990, Californians passed a landmark ballot measure prohibiting the hunting of mountain lions. In 1998, voters passed Proposition 4, which banned body-gripping traps. In 2012, the California legislature passed bills that prohibited the hound hunting of bears and bobcats, and in 2013, state lawmakers passed the Bobcat Protection Act, which limited bobcat trapping. In 2015, the DFW banned commercial and recreational bobcat trapping altogether, and in 2019, Assembly Bill 1254 placed a moratorium on trophy hunting bobcats altogether.

These pro-wildlife values also apply to California black bears. In the past few years, Californians have participated in DFW's public processes relative to banning the hunting of bears and a proposal to double bag limits on bears. Other evidence for pro-bear values in California and the U.S. exists:

- Dietsch et al. (2018) (the California report for the American Wildlife Values Project) found that less than 30% of Californians would want a black bear killed *even if a bear attacked a person*.
- In 2019**,** a National Shooting Sports Foundation and Responsive Management survey of Americans' attitudes toward hunting, fishing, and trapping found that 66% disapprove of trophy hunting.
- In 2020, a Remington Research Group poll found that 70% of Californians believe that black bears should not be hunted for sport.
- In 2022, a Remington Research Group national poll on trophy hunting found that 76% of Americans oppose the trophy hunting of black bears.

Despite significant public sentiment against the hunting of native carnivores including black bears, DFW currently permits up to 1,700 black bears to be hunted in a single season. This occurs despite a dearth of census, density and demographic information about California's black bears. DFW's new population model purports to find that 65,000 bears live in California. This figure is between a 63% - 116% increase from the previous estimate of 30,000 – 40,000 bears. While we agree with DFW that the previous model had no basis in sound science and are appreciative of the steps the agency has taken in developing this new one, the new model has yet to be proven as reliable, and thus we urge DFW to take serious caution before changing any management regulations as a result.

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[5] A. M. Dietsch et al., "State Report for California from the Research Project Entitled, "America's Wildlife Values"," *Colorado State University, Department of Natural Resources* https://content.warnercnr.colostate.edu/AWV/CA-WildlifeValuesReport.pdf (2018).
[6] Ibid.
[7] Ibid.
[8] Ibid.

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Black bears hold intrinsic value, according to Californians and Americans. That means citizens believe that black bears are inherently valuable beyond their benefits to society or even their ecosystems. If people are taught about bears' values, they are more likely to take steps to co-exist with them.[9] Therefore, we are thankful to the DFW for mentioning black bears' intrinsic value in the Plan (Plan @ p. 7). Before the landmark *America's Wildlife Values* project, a 2015 study of adult U.S. residents also found that 81% believe that wildlife hold intrinsic value.[10] As Bruskotter et al. (2015) write, ". . . most people believe that wildlife possess 'intrinsic value,' which suggests that wildlife should be treated with regard for their own welfare, not just their utility (or lack thereof) to humans."[11]

Bears are highly sentient and have the largest brain size of any carnivore relative to their body size.[12] Their intelligence has been compared to that of great apes; for example, they are able to estimate quantities (that is, count) and assess moving stimuli and subsets of stimuli.[13] They form close social attachments with kin.[14] Bears engage in playful behaviors such as between males outside of the breeding season.[15] Reynolds-Hogland et al. (2024) suggest these non-aggressive interactions allow males to assess one another's abilities to fight—so as to avoid fighting.[16] On the other hand, Reynolds-Hogland (2024) found that females, even related females (e.g., mothers and grown daughters), avoid each other perhaps because of resource (food) competition.[17]

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[9] K. Slagle et al., "Building Tolerance for Bears: A Communications Experiment," *Journal of Wildlife Management* 77, no. 4 (2013).
[10] J.T. Bruskotter, M.P. Nelson, and J.A Vucetich, "Does Nature Possess Intrinsic Value? An Empirical Assessment of Americans' Beliefs.," (2015).
[11] J. T. Bruskotter, M. P. Nelson, and J. A. Vucetich, "Hunted Predators: Intrinsic Value," *Science* 349, no. 6254 (2015).
[12] Ian Stirling, Kristin Laidre, and Erik W. Born, "Do Wild Polar Bears (Usus Maritimus) Use Tools When Hunting Walruses," *Arctic* 74, no. 2 (2021); M. Cattet et al., "An Evaluation of Long-Term Capture Effects in Ursids: Implications for Wildlife Welfare and Research," *Journal of Mammalogy* 89, no. 4 (2008); V. B. Deecke, "Tool-Use in the Brown Bear (Ursus Arctos)," *Animal Cognition* 15, no. 4 (2012).
[13] Jennifer Vonk and Michael J. Beran, "Bears 'Count' Too: Quantity Estimation and Comparison in Black Bears, Ursus Americanus," *Animal Behaviour* 84, no. 1 (2012); Jennifer Vonk, Stephanie E. Jett, and Kelly W. Mosteller, "Concept Formation in American Black Bears, Ursus Americanus," *Animal Behaviour* 84, no. 4 (2012).
[14] Deecke; Silvana Mattiello et al., "Effect of the Change of Social Environment on the Behavior of a Captive Brown Bear (Ursus Arctos)," *Journal of Veterinary Behavior: Clinical Applications and Research* 9, no. 3 (2014).
[15] Melissa Reynolds-Hogland et al., "Long-Term Video and Genetic Data Yield Insights into Complex Sociality of a Solitary Large Carnivore," *Behavioural Processes* 214 (2024); Melissa Reynolds-Hogland et al., "Video-Documentation of True and Borderline Tool Use by Wild American Black Bears," *Ursus* 2023, no. 34e3 (2023).
[16] Reynolds-Hogland et al.
[17] Ibid.

Cubs learn foraging styles from their mothers,[18] and bear mothers spend prolonged periods raising and nurturing young.[19] Bears use tools[20] and they have a right-paw bias while foraging.[21] In video footage, Reynolds-Hogland et al. (2023) found that black bears use sticks and rocks as tools, particularly in pools of water for cleaning and scratching themselves.[22] One bear twice bit sticks to fashion tools for grooming purposes, and another bear used a sapling to attempt to access a hanging food bag.[23]

Black bears hold considerable ecological values on California's wild landscapes. Black bears are important umbrella species and ecological actors who increase the biological diversity of their ecosystems. Black bears eat fruits and deposit them across long distances (and mice assist by removing the seeds from bear feces where they would otherwise mildew, and caching them in soil where some grow).[24] Black bears disperse more seeds than birds.[25] They cause small-scale ecological disturbance to the canopy that allows sun to filter to the forest floor creating greater biological diversity.[26] Bears break logs while grubbing, which helps the decomposition process and facilitates the return of nutrients to the soil, and they recycle carrion.[27] In one study, researchers found that black bears were the dominant species moving salmon from streams into riparian zones. Bears ate about half of the salmon, leaving remnants that contributed to greater tree ring growth.[28] They also found higher plant growth along the riparian areas where bear trails existed and where bears' urine deposit was high.[29] When black bears are out of the den, they also protect gray foxes from competition with coyotes and bobcats, who avoid bears.[30] So in this way, bears create a non-lethal "trophic cascade" – meaning that bears indirectly benefit gray foxes. By changing the makeup of the smaller carnivores in the ecosystem, bears in turn can affect rodent populations and seed dispersal.[31]

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[18] Rachel Mazur and Victoria Seher, "Socially Learned Foraging Behaviour in Wild Black Bears, Ursus Americanus," *Animal Behaviour* 75, no. 4 (2008).

[19] Black bears are highly sentient. *See e.g.,* John L. Gittleman, "Carnivore Life History Patterns: Allometric, Phylogenetic, and Ecological Associations," 127, no. 6 (1986); T. E. Reimchen and M. A. Spoljaric, "Right Paw Foraging Bias in Wild Black Bear (Ursus Americanus Kermodei)," *Laterality: Asymmetries of Body, Brain and Cognition* 16, no. 4 (2011); Vonk, Jett, and Mosteller; Vonk and Beran; Mazur and Seher; Cattet et al; Reynolds-Hogland et al; Reynolds-Hogland et al.

[20] Stirling, Laidre, and Born; Deecke; Reynolds-Hogland et al; Reynolds-Hogland et al.

[21] Reimchen and Spoljaric..

[22] Reynolds-Hogland et al.

[23] Ibid.

[24] M. S. Enders and S. B. Vander Wall, "Black Bears Ursus Americanus Are Effective Seed Dispersers, with a Little Help from Their Friends," *Oikos* 121, no. 4 (2012).

[25] L. E. F. Harrer and T. Levi, "The Primacy of Bears as Seed Dispersers in Salmon-Bearing Ecosystems," *Ecosphere* 9, no. 1 (2018).

[26] K. Takahashi and K. Takahashi, "Spatial Distribution and Size of Small Canopy Gaps Created by Japanese Black Bears: Estimating Gap Size Using Dropped Branch Measurements," *Bmc Ecology* 13 (2013).

[27] Evelyn L. Bull, James J. Akenson, and Mark G. Henjum, "Characteristics of Black Bear Dens in Trees and Logs in Northeastern Oregon," *Northwestern Naturalist* 81, no. 3 (2000), accessed 2021/12/28/.

[28] T. E. Reimchen and C. H. Fox, "Fine-Scale Spatiotemporal Influences of Salmon on Growth and Nitrogen Signatures of Sitka Spruce Tree Rings," *Bmc Ecology* 13 (2013).

[29] Ibid.

[30] Remington J. Moll et al., "An Apex Carnivore's Life History Mediates a Predator Cascade," *Oecologia* 196, no. 1 (2021).

[31] Ibid.

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And bears indirectly create a trophic cascade through their scavenging of mountain lions' cached deer carcasses.[32] Large carnivores prevent costly and deadly deer-vehicle collisions.[33]

In sum, the new California black bear conservation plan must include a much more robust discussion of the current social science and bear biology to inform its black bear conservation Plan. Two lines devoted to Peterson and Nelson (2017) and a nod to the pseudo-science of "social carrying capacity" are woefully insufficient. (We address related values issues, the North American Model of Wildlife Conservation and wildlife-recreation economics, below.)

2. DFW must use sound scientific principles to accurately count or estimate, and determine the trends in, California's black bear populations to protect them for future generations

If California's bear populations are not carefully monitored, hunting levels may be unsustainable—especially when coupled with the sizeable number of bears killed by non-hunting causes such as poaching, vehicle collisions, drought or wildfires.

Our greatest concern for this Plan is the lack of credible density estimates, including demographic data concerning the numbers of adult females in California's bear populations. (See Plan @ p. 15). To have no current data and to permit hunting in this absence of credible information is troubling. The Plan relies upon antiquated studies to make black bear density claims using a yet untested model in California. Those studies include: Piekielek and Burton (**1975**), Kelleyhouse (**1977**), California Dept. of Fish and Game (CDFG) (**1993**), Sitton (1982), Grenfell and Brody (**1983**), Koch (**1983**), Stubblefield (**1992**), Novick et al. (**1981**), Moss (**1972**), Matthews et al. (**2008**), Peacock et al. (**2011**). **DFW offers two contemporary studies in its Plan**: Fusaro et al. (2017) and Owens-Ramos et al. (2022).

Fusaro et al. (2017) could help inform the methods CDFW could use to obtain data for estimating population sizes, densities, and growth rates. However, that study was conducted in two small areas (44 km^2 and 70 km^2) that collectively represent less than 1% of California's black bear range; and the data were collected 12 to 14 years ago (2010-2012) and do not represent the contemporary status of bears in those study areas.

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[32] Maximilian L. Allen, L. Mark Elbroch, and Heiko U. Wittmer, "Can't Bear the Competition: Energetic Losses from Kleptoparasitism by a Dominant Scavenger May Alter Foraging Behaviors of an Apex Predator," *Basic and Applied Ecology* 51 (2021): p. 2.

[33] Sophie L. Gilbert et al., "Socioeconomic Benefits of Large Carnivore Recolonization through Reduced Wildlife-Vehicle Collisions," *Conservation Letters* 10 (2017), http://dx.doi.org/10.1111/conl.12280. Jennifer L. Raynor, Corbett A. Grainger, and Dominic P. Parker, "Wolves Make Roadways Safer, Generating Large Economic Returns to Predator Conservation," *Proceedings of the National Academy of Sciences* 118, no. 22 (2021), http://dx.doi.org/10.1073/pnas.2023251118.

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To reliably estimate population sizes, densities, and growth rates of California's bear populations statewide, and monitor the harms from human-caused mortalities and climate change on bear population demographics, we recommend the following contemporary studies.[34]

- Alston, J. D., Clark, J. D., Gibbs, D. B., and Hast, J. (2022). Density, harvest rates, and growth of a reintroduced American black bear population. *The Journal of Wildlife Management, 86*(8).

- Humm, J. and Clark, J.D. (2021). Estimates of abundance and harvest rates of female black bears across a large spatial extent. *The Journal of Wildlife Management, 85*(7), 1321-1331.

- Hooker, M.J., Chandler, R.B., Bond, B.T. and Chamberlain, M.J. (2020). Assessing population viability of black bears using spatial capture-recapture models. *The Journal of Wildlife Management, 84*(6), 1100-1113.

- Humm, J.M., McCown, J.W., Scheick, B.K., and Clark, J.D. (2017). Spatially explicit population estimates for black bears based on cluster sampling. *The Journal of Wildlife Management, 81*(7), 1187-1201.

California bears also need a contemporary assessment of their genetics to ensure their populations are viable for future generations. Frankham et al. (2014) state that an *effective population size* of 500 individuals is "too low for retaining evolutionary potential for fitness in perpetuity."[35] Instead, they suggest that an effective population of at least 1,000 is required to ensure long-term genetic viability.[36] This means that California's bear populations need to be well connected to avoid inbreeding, genetic drift and to evolve adaptive traits over the long term to survive environmental changes.

The Plan, citing Brown et al. (2009), concludes that black bear populations in California "appear to be genetically diverse." (Plan @ 19). Yet, an April 15, 2022 letter to Dir. Charlton Bonham signed by 18 biologists and scholars took issue with that study. They wrote:

> Brown et al. (2009) found that as of 2004, four distinct populations of black bears existed in California. Although the authors noted that moderate levels of gene flow existed among some of the populations, two populations were disjunct, likely reproductively isolated from the other populations, and had low genetic diversity (heterozygosity = 0.41-0.48; allelic

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[34] Joshua D. Alston et al., "Density, Harvest Rates, and Growth of a Reintroduced American Black Bear Population," *The Journal of Wildlife Management* 86, no. 8 (2022); Jacob Humm and Joseph Clark, "Estimates of Abundance and Harvest Rates of Female Black Bears across a Large Spatial Extent," *The Journal of Wildlife Management* 85 (2021); Michael J. Hooker et al., "Assessing Population Viability of Black Bears Using Spatial Capture-Recapture Models," *The Journal of Wildlife Management* 84, no. 6 (2020); Jacob M. Humm et al., "Spatially Explicit Population Estimates for Black Bears Based on Cluster Sampling," *The Journal of Wildlife Management* 81, no. 7 (2017).

[35] Richard Frankham, Corey JA Bradshaw, and Barry W Brook, "Genetics in Conservation Management: Revised Recommendations for the 50/500 Rules, Red List Criteria and Population Viability Analyses," *Biological Conservation* 170 (2014).

[36] Ibid.

richness = 2.9-3.4). **However, considering this study was based on data collected during 1990–2004, the results apply to at least 18 years ago, which represents approximately 3–6 black bear generations because bears are iteroparous and have overlapping generations[37] and is therefore terribly outdated.**

Results from two recent, range-wide, species-level black bear genomics studies indicate just five subspecies of black bears exist in North America, rather than the 16 subspecies that had been historically used.[38] Black bear subspecies are geographically separated from each other and are grouped as follows: Kenai Peninsula, southeast Alaska (SEAK); Northwest, Southwest, East and Mexican.[39] These two studies arrived at similar conclusions for the West and Southwest, which suggested that all bears in California likely are either the Southwest clade/cluster/subspecies, the Northwest clade/cluster/subspecies, or an admixture of the two.

In short, **California black bears are likely genomically an admixture of Northwest and Southwest clades of black bears, but contemporary information on genetic population structuring, isolation, genetic diversity, and genetic effective population sizes remains unclear for bear populations in the state and further analyses using more recent genetic data are warranted.**

Accurate population and genetic information concerning California bears is a scarce commodity. We therefore respectfully request that the Plan be informed by the "hallmarks of science," which are identified by Artelle et al. (2018) as measurable objectives, evidence, transparency and independent review.[40] Without intensively studying a bear population, state wildlife agencies will poorly assess the total mortality that bears sustain and may increase quotas when they should be decreasing them.[41] Bears may not be occupying

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[37] Dave P. Onorato et al., "Phylogeographic Patterns within a Metapopulation of Black Bears (Ursus Americanus) in the American Southwest," *Journal of Mammalogy* 85, no. 1 (2004), accessed 4/14/2022, http://dx.doi.org/10.1644/1545-1542(2004)085<0140:Ppwamo>2.0.Co;2; S. Murphy et al., "Rapid Growth and Genetic Diversity Retention in an Isolated Reintroduced Black Bear Population in the Central Appalachians," *Journal of Wildlife Management* DOI: 10.1002/jwmg.886 (2015); Emily E. Puckett et al., "Phylogeographic Analyses of American Black Bears (Ursus Americanus) Suggest Four Glacial Refugia and Complex Patterns of Postglacial Admixture," *Molecular Biology and Evolution* 32, no. 9 (2015), accessed 10/28/2019, http://dx.doi.org/10.1093/molbev/msv114.

[38] Mikkel Winther Pedersen et al., "Environmental Genomics of Late Pleistocene Black Bears and Giant Short-Faced Bears," *Current Biology* 31, no. 12 (2021/06/21/ 2021), http://dx.doi.org/https://doi.org/10.1016/j.cub.2021.04.027; Puckett et al.

[39] Pedersen et al.

[40] Kyle A. Artelle et al., "Hallmarks of Science Missing from North American Wildlife Management," *Science Advances* 4, no. 3 (2018).

[41] Jared S. Laufenberg et al., "Compounding Effects of Human Development and a Natural Food Shortage on a Black Bear Population Along a Human Development-Wildland Interface," *Biological Conservation* 224 (2018); Lindsay Welfelt, Richard Beausoleil, and Robert Wielgus, "Factors Associated with Black Bear Density and Implications for Management," *The Journal of Wildlife Management* (2019).

available habitat because of human presence.[42] 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.[43] Population trends must be determined using reliable methodologies, and sightings, predation events, and kill levels are not reliable means to indexing a population.[44]

In sum, because California has plans to embark on more black bear study projects, including both populations and genetics, we suggest that bear management be conducted as conservatively as possible given the contemporary threats that bears face.

3. If the DFW insists on continuing to hold bear hunts—which are generally conducted for the purpose of acquiring trophies[45]—the rationale for those hunts must be better explained as part of a new Plan

The DFW's implication that bear hunting is necessary because of a long-standing tradition of hunting in America is poor logic, particularly in a contemporary society whose values and the landscape have drastically changed since 1646 (Plan @ 23). Instead, the agency must define clear strategies and a science-based rationale for why a black bear hunt must occur, and how it will ensue, in California.

Furthermore, because the DFW has not yet put out its annual bear take reports after it issued its 2020 report, the DFW's "harvest data" along with other forms of black bear mortality and black bear hunter data should be included as part of a new Plan *and analyzed as part of a trend*, not only for the public but for the California Fish and Game Commission to consider. Because DFW has little empirical information about the densities, demographics and other population data, we request that quotas remain the same in the absence of sound information upon which to base decisions.

We find it troubling that the Plan asserts that black bears in California are a "common" and "widespread" species (Plan @ p. 14-16). We suggest DFW completely remove this discussion from its final Plan. By definition, apex carnivores such as black bears are *rare* on the landscape.[46] 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.[47] Bears are capable of self-regulation[48] and are also regulated by

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[42] Welfelt, Beausoleil, and Wielgus.
[43] D. L. Garshelis and H. Hristienko, "State and Provincial Estimates of American Black Bear Numbers Versus Assessments of Population Trend," *Ursus* 17, no. 1 (2006)., p. 6
[44] Tom Beck et al., *Cougar Management Guidelines* (Bainbridge Island, WA: WildFutures, 2005). Nick Salafsky and Richard Margoluis, "Threat Reduction Assessment: A Practical and Cost-Effective Approach to Evaluating Conservation and Development Projects," *Conservation Biology* 13, no. 4 (1999). Nick Salafsky and Richard Margoluis, "What Conservation Can Learn from Other Fields About Monitoring and Evaluation," *Bioscience* 53, no. 2 (2003), accessed 3/14/2022.
[45] See e.g., Chris T. Darimont, Brian F. Codding, and Kristen Hawkes, "Why Men Trophy Hunt," *Biology Letters* 13, no. 3 (2017).
[46] A. D. Wallach et al., "What Is an Apex Predator?," *Oikos* 124, no. 11 (2015).
[47] Ibid.
[48] Ibid.

habitat and climatic conditions. Considering these biological factors, they rely on social stability to maintain resiliency.[49]

Bears reproduce slowly but are highly susceptible to overkill.[50] Females generally give birth to litters of cubs only every 2 to 3 years. Cub survival in one peer-reviewed Colorado study was about 55%.[51] In other words, nearly 1 in 2 cubs dies within their first year of life. Cubs die from many factors including vehicle collisions, predation or starvation. The intervals are dictated by bear biology, weather and climate. Bears will keep their cubs for as long as 15 to 24 months, or longer if the cubs 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.[52] Compared to other mammals, black bears produce few offspring (and thus are not "common and widespread"). Generally, females are not considered to be adults until they are 3 to 6 years old, but females are capable of breeding until age 21.[53] Fecundity varies with age:

- Female bears 5 years old or younger, or 17 years old or older, are typically barren or will give birth to only one cub.[54]
- Bears who are between 6 and 16 years old typically produce twins.[55]
- Females between 10 and 12 years old, the prime breeding age for black bears, are more likely to birth triplets if sufficient food is available to them—particularly natural foods.[56]

In Colorado bear studies, the female cohort of the population declined by 57% because of human-caused mortality from vehicle collisions, hunting, and predator control, which coincided with widespread unavailability of natural foods, and **these losses would not have been detected by wildlife managers without rigorous, multi-year population monitoring in place**.[57] Laufenberg et al. (2018) write:

> We documented a 57% decline in female bear abundance immediately following the natural food shortage coinciding with an increase in human-caused bear mortality (e.g., vehicle collisions, harvest, and lethal removals) primarily in developed areas. We also detected a change in the spatial distribution of female bears with fewer bears occurring near human development in years immediately following the food shortage, likely as a consequence of high mortality near human infrastructure during the food shortage. Given expected future

[49] J. L. Weaver, P. C. Paquet, and L. F. Ruggiero, "Resilience and Conservation of Large Carnivores in the Rocky Mountains," *Conservation Biology* 10, no. 4 (1996); Wallach et al.
[50] Garshelis and Hristienko.
[51] Heather E. Johnson, David L. Lewis, and Stewart W. Breck, "Individual and Population Fitness Consequences Associated with Large Carnivore Use of Residential Development," *Ecosphere* 11, no. 5 (2020).
[52] Craig McLaughlin, "Black Bear Assessment and Strategic Plan," *Maine Department of Inland Fisheries and Wildlife* (1999); Thomas D. Beck et al., "Sociological and Ethical Considerations of Black Bear Hunting," *Proceedings of the Western Black Bear Workshop* 5 (1995); Julie A. Beston, "Variation in Life History and Demography of the American Black Bear," *Journal of Wildlife Management* 75, no. 7 (2011).
[53] Johnson, Lewis, and Breck; Garshelis and Hristienko; Beston.
[54] Johnson, Lewis, and Breck.
[55] Ibid.
[56] Ibid.
[57] Laufenberg et al.

> increases in human development and climate-induced food shortages, we expect that bear dynamics may be increasingly influenced by human-caused mortality, which will be difficult to detect with current management practices. To ensure long-term sustainability of bear populations, we recommend that wildlife agencies invest in monitoring programs that can accurately track bear populations, incorporate non-harvest human-caused mortality into management models, and work to reduce human-caused mortality, particularly in years with natural food shortages.[58]

In fact, black bear biologists warn that managers must limit recreational black bear killing (e.g., hunting and predator control) to reduce total mortality, and especially during years of poor natural food production, which is readily predicted by weather events.[59]

Bears reproduce slowly and females rarely migrate—they prefer to live near their natal areas—and this compounds the harms from hunting and other sources of mortality that affect black bear populations.[60] The loss of females reduces a bear population's ability to bounce back as those females are the key to sustaining the population.[61]

Hunting causes super-additive mortality to bear populations. Bear biologists suggest that the total annual human-caused mortality that a black bear population can sustain is between only 4% to 10% of the population; more than that is super-additive mortality.[62] Additive mortality can increase the total death rate of a population,[63] whereas "super-additive mortality" describes a population decline larger than expected from documented mortality. This can occur through the killing of some individuals (by humans), which then indirectly increases the risk of death for others (e.g., infanticide in bears) or through failures of immigration and births to compensate.[64] DFW suggests, based on its new, untested model, that hunter offtake is under 3% of the overall population and no more than 7% in any region of the state based on DFW's new population estimate of 65,000 black bears (Plan @ 26). Yet, that population is based upon a model using outdated studies.

The new Plan should consider the implications of sexually selected infanticide to bears' social groups and populations. Biologists studying brown bears (*Ursus arctos*) found that trophy hunting does, in fact, disrupt social relations among bears. This in turn reduces survival rates and reproductive rates, with further deleterious effects on morphological traits—adding up to reduced overall population fitness.[65] This

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[58] Emphasis added. Ibid., p. 184.
[59] H. E. Johnson et al., "Human Development and Climate Affect Hibernation in a Large Carnivore with Implications for Human-Carnivore Conflicts," *Journal of Applied Ecology* 55, no. 2 (2018).
[60] Laufenberg et al.
[61] Heather Johnson et al., "Assessing Ecological and Social Outcomes of a Bear-Proofing Experiment," *The Journal of Wildlife Management* (2018).
[62] Beston; Welfelt, Beausoleil, and Wielgus.
[63] Scott Creel and Jay Rotella, "Meta-Analysis of Relationships between Human Offtake, Total Mortality and Population Dynamics of Gray Wolves (*Canis Lupus*)," *PLOS ONE* 5, no. 9 (2010).
[64] Ibid.
[65] R. Bischof et al., "Regulated Hunting Re-Shapes the Life History of Brown Bears," *Nature Ecology & Evolution* 2, no. 1 (2018).

disruption also occurs in black bears.[66] Reynolds-Hogland et al. (2024) found that female bears employ "counterstrategies" to avoid sexually selected infanticide (SSI); that is, the killing of cubs by males, who are not the cubs' sires, "to increase [the males] breeding opportunities."[67] Females, particularly with cubs of the year, avoided males to prevent SSI.[68] Reynolds-Hogland et al. (2024) suggest that counterstrategies for avoiding SSI include maternal aggression, avoidance of infanticidal males, "promiscuity to confuse paternity," and territoriality to keep infanticidal males away.[69]

Hunting affects a population's age and sex structure. Moreover, the deleterious selection process introduced by hunting has the additional potential to change the behaviors, sizes, and physical configurations of individual bears.[70] Bears who are hunted also feel stress and experience heightened energetic costs, especially because many hunted bears shift their sleeping patterns and become more nocturnal.[71] Not every hunted bear is killed, but multiple bears can end up being chased or disturbed.[72]

Just as problematic, trophy hunting tends to remove the oldest and largest animals from a population--which include prime-aged females[73] and dominant males that enforce social structures, are the preferred mates of females, and tend to sire healthier cubs.[74] Sexually selected infanticide (SSI) predictably exacerbates the effects of trophy hunting that selectively targets adult males. SSI occurs when non-sire male bears kill another male's offspring to increase their chances at mating with the cub's mother and increasing their own reproductive success. Removal of dominant males who successfully bred predictably increases SSI.[75] Because SSI is likely to increase as a consequence of hunting, it both limits population growth and increases juvenile mortality.[76] Breeding females trying to deter SSI compound these problematic dynamics by becoming more aggressive and by restricting their foraging behaviors to avoid males, with resulting effects on reproductive success.[77]

Compounding all these direct effects on hunted bears, poaching incidents often increase when killing of large carnivores is liberalized because government officials tacitly "signal to would-be poachers" that wildlife "are low in value, or that the government needs the support of poachers to control" their

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[66] D. C. Norton et al., "Female American Black Bears Do Not Alter Space Use or Movements to Reduce Infanticide Risk," *PLOS ONE* 13, no. 9 (2018); Reynolds-Hogland et al.
[67] Reynolds-Hogland et al., p. 10.
[68] Ibid.
[69] Ibid., p. 10.
[70] S. C. Frank et al., "Indirect Effects of Bear Hunting: A Review from Scandinavia," *Ursus* 28, no. 2 (2017); J. Van de Walle et al., "Hunting Regulation Favors Slow Life Histories in a Large Carnivore," *Nature Communications* 9 (2018).
[71] Ordiz, A., O. G. Stoen, S. Saebo, J. Kindberg, M. Delibes, and J. E. Swenson. 2012. Do bears know they are being hunted? Biological Conservation 152:21-28.
[72] Luc Le Grand et al., "Behavioral and Physiological Responses of Scandinavian Brown Bears (Ursus Arctos) to Dog Hunts and Human Encounters," *Frontiers in Ecology and Evolution* (2019); Beck et al.
[73] Frank et al.
[74] Ibid.
[75] Ibid.; Bischof et al.
[76] Frank et al. citing Swenson et al. (1997); Swenson (2003); Gosselin et al. (2015, 2017).
[77] Ibid. (Frank et al. (2017) also cite Wielgus and Bunnell (1994, 2000) and Wielgus et al. (2001a).

populations.[78]

Illegal take of black bears in California. DFW must consider super-additive, unanticipated losses caused by black bear poachers. While the 1998 Plan indicated that illegal take of black bears likely equaled the amount of legal take because of the trade in gall bladders and other body parts, the new Plan is relatively silent on this issue except to note that possession of gall bladders is evidence that the gall bladders are possessed for purposes of sale (Plan @28).[79] We request that the DFW assure the public that as part of its draft Plan it will provide for adequate law enforcement actions to prevent poachers from harming black bears—both individuals and populations.

Unsurprisingly, black bear poaching is widely documented in the U.S., to the point that it threatens black bear survival in some regions.[80] Washington state bear biologists reported that approximately 20% of their study bears were poached, and even more of their bears died from wounding losses.[81] Furthermore, allowing the hunting of a species induces and increases the numbers of animals killed by poachers because of the perception by some that these species have no value when legal hunting is permitted.[82]

Hunting ethics: cruel archery equipment, hounding, baiting, trapping and spring hunting should never be permitted to hunt California black bears.
While we sincerely appreciate the inclusion and consideration of animal welfare in the Plan, the use of archery equipment to kill bears must be adequately considered under this lens. Arrows can leave wounded animals to die slowly and painfully. A study of modern archery equipment found up to 27% of deer shot by archers die slowly rather than from quick, clean kills.[83] And black bears are even more difficult than deer to kill with an arrow because of their massive muscles and heavy bones.[84] For instance, in September 2022, during California's bear archery season, Arcadia residents reported that a

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[78] A. Treves, L. M. Elbroch, and J. Bruskotter, "Evaluating Fact Claims Accompanying Policies to Liberalize the Killing of Wolves," in *Wildlife Conservationn and Managment in the 21st Century: Issues, Solutions and New Concepts*, ed. G. Proulx (Canada: Alpha Wildlife Publications, 2024).
[79] California Department of Fish and Game, "Black Bear Management Plan," (1998).
[80] Ibid.; Caitlin M. Glymph, "Spatially Explicit Model of Areas between Suitable Black Bear Habitat in East Texas and Black Bear Populations in Louisiana, Arkansas, and Oklahoma" (M.A., Stephen F. Austin State University, 2017). Brandon J. Wear, Rick Eastridge, and Joseph D. Clark, "Factors Affecting Settling, Survival, and Viability of Black Bears Reintroduced to Felsenthal National Wildlife Refuge, Arkansas," *Wildlife Society Bulletin* 33, no. 4 (2005).
[81] G. M. Koehler and D. J. Pierce, "Survival, Cause-Specific Mortality, Sex, and Ages of American Black Bears in Washington State, USA," *Ursus* 16, no. 2 (2005).
[82] Guillaume Chapron and Adrian Treves, "Blood Does Not Buy Goodwill: Allowing Culling Increases Poaching of a Large Carnivore," *Proceedings of the Royal Society of London B: Biological Sciences* 283, no. 1830 (2016); Treves, Elbroch, and Bruskotter, in *Wildlife Conservationn and Managment in the 21st Century: Issues, Solutions and New Concepts*.
[83] Andy M. Pedersen, Seth M. Berry, and Jeffery C. Bossart, "Wounding Rates of White-Tailed Deer with Modern Archery Equipment," *Proceedings of Annu. Conf. SEAFWA* (2008).
[84] Vermont Fish & Wildlife Dept., "Bear Hunting Tips and Techniques," *https://vtfishandwildlife.com/hunt/hunting-and-trapping-opportunities/black-bear/bear-hunting-tips-and-techniques* (2022).

bear was seen moaning in distress in a backyard with an arrow sticking out of the bear's side. Officials with the California Department of Fish and Wildlife were unable to locate the wounded bear.[85] In New Jersey, a veterinarian removed an arrow that pierced a bear's mouth and head but did not kill the animal.[86] State bear biologists in Washington state reported that 18% of their collared bears died either from wounding loss or went unreported to the state.[87]

Furthermore, the Humane Society of the United States strongly opposes other methods of bear hunting, including hounding and baiting (which are prohibited via state statute), and springtime hunting as they are cruel and hazardous. We are thankful to see no mention of these unnecessary and unsporting methods in the Plan, and encourage DFW to maintain this absence.

In sum, researchers find that few wildlife agencies have scientifically credible wildlife conservation plans. Black bears are readily overexploited. Unless bear populations are continuously monitored, wildlife managers may assume their populations are stable, when in fact they could be losing nearly 60% of the female population. Therefore, California must invest in long-term population monitoring to ensure bear populations are safe. And California must limit overall mortality to between 4% and 10% of the population, and – most importantly – include *all* causes of mortality such as poaching and vehicle collisions. We concur that if bear hunting must occur in California that it be "conservative to prevent overexploitation" (Plan @ 25). Poaching and law enforcement are absent from the draft plan, and we urge DFW to include a section on this issue.

If DFW is concerned about hunting ethics, we strongly encourage the agency to also abolish archery equipment for hunting bears because of the well-documented cruelty issues associated with its use. Again, we also believe that the quota should not be increased in the absence of empirical population data to satisfy the far-less-than 1% of Californians who hunt black bears.

4. **Human-bear conflict cannot and should not be addressed by hunting bears. Conflicts are a people problem and resolution will come from combinations of education, policy and enforcement, not random hunting of bears**

DFW has done extensive work with their Human-Wildlife Conflict Program (HWC Program) – including for black bears, but there's always more work that needs to be done**,** and the state requires additional funding for this work beyond the $7 million for conflict prevention granted in 2021.[88] (We discuss Colorado's model for both legislative and community funding below.) Social scientists found that most Californians, 71%, would not want to see a bear killed even if the bear attacked a human.[89] (Although we understand that in exceedingly rare instances that the agency must take lethal action to protect human safety.) And a December 2020 poll showed that 70% of California voters believe that black bears should *not*

[85] CBS News, *Big Bear with Arrow Sticking out of It Wanders into Backyard of L.A.-Area Home* (https://www.cbsnews.com/news/big-bear-backyard-arcadia-california-arrow-sticking-out-of-it/: 2022).
[86] Jeff Goldman, "Arrow Removed from N.J. Bear Shot in Face, Mouth," *NJ.com*2014.
[87] Koehler and Pierce.
[88] Erin Stone, "Black Bear Sightings Are up, Resources Are Down. Socal Leaders Make the Case for More Wildlife Help," *LAist*, Jun. 7,, 2024.
[89] Dietsch et al.

be hunted for sport—including majorities in the top three bear-hunting counties of Shasta, Humboldt, and Trinity—and 62% of California voters support legislation to completely ban the practice.[90]

We were pleased to see DFW acknowledge the lack of public support for increased killing of bears, and we appreciate the Plan's large focus on nonlethal preventive and response measures to HBC. The Plan mentions, "The annual number of black bears taken under depredation permits has decreased since 2017" (Plan @ 61), showing that prioritization of nonlethal preventative and corrective actions are effective.

However, it's worth emphasizing that the notion that a wildlife management agency can hunt its way out of human-bear conflicts has been debunked by a litany of studies that find that bear hunting does *not* effectively reduce conflicts in the long term, and we hope that DFW does not turn to increased hunting as a method of reducing HBC. Lackey et al. (2018), in their review of human-bear conflicts, state:

> From a broad perspective, more bears mean more conflict, as bears encounter humans more frequently. **Yet the relationship between abundance and conflict is not consistent.** For a bear population near carrying capacity, lowering the population by 20% may have little effect on conflict depending upon the context of the conflict (e.g., urban vs. agricultural), availability of natural food, and prevalence of anthropogenic attractants. **Conversely, smaller bear populations or small components of a bear population can cause a great deal of conflict if anthropogenic food is readily available** and natural food is greatly diminished.[91]

In other words, agencies' continuous assertions that bear population size drives human-bear conflict is incorrect (see Plan @ p. 34 and 59). Lackey et al. (2018) even suggest that small bear populations can cause a lot of conflict. The answer to human-bear conflict is not killing, but instead not attracting bears to human-dominated areas in the first place.

Furthermore, Northrup et al. (2023) found that while a new spring bear hunting season resulted in a "significant" increase in *harvest*, "there was no concomitant reduction in interactions or incidents and, in fact, these [interactions or incidents] were higher in areas with the new spring season relative to control areas."[92]

In fact, numerous studies cite the fact that killing bears does not stop human-bear conflicts, even as it does radically reduce bear populations.[93] And trophy hunting bears does not make people safer, because hunters are

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[90] Remington Research Group, "California: Public Opinion" (2020).
[91] C. W. Lackey et al., "Human-Black Bear Conflicts: A Review of Common Management Practices. Human-Widlife Interactions," *Monograph* 2 (2018).
[92] Joseph M. Northrup et al., "Experimental Test of the Efficacy of Hunting for Controlling Human–Wildlife Conflict," *The Journal of Wildlife Management* (2023).
[93] E. J. Howe et al., "Do Public Complaints Reflect Trends in Human-Bear Conflict?," *Ursus* 21, no. 2 (2010); M. E. Obbard et al., "Relationships among Food Availability, Harvest, and Human-Bear Conflict at Landscape Scales in Ontario, Canada," *Ursus* 25, no. 2 (2014).; M. A. Barrett et al., "Testing Bear-Resistant Trash Cans in Residential Areas of Florida," *Southeastern Naturalist* 13, no. 1 (2014); S. Baruch-Mordo et al., "Stochasticity in Natural

not killing the bears attracted to people's yards because of unsecured garbage, bird feeders, pet food, and animal feed. Bear biologists Obbard et al. (2014) write: "We found no significant correlations between [black bear] harvest and subsequent HBC [human-bear conflicts]. Although it may be intuitive to assume that harvesting more bears should reduce HBC, empirical support for this assumption is lacking despite considerable research."[94] Obbard et al. (2014) cite six studies in addition to their own findings (Garshelis 1989, Treves and Karanth 2003, Huygens et al. 2004, Tavss 2005, Treves 2009, Howe et al. 2010, Treves et al. 2010). Since Obbard et al. (2014) published, many other biologists, who are cited here, have also confirmed that trophy hunting bears does not reduce conflicts with humans, but it can harm bear populations.[95]

With regard to agricultural damage, Khorozyan and Waltert (2020) write:

> We conducted a meta-analysis of 77 cases from 48 publications and used the relative risk of damage to compare the effectiveness of non-invasive interventions, invasive management (translocations) and lethal control (shooting) against bears. We show that the most effective interventions are electric fences (95% confidence interval = 79.2–100% reduction in damage), calving control (100%) and livestock replacement (99.8%), but the latter two approaches were applied in only one case each and need more testing. Deterrents varied widely in their effectiveness (13.7–79.5%) and we recommend applying these during the peak periods of damage infliction. We found shooting (– 34.2 to 100%) to have a short-term positive effect with its effectiveness decreasing significantly and linearly over time. We did not find relationships between bear density and intervention effectiveness, possibly due to differences in spatial scales at which they were measured (large scales for densities and local fine scales for effectiveness).[96]

While food is the root cause of most negative human-bear interactions, Herrero et al. (2011) write: "Each year, millions of interactions between people and black bears occur without any injury to a person, although by 2 years of age most black bears have the physical capacity to kill a person."[97]

Forage Production Affects Use of Urban Areas by Black Bears: Implications to Management of Human-Bear Conflicts," *PLOS ONE* 9, no. 1 (2014); D. L. Garshelis et al., "Is Diversionary Feeding an Effective Tool for Reducing Human-Bear Conflicts? Case Studies from North America and Europe," *Ursus* 28, no. 1 (2017); Johnson et al; Laufenberg et al; D. L. Lewis et al., "Foraging Ecology of Black Bears in Urban Environments: Guidance for Human-Bear Conflict Mitigation," *Ecosphere* 6, no. 8 (2015); Elizabeth F. Pienaar, David Telesco, and Sarah Barrett, "Understanding People's Willingness to Implement Measures to Manage Human-Bear Conflict in Florida," *Journal of Wildlife Management* 79, no. 5 (2015).

[94] Obbard et al., "Relationships among Food Availability, Harvest, and Human-Bear Conflict at Landscape Scales in Ontario, Canada."

[95] H. E. Johnson et al., "Shifting Perceptions of Risk and Reward: Dynamic Selection for Human Development by Black Bears in the Western United States," *Biological Conservation* 187 (2015); Johnson et al; Baruch-Mordo et al; Garshelis et al; Barrett et al; Pienaar, Telesco, and Barrett.

[96] Khorozyan, I. and M. Waltert, "Variation and Conservation Implications of the Effectiveness of Anti-Bear Interventions," *Scientific Reports* 10 no. 1 (2020).

[97] S. Herrero et al., "Fatal Attacks by American Black Bear on People: 1900-2009," *Journal of Wildlife Management* 75, no. 3 (2011): 599.

In a recent nationwide analysis of bears killed via hunting and bear attacks on humans from 2000 to 2017, Keefover and Murphy (2023) found that despite a ~3% average annual increase in the number of bears killed by hunters across the U.S., those increases had no influence on the frequency or distribution of bear attacks on humans (i.e., killing more bears did not reduce the number of bear attacks).[98]

Wildlife management agencies often wrongly presume that an increase in human-bear conflicts is a result of a growing bear population, but bears may simply be modifying their behaviors in response to deleterious environmental circumstances, including a lack of food.[99] As Johnson et al. (2018) and others suggest, because North American habitats are altered by human development and are changed by the climate crisis, wildlife managers must adapt and work to reduce human-bear conflicts, rather than rely upon lethal removals.[100] When bears must live alongside humans, their chances for survival decrease dramatically because of vehicle collisions and agency actions.[101] Large native carnivores face extinction,[102] so it is incumbent upon wildlife agencies to conserve rather than overexploit them, including by building safe passages through roadways and human-dominated landscapes.[103] Expanded human development into bear habitats during the climate crisis exacerbates bear mortalities, and then agencies react by increasing hunting quotas, when they should actually be taking steps to *reduce* overall black bear mortalities.[104]

In Durango, Colorado, Johnson et al. (2018) set up a bear trash-proofing experiment. They gave two study groups of residents bear-resistant trash containers, enhanced those residents' bear-aware education, served residents with warnings, and worked with the city to increase law enforcement. Meanwhile, two control groups of residents did not receive free bear-proof trash cans, enhanced education, warnings, or law enforcement. The outcome was significant. During this study, bears learned to leave the areas where residents complied with trash laws and shifted to areas of the city where human foods were readily

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[98] W. Keefover and S.M. Murphy, *Violating the Public's Trust: No Evidence That Black Bear Hunting Reduces Attacks*, *Pathways 2023: Managing wildlife in an era of mutualism* (Colorado State University, Fort Collins, USA.: 2023).

[99] Johnson et al; Johnson et al; Obbard et al."

[100] Johnson et al; D. L. Lewis et al., "Modeling Black Bear Population Dynamics in a Human-Dominated Stochastic Environment," *Ecological Modelling* 294 (2014).

[101] Johnson et al; Johnson et al; J. P. Beckmann and J. Berger, "Rapid Ecological and Behavioural Changes in Carnivores: The Responses of Black Bears (*Ursus Americanus*) to Altered Food," *Journal of Zoology* 261 (2003).

[102] J. A. Estes et al., "Trophic Downgrading of Planet Earth," *Science* 333, no. 6040 (2011); Chris T. Darimont et al., "The Unique Ecology of Human Predators," *Science* 349, no. 6250 (2015); William J. Ripple et al., "Extinction Risk Is Most Acute for the World's Largest and Smallest Vertebrates," *Proceedings of the National Academy of Sciences* 114, no. 40 (2017); Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), *Nature's Dangerous Decline 'Unprecedented' Species Extinction Rates 'Accelerating': Current Global Response Insufficient. 'Transformative Changes' Needed to Restore and Protect Nature; Opposition from Vested Interests Can Be Overcome for Public Good. Most Comprehensive Assessment of Its Kind; 1,000,000 Species Threatened with Extinction* (https://www.ipbes.net/global-assessment: https://www.ipbes.net/news/Media-Release-Global-Assessment#_Scale_of_Loss, 2019).

[103] Maria Psaralexi et al., "Exploring 15 Years of Brown Bear (*Ursus Arctos*)-Vehicle Collisions in Northwestern Greece," *Nature Conservation* 47 (2022).

[104] Laufenberg et al.

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abundant.[105]

Johnson et al. (2018) emphasize that law enforcement was a key factor in reducing bear conflicts in Durango.[106] At the 6th International Human-Bear Conflict Workshop, Venumiere-Lefebvre et al. (2022) reported that now 98% of trash cans in Durango, Colorado are bear resistant with two-thirds having automatic locking lids, which increased compliance dramatically—researchers reported 92% compliance with automatically locking lids.[107] **Residents who had access to automatically locking lids more than doubled compliance, compared to manual containers. They found 91.8% compliance by residents with automatic containers compared with 38.7% compliance by residents with manual containers in 2021.[108]**

In a Florida black bear study of human-bear interactions, Barrett et al. (2023) found that securing bear attractants, such as bird feeders, and using bear-resistant garbage cans can reduce human-bear interactions by 54% and reduce the chances of bears eating garbage to nothing ("0%").[109] Establishing and enforcing ordinances substantially reduced public calls to the agency while also improving the lives of bears because of fewer vehicle collisions and lethal removals.[110]

The Colorado legislature and governor have been awarding Colorado Parks and Wildlife one million dollars annually to fund programs that involve both local government and NGOs to work on long-term solutions to reduce human-bear conflicts.[111] The goal of the Colorado program is to unify local communities so they can provide regional strategies toward meaningful, long-term solutions to prevent future human-bear conflicts. Those solutions include efforts in education, research, bear-resistant infrastructure (such as bear-resistant trash cans and dumpsters), increased law enforcement and hazing. Program personnel positions could include enforcement officers for compliance with ordinances prohibiting wildlife feeding, and fruit-gleaning coordinators. The program also matched funds from municipalities, counties, and other stakeholders to encourage coordinated regional solutions toward reducing human-bear conflict. In 2023, Maryland passed a law to create a similar program. California's program desperately needs additional funding, and we hope to work with DFW to help secure those funds.

For bear-aware education campaigns to achieve success, they must focus on the benefits that bears provide to society.[112] Researchers have found that education campaigns designed solely to change human behaviors will

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[105] Moll et al.
[106] Ibid.
[107] Cassandre Venumiere-Lefebvre et al., *Follow-up Evaluation on the Effectiveness of a Large-Scale Effort to Use Bear-Resistant Garbage Cans, Including Automatic and Manual-Locking Cans, for Limiting Conflict in Durango, Co*, vol. https://www.bearbiology.org/event-list/6th-international-human-bear-conflicts-workshop/, *6th International Human-Bear Workshop* (Lake Tahoe, NV: 2022 Organizing Committee, 2022).
[108] Ibid.
[109] Mark A. Barrett et al., "Human–Black Bear Interactions and Public Attitudinal Changes in an Urban Ordinance Zone," *Human-Wildlife Interactions* 17, no. 1 (2023).
[110] Ibid.
[111] See bill here: https://leg.colorado.gov/bills/hb21-1326.
[112] Slagle et al; Stacy A. Lischka et al., "Understanding and Managing Human Tolerance for a Large Carnivore in a Residential System," *Biological Conservation* 238 (2019); Stacy A. Lischka et al., "Psychological Drivers of Risk-

fail, because changing human behavior is difficult. They conclude that few people will be motivated to make changes to accommodate bears, unless people understand the tremendous ecosystem and economic benefits that result from bears existing on the landscape.[113]

In sum, while the DFW has resources on its website and is part of the BearWise program, we can all do more to ensure that people know how to live, work and recreate while in bear country. The Humane Society of the United States is committed to assisting state agencies with this work where we have the ability, and has created a suite of resources to help the public become more bear-aware at humanesociety.org/blackbears.

5. California black bears face unprecedented droughts and wildfires. The Plan needs to take sound science into consideration rather than downplaying the effects of drought and fire on bears

The draft Plan suggests that fires are generally good for bears and provides a diagram showing that most fires during the period of 1985 to 2020 were generally low-severity fires (Fig. 7, Plan @ 35-37). While we agree that in the past, regular, periodic fires were good for the landscape, the reality is that the climate crisis is here and brings with it mega-fires and mega-droughts that will hamper black bears. These events will particularly harm the Western U.S. and its wildlife. The best available science is clear on this subject. Yet the notation that bears with "thermal burns … are being seen more commonly, affecting young and old bears alike" (Plan @ 21) seems to be the only place in the Plan in which this threat to bears is addressed with any sense of urgency. As such, we urge the DFW to reconsider how drastically drought and wildfires harm black bears and their habitats, especially to their den sites and day beds, in its conservation Plan.

Kelly et al. (2020) is a review of 29,000 journal articles on the issue of wildfire science, authored by two dozen biologists who published in the highly ranked journal *Science*. Kelley et al. (2020) find that new fire regimes pose extinction risks, and that fires of this era that are different from those that species have evolved with; that is, the "type, frequency, intensity, seasonality and spatial dimensions of recurrent fire."[114] For wildlife, the variations in intensity and occurrence of fire can reduce food and shelter, and reduce animals' ability to "recolonize regenerating habitats," and in the case of severe fires, lead to mortality.[115]

Since that review was published, two important studies have been issued: Williams et al. (2022) found that the southwestern region of the United States experienced a "megadrought" in 2020-2021, the driest period since 800 A.D.[116] And the United Nations released its 2022 report, "Spreading like wildfire: The rising threat

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Reducing Behaviors to Limit Human–Wildlife Conflict," *Conservation Biology* 34, no. 6 (2020); A. W. Don Carlos et al., "Human–Black Bear Conflict in Urban Areas: An Integrated Approach to Management Response," *Human Dimensions of Wildlife* 14, no. 3 (2009).

[113] A. M. Dietsch et al., "Education Is Not a Panacea for Reducing Human-Black Bear Conflicts," *Ecological Modelling* 367 (2018); M. L. Gore and B. A. Knuth, "Mass Media Effect on the Operating Environment of a Wildlife-Related Risk-Communication Campaign," *Journal of Wildlife Management* 73, no. 8 (2009); Slagle et al.

[114] L. T. Kelly et al., "Fire and Biodiversity in the Anthropocene," *Science* 370, no. 6519 (2020): p. 1.

[115] Ibid.

[116] A. Park Williams, Benjamin Cook, and Jason Smerdon, "Rapid Intensification of the Emerging Southwestern North American Megadrought in 2020–2021," *Nature Climate Change* 12 (2022).

of extraordinary landscape fire," authored by 50 researchers who found that the risk of wildfires worldwide could increase by 57% by the end of the century, with some regions of the world in great danger.[117]

Kurth et al. (2024) synthesized 120 articles concerning "climate variability" with regard to brown bears and black bears and examined multiple aspects of how the climate crisis is affecting these two bear species in North America.[118]

Food availability for bears is changing because of drought, found Kurth et al. (2024). Drought reduces vegetation and mast availability (citing Moyer et al. 2007 and Garshelis et al. 2017), limits cutthroat trout (citing Teisberg et al. 2014), and reduces ungulate carrion (citing Picton et al. 1986), although it also increases wildfire risk that can temporarily increase the availability of ungulate carrion (citing Blanchard and Knight 1990).[119]

With regard to wildfire, Kurth et al. (2024) found:

> Wildfire can have mixed effects on food resources for bears. Fires can reduce habitat quality in burned areas and cause loss of existing understory vegetation (Cunningham et al., 2003; Bard and Cain, 2020). However, after initial vegetation loss, early successional vegetation growth can include a high diversity of food for bears (Swanson et al., 2011; Bard and Cain, 2020). . . . Although early successional vegetation may be a beneficial outcome of some disturbance events, the early successional stage can be brief and burned areas can have fewer bear food plants years after the fire event, compared with unburned areas (Cunningham et al., 2003).

Fires can threaten "the persistence of some high-calorie hard mast foods (Fortin et al., 2013; Keane et al., 2017), alter the availability of carrion (Wilmers and Post, 2006), and impact suitable habitat for key berry and root-producing plants (McClelland et al., 2020; Prevéy et al., 2020)."[120] Citing Cunningham et al. (2003) and Bard and Cain (2020), Kurth et al. (2024) note the bears select for habitats with adequate cover and nutrition, but fires reduce those things; they write that bears "likely use burned habitat less frequently due to reduced vegetative cover."[121]

Kurth et al. (2024) report that with "climate-driven natural food shortages," bears are often driven to visit human-dominated areas to search for alternative food sources (citing Teisberg et al. (2014) and Johnson et al. (2020).[122] They add:

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[117] United Nations Environment Programme, "Spreading Like Wildlife — the Rising Threat of Extraordinary Landscape Fires," (2022).
[118] Katherine A. Kurth et al., "A Systematic Review of the Effects of Climate Variability and Change on Black and Brown Bear Ecology and Interactions with Humans," *Biological Conservation* 291 (2024): p. 1.
[119] Ibid., p. 3.
[120] Ibid., p. 6.
[121] Ibid.
[122] Ibid., p. 4.

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> Because of the accessibility of these alternative food sources, natural food shortages are a principal driver of human-bear interactions in North America (Cain et al., 2014). Livestock depredation, attacks on humans, garbage scavenging, and home intrusions by bears have all been linked to natural food shortages (Artelle et al., 2016; Miller et al. 2016; Doan-Crider et al., 2017).[123]

Drought begets wildfire, and more severe droughts alter historic fire regimes.[124] Wildfires, global warming and droughts pose grave threats to black bears. Some of the emerging problems include:

- Climate warming will change trophic effects that include the profusion of parasites and disease.[125]
- The threat of avian flu to mammalian carnivores is a growing threat to mammalian carnivores for all three species of North American bears and to mountain lions. In a review study of 76 journal articles, authors discovered 120 unique infections from avian flu because of contact between carnivores and infected wild birds.[126] Most infected hosts were scavenging carnivores.[127]
- With warmer winters and extended fall and spring seasons, climate change will drive the expansion of ticks and tick-borne diseases to more northern latitudes and to higher altitudes.[128] Increases in temperature facilitate the proliferation of parasitic organisms,[129] including the potential for the spread of sarcoptic mange in black bears from the eastern U.S.[130]
- More stochastic weather events are occurring, and snow cover is increasingly lost,[131] which reduces the insulating properties associated with some bears' dens.[132]
- Rising temperatures have resulted in changed plant phenology, which is the timing of flowering, germination and leaving.[133] For bears, this means that some of their natural foods such as acorns (hard mast crops) or raspberries (soft mast crops) will be unavailable in some years because of drought, fires,

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[123] Ibid., p. 4. .
[124] Kelly et al.
[125] K. S. McKelvey and P. C. Buotte, "Climate Change and Wildlife in the Northern Rockies Region," in *Climate Change Vulnerability and Adaptation in the Northern Rocky Mountains*, ed. Jessica E. Halofsky et al. (Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain, 2018).
[126] ENETWILD Consortium et al., "The Role of Mammals in Avian Influenza: A Review," *EFSA Supporting Publications* 21, no. 3 (2024).
[127] Ibid.
[128] Filipe Dantas-Torres, *Climate Change, Biodiversity, Ticks and Tick-Borne Diseases: The Butterfly Effect*, vol. 4 (2015).
[129] Erica E. Short, Cyril Caminade, and Bolaji N. Thomas, "Climate Change Contribution to the Emergence or Re-Emergence of Parasitic Diseases," *Infectious Diseases: Research and Treatment* 10 (2017), accessed 2019/04/24. Kristin A. Clothier et al., "Generalized Dermatophytosis Caused by Trichophyton Equinum in 8 Juvenile Black Bears in California," *Journal of Veterinary Diagnostic Investigation* (2021).
[130] Kevin D. Niedringhaus et al., "The Emergence and Expansion of Sarcoptic Mange in American Black Bears (Ursus Americanus) in the United States," *Veterinary Parasitology: Regional Studies and Reports* 17 (2019).
[131] Dantas-Torres, p. 8.
[132] K. E. Pigeon, S. D. Cote, and G. B. Stenhouse, "Assessing Den Selection and Den Characteristics of Grizzly Bears," *Journal of Wildlife Management* 80, no. 5 (2016).
[133] Amelia A. Wolf, Erika S. Zavaleta, and Paul C. Selmants, "Flowering Phenology Shifts in Response to Biodiversity Loss," *Proceedings of the National Academy of Sciences* 114, no. 13 (2017).

or late spring frosts.

- Declining species' diversity could exacerbate phenological changes associated with warming.[134] Climate change affects temperatures and moisture, affecting precipitation amounts and thus plant growth, which could further degrade black bears' food supplies.[135]
- An important study on brown bears is applicable to black bears, because they too cannot withstand much movement in warm weather because of their inability to sweat (while wearing a thick fur coat and building fat layers for hibernation).[136] It found that a warming climate limits bears' foraging abilities because they are subject to hyperthermia, the inability to dissipate heat from their bodies to stay sufficiently cool.[137] Bears adjust to the heat by foraging in habitats that have sufficient shade to stay cool. But these adjustments could affect their abilities to forage as efficiently[138] as canopy cover is consumed by increasingly severe wildfires that remove mature trees that black bears rely upon for shade cover during the day and—especially bear cubs—use as escape routes from predators.

Fire suppression, climate change and logging have changed the forests in the West over the past century.[139] For black bears, this means that they face fire regimes different than those with which they evolved. Invasive and pervasive cheat grass (*Bromus tectorum*) has increased fuel loads in the West.[140] Recent wildfires are hotter and kill mature trees because of fuel-load buildup.[141] Western fire-adapted forests generally had experienced frequent fires on a 10 to 20-year time scale, but now burn at fire intervals between 70-90 years.[142] The result is that forests are now characterized by denser stands of trees with few trees older than 250 years and with diameters greater than 60 cm.[143] These smaller diameter trees grow in dense forests that are apt to experience stand-replacing fires.[144] Large fires leave a mosaic of burn patches of different levels of burn severity.[145]

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[134] Ibid.
[135] McKelvey and Buotte, in *Climate Change Vulnerability and Adaptation in the Northern Rocky Mountains*.
[136] Beck et al; Bernd Heinrich, *Why We Run: A Natural History* (Harper Perennial, 2002).
[137] K. E. Pigeon et al., "Staying Cool in a Changing Landscape: The Influence of Maximum Daily Ambient Temperature on Grizzly Bear Habitat Selection," *Oecologia* 181, no. 4 (2016).
[138] Ibid.
[139] Brett J. Furnas, Benjamin R. Goldstein, and Peter J. Figura, "Intermediate Fire Severity Diversity Promotes Richness of Forest Carnivores in California," *Diversity and Distributions* (2021); Stanley Clifton Cunningham et al., "Black Bear Habitat Use in Burned and Unburned Areas, Central Arizona," *Wildlife Society Bulletin* 31 (2003); Susan M. Bard and James W. Cain, "Investigation of Bed and Den Site Selection by American Black Bears (Ursus Americanus) in a Landscape Impacted by Forest Restoration Treatments and Wildfires," *Forest Ecology and Management* 460 (2020).
[140] Kelly et al.
[141] Cunningham et al; Bard and Cain.
[142] Furnas, Goldstein, and Figura.Citing Van de Water and Safford 2011.
[143] Ibid.Citing Beaty & Taylor 2007 and Youngblood et al. 2004.
[144] Ibid.Citing McIntyre et al. 2015.
[145] Jesse S. Lewis et al., "Mixed-Severity Wildfire Shapes Habitat Use of Large Herbivores and Carnivores," *Forest Ecology and Management* 506 (2022).

For black bears, who prefer larger diameter trees for denning, resting and canopy cover for foraging, catastrophic fires can have negative, near-term consequences.[146] Females with and without cubs choose nocturnal and diurnal bed sites during their active season near "refuge" trees—that is, trees with coarse bark so the bears could readily climb up the tree if disturbed—and those bed sites were in high canopy cover.[147]

In fire ecology, the severity of the fire is highly variable. Lewis et al. (2022) write:

> Fire severity . . . occurs across a gradient, which is characterized by **unburned forest** (where fire has not occurred for an extended period of time), **low fire severity** (where fire burns in the understory and does not kill mature trees), **moderate fire severity** (where fire kills some mature trees, but others survive), and **high fire severity** (where fire kills most or all trees, or at least top-kills them where the above ground portion of the tree is killed, but the root system remains alive). Wildfires are often characterized as mixed-severity, where a heterogeneous pattern of multiple fire severity types occur, especially for wildfires occurring over relatively large areas (Baker, 2009; Perry et al., 2011; Odion et al., 2014). **As fire severity increases, forest canopy cover decreases,** but **some plants can subsequently exhibit prolific regeneration through resprouting, suckering, or seed germination**; for example, some grasses, forbs, shrubs, and trees can exhibit a pulse of growth post fire (Lentile et al., 2007; Baker, 2009). In particular, fire-adapted species, such as aspen (*Populus tremuloides*) and Gambel oak (*Quercus gambelii*), can demonstrate rapid and widespread regeneration and growth in areas of moderate to high fire severity (Brown and DeByle, 1989; Bartos et al., 1994; Bailey and Whitham, 2002; Mack et al., 2008; Wan et al., 2014; Clement et al., 2019). **Importantly, heterogeneity in plant quantity and quality across the gradient of fire severity is expected to influence animal populations and habitat use.**[148]

In their camera trap study of the effects of fires in California between 2009 and 2018 on black bears, mountain lions and a host of mesocarnivores such as skunks, foxes, ringtails and bobcats, Furnas et al. (2021) found the greatest carnivore richness in areas that experienced *intermediate* fire severity—that is, on landscapes where fires occurred on a 10-year timescale.[149] Furnas et al. (2021) found that frequent, low severity fires provide short-term benefits for carnivores, with about a "10-year pulse" of increased growing space for plants that feed bears (omnivorous carnivores) and small mammal prey (thus providing indirect benefits to obligate carnivores).[150] Furnas et al. (2021) add that, "Low severity fire can also create forest

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[146] See for example: Furnas, Goldstein, and Figura; Bull, Akenson, and Henjum; Shari L. Ketcham and John L. Koprowski, *Impacts of Wildlife on Wildlife in Arizona: A Synthesis*, vol. P-67, *Merging science and management in a rapidly changing world: Biodiversity and management of the Madrean Archipelago III and 7th Conference on Research and Resource Management in the Southwestern Deserts* (Tucson, AZ: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, 2013). Pigeon et al.

[147] Susan A Mansfield et al., "Bed Site Selection by Female North American Black Bears (Ursus Americanus)," *Journal of Mammalogy* (2021), accessed 1/3/2022.

[148] Emphasis added. Lewis et al., p. 2.

[149] Furnas, Goldstein, and Figura.

[150] Ibid.Citing Amacher et al. 2008, Roberts et al. 2015, Kelleyhouse 1980 and Swanson et al. 2010.

openings, snags and logs while retaining large diameter overstorey trees,"[151] the denning habitat preferred by bears in some ecosystems.[152] Snags, broken at the top, can provide important den sites for black bears.[153] However, recent California fires were not "low-severity fires,"[154] but were instead "'trans-apocalyptic,'"[155] leaving moonscapes for bears and other wildlife with which to attempt to cope.

Bard and Cain (2020) studied the effects of fire-mitigation projects (tree thinning followed by fire) on bears' dens and sleep sites in the Jemez Mountains, New Mexico. They found that black bears preferred undisturbed sites far more than sites that had burned.[156] Bard and Cain (2020) provide that fire fragmented habitats (citing Mitchell and Powell 2003), exposed bears to reduced cover (citing White et al. 2001 and Tredick et al. 2016), and increased interactions between bears and hunters, and interactions with other bears (citing Linnell et al. 2000 and Stewart et al. 2013).[157] Costello et al. (2003) found that hard mast species (e.g., acorns, juniper and piñon) affect black bear productivity in New Mexico.[158] Yet, fires and forest treatments can reduce their availability temporarily (which can mean starvation and/or low cub production).[159] Bard and Cain (2020) concluded that bears will need to adapt to new fire regimes and fire treatments in the age of the Anthropocene. Accordingly, while small-scale disturbance is ultimately beneficial to vegetative regeneration, land managers need to consider bears' needs before beginning forest treatments that alter bear habitats and food sources.[160]

In a recently published fire study conducted in the White Mountains of Arizona, using data from GPS-collared bears and resource selection models, Crabb et al. (2022) found that bears significantly decreased their use of areas that incurred high-severity burns immediately following the Wallow Fire that occurred in Arizona during 2011 (to date, Arizona's largest wildfire, which burned 538,049 acres).[161] That study clearly demonstrated that areas that were previously suitable bear habitat but then incurred high burn severity were unsuitable for bears right after the fire. In a separate follow-up study that used camera-trapping data and occupancy models, Lewis et al. (2022) evaluated five levels of burn severity (unburned, low, moderate, moderate/high and high)[162] and found that black bears' use of high severity burned areas within the Wallow Fire footprint likely did not increase until *seven years* following the fire.[163] Lewis et al. (2022) found that low-fire severity such as prescribed burns, which do not remove the forest canopy, provide only a "pulse" of

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[151] Ibid.
[152] Ibid.(Citing Agee 1998); Bull, Akenson, and Henjum.
[153] Bull, Akenson, and Henjum.
[154] Furnas, Goldstein, and Figura.
[155] Elizabeth Well, "This Isn't the California I Married," *The New York Times*, Jan. 3,, 2022.
[156] Bard and Cain.
[157] Ibid.
[158] Cecily M. Costello et al., "Relationship of Variable Mast Production to American Black Bear Reproductive Parameters in New Mexico," *Ursus* 14, no. 1 (2003), http://dx.doi.org/10.2307/3872951.
[159] Bard and Cain. Costello et al.
[160] Bard and Cain.
[161] Michelle L. Crabb et al., "Black Bear Spatial Responses to the Wallow Wildfire in Arizona," *The Journal of Wildlife Management* 86, no. 3 (2022).
[162] Lewis et al.
[163] Ibid.

regrowth of about one to three years before the vegetation returns to a pre-fire state.[164] Conversely, in places where fire severity is worse and the canopy cover is lost, the pulse in plant quantity and quality extends to ten or more years.[165] Yet, the losses of mature trees in California's landscapes can have negative near-term consequences for black bears as discussed above. And it could take centuries to replace these mature trees, and ecosystems may forever be changed by the unintentional introduction of invasive species.[166]

Bears require canopy cover to escape heat for day sleeping and for foraging, and large tree snags for den sites during hibernation. Large trees also provide escape for bear cubs. Fires expose bears to hunters and intraspecific strife, and can remove vital food sources, particularly mast crops needed for survival and cub production. Ultimately, severe fires harm black bears' habitat, and are also detrimental to black bear populations and harm the bears' welfare as we discuss below.

In two studies published about the catastrophic 1996 fire in the Four Peaks area of the Mazatzal Mountains of Arizona,[167] the immediate aftermath was an increase in black bear mortality, especially to the female demographic.[168] Researchers found a population "significantly skewed toward males (4M:1F)" (but in a nearby control area where there was no fire, the ratio was one to one, male to female).[169]

On top of that mortality, 12 breeding females who survived subsequently gave birth to 16 cubs in years between 1997 and 1999, but none of the cubs survived—most likely because of infanticide by starving male bears, or by the cubs succumbing to starvation themselves.[170] After the Four Peaks fire, both males and females with cubs were forced to share islands of vegetated habitat to avoid midday heat, but this exposed the cubs to cannibalistic males.[171] (In another study of a catastrophic fire, researchers noted that bears who moved into the burned area later fed on ungulate carcasses.[172])

Wildfires cause suffering and death to black bears. Bears in the path of wildfires are subject to a variety of harms. Most wildlife victims of wildfires die from smoke inhalation that causes asphyxiation,[173] which is a distressful experience.[174] Wildfires tend to move across landscapes rapidly and with high-intensity heat,

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[164] Ibid.Citing Severson and Rinne 1990 and Sittler et al. 2019.
[165] Ibid.Citing Bartos et al. 1994 and Wan et al. 2014.
[166] Kelly et al. Lewis et al.
[167] Stan C. Cunningham and Warren B. Ballard, "Effects of Wildfire on Black Bear Demographics in Central Arizona," *Wildlife Society Bulletin* 32, no. 3 (2004); Cunningham et al.
[168] Cunningham and Ballard.
[169] Ibid.
[170] Ibid.; Cunningham et al.
[171] Cunningham et al.
[172] The study was conducted by Blanchard and Knight (1999) and cited by Cunningham and Ballard (2004).Cunningham and Ballard.
[173] Ketcham and Koprowski.Citing Bock and Lynch 1970, Buech et al. 1977, Bluan and Barrett 1971, Chew et al. 1959, Harrison and Murad 1972 and Lyon et al. 2000.)
[174] Jara Gutiérrez and Javier de Miguel, "Fires in Nature: A Review of the Challenges for Wild Animals," *European Journal of Ecology* 7, no. 1 (2021), accessed 2021/12/27.

usually *above* 63°C (145°F).[175] Wildlife caught in wildfires or their aftermath experience a variety of travails, including injury, mortality, stress, disease or starvation.[176] Young wildlife are more prone to injury or mortality.[177] And rather than evacuating, wildlife may stay in burrows, rock cavities or dens, leading to smoke inhalation and potential asphyxiation.[178]

Bears, like other wildlife, can experience burns to the face and limbs.[179] Burned skin can trap intense temperatures inside of an animal's body, leading to further subcutaneous burns.[180] If an animal's body is burned by more than half, death or euthanasia is the invariable outcome, but if the animal's joints or claws are burned, locomotion and tree-climbing are inhibited.[181] Wildlife fleeing from fires can be struck by vehicles.[182] Because of the timing of most fires – at the end of summer – fires can hinder population recovery, breeding and reproduction.[183] Springtime wildfires also harm reproduction, negatively affecting populations.[184]

In sum, in the western United States the effects of global warming are already severe, with record-setting droughts and wildfires affecting black bears. The immediate result of catastrophic fires is the direct death of bears, particularly females and cubs, and the trauma for surviving bears includes the loss of food and thermal cover from daytime heat. Fires could reduce reproduction for at least three years.

6. Deer should fear humans far more than predators

Mule deer populations in the western United States have experienced population declines over the latter part of the last century because of myriad factors including habitat loss and fragmentation, highway barriers, disturbance from recreationists, changes in forage quality, competition with other ungulates, disease, overhunting, poaching, stochastic weather events, fire suppression, noxious weeds, overgrazing by livestock, energy development, and fluctuations in hydrology caused by climate change—including reduced snow pack and increased temperatures.[185] Humans are a "super predator" who kill far more deer than any other species on Planet Earth.[186] As we stated previously, bear kleptoparasitism of mountain lions' caches is simply a natural trophic cascade and part of bears' biology and nothing to concern oneself about given the additional problems deer and other wildlife face in California and the West. (Plan @ p. 29-30.)

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[175] Ketcham and Koprowski.
[176] Gutiérrez and de Miguel. Ketcham and Koprowski. R. A. Beausoleil, "Burned Bear Rescued, Rehabilitated, and Released in Washington," *International Bear News* 24, no. 3 (2015).
[177] Ketcham and Koprowski.
[178] Ibid.
[179] Gutiérrez and de Miguel.Citing Rethorst et al. 2018. Beausoleil.
[180] Gutiérrez and de Miguel.
[181] Ibid.
[182] Ibid.
[183] Ibid.
[184] Ketcham and Koprowski.
[185] See, e.g., K. L. Monteith et al., "Life-History Characteristics of Mule Deer: Effects of Nutrition in a Variable Environment," *Wildlife Monographs* 186, no. 1 (2014); T. D. Forrester and H. U. Wittmer, "A Review of the Population Dynamics of Mule Deer and Black-Tailed Deer Odocoileus Hemionus in North America," *Mammal Review* 43, no. 4 (2013).
[186] Darimont et al.

Decades of study demonstrate that killing native carnivores to increase ungulate populations is unlikely to produce positive results.[187] **The key to mule deer survival is access to adequate nutrition and protecting breeding females, but not killing mule-deer predators**.[188] In studies that involved predator control, those removals had no beneficial effect for mule deer.[189] If predators had been absent, the deer would have died from some other cause of mortality.[190]

In Colorado, for example, some decision makers have long demanded the killing of native carnivores to grow mule deer populations resulting in several studies which showed that predator control was not the cause of mule deer decline.[191] In their long-term Colorado-based study, Bishop et al. (2009) determined that if deer had access to adequate nutrition, neither mountain lions nor coyotes negatively affected the mule deer population.[192] They also suggested that mountain lions selected for deer who were in poor body condition,[193] which makes sense because hunting prey larger than themselves is dangerous.[194] Managing winter range for deer and reducing weeds and reseeding can greatly benefit mule deer.[195]

In their review article that surveyed 48 predation studies involving mule deer, Forrester and Wittmer (2013) determined that, while predation was the "primary proximate cause of mortality for all age classes" of deer, predator removal studies indicate that "predation is compensatory, particularly at high deer densities, and that nutrition and weather shape population dynamics."[196] In other words, each year, some deer are "'doomed surplus'"; that is, some deer will die no matter what.[197] In their mule deer study,

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[187] U.S. Department of Interior, *Ecology of the Coyote in the Yellowstone*, by Adolph Murie, Vol. Series No. 4 (U.S. Government Printing Office, 1940); Stanley Adair Cain et al., "Predator Control--1971; Report to the President's Council on Environmental Quality by the Advisory Committee on Predator Control.," (1971); National Research Council, *Wolves, Bears, and Their Prey in Alaska* (Washington, D.C.: National Academy Press, 1997); R.B. Gill et al., *Declining Mule Deer Populations in Colorado: Reasons and Responses: A Report to the Colorado Legislature* (Denver: Colorado Division of Wildlife, 1999); Bruce Watkins, James Olterman, and Thomas Pojar, "Mule Deer Survival Studies on the Uncompahgre Plateau, Colorado 1997-2001," *Colorado Division of Wildlife* (2002); T. M. Pojar and D. C. Bowden, "Neonatal Mule Deer Fawn Survival in West-Central Colorado," *Journal of Wildlife Management* 68, no. 3 (2004); J. Bright and J. Hervert, "Adult and Fawn Mortality of Sonoran Pronghorn," *Wildlife Society Bulletin* 33 (2005). A. Mosnier et al., "Extensive Predator Space Use Can Limit the Efficacy of a Control Program," *Journal of Wildlife Management* 72, no. 2 (2008). B. J. Bergstrom, "Carnivore Conservation: Shifting the Paradigm from Control to Coexistence," *Journal of Mammalogy* 98, no. 1 (2017); Robert J. Lennox et al., "Evaluating the Efficacy of Predator Removal in a Conflict-Prone World," *Biological Conservation* 224 (2018).

[188] Monteith et al; Forrester and Wittmer; B. M. Pierce et al., "Top-Down Versus Bottom-up Forcing: Evidence from Mountain Lions and Mule Deer," *Journal of Mammalogy* 93, no. 4 (2012); C. D. Mitchell et al., "Population Density of Dall's Sheep in Alaska: Effects of Predator Harvest?," *Mammal Research* 60, no. 1 (2015). Lennox et al.

[189] Forrester and Wittmer.

[190] Monteith et al.

[191] Gill et al; Watkins, Olterman, and Pojar; E. J. Bergman et al., "Habitat Management Influences Overwinter Survival of Mule Deer Fawns in Colorado," *Journal of Wildlife Management* 78, no. 3 (2014); C. J. Bishop et al., "Effect of Enhanced Nutrition on Mule Deer Population Rate of Change," *Wildlife Monographs*, no. 172 (2009); L. Mark Elbroch and Howard Quigley, "Age-Specific Foraging Strategies among Pumas, and Its Implications for Aiding Ungulate Populations through Carnivore Control," *Conservation Science and Practice* 1, no. 4 (2019).

[192] Bishop et al.

[193] Ibid.

[194] L. M. Elbroch, J. Feltner, and H. B. Quigley, "Stage-Dependent Puma Predation on Dangerous Prey," *Journal of Zoology* 302, no. 3 (2017).

[195] Bergman et al.

[196] Forrester and Wittmer, p. 292.

[197] Monteith et al.

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Monteith et al. (2014) found that both additive and compensatory mortality can occur in a single year.[198] Mountain lion predation on mule deer in California was likely additive during one time period of an increasing deer population, but it did not stop the growth of the population, which indicates that resource availability, particularly food, is important to mule deer.[199] The condition of the deer were strongly correlated with the availability of nutrition, and thus mountain lion predation during a deer decline was not an additive source of mortality.[200] Young animals who have access to fewer nutritional reserves are less likely to survive.[201] Mule deer foods can be hindered by weather, habitat loss, oil and gas development, fire suppression, and competition with domestic livestock.[202] To underscore: The underpinnings of ungulates' densities is linked to their access to nutrition, what biologist call their "nutritional carrying capacity."[203]

In sum, any notion to increase the hunting on bears to save deer is not supported by the best available science. Predator and prey species have co-evolved for millennia. The gravest problems that deer face today come from humans, not native mammalian carnivores.

7. Wildlife-watching economics dwarfs hunting and trapping because of changing Californian values

The public is concerned with both the conservation and the welfare of animals, including native wildlife.[204] Wildlife watchers are a much larger constituency in terms of number of people and dollars spent in the economy, according to data collected by the U.S. Census Bureau and put into reports by the U.S. Fish and Wildlife Service. Fig. 1. While wildlife watchers are growing in number, hunters are in decline. Fig. 1.

Fig. 1. USFWS National Wildlife Recreation Data (Comparison 2011, 2016 & 2022 data)[205]

Wildlife recreation participants and expenditures	2011	2016	2022	Percent increase (from 2016 to 2022)
No. wildlife watchers	71.8M	86.0M	145.3M	68.95%
No. hunters*	13.7M	11.5M	14.4M	25.22%
Wildlife watcher expenditures	$59.1B	$75.9B	$250.2B	229.64%
Hunter expenditures	$36.3B	$25.6B	$45.2B	76.56%

- The biggest increase between 2016 and 2022 was the amount wildlife watchers spent, which was a 230% increase over 2016 expenditures.

[198] Ibid.
[199] Pierce et al.
[200] Ibid.
[201] Monteith et al; Pojar and Bowden; Watkins, Olterman, and Pojar; Bishop et al.
[202] Forrester and Wittmer; Monteith et al.
[203] Monteith et al.
[204] Kelly A. George et al., "Changes in Attitudes toward Animals in the United States from 1978 to 2014," *Biological Conservation* 201 (2016).
[205] U.S. Department of the Interior, U.S. Fish and Wildlife Service (Sep. 2023), *2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.*

- In 2022, FWS recorded ten times more wildlife watchers than hunters.
- In 2022, wildlife watchers spent 5.54 times more than hunters on wildlife recreation.

Wildlife-watching tourists in California spend millions of dollars in local economies to view wildlife. According to the National Park Service: "In 2022, 38.2 million park visitors spent an estimated $2.7 billion in local gateway regions while visiting National Park Service lands in California. These expenditures supported a total of 34.9 thousand jobs, $1.8 billion in labor income, $2.8 billion in value added, and $4.5 billion in economic output in the California economy."[206]

Fig. 2. Outdoor recreational spending in California in 2022 (data from U.S. Bureau of Analysis)[207]

Description	Spending [thousands of dollars]	% of total
Hunting/Trapping	279,559	0.38%
Skiing/Snowboarding	393,780	0.53%
Bicycling	557,126	0.75%
Climbing/Hiking/Tent Camping	770,932	1.04%
Travel and Tourism	23,259,618	31.51%
Total Outdoor Recreation	73,827,997	100.00%

According to the Bureau of Economic Analysis in the U.S. Dept. of Commerce, outdoor recreation in California generated $73,827,997,000 ($73.8 billion) for the state's economy in 2022. Of that figure, hunting and trapping generated $279,559,000 ($280 million), which equals 0.38% of the total outdoor recreation dollars spent in California. Bicycling, climbing, hiking and tent camping generated $1,328,058,000, nearly five times that of hunting and trapping. And people spent 83 times more on travel and tourism in California than on hunting and trapping.[208] Fig. 2.

In the United States, bears are one of the most photographed and watched animals.[209] In a study that measured the monetary worth of bobcats, authors calculated that a single bobcat in one year's time in Yellowstone National Park was valued at $308,105, a figure 1,000 times greater than its pelt price of $315.[210] That one bobcat enabled wildlife-watching guides, photographers to sell their prints and other employment, including hospitality services.[211]

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[206] National Park Service, "National Park Spending Effects (2022)," *https://www.nps.gov/subjects/socialscience/vse.htm* (2024).
[207] Dept. of Commerce Bureau of Economic Analysis, "Outdoor Recreation Satellite Account, U.S. And Prototype for States, (Data Year 2022)," *https://www.bea.gov/data/special-topics/outdoor-recreation* (2024).
[208] Remington Research Group, "California: Public Opinion," (2020).
[209] Slagle et al.
[210] L. Mark Elbroch et al., "Contrasting Bobcat Values," *Biodiversity and Conservation* (July 05 2017), http://dx.doi.org/10.1007/s10531-017-1397-6.
[211] L. M. Elbroch et al., "Contrasting Bobcat Values," *Biological Conservation* https://www.springerprofessional.de/contrasting-bobcat-values/13278284 (2017).

Bear watching is also a huge economic driver in the U.S. When Yellowstone National Park contemplated moving roadside bears, researchers found that visitors to the park would be willing to pay extra entrance fees to ensure that they could still see roadside bears.[212] That study also found that the loss of roadside bears would result in the loss of 155 jobs in the local economy, or a decrease of $10.1 million annually.[213] Of the Yellowstone visitors they surveyed, Richardson et al. (2014) found that 81% of visitors included bears on their top five most-sought-after animals in Yellowstone Park.[214] A whopping 98.8%[215] of visitors surveyed stated that it was "important" that they see a bear in Yellowstone National Park, while only 1.2% expressed no opinion or felt seeing a bear was unimportant.[216]

Because of its immense popularity, grizzly bear viewing in Alaska's Katmai National Park and Preserve on platforms near waterways is strictly limited. Yet more than 10 million viewers tune into Katmai's bear cams annually to watch brown bears fish for salmon every summer and fall.[217] Tapping into this bear fervor, the National Park Service holds an annual "Fat Bear Week" contest to see if viewers can predict which bear will gain the most weight. In 2021, more than 800,000 votes were cast and the winning bear was "Otis," an aged, toothless bear who was featured—along with his competitor bears—in before and after eating-migratory-salmon images that delightfully spoof on fad diet ads.[218] Economist John Loomis and others calculated the opportunity cost of time for 2,649 Katmai web cam viewers to derive an average consumer surplus of $11 per hour.[219] Loomis et al. (2018) found that if this is applied to the 2.42 million web cam viewer hours, it "yields and annual benefit of more than $27 million annually."[220]

8. The North American Model of Wildlife Conservation is problematic and controversial, yet the DFW embraces this model in its draft Plan

Citing the architects of the North American Model of Wildlife Conservation ("NAM"), DFW argues that regulated hunting is central to wildlife management (Plan @ 8) and suggests that the money from bear tags helps to drive Pittman-Robertson funding to California (Plan @ 26). The NAM is a doctrine widely adopted by wildlife management agencies in the U.S. and Canada, but in recent years it has come under fire by a

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[212] Leslie Richardson et al., "The Economics of Roadside Bear Viewing," *Journal of Environmental Management* 140 (2014).
[213] Ibid.
[214] Ibid.
[215] Figure 1 from Richardson et al.'s (2014) data are:

- Not at all important - 0.6%
- Somewhat important - 12.8%
- Moderately important - 24.2%
- Very important - 61.8%
- No opinion - 0.6%

Breakdown of the precise numbers courtesy of Leslie Richardson, Aug. 8, 2022. Personal communication.
[216] Richardson et al.
[217] John Loomis et al., "A Method to Value Nature-Related Webcam Viewing: The Value of Virtual Use with Application to Brown Bear Webcam Viewing," *Journal of Environmental Economics and Policy* 7, no. 4 (2018).
[218] National Park Service, "Fat Bear Week," accessed.
[219] Loomis et al.
[220] Ibid., p. 9-10.

host of scholars who argue that its supporters embrace a revisionist history that privileges white male hunters over all other stakeholders, particularly women and people of color.[221] Supporters of the NAM also erroneously claim that most wildlife-funding mechanisms are generated by hunters.[222]

Trophy hunters, according to a 2020 economic study by Dr. Cameron Murray, depend largely on funding provided by others in order to engage in their sport.[223] Dr. Murray found that federal taxes that all Americans pay support the federal lands (e.g., Bureau of Land Management, U.S. Forest Service and National Park Service) that wildlife live on. Even state parks get funding from all Americans, only a subset of whom are hunters and even fewer are trophy hunters. Most land trusts are maintained by non-profits whose purpose is not to send aside lands for hunting and trapping, such as land trusts administered by the Humane Society Wildlife Land Trust.[224]

Taxes on gun and ammunition sales (Pittman-Robertson Act funds) and taxes on boating and fishing fuel and equipment (Dingell-Johnson Act funds) are paid by only a tiny fraction of Americans who trophy hunt—Dr. Murray estimates about 2% of the American population—so about 0.3% of all funding from taxes paid by trophy hunters to Pittman-Robertson and Dingell-Johnson.[225] On the other hand, managing hunting and trapping is expensive, as people are needed to set regulations, conduct law enforcement and wildlife population monitoring. Therefore, the costs of administering hunting and trapping can exceed the revenue from license sales.[226]

According to the NAM's principal architects, the foundation of wildlife management is based upon seven tenets:[227]

1. Wildlife resources are a public trust
2. Markets for game are eliminated
3. Allocation of wildlife is by law
4. Wildlife can be killed only for a legitimate purpose

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[221] M. Nils Peterson and Michael Paul Nelson, "Why the North American Model of Wildlife Conservation Is Problematic for Modern Wildlife Management," *Human Dimensions of Wildlife* 22, no. 1 (2017/01/02 2017), http://dx.doi.org/10.1080/10871209.2016.1234009; Michael P. Nelson et al., "An Inadequate Construct? North American Model: What's Missing, What's Needed," *The Wildlife Professional*, no. Summer (2011); Thomas L. Serfass, Robert P. Brooks, and Jeremy T. Bruskotter, "North American Model of Wildlife Conservation: Empowerment and Exclusivity Hinder Access in Wildlife Conservation," *Canadian Wildlife Biology & Management* 7, no. 2 (2018), https://cwbm.ca/wp-content/uploads/2018/11/Serfass-et-al-Vol-7-2.pdf; Cameron Murray, "Trophy Hunters of Native Carnivores Benefit from Wildlife Conservation Funded by Others," *A report for the Humane Society of the United States* https://www.humanesociety.org/sites/default/files/docs/HSUS_Trophy-Hunting-Economics-2020.pdf (2020).

[222] Ibid.

[223] Murray.

[224] Ibid.

[225] Ibid.

[226] Ibid.

[227] J.F. Organ et al., "The North American Model of Wildlife Conservation. The Wildlife Society Technical Review 12-04," (2012).

5. Wildlife is considered an international resource
6. Science is the proper tool to discharge wildlife policy
7. Democracy of hunting is standard[228]

According to Profs. M. Nils Peterson and Michael P. Nelson, the architects of the NAM, namely entities associated with The Wildlife Society,[229] have claimed that the NAM succeeded in its goal to protect wildlife from extinction because of the elimination of market hunting.[230] Yet despite this, Peterson and Nelson write, our planetary life faces "the now famous sixth great extinction event in the history of the earth."[231] Furthermore, market hunting is still very much alive. For instance, the global fur trade depends upon trappers who kill wildlife such as lynx, bobcats, foxes and coyotes and sell their pelts on open markets along with wild fish, reptiles and amphibians.[232]

Prof. Michael Manfredo and others explain that wildlife management agencies were forged after the period of unabated market hunting, bounties and the decline or extinction of species. In response, wildlife agencies began to regulate hunting and obtain their funding from hunters through license fees and federal excise taxes.[233] Because of this, hunters are accustomed to having complete control over wildlife decision making at the state and federal level. But as American values have shifted toward mutualism—the orientation that embraces wildlife as part of our extended social network—those hunters and their interest groups have increased their attempts to hold onto their power and influence. Manfredo et al. (2017) write:

> During the 1990s, 4 pro-hunting ballot initiatives were introduced and only 2 (50%) passed. In that same time period, 14 initiatives were introduced, 8 (57%) of which passed, that would provide restrictions on traditional hunting or trapping activities. By contrast, since 2000, 14 pro-hunting initiatives were introduced, many of which focused on ensuring protection of the right to hunt in state constitutions, and 10 (71%) passed. Seven initiatives aimed at restricting hunting were introduced during that timeframe, of which only 2 (29%) passed.[234]

Peterson and Nelson also point out that the wildlife who were protected under the doctrines of the NAM consist almost entirely of economically valued game species such as "ducks and deer."[235] The entire focus of the NAM is *not* on conservation, but rather on hunting "overabundant" game species—to the detriment of

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[228] Ibid.
[229] Peterson and Nelson also cite these articles as foundational for the NAM: (Organ et al. 2012), Geist (1988, 1995), Geist et al. (2001).
[230] Peterson and Nelson; Serfass, Brooks, and Bruskotter.
[231] Peterson and Nelson, p. 47.
[232] Ibid.; L. M. Elbroch et al., "Contrasting Bobcat Values," *Biological Conservation* (2017); J. A. Vucetich et al., "Evaluating the Principles of Wildlife Conservation: A Case Study of Wolf (Canis Lupus) Hunting in Michigan, United States," *Journal of Mammalogy* 98, no. 1 (Feb 2017), http://dx.doi.org/10.1093/jmammal/gyw151.
[233] Michael J. Manfredo et al., "Values, Trust, and Cultural Backlash in Conservation Governance: The Case of Wildlife Management in the United States," *Biological Conservation* 214 (2017/10/01/ 2017), http://dx.doi.org/https://doi.org/10.1016/j.biocon.2017.07.032.
[234] Manfredo et al., p. 307.
[235] Peterson and Nelson, p. 48.

native carnivores like black bears and the ecosystem services they provide.[236] Furthermore, other scholars suggest that all hunters do not have the same motivations and some are even unconcerned about wildlife conservation altogether.[237] In short, despite claims to the contrary by wildlife agencies and others, the NAM has failed to conserve North American wildlife. And the NAM has wrongly ascribed the funding of wildlife conservation to hunters. In fact, trophy hunters are subsidized by us all.

While science should be elevated to a "central role in wildlife policy," according to the NAM, wildlife agencies have failed this duty. In their study of 667 North American wildlife management agencies, biologist Kyle Artelle and others found that the four "hallmarks of science" (measurable objectives, evidence, transparency and independent review) were absent from most wildlife management plans in North America.[238] As we discuss herein, while North Americans want ethics and animal welfare to inform wildlife management decisions, those issues are not even considered in the NAM.[239] Even the architects of the NAM, Organ et al. (2012), admit that politics have eclipsed science in wildlife management.[240]

Many have criticized the NAM and wildlife agencies for their failure to manage wildlife for diverse stakeholders.[241] Agencies will have to adapt to change in order to protect wildlife from extinction due to habitat loss, the climate crisis and other myriad threats.[242] We are in the midst of the Anthropocene, the sixth mass extinction.[243] To save the planet, we must change our human behaviors on an enormous scale.[244]

Another important new critique of the NAM comes from Casellas Connor and Rea (2022) in their article entitled, "Violent entanglements: The Pittman-Robertson Act, Firearms, and the Financing of Conservation."[245] These authors find that the "user pay" model formerly associated with American wildlife conservation has been subsumed by the consumption of guns that are not purchased for hunting but rather are "entangled" in violence against humans.[246] In their analysis, they find that the taxation on guns that funds Pittman-Robertson has been hijacked for "political power" that "maintains" or even "accelerates" the "circulation of guns." They add:

> The Pittman-Robertson Act is central to codifying the relationship between conservation and firearms, even as firearms are increasingly dissociated from hunting, and as hunters slowly become an increasingly marginal group of wildlife 'users'. . . . this shifting relationship between conservation and firearms demands that conservationists consider

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[236] Nelson et al., p. 59.
[237] Serfass, Brooks, and Bruskotter.
[238] Artelle et al.
[239] Peterson and Nelson.
[240] Organ et al.
[241] Manfredo et al; Cynthia Jacobson et al., "A Conservation Institution for the 21st Century: Implications for State Wildlife Agencies," *Journal of Wildlife Management* 74, no. 2 (2010); Vucetich et al; Nelson et al.
[242] Manfredo et al.
[243] Manfredo et al.
[244] Ibid.
[245] John P. Casellas Connors and Christopher M. Rea, "Violent Entanglements: The Pittman-Robertson Act, Firearms, and the Financing of Conservation," *Conservation and Society* 20, no. 1 (2022).
[246] Ibid.

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> how this model benefits from social violence, reproduces gun users, and [prioritizes] a narrow set of wildlife users.[247]

Undemocratic and based on revisionist history and wrongful claims about wildlife funding, the NAM is an unhelpful doctrine. Peterson and Nelson suggest scrapping the NAM and replacing it with a more "inclusive narrative" for wildlife conservation that "acknowledges" the contributions of diverse stakeholders and does not focus on hunting and whether "more or fewer" animals need to be killed.[248] An inclusive narrative is also a more democratic one, and one that we need if we are to protect black bears and other native carnivores during the Anthropocene. Regrettably, Pittman-Robertson is no longer funded by hunters, it has been subsumed by the sale of American firearms that has created an unfortunate "entanglement" of gun violence to humans.

In conclusion, we sincerely thank the DFW for this opportunity to comment on California's draft black bear conservation plan. We hope that our comments will be seriously considered as you move forward in finalizing your bear planning document that will guide bear management in California for the next decade.

Sincerely yours,

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Outlook

Please protect California's bears

From Tweed Conrad <Tweed.Conrad@advocacy.humanesociety.org>
Date Thu 07/31/2025 03:58 PM
To FGC <FGC@fgc.ca.gov>

Dear Commissioner,

As a California resident, I am writing to urge you oppose the petition to double the number of bears each hunter can kill annually. If additional bear tags are allowed, it would perpetrate more cruelty to bears but would not resolve human-bear conflicts or increase the deer population for hunters.

The best available science shows that simple, non-lethal steps—like securing trash, taking down bird feeders, removing food attractants, keeping dogs on leash and using electric fencing or other barriers around bees, chickens and animal feed—are the most effective ways to avoid problems with bears.

Hunters claim they need a second bear tag to protect California deer herds. But the best available science doesn't support this argument. Deer face far more serious threats from the loss of habitat and migration corridors and by vehicle collisions. Extreme droughts and wildfires reduce food sources for deer, which curbs their numbers. Deer also face a pandemic of chronic wasting disease, which wild carnivores like bears and wolves naturally help eliminate. Ironically, human hunters kill far more deer than wild carnivores.

Giving hunters another bear tag does nothing more than provide additional "recreation" opportunities for special interests at the expense of the majority of the California public who value bears and do not want a bear hunt at all.

California bears are invaluable, but they face looming threats to their persistence. They're highly intelligent, family oriented and contribute to biodiversity. For instance, they spread more seeds than birds. Wildlife officials must do more to conserve bears, not permit an increase of unpopular and inhumane bear hunts.
Thank you for your consideration.

Tweed Conrad
[redacted]
Berkeley, CA [redacted]