30. REGULATION CHANGE PETITIONS (WILDLIFE AND INLAND FISHERIES)

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

This is a standing agenda item for FGC 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 petitions for regulation change

Summary of Previous/Future Actions

(A) ***New Petitions for Regulation Change – Receipt***

- **Today receive new petitions** **Apr 20-21, 2022; Monterey/Trinidad**
- Potentially act on new petitions Jun 15-16, 2022; Los Angeles/Orange County areas

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

- Received new petitions Feb 16-17, 2022; Webinar/Teleconference
- **Today's action on petitions** **Apr 20-21, 2022; Monterey/Trinidad**

Background

(A) ***Receipt of new petitions for regulation change***

Pursuant to Section 662, any person requesting that FGC 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 FGC meeting under (A) if they are delivered by the comment deadline (included in meeting materials) or by the supplemental comment deadline.

Under the Bagley-Keene Open Meeting Act, FGC cannot discuss or take action on any matter not included on the agenda, other than to schedule issues raised by the public for consideration at future meetings. Thus, petitions for regulation change generally follow a two-meeting cycle (receipt and direction); FGC will determine the outcome of the petitions for regulation change received at today's meeting at the next regularly scheduled FGC meeting under (B), following staff evaluation (currently Jun 15-16, 2022), unless the petition is rejected under 10-day staff review as prescribed in subsection 662(b). Note that in the past, new petitions were received under "general public comment."

FGC received one new wildlife and inland fisheries petition by the comment deadline; the petition is summarized in Exhibit A1, and the petition is provided as Exhibit A2.

(B) ***Action on previously-received petitions for regulation change***

Petitions received at the previous meeting are scheduled for FGC consideration at the next regularly scheduled business meeting under (B). A petition may be (1) denied, (2) granted, or (3) referred to a committee, staff, or DFW for further evaluation or information-gathering. Referred petitions are scheduled for action once the evaluation is

completed and a recommendation made. Four wildlife and inland fisheries petitions are scheduled for action.

I. Petition 2021-020: Request to adopt special regulations for the North Yuba River (Exhibit B2)

II. Petition 2021-027: Request to eliminate open hunting season for black bear until DFW's bear management plan is updated (Exhibit B3)

III. Petition 2022-01: Request to prohibit waterfowl hunting in specific areas along the shoreline near Benicia and Southhampton Bay (Exhibit B4)

IV. Petition 2022-02: Request to create a new class of deer hunting tags restricted to method of take such as traditional archery and muzzleloading shotgun and rifle (Exhibit B5)

Staff recommendations and rationales, developed with input from DFW staff, are provided in Exhibit B1. Memos with DFW recommendations and rationales for petitions 2021-20 and 2021-027 are provided in exhibits B6 and B7, respectively.

Staff Analysis of Petition 2021-027

DFW has provided an extensive memo (Exhibit B7) which focuses on modelling, actual bear abundances in California, and the bear management plan. FGC staff concurs with the analysis in that memo, and addresses other issues raised by the petition in a staff analysis (Exhibit B17).

Significant Public Comments

Numerous comments have been received regarding Petition 2021-027.

1. Safari Club International, the County of Siskiyou Board of Supervisors, and Siskiyou County Gun Owners oppose Petition 2021-027, noting that bear populations are satisfactory, DFW monitors adverse effects to bear populations, and hunting benefits conservation efforts. They state that hunting bears will help to increase ungulate populations and urge that management decisions be made on a scientific foundation (exhibits B8-B10).
2. A coalition of 24 sportsperson and conservation organizations oppose Petition 2021-027, providing a synopsis of black bear studies in California, a list of scientific literature on California black bears, and a discussion of climate change, bear reproduction, data reliability, and bear hunting popularity (Exhibit B11).
3. Nineteen commenters oppose Petition 2021-027, stating that bear populations have increased, human-bear conflicts have increased and should be controlled through hunting, and the petition has an anti-hunting bias. A sample is included as Exhibit B12.
4. Approximately 300 commenters oppose Petition 2021-027 via form emails, urging science-based management and stating that bear hunting provides funding for DFW and reduces human-bear conflicts. A sample is provided as Exhibit B13.
5. Two animal advocacy organizations support Petition 2021-027, stating that the DFW bear model is flawed and there are indications of population decline, and emphasizing

the negative effects of trophy hunting, habitat loss, drought, and wildfires on bear populations (exhibits B14-B15).

6. Eighteen commenters oppose Petition 2021-027 via email, citing adverse effects from habitat loss, drought, wildfires, trophy hunting, climate change and human-bear conflict. Many urge DFW to update its bear management plan and state that black bears are an important umbrella species. A sample is provided as Exhibit B16.

Recommendation

FGC staff: Grant Petition 2021-20 for consideration in a future rulemaking, deny Petition 2021-027 based on the rationales provided in exhibits B7 and B17, and refer petitions 2022-01 and 2022-02 to DFW for review and recommendations.

DFW: Grant Petition 2021-20 for consideration in a future rulemaking (Exhibit B6). Deny Petition 2021-027 based on the rationale provided in Exhibit B7.

Exhibits

A1. Summary of new petitions for regulatory change, updated Apr 13, 2022
A2. Petition 2022-05, received Feb 28, 2022
B1. Table of petitions for regulatory change scheduled for action, updated Apr 13, 2022
B2. Petition 2021-20, received Oct 4, 2021
B3. Petition 2021-27, received Dec 10, 2021
B4. Petition 2022-01, received Jan 12, 2022
B5. Petition 2022-02, received Jan 27, 2022
B6. DFW memo, received Apr 11, 2022
B7. DFW memo with presentation as attachment, received Apr 14, 2022
B8. Letter from Sven Lindquist, Safari Club International, received Apr 6, 2022
B9. Letter from Siskiyou County Board of Supervisors, received Apr 11, 2022
B10. Letter from Siskiyou County Gun Owners, received Mar 2, 2022
B11. Letter to DFW from 25 organizations, received Mar 30, 2022
B12. Sample letter from individuals opposing 2021-027, received Feb 26, 2022
B13. Sample form email from individuals, received Feb 6, 2022
B14. Letter from Jennifer Hauge, Legislative Affairs Manager, Animal Legal Defense Fund, received Apr 6, 2022
B15. Letter from Nickolaus Sackett, Director of Legislative Affairs, Social Compassion in Legislation, received Apr 6, 2022
B16. Sample email from individuals supporting 2021-027, received Apr 7, 2022
B17. Staff analysis of Petition 2021-07, dated Apr 15, 2022

Motion

Moved by _____ and seconded by _____ that the Commission adopts the staff recommendations to grant Petition 2021-20 for consideration in a future rulemaking, deny

Petition 2021-027, and refer petitions 2022-01 and 2022-02 to DFW for review and recommendations, as reflected in Exhibit B1.

OR

Moved by _____ and seconded by _____ that the Commission adopts the staff recommendations as reflected in Exhibit B1, except _____.

CALIFORNIA FISH AND GAME COMMISSION

RECEIPT LIST FOR PETITIONS FOR REGULATION CHANGE: RECEIVED BY 5:00 PM ON APRIL 7, 2022

California Fish and Game Commission DFW - California Department of Fish and WildlifeWRC - Wildlife Resources Committee MRC - Marine Resources Committee

Tracking No.	Date Received	Name of Petitioner	Subject of Request	Short Description	FGC Receipt Scheduled	FGC Action Scheduled
2022-05	2/25/2022	Steven Jones	Hunting: Waterfowl draw	Request to change the way waterfowl reservations are drawn	4/20-21/2022	6/20-21/22

State of California – Fish and Game Commission
PETITION TO THE CALIFORNIA FISH AND GAME COMMISSION FOR REGULATION CHANGE
FGC 1 (Rev 06/19) Page 1 of 2

RECEIVED
FISH AND GAME
COMMISSION
2022 FEB 28 PM 5:34

Tracking Number: (2022-05)

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: steven jones.
   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: waterfowl reservation manager.

3. **Overview (Required) -** Summarize the proposed changes to regulations: Audit the way waterfowl reservations are drawn, and possibly change the draw process..

4. **Rationale (Required) -** Describe the problem and the reason for the proposed change: statistic for waterfowl draws at refuges are not fair to all. They favor certain licenses either with go id numbers or other details causing the same general people to be drawn..

SECTION II: Optional Information

5. **Date of Petition:** 2/14/2022.

6. **Category of Proposed Change**
   ☐ Sport Fishing
   ☐ Commercial Fishing
   X 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*)
   - ☐ Amend Title 14 Section(s): not sure
   - ☐ Add New Title 14 Section(s): not sure.
   - ☐ Repeal Title 14 Section(s): not sure

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 [X] 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: hopefully by start of next waterfowl season.

10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: more than happy to look up my draw statistics, my bothers, coworkers and compare them to a couple friends that get drawn numerous times a year..

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: Open up more opportunities to different people to hunt different refuges and possibly hunt/pay more every year.

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

SECTION 3: FGC Staff Only

Date received: 02/25/22

FGC staff action:
- [X] Accept - complete
- ☐ Reject - incomplete
- ☐ Reject - outside scope of FGC authority

Tracking Number

Date petitioner was notified of receipt of petition and pending action: 3/14/22

Meeting date for FGC consideration: _____

FGC action:
- ☐ Denied by FGC
- ☐ Denied - same as petition _____
  Tracking Number
- ☐ Granted for consideration of regulation change

From: Steven Jones <salbertj707707707@hotmail.com>
Sent: Monday, March 14, 2022 4:08 PM
To: Cornman, Ari@FGC <Ari.Cornman@FGC.ca.gov>
Subject: Re: Petition 2022-05

Sections 200, 1050, 1530, 1764, 1765, 3031 and 10504

Sent from my iPhone

CALIFORNIA FISH AND GAME COMMISSION PETITIONS FOR REGULATION CHANGE - ACTION

FGC - California Fish and Game Commission DFW - California Department of Fish and Wildlife WRC - Wildlife Resources Committee MRC - Marine Resources Committee

Grant: FGC is willing to consider the petitioned action through a process Deny: FGC is not willing to consider the petitioned action Refer: FGC needs more information before the final decision

Tracking No.	Date Received	Name of Petitioner	Subject of Request	Short Description	FGC Receipt	FGC Initial Action	Initial Staff Recommendation	Referral Date	Referred to	Final Staff Recommendation
2021-020	10/4/2021	Robert Latta	Inland sport fishing: North Yuba River	Request to adopt special regulations for the North Yuba River	12/15-16/2021	12/15-16/2021	REFER to DFW for review and recommendation.	12/15-16/2021	DFW	GRANT for consideration in a future sport fishing rulemaking. See DFW memo under Item 30 for the April 2022 FGC meeting.
2021-027	12/10/2021	Sabrina Ashjian, Humane Society of the United States	Hunting: Black bear	Request to eliminate open hunting season for black bear until bear management plan is updated	12/15-16/2021	2/16-17/2022	REFER to DFW for review and recommendation.	2/16-17/2022	DFW	DENY based on rationale in DFW memo under Item 30 for the April 2022 meeting and staff analysis in the staff summary for this item.
2022-01	1/12/2022	Cathy Bennett	Hunting: Restrict duck hunting in Benicia	Request to prohibit waterfowl hunting in specific areas along the shoreline near Benicia in Southhampton Bay.	2/16-17/2022	4/20-21/2022	REFER to DFW for review and recommendation.			
2022-02	1/27/2022	Matthew White	Hunting: Heritage deer tags	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.	2/16-17/2022	4/20-21/2022	REFER to DFW for review and recommendation.			

RECEIVED AT FISH & GAME COMMISSION OCTOBER 4, 2021

State of California – Fish and Game Commission
PETITION TO THE CALIFORNIA FISH AND GAME COMMISSION FOR REGULATION CHANGE
FGC 1 (Rev 06/19) Page 1 of 4

Tracking Number: (2021-020)

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:

Robert Latta, Chairperson, Sierra County Fish and Wildlife Commission
Address: Post Office Box 5, Sierra City, CA 96125
Telephone number: 530-414-5134
Email address: blatta@sccn.net

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

Fish and Game Code
Division 1. Fish and Game Commission (101-500)
Chapter 2. Regulation of Take and Possession Generally (200-275)
Article 1. Authority (200-219)

200. (a) There is hereby delegated to the commission the power to regulate the taking or possession of birds, mammals, fish, amphibians, and reptiles.

205. Any regulation of the commission pursuant to this article which relates to fish, amphibia and reptiles, may apply to all or any areas, districts or portion thereof, at the discretion of the commission, and may do any or all of the following as to any or all species or subspecies:
(a) Establish, extend, shorten, or abolish bag open seasons and closed seasons.
(b) Establish, change, or abolish bag limits, possession limits, and size limits.
(c) Establish and change areas or territorial limits for their taking.
(d) Describe the manner and means for their taking.

219. Any regulation adopted pursuant to this article may supersede any section of this code designated by number in the regulation, but shall do so only to the extent specifically provided in the regulation. A regulation which is adopted pursuant to this section shall be valid only to the extent that it makes additions, deletions, or changes to this code under the following circumstances:

(a) The regulation is necessary for the protection of fish, wildlife, and other natural resources under the jurisdiction of the commission.

3. Overview (Required) - Summarize the proposed changes to regulations

The purpose of this petition is to correct what appears to be an unintended consequence of the process of simplifying the CDFW freshwater Sport Fishing Regulations that were adopted for the 2021-2022 season as described on page 76 of this year's publication. The proposed changes are in reference to the Special Regulation Section of the North Yuba which is from the western boundary of Sierra City to the confluence with Ladies Canyon. This is an approximately 5-mile reach which lies entirely in Sierra County. The proposal is to restore the text of future regulations related to this reach to as how they were written prior to the 2021-2022 changes. In other words, we propose that for the Special Regulation Section of the North Yuba, which is from the western boundary of Sierra City to the confluence of Ladies Canyon, the following regulations should be adopted:

Special Regulations for this section apply from the last Saturday in April through November 15. The bag limit is 2 fish. Only artificial lures with barbless hooks may be used.

From November 16 through the Friday preceding the last Saturday in April, a zero bag limit applies. Only artificial lures with barbless hooks may be used.

The following table is provided to add clarity:

Table 1. Regulations for Yuba River, North Fork from the western boundary of Sierra City to the confluence with Ladies Canyon - Old, Current, and Proposed Regulations.

Regulation Status	Body of Water	Open Season and Special Restrictions	Daily Bag and Possession Limit
OLD	(211) Yuba River, North Fork (Sierra and Yuba cos.) (A) From the western boundary of Sierra City to the confluence with Ladies Canyon Creek.	Last Saturday in Apr. through Nov. 15. Only artificial lures with barbless hooks may be used.	2 trout
		Nov. 16 through the Friday preceding the last Saturday in Apr. Only artificial lures with barbless hooks may be used.	0 trout
CURRENT	(169) Yuba River, North Fork (Sierra and Yuba cos.) from the western boundary of Sierra City to the confluence with Ladies Canyon Creek.	All year. Only artificial lures maybe used. *	2 trout *
PROPOSED	(169) Yuba River, North Fork (Sierra and Yuba cos.) from the western boundary of Sierra City to the confluence with Ladies Canyon Creek.	Last Saturday in April through November 15. Only artificial lures with single barbless hooks may be used.	2 trout
		From Nov. 16 through the Fri. preceding the last Sat. in Apr., a zero trout bag limit applies, and only artificial lures with barbless hooks may be used. ** *	0 trout **

*Not consistent with statewide stream regulations during any time period.

**Consistent with statewide stream regulations from Nov. 16 through the Fri. preceding the last Sat. in April

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

There are three main reasons for this proposal:

--Simplicity. Restoring the regulations as to how they were written prior to 2021-2022 would help to achieve the objective of simplicity as the regulations would only be "special" or different from the statewide stream regulations during the "summer" (last Saturday in April through November 15) season. They would be identical to the statewide stream regulations during the remainder of the year or "winter" (November 16 through the Friday before the last Saturday in April) season—which is substantially simpler with respect to take and equipment than how the regulations for that season are written currently.

The critical inconsistencies and therefore the major complications in the regulations as they stand today are related to the "winter" season when the regulations in the "restricted" section of the North Yuba are less restrictive by allowing lures with any number of barbed hooks per lure and a bag limit of 2 fish. Also, those regulations are different from the North Yuba and other streams covered by the general statewide regulation for that "winter" period. Our proposal would improve on that by making the "winter" regulations the same for the entire fork of the river and its tributaries and consistent with the general statewide regulations for the "winter" period.

--Protection of the fishery. The special regulations were the result of research that was initiated approximately 30 years ago under the direction and leadership of Region II biologist John Hiscox. John's regular reports to the Sierra County Fish and Wildlife Commission included data that supported the idea that the special regulations assigned to this section resulted in fish counts that reflected increased fish numbers and sizes.

--Economics. The health of western Sierra County's economy is largely determined by the varied interests of its visitors. Anecdotal evidence provided by those in the region's hospitality industry suggest that fishing attracts visitors, and that opportunities which might include waters restricted to artificial lure and catch and release fishing are attractive to many who might not be interested otherwise.

SECTION II: Optional Information

5. Date of Petition: Click here to enter text.

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*)
   ☐ Amend 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** 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: As soon as is practical. Ideally before publication of 2022-2023 Sportfishing Regulations Handbook,Click here to enter text.

10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: Click here to enter text.

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: Click here to enter text.

12. **Forms:** If applicable, list any forms to be created, amended or repealed:
    Click here to enter text.

SECTION 3: FGC Staff Only

Date received: Click here to enter text.

FGC staff action:
☐ Accept - complete
☐ Reject - incomplete
☐ Reject - outside scope of FGC authority

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

Meeting date for FGC consideration: _____

FGC action:
☐ Denied by FGC
☐ Denied - same as petition _____
Tracking Number
☐ Granted for consideration of regulation change

Tracking Number: (2021-027)

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: Sabrina Ashjian, California State Director, The Humane Society of the United States
   Address:
   Telephone number:
   Email address:

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

   Cal. Fish & Game Code §§ 200, 203, 203.1, 302.

3. **Overview (Required) -** Summarize the proposed changes to regulations:

   We request that the California Fish and Game Commission ("Commission") amend existing black bear (*Ursus americanus*) hunting regulations to eliminate open hunting season until (1) an empirical study is conducted of the state's black bear populations, (2) the effects of drought and recent wildfires on the state's bear populations are adequately studied, and (3) the state's bear management plan is updated to include the best available science, including social science.

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

   As detailed more fully in the letter included as Attachment A, we are gravely concerned about the status of California's black bear population given the numerous threats these bears face and recent data released by the Department of Fish and Wildlife ("DFW") indicating a steep decline in the state's bear population. We therefore request that the Commission take urgent regulatory action to protect black bears.

Black bears in California are threatened by numerous factors. To start, California has experienced record-level fires and drought in recent years. In 2021 alone, more than three million acres burned from intense wildfires. Yet, to date, DFW has not analyzed the effects these fires—and future fires— or California's well-documented drought will have on the state's black bears, their food sources, or their habitats. Climate change exacerbates these issues and poses a further threat to bears both because erratic weather events limit the availability of natural foods and because warmer weather causes bears to spend less time in their dens, increasing the potential for human-wildlife conflict. As a result, bear biologists warn we must do more to avoid attracting bears to human food sources by implementing bear-aware campaigns, but we should certainly not increase bear mortalities to reduce conflicts. Killing bears to reduce conflict risks extirpating local populations *and* multiple studies warn that hunting bears does nothing to reduce conflicts with them.

Human persecution of bears, such as through hunting and predator control, not only does not stop human-bear conflict, it also threatens these animals because it causes "super-additive" mortality, meaning that kill rates exceed mortalities that would occur naturally. This is because hunters typically target adult breeding animals, which disrupts animals' social structure and leads to indirect effects, particularly increased infanticide resulting in decreased recruitment of young. Because bears are slow to reproduce, compared to other mammals, this super-additive mortality can be especially devastating to bear populations. Another form of human persecution, poaching, is of major concern in California; the current bear management plan suggests that poaching numbers equal that of legal killings in some areas of the state.

In the face of these threats to bears, we are alarmed by worrisome indications of a steep decline in California's black bear population. In late October 2021, DFW posted its black bear "take" reports for the years 2017, 2018, 2019 and 2020. In the 2020 report, the agency suggests that the black bear population is 15,934 (±6,163), a marked decrease from the estimated population of 30,000-40,000 that DFW has suggested for years. DFW now believes that the California bear population could be as low as 9,771 individuals, which would indicate a 67% decline in the number of bears from the previously reported lowest population range of 30,000 bears.

Equally troublesome is DFW's unempirical approach to estimating the state's bear population. Although many large-carnivore biologists recognize that using kill levels to estimate bear populations is unreliable, DFW uses the number of hunted bears to approximate the live bear population in the state. In other words, DFW has no empirically based estimate of the state's bear population. What we do know is that the numbers of black bears killed annually is in decline while the number of bear hunters themselves has increased with a record 30,388 in 2020, providing further indication that the state's bear population is declining.

Under California's Constitution and the Fish and Game Code, the Commission has a clear obligation to provide for the conservation of the state's wildlife. California's Constitution creates the Commission and gives the California legislature the authority to "delegate to the commission such powers relating to the *protection and propagation of fish and game*" as the legislature sees fit. Cal. Const. art. IV, § 20 (emphasis added). The legislature has accordingly granted the Commission "the power to regulate the taking or possession of . . . mammals." Cal. Fish & Game Code § 200. More specifically, the Commission has regulatory authority to "establish, extend, shorten, or abolish open seasons and closed seasons" for game mammals,

such as black bears. *Id.* § 203. The legislature has provided specific factors that the Commission must consider when adopting such regulations, including "populations, habitat, food supplies, the welfare of individual animals, and other pertinent facts and testimony." *Id.* § 203.1.

Further, the Commission has specific obligations with respect to its regulation of the black bear hunting season. The Commission must "annually determine whether to continue, repeal, or amend regulations establishing hunting seasons for black bears." *Id.* § 302. This determination "shall include a review of factors which impact the health and viability of the black bear population." *Id.*

Given the threats California black bears face and the indications of their population decline—factors that the Commission is *required* to consider in making its annual determination of whether to continue the black bear hunting season—we ask the Commission to eliminate the season until (1) an empirical study is conducted of the state's black bear populations, (2) the effects of drought and recent wildfires on the state's bear populations are adequately studied, and (3) the state's bear management plan is updated to include the best available science, including social science. More specifically, the updated bear management plan should also consider the additional effects from climate change, including stochastic weather events (late freezes affecting mast crops), insect-borne diseases and parasites, sexually selected infanticide resulting from human persecution, and it should include plans to prevent human-bear conflicts, such as through bear-smart or bear-aware campaigns.

Our request to suspend bear hunting season until these conditions are met is not only consistent with the Commission's legal obligations, it also honors the will of the people of California—70% of California voters do not want black bears killed for sport.

SECTION II: Optional Information

5. Date of Petition: December 10, 2021

6. Category of Proposed Change
☐ Sport Fishing
☐ Commercial Fishing
X 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*)
[X] Amend Title 14 Section(s): 365, 366, see Attachment B for proposed revisions
☐ 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 Click here to enter text.
Or [X] 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:

We ask that the requested regulatory changes take effect on or before August 1, 2022.

10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents:

Please see Attachment A, which is a letter detailing the evidence of a steep population decline in California's black bear population and the current threats these animals face. The letter includes reference to supporting authorities.

Full-text PDF copies of all studies cited in Attachment A are available here: https://drive.google.com/drive/folders/1pIGuZv7AFpK_NePEPsoL-SELDYrtrSPd?usp=sharing

We can provide copies of individual studies via email upon request.

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:

The Department may see a modest decrease in revenue because it will not receive fees for the issuance of bear license tags while the open season is eliminated.

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

Click here to enter text.

SECTION 3: FGC Staff Only

Date received: 12/10/21.

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: 12/22/21

Meeting date for FGC consideration: _2/16-17-21_

FGC action:

- ☐ Denied by FGC
- ☐ Denied - same as petition _____

Tracking Number

- ☐ Granted for consideration of regulation change

Attachment A
November 22, 2021 Letter to Commission

THE HUMANE SOCIETY OF THE UNITED STATES

November 22, 2021

Peter S. Silva, President
Samantha Murray, Vice President
Jacque Hostler-Carmesin, Member
Eric Sklar, Member
Erika Zavaleta, Member
California Fish and Game Commission
715 P Street, 16th floor, Sacramento, 95814
P.O. Box 944209, Sacramento, CA 94244-2090

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

Dear President Silva and Commissioners:

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

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

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

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

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

1255 23rd St. NW, Suite 450, Washington, DC 20037
P 202-452-1100 F 202-778-6132 humanesociety.org

THE HUMANE SOCIETY OF THE UNITED STATES

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

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

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

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

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

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

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

THE HUMANE SOCIETY OF THE UNITED STATES

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

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

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

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

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

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

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

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

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

THE HUMANE SOCIETY OF THE UNITED STATES

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

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

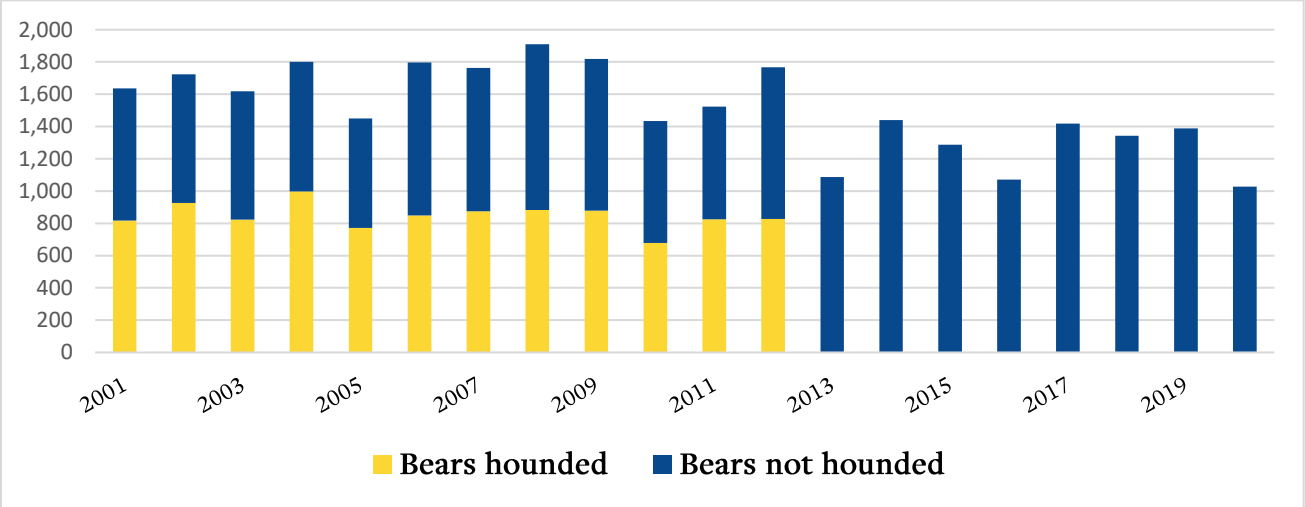
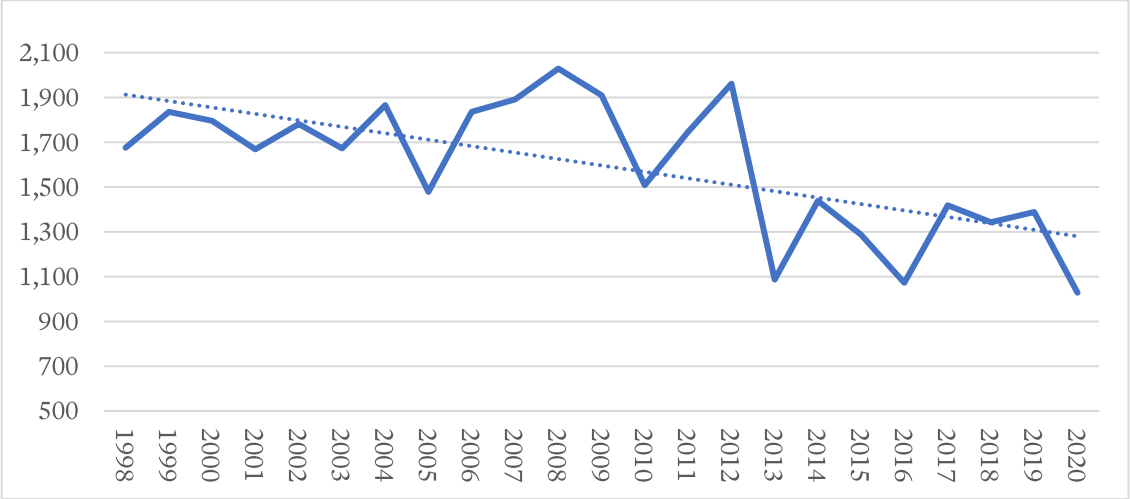


Figure 2. Trend of black bears killed by hunters in California

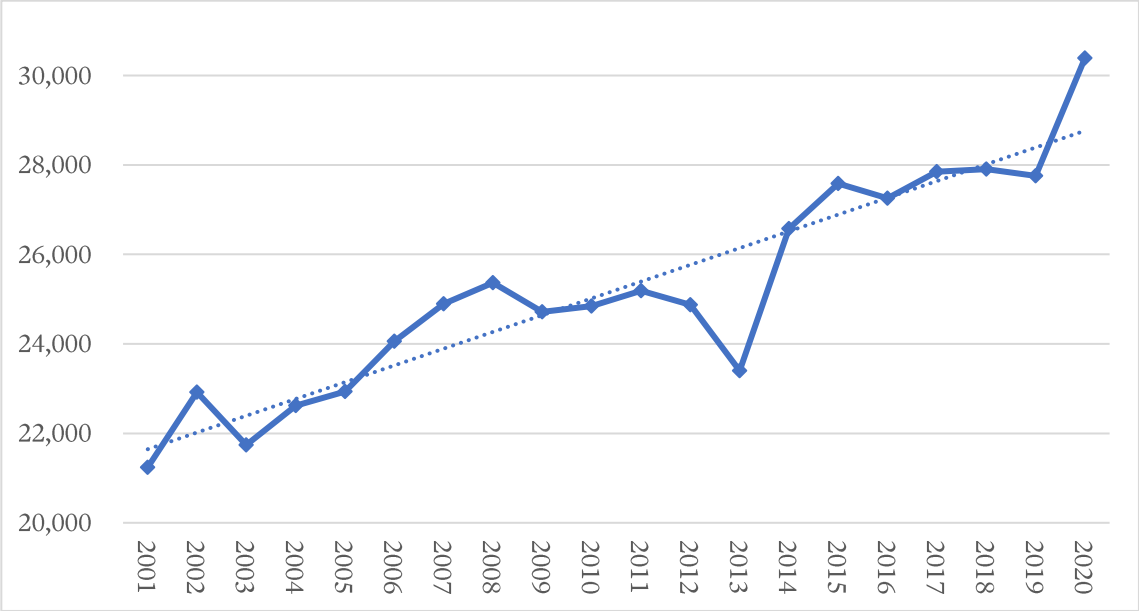


A. DFW's bear hunter data show that bear hunters are increasing while bears killed are decreasing

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

THE HUMANE SOCIETY OF THE UNITED STATES

Figure 3. Trend of black bear hunters in California



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

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

B. Black bear hunting is unpopular amongst California residents

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

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

THE HUMANE SOCIETY OF THE UNITED STATES

Figure 4. DFW's black bear hunt data

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

Conclusion

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

Sincerely,

Sabrina Ashjian, California State Director
The Humane Society of the United States
sashjian@humanesocity.org

Wendy Keefover, Senior Strategist, Native Carnivore Protection
The Humane Society of the United States
wkeefover@humanesociety.org

THE HUMANE SOCIETY OF THE UNITED STATES

Sources cited

[1] CAL FIRE, "2021 Incident Archive," *https://www.fire.ca.gov/incidents/2021/* (2021).
[2] Despite the updated population figure in its reports, DFW still has the 30,000-40,000 figure listed on its website. https://wildlife.ca.gov/Conservation/Mammals/Black-Bear/Population
[3] CAL FIRE, "2021 Incident Archive."
[4] See: Dixie fire assessment here: https://inciweb.nwcg.gov/incident/article/7811/67107/
[5] 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).
[6] 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).
[7] Ibid.
[8] Julie A. Beston, "Variation in Life History and Demography of the American Black Bear," *Journal of Wildlife Management* 75, no. 7 (2011); Lindsay Welfelt, Richard Beausoleil, and Robert Wielgus, "Factors Associated with Black Bear Density and Implications for Management," *The Journal of Wildlife Management* (2019).
[9] Laufenberg et al., "Compounding Effects of Human Development and a Natural Food Shortage on a Black Bear Population Along a Human Development-Wildland Interface."
[10] Ibid.
[11] Vucetich et al. 2005, Creel and Rotella 2010, Creel et al. 2015, Darimont et al. 2015.
[12] Benjamin Ghasemi, "Trophy Hunting and Conservation: Do the Major Ethical Theories Converge in Opposition to Trophy Hunting?," *People and Nature* 3 (2021); A. R. Braczkowski et al., "Who Bites the Bullet First? The Susceptibility of Leopards Panthera Pardus to Trophy Hunting," *Plos One* 10, no. 4 (2015).
[13] Wielgus and Bunnell 1995, Creel and Rotella 2010, Wielgus et al. 2013, Ausband et al. 2015, Darimont et al. 2015, Elbroch et al. 2017a, Leclerc et al. 2017.
[14] 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); 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); Beston, "Variation in Life History and Demography of the American Black Bear."
[15] Johnson, Lewis, and Breck, "Individual and Population Fitness Consequences Associated with Large Carnivore Use of Residential Development."
[16] Ibid.
[17] Ibid.
[18] 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); Beston, "Variation in Life History and Demography of the American Black Bear."
[19] S. Dobey et al., "Ecology of Florida Black Bears in the Okefenokee-Osceola Ecosystem," *Wildlife Monographs*, no. 158 (2005).
[20] Garshelis and Hristienko, "State and Provincial Estimates of American Black Bear Numbers Versus Assessments of Population Trend."
[21] A. D. Wallach et al., "What Is an Apex Predator?," *Oikos* 124, no. 11 (2015).
[22] 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., "What Is an Apex Predator?."

THE HUMANE SOCIETY OF THE UNITED STATES

[23] S. C. Frank et al., "Indirect Effects of Bear Hunting: A Review from Scandinavia," *Ursus* 28, no. 2 (2017); Jacinthe Gosselin et al., "The Relative Importance of Direct and Indirect Effects of Hunting Mortality on the Population Dynamics of Brown Bears," *Proceedings of the Royal Society B* 282 (2015); M. Leclerc et al., "Hunting Promotes Spatial Reorganization and Sexually Selected Infanticide," *Scientific Report* 7, no. 45222 (2017); J. E. Swenson, "Implications of Sexually Selected Infanticide for the Hunting of Large Carnivores," in *Animal Behavior and Wildlife Conservation*, ed. M. Festa-Bianchet and M Apolloio (Washington, D.C.: Island Press, 2003); J. E. Swenson et al., "Infanticide Caused by Hunting of Male Bears," *Nature* 386 (1997).
[24] Frank et al., "Indirect Effects of Bear Hunting: A Review from Scandinavia."; Jon R. Keehner et al., "Effects of Male Targeted Harvest Regime on Sexual Segregation in Mountain Lion," *Biological Conservation* 192 (2015); Swenson et al., "Infanticide Caused by Hunting of Male Bears."
[25] Welfelt, Beausoleil, and Wielgus, "Factors Associated with Black Bear Density and Implications for Management."
[26] Rahel Sollmann et al., "Habitat Associations in a Recolonizing, Low-Density Black Bear Population," *Ecosphere* 7, no. 8 (2016).
[27] Cougar Management Guidelines, *Cougar Management Guidelines* (Bainbridge Island, WA: WildFutures, 2005)., p. 47-8.
[28] Mariela Gantchoff, Laura Conlee, and Jerrold Belant, "Conservation Implications of Sex-Specific Landscape Suitability for a Large Generalist Carnivore," *Diversity and Distributions* 25, no. 9 (2019).
[29] 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," ibid.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," news release, May 6, 2019, 2019.
[30] Laufenberg et al., "Compounding Effects of Human Development and a Natural Food Shortage on a Black Bear Population Along a Human Development-Wildland Interface."
[31] Garshelis and Hristienko, "State and Provincial Estimates of American Black Bear Numbers Versus Assessments of Population Trend.", p. 6
[32] Cougar Management Guidelines, *Cougar Management Guidelines*.
[33] Garshelis and Hristienko, "State and Provincial Estimates of American Black Bear Numbers Versus Assessments of Population Trend."; Cougar Management Guidelines, *Cougar Management Guidelines*.
[34] 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); L. E. F. Harrer and T. Levi, "The Primacy of Bears as Seed Dispersers in Salmon-Bearing Ecosystems," *Ecosphere* 9, no. 1 (2018); 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); T. E. Reimchen and C. H. Fox, "Fine-Scale Spatiotemporal Influences of Salmon on Growth and Nitrogen Signatures of Sitka Spruce Tree Rings," ibid.; Remington J. Moll et al., "An Apex Carnivore's Life History Mediates a Predator Cascade," *Oecologia* 196, no. 1 (2021).
[35] J.T. Bruskotter, M.P. Nelson, and J.A Vucetich, "Does Nature Possess Intrinsic Value? An Empirical Assessment of Americans' Beliefs.," *The Ohio State University, Columbus OH, USA. DOI: 10.13140/RG.2.1.1867.3129* (2015).

THE HUMANE SOCIETY OF THE UNITED STATES

[36] California Department of Fish and Game, "Black Bear Management Plan," *https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=82769&inline* (1998): p. 11.
[37] Beston, "Variation in Life History and Demography of the American Black Bear." Welfelt, Beausoleil, and Wielgus, "Factors Associated with Black Bear Density and Implications for Management."
[38] Remington Research Group, "California Public Opinion," (2020).

Attachment B
Proposed Regulatory Amendments

Cal. Code Regs. tit. 14, § 365 Bear.

Except as provided in Section 366, bear may be taken only as follows:

(a) Areas:

(1) Northern California: In the counties of Del Norte, Humboldt, Plumas, Shasta, Siskiyou, Tehama and Trinity; and those portions of Lassen and Modoc counties west of the following line: Beginning at Highway 395 and the Sierra-Lassen county line; north on Highway 395 to the junction of Highway 36; west on Highway 36 to the junction of Highway 139; north on Highway 139 to Highway 299; north on Highway 299 to County Road 87; west on County Road 87 to Lookout-Hackamore Road; north on Lookout-Hackamore Road to Highway 139; north on Highway 139 to the Modoc-Siskiyou county line; north on the Modoc-Siskiyou county line to the Oregon border.

(2) Central California: In the counties of Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Glenn, Lake, Mendocino, Nevada, Placer, Sacramento, Sierra, Sutter, Yolo and Yuba and those portions of Napa and Sonoma counties northeast of Highway 128.

(3) Southern Sierra: That portion of Kern County west of Highway 14 and east of the following line: Beginning at the intersection of Highway 99 and the Kern-Tulare county line; south on Highway 99 to Highway 166; west and south on Highway 166 to the Kern-Santa Barbara county line; and those portions of Fresno, Madera, Mariposa, Merced, Stanislaus, Tulare and Tuolumne counties east of Highway 99.

(4) Southern California: In the counties of Los Angeles, Santa Barbara and Ventura; that portion of Riverside County north of Interstate 10 and west of Highway 62; and that portion of San Bernardino County south and west of the following line: Beginning at the intersection of Highway 18 and the Los Angeles-San Bernardino county line; east along Highway 18 to Highway 247; southeast on Highway 247 to Highway 62; southwest along Highway 62 to the Riverside-San Bernardino county line.

(5) Southeastern Sierra: Those portions of Inyo and Mono counties west of Highway 395; and that portion of Madera County within the following line: Beginning at the junction of the Fresno-Madera-Mono county lines; north and west along the Madera-Mono county line to the boundary of the Inyo-Sierra National Forest; south along the Inyo-Sierra National Forest boundary to the Fresno-Madera county line; north and east on the Fresno-Madera county line to the point of beginning. Also, that portion of Inyo county west of Highway 395; and that portion of Mono county beginning at the intersection of Highway 6 and the Mono county line; north along Highway 6 to the Nevada state line; north along the Nevada state line to the Alpine county line; south along the

Mono-Alpine county line to the Mono-Tuolumne county line and the Inyo National Forest Boundary; south along the Inyo National Forest Boundary to the Inyo-Sierra Forest boundary; south along the Inyo-Sierra Forest boundary to the Fresno-Madera county line; north and east along the Fresno-Madera county line to the junction of the Fresno-Madera-Mono county line; south along the Mono-Fresno county line to the Mono-Inyo County line; east along the Mono-Inyo county line to the point of beginning.

(b) Seasons: ~~Except in the deer hunt areas designated as zones X-1 through X-7b in subsection 360(b), the bear season shall open on the opening day of the general deer season as described in subsections 360(a) and (b) and extend until the last Sunday in December in the areas described in subsections 365(a)(1), (2), (3) (4) and (5) above. In those areas designated as deer hunting zones X-1 through X-7b, the bear season shall open on the second Saturday in October and extend for 79 consecutive days. The bear season shall be closed when the department determines that 1,700 bears have been taken pursuant to the reporting requirement in subsection 708.12(d). The department shall notify the commission, the public via the news media and bear tag holders via the U.S. mail and the news media when implementing this closure.~~

(1) There is no open season for the hunting of bear in those portions of the state described in subsection (a) above.

(2) The Commission may adopt regulations establishing an open season for the hunting of bear in those portions of the state described in subsection (a) above only after the Department:

(A) Using the best available science, completes an empirical and peer-reviewed study of the state's bear population, including but not limited to, developing updated population estimates;

(B) Completes a peer-reviewed study on the effects of drought and wildfires since 2018 on the state's bear populations, their habitat, and their food sources; and

(C) After completing the studies described in subsections (A) and (B) above, updates the current bear management plan utilizing the best available science, including but not limited to, science related to bear social structure.

(c) Bag and Possession Limit: One adult bear per hunting license year. Cubs and females accompanied by cubs may not be taken. (Cubs are defined as bears less than one year of age or bears weighing less than 50 pounds.)

(d) No open season for bear in the balance of the state not included in subsection (a) above.

(e) Bait: No feed, bait or other materials capable of attracting a bear shall be placed or used for the purpose of taking or pursuing a bear. No bear shall be taken over such bait. No person may take a bear within a 400-yard radius of a garbage dump or bait.

Cal. Code Regs. tit. 14, § 366 Archery Bear Hunting.

Bear may be taken with bow and arrow during the bear season as specified in Section 365 and as follows:

(a) Areas: Those portions of the state as described in subsection 365(a).

(b) Season: ~~The archery bear season shall open on the third Saturday in August and extend for 23 consecutive days. There is no open season for taking bear with bow and arrow in the balance of the state.~~

(1) There is no open season for taking bear with bow and arrow in those portions of the state described in subsection 365(a).

(2) The Commission may adopt regulations establishing an open season for taking bear with bow and arrow in those portions of the state described in subsection 365(a) only after the Department:

(A) Using the best available science, completes an empirical and peer-reviewed study of the state's bear populations, including but not limited to, developing updated population estimates;

(B) Completes a peer-reviewed study on the effects of drought and wildfires since 2018 on the state's bear populations, their habitat, and their food sources; and

(C) After completing the studies described in subsections (A) and (B) above, updates the current bear management plan utilizing the best available science, including but not limited to, science related to bear social structure.

(3) There is no open season for taking bear with bow and arrow in the balance of the state not included in subsection 365(a).

(c) Bag and Possession Limit: One adult bear per hunting license year. Cubs and female accompanied by cubs may not be taken. (Cubs are defined as bears less than one year of age or bears weighing less than 50 pounds.)

(d) The use of dogs is prohibited during the archery season for bear.

(e) Bait. No feed, bait or other materials capable of attracting a bear to a feeding area shall be placed or used for the purpose of taking or pursuing a bear. No bear shall be

taken over such bait. No person may take a bear within a 400 yard radius of a garbage dump or bait.

Attachment A
November 22, 2021 Letter to Commission

THE HUMANE SOCIETY OF THE UNITED STATES

November 22, 2021

Peter S. Silva, President
Samantha Murray, Vice President
Jacque Hostler-Carmesin, Member
Eric Sklar, Member
Erika Zavaleta, Member
California Fish and Game Commission
715 P Street, 16th floor, Sacramento, 95814
P.O. Box 944209, Sacramento, CA 94244-2090

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

Dear President Silva and Commissioners:

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

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

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

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

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

1255 23rd St. NW, Suite 450, Washington, DC 20037
P 202-452-1100 F 202-778-6132 humanesociety.org

THE HUMANE SOCIETY OF THE UNITED STATES

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

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

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

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

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

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

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

THE HUMANE SOCIETY OF THE UNITED STATES

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

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

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

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

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

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

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

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

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

THE HUMANE SOCIETY OF THE UNITED STATES

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

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

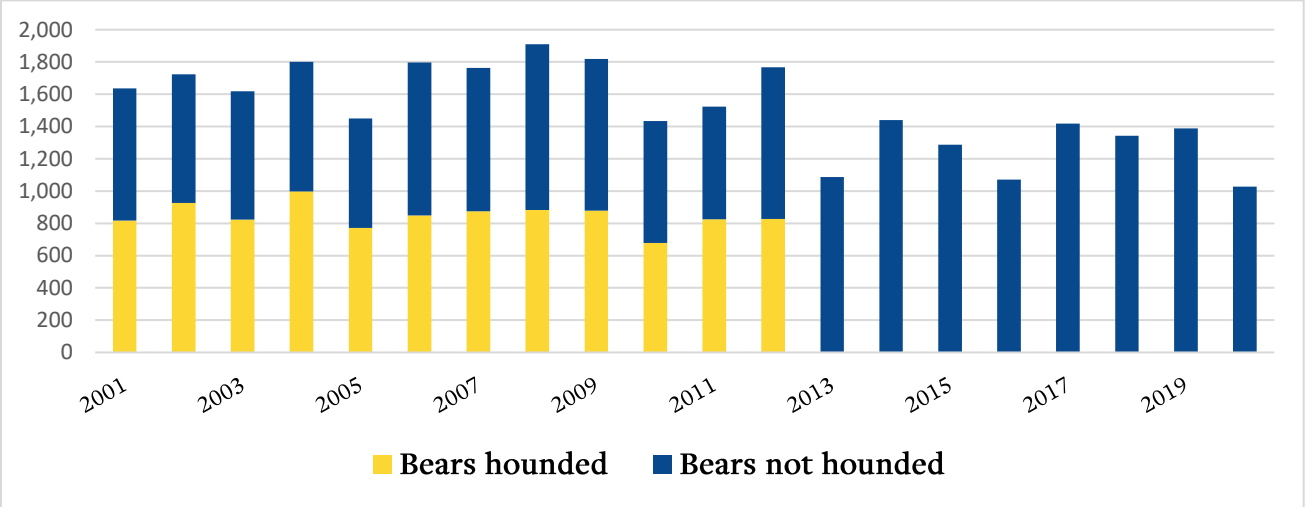
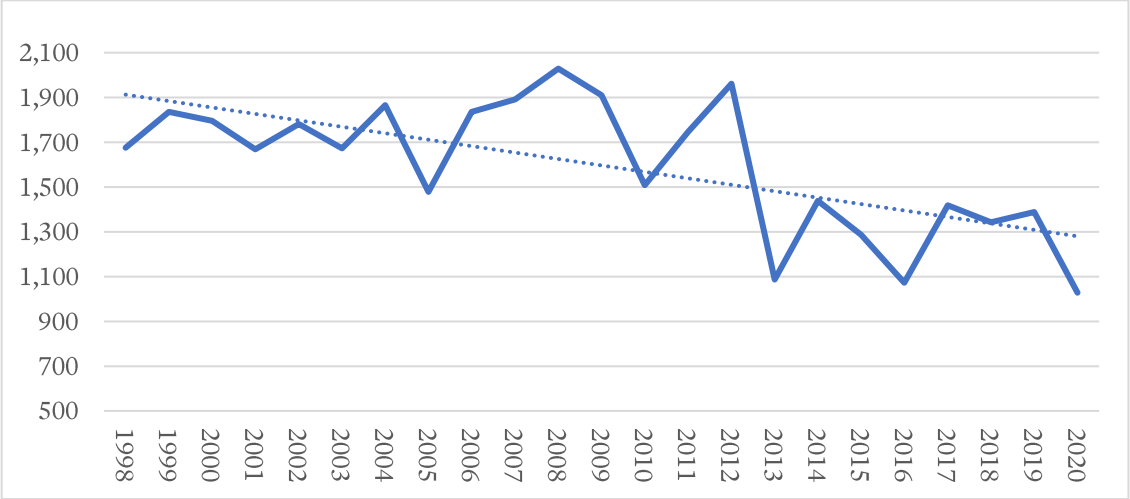


Figure 2. Trend of black bears killed by hunters in California

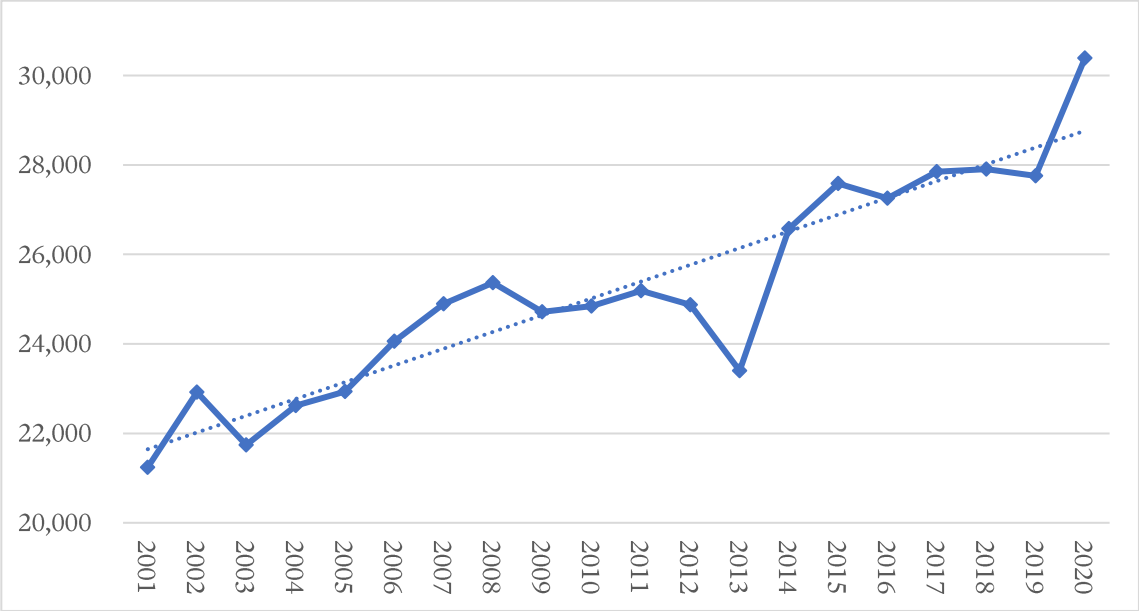


A. DFW's bear hunter data show that bear hunters are increasing while bears killed are decreasing

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

THE HUMANE SOCIETY OF THE UNITED STATES

Figure 3. Trend of black bear hunters in California



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

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

B. Black bear hunting is unpopular amongst California residents

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

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

THE HUMANE SOCIETY OF THE UNITED STATES

Figure 4. DFW's black bear hunt data

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

Conclusion

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

Sincerely,

Sabrina Ashjian, California State Director
The Humane Society of the United States
sashjian@humanesocity.org

Wendy Keefover, Senior Strategist, Native Carnivore Protection
The Humane Society of the United States
wkeefover@humanesociety.org

THE HUMANE SOCIETY OF THE UNITED STATES

Sources cited

[1] CAL FIRE, "2021 Incident Archive," *https://www.fire.ca.gov/incidents/2021/* (2021).
[2] Despite the updated population figure in its reports, DFW still has the 30,000-40,000 figure listed on its website. https://wildlife.ca.gov/Conservation/Mammals/Black-Bear/Population
[3] CAL FIRE, "2021 Incident Archive."
[4] See: Dixie fire assessment here: https://inciweb.nwcg.gov/incident/article/7811/67107/
[5] 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).
[6] 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).
[7] Ibid.
[8] Julie A. Beston, "Variation in Life History and Demography of the American Black Bear," *Journal of Wildlife Management* 75, no. 7 (2011); Lindsay Welfelt, Richard Beausoleil, and Robert Wielgus, "Factors Associated with Black Bear Density and Implications for Management," *The Journal of Wildlife Management* (2019).
[9] Laufenberg et al., "Compounding Effects of Human Development and a Natural Food Shortage on a Black Bear Population Along a Human Development-Wildland Interface."
[10] Ibid.
[11] Vucetich et al. 2005, Creel and Rotella 2010, Creel et al. 2015, Darimont et al. 2015.
[12] Benjamin Ghasemi, "Trophy Hunting and Conservation: Do the Major Ethical Theories Converge in Opposition to Trophy Hunting?," *People and Nature* 3 (2021); A. R. Braczkowski et al., "Who Bites the Bullet First? The Susceptibility of Leopards Panthera Pardus to Trophy Hunting," *Plos One* 10, no. 4 (2015).
[13] Wielgus and Bunnell 1995, Creel and Rotella 2010, Wielgus et al. 2013, Ausband et al. 2015, Darimont et al. 2015, Elbroch et al. 2017a, Leclerc et al. 2017.
[14] 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); 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); Beston, "Variation in Life History and Demography of the American Black Bear."
[15] Johnson, Lewis, and Breck, "Individual and Population Fitness Consequences Associated with Large Carnivore Use of Residential Development."
[16] Ibid.
[17] Ibid.
[18] 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); Beston, "Variation in Life History and Demography of the American Black Bear."
[19] S. Dobey et al., "Ecology of Florida Black Bears in the Okefenokee-Osceola Ecosystem," *Wildlife Monographs*, no. 158 (2005).
[20] Garshelis and Hristienko, "State and Provincial Estimates of American Black Bear Numbers Versus Assessments of Population Trend."
[21] A. D. Wallach et al., "What Is an Apex Predator?," *Oikos* 124, no. 11 (2015).
[22] 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., "What Is an Apex Predator?."

THE HUMANE SOCIETY OF THE UNITED STATES

[23] S. C. Frank et al., "Indirect Effects of Bear Hunting: A Review from Scandinavia," *Ursus* 28, no. 2 (2017); Jacinthe Gosselin et al., "The Relative Importance of Direct and Indirect Effects of Hunting Mortality on the Population Dynamics of Brown Bears," *Proceedings of the Royal Society B* 282 (2015); M. Leclerc et al., "Hunting Promotes Spatial Reorganization and Sexually Selected Infanticide," *Scientific Report* 7, no. 45222 (2017); J. E. Swenson, "Implications of Sexually Selected Infanticide for the Hunting of Large Carnivores," in *Animal Behavior and Wildlife Conservation*, ed. M. Festa-Bianchet and M Apolloio (Washington, D.C.: Island Press, 2003); J. E. Swenson et al., "Infanticide Caused by Hunting of Male Bears," *Nature* 386 (1997).
[24] Frank et al., "Indirect Effects of Bear Hunting: A Review from Scandinavia."; Jon R. Keehner et al., "Effects of Male Targeted Harvest Regime on Sexual Segregation in Mountain Lion," *Biological Conservation* 192 (2015); Swenson et al., "Infanticide Caused by Hunting of Male Bears."
[25] Welfelt, Beausoleil, and Wielgus, "Factors Associated with Black Bear Density and Implications for Management."
[26] Rahel Sollmann et al., "Habitat Associations in a Recolonizing, Low-Density Black Bear Population," *Ecosphere* 7, no. 8 (2016).
[27] Cougar Management Guidelines, *Cougar Management Guidelines* (Bainbridge Island, WA: WildFutures, 2005)., p. 47-8.
[28] Mariela Gantchoff, Laura Conlee, and Jerrold Belant, "Conservation Implications of Sex-Specific Landscape Suitability for a Large Generalist Carnivore," *Diversity and Distributions* 25, no. 9 (2019).
[29] 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," ibid.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," news release, May 6, 2019, 2019.
[30] Laufenberg et al., "Compounding Effects of Human Development and a Natural Food Shortage on a Black Bear Population Along a Human Development-Wildland Interface."
[31] Garshelis and Hristienko, "State and Provincial Estimates of American Black Bear Numbers Versus Assessments of Population Trend.", p. 6
[32] Cougar Management Guidelines, *Cougar Management Guidelines*.
[33] Garshelis and Hristienko, "State and Provincial Estimates of American Black Bear Numbers Versus Assessments of Population Trend."; Cougar Management Guidelines, *Cougar Management Guidelines*.
[34] 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); L. E. F. Harrer and T. Levi, "The Primacy of Bears as Seed Dispersers in Salmon-Bearing Ecosystems," *Ecosphere* 9, no. 1 (2018); 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); T. E. Reimchen and C. H. Fox, "Fine-Scale Spatiotemporal Influences of Salmon on Growth and Nitrogen Signatures of Sitka Spruce Tree Rings," ibid.; Remington J. Moll et al., "An Apex Carnivore's Life History Mediates a Predator Cascade," *Oecologia* 196, no. 1 (2021).
[35] J.T. Bruskotter, M.P. Nelson, and J.A Vucetich, "Does Nature Possess Intrinsic Value? An Empirical Assessment of Americans' Beliefs.," *The Ohio State University, Columbus OH, USA. DOI: 10.13140/RG.2.1.1867.3129* (2015).

THE HUMANE SOCIETY OF THE UNITED STATES

[36] California Department of Fish and Game, "Black Bear Management Plan," *https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=82769&inline* (1998): p. 11.
[37] Beston, "Variation in Life History and Demography of the American Black Bear." Welfelt, Beausoleil, and Wielgus, "Factors Associated with Black Bear Density and Implications for Management."
[38] Remington Research Group, "California Public Opinion," (2020).

Attachment B
Proposed Regulatory Amendments

Cal. Code Regs. tit. 14, § 365 Bear.

Except as provided in Section 366, bear may be taken only as follows:

(a) Areas:

(1) Northern California: In the counties of Del Norte, Humboldt, Plumas, Shasta, Siskiyou, Tehama and Trinity; and those portions of Lassen and Modoc counties west of the following line: Beginning at Highway 395 and the Sierra-Lassen county line; north on Highway 395 to the junction of Highway 36; west on Highway 36 to the junction of Highway 139; north on Highway 139 to Highway 299; north on Highway 299 to County Road 87; west on County Road 87 to Lookout-Hackamore Road; north on Lookout-Hackamore Road to Highway 139; north on Highway 139 to the Modoc-Siskiyou county line; north on the Modoc-Siskiyou county line to the Oregon border.

(2) Central California: In the counties of Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Glenn, Lake, Mendocino, Nevada, Placer, Sacramento, Sierra, Sutter, Yolo and Yuba and those portions of Napa and Sonoma counties northeast of Highway 128.

(3) Southern Sierra: That portion of Kern County west of Highway 14 and east of the following line: Beginning at the intersection of Highway 99 and the Kern-Tulare county line; south on Highway 99 to Highway 166; west and south on Highway 166 to the Kern-Santa Barbara county line; and those portions of Fresno, Madera, Mariposa, Merced, Stanislaus, Tulare and Tuolumne counties east of Highway 99.

(4) Southern California: In the counties of Los Angeles, Santa Barbara and Ventura; that portion of Riverside County north of Interstate 10 and west of Highway 62; and that portion of San Bernardino County south and west of the following line: Beginning at the intersection of Highway 18 and the Los Angeles-San Bernardino county line; east along Highway 18 to Highway 247; southeast on Highway 247 to Highway 62; southwest along Highway 62 to the Riverside-San Bernardino county line.

(5) Southeastern Sierra: Those portions of Inyo and Mono counties west of Highway 395; and that portion of Madera County within the following line: Beginning at the junction of the Fresno-Madera-Mono county lines; north and west along the Madera-Mono county line to the boundary of the Inyo-Sierra National Forest; south along the Inyo-Sierra National Forest boundary to the Fresno-Madera county line; north and east on the Fresno-Madera county line to the point of beginning. Also, that portion of Inyo county west of Highway 395; and that portion of Mono county beginning at the intersection of Highway 6 and the Mono county line; north along Highway 6 to the Nevada state line; north along the Nevada state line to the Alpine county line; south along the

Mono-Alpine county line to the Mono-Tuolumne county line and the Inyo National Forest Boundary; south along the Inyo National Forest Boundary to the Inyo-Sierra Forest boundary; south along the Inyo-Sierra Forest boundary to the Fresno-Madera county line; north and east along the Fresno-Madera county line to the junction of the Fresno-Madera-Mono county line; south along the Mono-Fresno county line to the Mono-Inyo County line; east along the Mono-Inyo county line to the point of beginning.

(b) Seasons: ~~Except in the deer hunt areas designated as zones X-1 through X-7b in subsection 360(b), the bear season shall open on the opening day of the general deer season as described in subsections 360(a) and (b) and extend until the last Sunday in December in the areas described in subsections 365(a)(1), (2), (3) (4) and (5) above. In those areas designated as deer hunting zones X-1 through X-7b, the bear season shall open on the second Saturday in October and extend for 79 consecutive days. The bear season shall be closed when the department determines that 1,700 bears have been taken pursuant to the reporting requirement in subsection 708.12(d). The department shall notify the commission, the public via the news media and bear tag holders via the U.S. mail and the news media when implementing this closure.~~

(1) There is no open season for the hunting of bear in those portions of the state described in subsection (a) above.

(2) The Commission may adopt regulations establishing an open season for the hunting of bear in those portions of the state described in subsection (a) above only after the Department:

(A) Using the best available science, completes an empirical and peer-reviewed study of the state's bear population, including but not limited to, developing updated population estimates;

(B) Completes a peer-reviewed study on the effects of drought and wildfires since 2018 on the state's bear populations, their habitat, and their food sources; and

(C) After completing the studies described in subsections (A) and (B) above, updates the current bear management plan utilizing the best available science, including but not limited to, science related to bear social structure.

(c) Bag and Possession Limit: One adult bear per hunting license year. Cubs and females accompanied by cubs may not be taken. (Cubs are defined as bears less than one year of age or bears weighing less than 50 pounds.)

(d) No open season for bear in the balance of the state not included in subsection (a) above.

(e) Bait: No feed, bait or other materials capable of attracting a bear shall be placed or used for the purpose of taking or pursuing a bear. No bear shall be taken over such bait. No person may take a bear within a 400-yard radius of a garbage dump or bait.

Cal. Code Regs. tit. 14, § 366 Archery Bear Hunting.

Bear may be taken with bow and arrow during the bear season as specified in Section 365 and as follows:

(a) Areas: Those portions of the state as described in subsection 365(a).

(b) Season: ~~The archery bear season shall open on the third Saturday in August and extend for 23 consecutive days. There is no open season for taking bear with bow and arrow in the balance of the state.~~

(1) There is no open season for taking bear with bow and arrow in those portions of the state described in subsection 365(a).

(2) The Commission may adopt regulations establishing an open season for taking bear with bow and arrow in those portions of the state described in subsection 365(a) only after the Department:

(A) Using the best available science, completes an empirical and peer-reviewed study of the state's bear populations, including but not limited to, developing updated population estimates;

(B) Completes a peer-reviewed study on the effects of drought and wildfires since 2018 on the state's bear populations, their habitat, and their food sources; and

(C) After completing the studies described in subsections (A) and (B) above, updates the current bear management plan utilizing the best available science, including but not limited to, science related to bear social structure.

(3) There is no open season for taking bear with bow and arrow in the balance of the state not included in subsection 365(a).

(c) Bag and Possession Limit: One adult bear per hunting license year. Cubs and female accompanied by cubs may not be taken. (Cubs are defined as bears less than one year of age or bears weighing less than 50 pounds.)

(d) The use of dogs is prohibited during the archery season for bear.

(e) Bait. No feed, bait or other materials capable of attracting a bear to a feeding area shall be placed or used for the purpose of taking or pursuing a bear. No bear shall be

taken over such bait. No person may take a bear within a 400 yard radius of a garbage dump or bait.

THE HUMANE SOCIETY
OF THE UNITED STATES

The climate crisis and California black bears

Supplement to the Humane Society of the United States' Petition 2021-027
Submitted to the California Fish and Game Commission
January 24, 2022

Introduction

On December 10, 2021, the Humane Society of the United States ("HSUS") submitted Petition 2021-027 to the Fish and Game Commission. The petition requested that the Commission amend existing black bear (*Ursus americanus*) hunting regulations to eliminate the open hunting season until (1) an empirical study is conducted of the state's black bear populations, (2) the effects of drought and recent wildfires on the state's bear populations are adequately studied, and (3) the state's bear management plan is updated to include the best available science, including social science. The petition was accepted by Commission staff and is scheduled for Commission action at the February 16-17, 2022 meeting.

We submitted our petition because of our profound concerns about the status of California's black bear population given the numerous threats these bears face. In particular, the HSUS is concerned about the harms from record-level fires and drought on California's bears. In 2021 alone, more than three million acres in California burned from intense wildfires. Further, the HSUS is alarmed by worrisome indications of a steep decline in California's black bear population based on recent data released by the Department of Fish and Wildlife ("DFW").

We write today to provide additional evidence supporting our request for regulatory change. Specifically, we provide evidence about the detrimental effects climate change and severe wildfires have on black bear populations. These threats, coupled with the apparent decline of the state's black bear population, demonstrate that the Commission cannot allow bear hunting to continue in the state until it has a better understanding of the number of bears in California and how the recent record-breaking drought and fires have affected these bears. In turn, the state's bear management plan must be updated accordingly, utilizing the best available science.

Under the Fish and Game Code, the Commission has "the power to regulate the taking or possession of . . . mammals." Cal. Fish & Game Code § 200. More specifically, the Commission has regulatory authority to "establish, extend, shorten, or abolish open seasons and closed seasons" for game mammals, such as black bears. *Id.* § 203. The legislature has provided specific factors that the Commission *must* consider when adopting such regulations, including "populations, habitat, food supplies, the welfare of individual animals, and other pertinent facts and testimony." *Id.* § 203.1. Further, the Commission has specific obligations with respect to its regulation of the black bear hunting season. The Commission must "annually determine whether to continue, repeal, or amend regulations establishing hunting seasons for black bears." *Id.* § 302. This determination "*shall* include a review of factors which impact the health and viability of the black bear population." *Id.* (emphasis added). Climate change and severe wildfires are "factors which impact the health and viability of the black bear population." *See* Cal. Fish & Game Code § 302. Moreover, climate change and severe wildfires threaten black bears' habitat, food supplies, and welfare. *See id.* § 203.1. The

Commission, then, must consider the information provided in these comments as it makes its decision about whether to grant our petition.

A hotter planet risks species extinction, changes plant phenology (affecting black bears' food resources), reduces insulating snow cover for den sites, increases parasite invasion and increases drought in the West (harming both plants and setting the stage for severe wildfires).

In 2019, a Paris conference of the Science-Policy Platform on Biodiversity and Ecosystem Services issued a press release from 145 participants from 50 countries who had assessed changes on Planet Earth for the past five decades and found that *one million species face extinction*, the most in human history. They reported that the species extinction rate is accelerating and the greatest ever over the last 10 million years. They also stated that regarding climate change, Planet Earth's temperature is increasing at "+/-0.2 (+/-0.1) degrees Celsius per decade" and that "for global warming of 1.5 to 2 degrees, the majority of terrestrial species ranges are projected to shrink profoundly."[1] (IPBES issued an updated report in 2021.[2]) The consequence of this warming, according to two dozen academics on fire ecology, is a "hotter climate and a markedly different biosphere." [3]

The loss of Earth's megafauna has so concerned preeminent biologists that dozens of them convened, and in 2011, produced a seminal and alarming paper, *Trophic Downgrading of Planet Earth*.[4] In it, the biologists, Estes et al. (2011), warn that the loss of top carnivores and other megafauna will increase pandemics, make ecosystems dysfunctional and accelerate the harms from climate change.[5] Black bears are megafauna, the third largest bear species and third largest mammalian carnivore in North America, and are gravely threatened by climate change.

The seminal Estes et al. (2011) paper was followed by several more peer-reviewed studies that warn about the losses of large carnivores during the *Anthropocene*,[6] that is, the reshaping of ecosystems because of human activities.[7] For black bears, the changes are profound:

---

[1] 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," news release, May 6, 2019, 2019.

[2] Intergovernmental Panel on Climate Change, "Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change," (https://www.ipcc.ch/report/ar6/wg1/#SPM: Cambridge University Press, 2021).

[3] L. T. Kelly et al., "Fire and Biodiversity in the Anthropocene," *Science* 370, no. 6519 (2020): p. 2.

[4] A Estes, James & Terborgh, John & Brashares, Justin & E Power, Mary & Berger, Joel & Bond, William & R Carpenter, Stephen & Essington, Timothy & D Holt, Robert & Jackson, Jeremy & Marquis, Robert & Oksanen, Lauri & Oksanen, Tarja & Paine, Robert & Pikitch, Ellen & Ripple, William & Sandin, Stuart & Scheffer, Marten & W Schoener, Thomas & Wardle, David. (2011). Trophic Downgrading of Planet Earth. Science (New York, N.Y.). 333. 301-6. 10.1126/science.1205106.

[5] J. A. Estes et al., "Trophic Downgrading of Planet Earth," *Science* 333, no. 6040 (2011).

[6] W. J. Ripple et al., "Status and Ecological Effects of the World's Largest Carnivores," ibid.343, no. 6167 (2014); 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); Chris T. Darimont et al., "The Unique Ecology of Human Predators," *Science* 349, no. 6250 (2015).

[7] Kelly et al., "Fire and Biodiversity in the Anthropocene."

- Climate warming will change trophic effects that include the profusion of parasites and disease.[8] 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.[9] Increases in temperature facilitate the proliferation of parasitic organisms,[10] including the potential for the spread of sarcoptic mange in black bears from the eastern U.S.[11]
- More stochastic weather events are occurring, and snow cover is increasingly lost,[12] which reduces the insulating properties associated with some bears' dens.[13]
- Rising temperatures have resulted in changed plant phenology, which is the timing of flowering, germination and leaving.[14] 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, or late spring frosts.
- Declining species' diversity could exacerbate phenological changes associated with warming.[15] Climate change affects temperatures and moisture, affecting precipitation amounts and thus plant growth, which could further degrade black bears' food supplies.[16]
- In a study on brown bears that 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):[17] A warming climate limits bears' foraging abilities because they are subject to hyperthermia, that is, the inability to dissipate heat from their bodies to stay sufficiently cool.[18] 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[19] as canopy cover is consumed by increasingly severe wildfires that remove mature trees, trees that black bears rely upon for shade cover during the day and use as escape routes from predators—especially bear cubs.

---

[8] 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).

[9] Filipe Dantas-Torres, *Climate Change, Biodiversity, Ticks and Tick-Borne Diseases: The Butterfly Effect*, vol. 4 (2015).

[10] 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). Kristin A. Clothier et al., "Generalized Dermatophytosis Caused by Trichophyton Equinum in 8 Juvenile Black Bears in California," *Journal of Veterinary Diagnostic Investigation* 0, no. 0 (2021).

[11] 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).

[12] Dantas-Torres, *Climate Change, Biodiversity, Ticks and Tick-Borne Diseases: The Butterfly Effect*, 4, p. 8.

[13] 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).

[14] 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).

[15] Ibid.

[16] McKelvey and Buotte, "Climate Change and Wildlife in the Northern Rockies Region."

[17] Thomas D. Beck et al., "Sociological and Ethical Considerations of Black Bear Hunting," *Proceedings of the Western Black Bear Workshop* 5 (1995); Bernd Heinrich, *Why We Run: A Natural History* (Harper Perennial, 2002).

[18] 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).

[19] Ibid.

- And in the Western United States, drought has intensified to extremes not seen in the past 20 years.[20] Drought begets wildfire, and more severe droughts alter historic fire regimes.[21] As discussed below, wildfires pose grave threats to black bears.

Increased drought and fuel build-up increase the severity of Western wildfires. Severe fires change black bears' habitat. In the aftermath of a severe fire, black bears and their habitats are harmed.

Kelly et al. (2020) in their review article on fire and biodiversity,[22] warn of extinction risk from fire regimes that are different from the ones that species have evolved with; that is, the "type, frequency, intensity, seasonality and spatial dimensions of recurrent fire."[23] 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.[24]

Fire suppression, climate change and logging have changed the forests in the West over the past century.[25] meaning black bears in California face fire regimes different than those with which they evolved. Invasive and pervasive cheat grass (*Bromus tectorum*) has increased fuel loads in the West.[26] Recent wildfires are hotter and kill mature trees because of fuel-load buildup.[27] 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.[28] 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.[29] These smaller diameter trees grow in dense forests that are apt to experience stand-replacing fires.[30] Large fires leave a mosaic or burn patches of different levels of burn severity.[31]

For black bears, who prefer larger diameter trees for denning, resting and canopy cover for foraging, catastrophic fires can have negative, near-term consequences.[32] Females with and without cubs choose

---

[20] Nadja Popovich, "How Severe Is the Western Drought? See for Yourself," *The New York Times* 2021.
[21] Kelly et al., "Fire and Biodiversity in the Anthropocene."
[22] More than two dozen biologists authored this article. They reviewed over 29,000 journal articles on fire.
[23] Kelly et al., "Fire and Biodiversity in the Anthropocene," p. 1.
[24] Ibid.
[25] Brett J. Furnas, Benjamin R. Goldstein, and Peter J. Figura, "Intermediate Fire Severity Diversity Promotes Richness of Forest Carnivores in California," *Diversity and Distributions* n/a, no. n/a (2021); Stanley Clifton Cunningham et al., "Black Bear Habitat Use in Burned and Unburned Areas, Central Arizona," *Wildlife Society Bulletin* 31 (2003).
[26] Kelly et al., "Fire and Biodiversity in the Anthropocene."
[27] Cunningham et al., "Black Bear Habitat Use in Burned and Unburned Areas, Central Arizona."
[28] Furnas, Goldstein, and Figura, "Intermediate Fire Severity Diversity Promotes Richness of Forest Carnivores in California."Citing Van de Water and Safford 2011.
[29] Ibid.Citing Beaty & Taylor 2007 and Youngblood et al. 2004.
[30] Ibid.Citing McIntyre et al. 2015.
[31] Jesse S. Lewis et al., "Mixed-Severity Wildfire Shapes Habitat Use of Large Herbivores and Carnivores," *Forest Ecology and Management* 506 (2022).
[32] See for example: Furnas, Goldstein, and Figura, "Intermediate Fire Severity Diversity Promotes Richness of Forest Carnivores in California."; 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); Shari L. Ketcham and John L. Koprowski, "Impacts of Wildlife on Wildlife in Arizona: A Synthesis" (paper presented at the 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,

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.[33]

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**.[34]

In their study of fires in California for the years 2009-2018 and its effects on black bears, mountain lions and a host of mesocarnivores such as skunks, foxes, ringtails and bobcats in camara traps, 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.[35] Furnas et al. (2021) found that frequent, low severity fires provide short-term benefits for carnivores. They write that low-severity fires may provide 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).[36] Furnas et al. (2021) found that frequent, low severity fires provide short-term benefits for carnivores. They write that low-severity fires may provide 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).[37] Furnas et al. (2021), write that: "Low severity fire can also create forest openings, snags and logs while retaining large

---

Tucson, AZ, 2013). Pigeon et al., "Staying Cool in a Changing Landscape: The Influence of Maximum Daily Ambient Temperature on Grizzly Bear Habitat Selection."

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

[34] Emphasis added. Lewis et al., "Mixed-Severity Wildfire Shapes Habitat Use of Large Herbivores and Carnivores," p. 2.

[35] Furnas, Goldstein, and Figura, "Intermediate Fire Severity Diversity Promotes Richness of Forest Carnivores in California."

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

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

diameter overstorey trees"[38] – the denning habitat preferred by bears in some ecosystems.[39] Snags, broken at the top, can provide important den sites for black bears.[40] The 2021 California fires were not "low-severity fires",[41] they were "'trans-apocalyptic'"[42]—leaving moonscapes for bears and other wildlife with which to attempt to cope.

In a recently published fire study conducted in the White Mountains of east-central Arizona and western New Mexico *seven years after* Arizona's 2011 Wallow Fire (to date, Arizona's largest wildfire, which burned 538,049 acres), Lewis et al. (2022) evaluated five levels of burn severity: unburned, low, moderate, moderate/high and high.[43] For black bears, Lewis et al. (2022) found that black bears' highest use of areas occurred in both unburned forest and in areas of higher fire severity.[44] Areas of higher fire severity likely exhibited a pulse of vegetation in response to fire, which likely provided food for them.[45] 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 regrowth of about one to three years before the vegetation returns to a pre-fire state.[46] Whereas in places where fire severity is greater and the canopy cover is lost, the pulse in plant quantity and quality extends to ten or more years.[47] 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 such as from invasive species.[48] Bears require canopy cover to escape heat for day sleeping and for foraging and large tree snags for densites during hibernation, and large trees provide escape for bear cubs. In other words, severe fires harm California's black bears' habitat, and are also detrimental to black bear populations and harm the bears' welfare as we discuss below.

Severe wildfires are detrimental to black bear populations and harm their welfare.

a. Catastrophic wildfires reduce black bear survival and reproduction

On January 16, 2022, the *Los Angeles Times* reported the story, "Mother Bear and Cubs Battle for Survival as Wildfire, Drought and Traffic Take Heavy Toll." Reporter Louis Sahagun interviewed several biologists including Caltrans' senior biologist Katie Rodriguez, who said that bear-vehicle collisions are measured along a 108-mile corridor of U.S. 395 in the Eastern Sierra, and that last year resulted in the most black bear deaths since record keeping started in 2002. In 2021, 13 bears were struck on U.S. 395 during the months of September and October as bears were desperately looking for food following the devastating wildfires in

[38] Ibid.
[39] Ibid.(Citing Agee 1998); Bull, Akenson, and Henjum, ″Characteristics of Black Bear Dens in Trees and Logs in Northeastern Oregon.″
[40] ″Characteristics of Black Bear Dens in Trees and Logs in Northeastern Oregon.″
[41] Furnas, Goldstein, and Figura, ″Intermediate Fire Severity Diversity Promotes Richness of Forest Carnivores in California.″
[42] Elizabeth Well, ″This Isn't the California I Married,″ *The New York Times*, Jan. 3, 2022.
[43] Lewis et al., ″Mixed-Severity Wildfire Shapes Habitat Use of Large Herbivores and Carnivores.″
[44] Ibid.
[45] Ibid.
[46] Ibid.Citing Severson and Rinne 1990 and Sittler et al. 2019.
[47] Ibid.Citing Bartos et al. 1994 and Wan et al. 2014.
[48] Kelly et al., ″Fire and Biodiversity in the Anthropocene.″ Lewis et al., ″Mixed-Severity Wildfire Shapes Habitat Use of Large Herbivores and Carnivores.″

the region of the highway.[49] In 2020, no bears were struck on that stretch of U.S. 395, but in 2019, four bears were killed by vehicles.[50] According to the article, no statewide database for bear-vehicle collisions exists.

Reporter Sahagun also interviewed Fraser Shilling, director of the Road Ecology Center at UC Davis, who said, "'I can't think of a worse situation for wildlife — bears running for their lives from fire and then getting whacked by cars. It's a biological tragedy compounded by the fact that humans are responsible for the climate changes that set the stage for these increasingly immense and deadly wildfires.'"[51] The article notes that the bears killed were primarily females, and two who were killed this year had dependent cubs, who were found next to their mothers' bodies making crying sounds.

***

In two studies published about the catastrophic 1996 fire in the Four Peaks area of the Mazatzal Mountains of Arizona,[52] the immediate aftermath was black bear mortality, especially to the female demographic.[53] 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).[54]

On top of that mortality, 12 breeding females who survived subsequently gave birth to 16 cubs in years between 1997-1999, but none of the cubs survived—most likely because of infanticide by starving male bears, or by the cubs succumbing to starvation themselves.[55] 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.[56] (In another study of a catastrophic fire, researchers noted that bears who moved into the burned area later fed on ungulate carcasses.[57])

After catastrophic fire events, like those California has experienced in recent years, Cunningham and Ballard (2004) recommend that wildlife managers reduce the hunting of female black bears for at least four years.[58] Bear biologists and wildlife managers have noted, however, that the hunters are poor at recognizing the distinction between males and females – even when houndsmen tree bears and are able to observe them before killing them.[59] Therefore, out of an abundance of caution, wildlife managers should stop all bear hunting until the land can recover from catastrophic fire and agency or academic bear biologists can make a sound, empirically based population assessment.

---

[49] Louis Sahagun, "Mother Bears and Cubs Battle for Survival as Wildfire, Drought and Traffic Take Heavy Toll," *Los Angeles Times*, Jan. 16 2022.
[50] Ibid.
[51] Ibid.
[52] 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., "Black Bear Habitat Use in Burned and Unburned Areas, Central Arizona."
[53] Cunningham and Ballard, "Effects of Wildfire on Black Bear Demographics in Central Arizona."
[54] Ibid.
[55] Ibid.; Cunningham et al., "Black Bear Habitat Use in Burned and Unburned Areas, Central Arizona."
[56] "Black Bear Habitat Use in Burned and Unburned Areas, Central Arizona."
[57] The study was conducted by Blanchard and Knight (1999) and cited by Cunningham and Ballard (2004).Cunningham and Ballard, "Effects of Wildfire on Black Bear Demographics in Central Arizona."
[58] Ibid.
[59] Beck et al., "Sociological and Ethical Considerations of Black Bear Hunting."; K. H. Inman and M. R. Vaughan, "Hunter Effort and Success Rates of Hunting Bears with Hounds in Virginia," *Ursus* 13 (2002).

PHOTO BY Rich Beausoleil; A female black bear cub who survived the 2014 Carlton Complex fire in Washington. She was rescued by Rich Beausoleil, bear and cougar specialist for Washington Department of Fish and Wildlife, and others. Named "Cinder," the cub had crawled out of the fire on knees and elbows and was badly burned on her limbs and face and she suffered from malnutrition and dehydration. She was flown to a burn rehab center in Nevada. Cinder and her rescuers spawned a children's book. Rehabilitated back to health, Cinder was released into the wild in 2017 with a radio collar. Later, wildlife agents found Cinder's skeletal remains after she was shot near the release site and her radio collar disabled.

b. 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,[60] which is a distressful experience.[61] Wildfires tend to move across landscapes rapidly and with high-intensity heat, usually *above* 63°C (145°F).[62] Wildlife caught in wildfires or their aftermath experience a variety of travails, including injury, mortality, stress, disease or starvation.[63] Young wildlife are more prone to injury or mortality.[64] And rather than evacuating, wildlife may stay in burrows, rock cavities or dens, leading to smoke inhalation and potential asphyxiation.[65]

---

[60] Ketcham and Koprowski, "Impacts of Wildlife on Wildlife in Arizona: A Synthesis."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.)
[61] 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).
[62] Ketcham and Koprowski, "Impacts of Wildlife on Wildlife in Arizona: A Synthesis."
[63] Gutiérrez and de Miguel, "Fires in Nature: A Review of the Challenges for Wild Animals." Ketcham and Koprowski, "Impacts of Wildlife on Wildlife in Arizona: A Synthesis." R. A. Beausoleil, "Burned Bear Rescued, Rehabilitated, and Released in Washington," *International Bear News* 24, no. 3 (2015).
[64] Ketcham and Koprowski, "Impacts of Wildlife on Wildlife in Arizona: A Synthesis."
[65] Ibid.

Bears, like other wildlife, can experience burns to the face and limbs, like Cinder the cub pictured above.[66] Burned skin can trap intense temperatures inside of an animal's body, leading to further subcutaneous burns.[67] 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.[68] Wildlife fleeing from fires can be struck by vehicles.[69] Because of the timing of most fires – at the end of summer – fires can hinder population recovery, breeding and reproduction.[70] Springtime wildfires also harm reproduction, harming populations.[71]

Conclusion

In the western United States, the effects of global warming are already severe with record-setting droughts and wildfires affecting black bears. In 2021, California experienced record-level fires. According to CalFire, more than three million acres burned,[72] and in some areas, even soils experienced severe burn.[73] The immediate result of catastrophic fires is the direct death of bears, particularly females, 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. If the ground is bare, bears may be forced to congregate in island patches of vegetation, exposing cubs to cannibalism by male bears. Bears are not heat adapted, they bed in the daytime using canopy cover, and need shade to forage.

Further, as discussed more fully in our petition, recent DFW data indicate that California's black bear population has declined steeply. DFW now believes that the California bear population could be as low as 9,771 individuals, which would indicate a 67% decline in the number of bears from the previously reported lowest population range of 30,000 bears.

....

....

....

....

....

---

[66] Gutiérrez and de Miguel, "Fires in Nature: A Review of the Challenges for Wild Animals."Citing Rethorst et al. 2018. Beausoleil, "Burned Bear Rescued, Rehabilitated, and Released in Washington."
[67] Gutiérrez and de Miguel, "Fires in Nature: A Review of the Challenges for Wild Animals."
[68] Ibid.
[69] Ibid.
[70] Ibid.
[71] Ketcham and Koprowski, "Impacts of Wildlife on Wildlife in Arizona: A Synthesis."
[72] CalFire, "2021 Incident Archive," *https://www.fire.ca.gov/incidents/2021/* (2021).
[73] See: Dixie Fire assessment here: https://inciweb.nwcg.gov/incident/article/7811/67107/

Because of the extent and severity of fires in California and the apparent decline in the state's black bear population, the Fish and Game Commission must eliminate the open hunting season for black bears until (1) an empirical study is conducted of the state's black bear populations, (2) the effects of drought and recent wildfires on the state's bear populations are adequately studied, and (3) the state's bear management plan is updated to include the best available science, including social science. All of the studies cited in this article are provided to the California Fish and Game Commission via a Google Drive: https://drive.google.com/drive/folders/1aI-R23NVBv4XgdRFB1DAEW57Flt0OBQW?usp=sharing

If you have any questions or concerns, please do not hesitate to contact us.

Sincerely yours,

Wendy Keefover, Senior Strategist, Native Carnivore Protection
The Humane Society of the United States
wkeefover@humanesociety.org

Samantha Hagio, Director, Wildlife Protection
The Humane Society of the United States
shagio@humanesociety.org

Sources cited:

Beausoleil, R. A. "Burned Bear Rescued, Rehabilitated, and Released in Washington." *International Bear News* 24, no. 3 (2015).

Beck, Thomas D., David S. Moody, Donald B. Koch, John J. Beecham, Gary R. Olson, and Timothy Burton. "Sociological and Ethical Considerations of Black Bear Hunting." *Proceedings of the Western Black Bear Workshop* 5 (1995): 119-31.

Bull, Evelyn L., 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): 148-53.

CalFire. "2021 Incident Archive." *https://www.fire.ca.gov/incidents/2021/* (2021).

Clothier, Kristin A., Katherine D. Watson, Aslı Mete, Federico Giannitti, Mark Anderson, Brandon Munk, Stella McMillin, *et al.* "Generalized Dermatophytosis Caused by Trichophyton Equinum in 8 Juvenile Black Bears in California." *Journal of Veterinary Diagnostic Investigation* 0, no. 0 (2021): 10406387211061143.

Cunningham, Stan C., and Warren B. Ballard. "Effects of Wildfire on Black Bear Demographics in Central Arizona." *Wildlife Society Bulletin* 32, no. 3 (2004): 928-37.

Cunningham, Stanley Clifton, Warren B. Ballard, Lindsey M. Monroe, Michael J. Rabe, and Kirby D. Bristow. "Black Bear Habitat Use in Burned and Unburned Areas, Central Arizona." *Wildlife Society Bulletin* 31 (2003): 786-92.

Dantas-Torres, Filipe. *Climate Change, Biodiversity, Ticks and Tick-Borne Diseases: The Butterfly Effect.* Vol. 4, 2015. doi:10.1016/j.ijppaw.2015.07.001.

Darimont, Chris T., Caroline H. Fox, Heather M. Bryan, and Thomas E. Reimchen. "The Unique Ecology of Human Predators." *Science* 349, no. 6250 (2015): 858-60.

Estes, J. A., J. Terborgh, J. S. Brashares, M. E. Power, J. Berger, W. J. Bond, S. R. Carpenter, *et al.* "Trophic Downgrading of Planet Earth." *Science* 333, no. 6040 (Jul 2011): 301-06.

Furnas, Brett J., Benjamin R. Goldstein, and Peter J. Figura. "Intermediate Fire Severity Diversity Promotes Richness of Forest Carnivores in California." *Diversity and Distributions* n/a, no. n/a (2021).

Gutiérrez, Jara, and Javier de Miguel. "Fires in Nature: A Review of the Challenges for Wild Animals." *European Journal of Ecology* 7, no. 1 (06/26 2021).

Heinrich, Bernd. *Why We Run: A Natural History.* Harper Perennial, 2002.

Inman, K. H., and M. R. Vaughan. "Hunter Effort and Success Rates of Hunting Bears with Hounds in Virginia." *Ursus* 13 (2002): 223-30.

Intergovernmental Panel on Climate Change. "Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change." https://www.ipcc.ch/report/ar6/wg1/#SPM: Cambridge University Press, 2021.

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." news release, May 6, 2019, 2019.

Kelly, L. T., K. M. Giljohann, A. Duane, N. Aquilué, S. Archibald, E. Batllori, A. F. Bennett, *et al.* "Fire and Biodiversity in the Anthropocene." [In eng]. *Science* 370, no. 6519 (Nov 20 2020).

Ketcham, Shari L., and John L. Koprowski. "Impacts of Wildlife on Wildlife in Arizona: A Synthesis." Paper presented at the 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, 2013.

Lewis, Jesse S., Loren LeSueur, John Oakleaf, and Esther S. Rubin. "Mixed-Severity Wildfire Shapes Habitat Use of Large Herbivores and Carnivores." *Forest Ecology and Management* 506 (2022/02/15/ 2022): 119933.

Mansfield, Susan A, Lynn L Rogers, Sean Robison, and Roger A Powell. "Bed Site Selection by Female North American Black Bears (Ursus Americanus)." *Journal of Mammalogy* (2021).

McKelvey, K. S., and P. C. Buotte. "Climate Change and Wildlife in the Northern Rockies Region." In *Climate Change Vulnerability and Adaptation in the Northern Rocky Mountains*, edited by Jessica E. Halofsky, David L. Peterson, S. Karen Dante-Wood, Linh Hoang, Joanne J. Ho and Linda A. Joyce. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain 2018.

Niedringhaus, Kevin D., Justin D. Brown, Mark Ternent, Will Childress, Jenna R. Gettings, and Michael J. Yabsley. "The Emergence and Expansion of Sarcoptic Mange in American Black Bears (Ursus Americanus) in the United States." *Veterinary Parasitology: Regional Studies and Reports* 17 (2019/08/01/ 2019): 100303.

Pigeon, K. E., E. Cardinal, G. B. Stenhouse, and S. D. Cote. "Staying Cool in a Changing Landscape: The Influence of Maximum Daily Ambient Temperature on Grizzly Bear Habitat Selection." *Oecologia* 181, no. 4 (Aug 2016): 1101-16.

Pigeon, K. E., S. D. Cote, and G. B. Stenhouse. "Assessing Den Selection and Den Characteristics of Grizzly Bears." *Journal of Wildlife Management* 80, no. 5 (Jul 2016): 884-93.

Popovich, Nadja. "How Severe Is the Western Drought? See for Yourself." *The New York Times*, 2021.

Ripple, W. J., J. A. Estes, R. L. Beschta, C. C. Wilmers, E. G. Ritchie, M. Hebblewhite, J. Berger*, et al.* "Status and Ecological Effects of the World's Largest Carnivores." *Science* 343, no. 6167 (Jan 2014): 151-+.

Ripple, William J., Christopher Wolf, Thomas M. Newsome, Michael Hoffmann, Aaron J. Wirsing, and Douglas J. McCauley. "Extinction Risk Is Most Acute for the World's Largest and Smallest Vertebrates." *Proceedings of the National Academy of Sciences* 114, no. 40 (October 3, 2017 2017): 10678-83.

Sahagun, Louis. "Mother Bears and Cubs Battle for Survival as Wildfire, Drought and Traffic Take Heavy Toll." *Los Angeles Times*, Jan. 16 2022.

Short, Erica E., Cyril Caminade, and Bolaji N. Thomas. "Climate Change Contribution to the Emergence or Re-Emergence of Parasitic Diseases." *Infectious Diseases: Research and Treatment* 10 (2017/01/01 2017): 1178633617732296.

Well, Elizabeth. "This Isn't the California I Married." *The New York Times*, Jan. 3, 2022.

Wolf, Amelia A., 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): 3463.

Tracking Number: (2022-01)

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: Cathy Bennett
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: **Authority cited: Sections 265 and 355, Fish and Game Code. Reference: Sections 265, 355 and 356, Fish and Game Code.**

3. Overview (Required) - Summarize the proposed changes to regulations: Change section 502 & 355. Make duck hunting off limits & not permissible along the shoreline of Benicia, the Benicia State Park waters, or the Southampton Bay waters.

4. Rationale (Required) - Describe the problem and the reason for the proposed change: The city of Benicia is located in the greater San Francisco bay. It is a waterfront and "Main Street" community. We are fortunate to showcase the natural beauty of our coastal waters, the adjacent tidal wetlands of the Benicia State Park, & waters of the Southampton Bay. On any given day, hundreds of visitors enjoy our shoreland, walk the 2.5 miles of paved paths & trails, & take respite in our shoreline parks & picnic areas. The SF Bay trail runs through Benicia, inviting everyone to partake in the majestic beauty of the area. Benicia is bordered by the Benicia/Martinez bridge on one side, and the Carquinez bridge at the far end. Benicia has its own marina, host to hundreds of sailboats, fishing boats & yachts, as does our neighboring city of Vallejo. The open water is known as the Carquinez straights and closer inland is the Southampton Bay. This is a lively water recreation oasis- full of sailboats, fishing vessels, small boat fishing, jet skiers, windsurfers, hang gliders, kayakers, paddleboarders & children swimming at the 9th Street beach. Benicia hosts several annual waterfront events, including

sailboat parades & races, festivals & fishing competitions which flood our coastline with admirers & participants, sometimes serenaded by our local bag pipers, & musicians- all of which adds to the spirit & appreciation of the natural environment we are so fortunate to be the stewards of. Our shoreline parks are frequented by all of Solano county & are always filled with families & children, friends enjoying picnics & hosting outdoor celebrations. Benicia is a wonderful place to live or visit, and we pride ourselves on being a tourist destination & a draw to SF bay area travelers. Our city advertises itself & entices visitors as being "A Great Day by The Bay". Yet sadly, the peaceful nature of our community has recently been undermined by a group of duck hunters that insist on hunting 150 yards from the shoreline in the Southampton Bay & the Benicia State Park waters.

It started in October 2020. A group of duck hunters began hunting just before sunrise about 150 yards from the backyards of homes situated along the waterfront in the Southampton bay. The blast of gunshots at 6:30 am seemed incredulous to everyone. Even when we were visually able to see the hunters, we couldn't believe it was actually taking place. In 50+ years no-one had witnessed duck hunting in these waters. Calls were made to the Benicia police, & to the Fish & Wildlife Dept. Yet the duck hunting continued. Benicians were soon to discover that pre-existing regulatory rules left it 'legal' to hunt off the residential shores of Benicia as long as the hunters were 150 yards from residential shores. Homeowners & waterfront frequenters pleaded with the duck hunters to stop hunting there, explaining how it disrupted their lives, interfered with their households & ruined the peaceful enjoyment of the waterfront. But the hunter's response was, "It's legal. We can hunt here if we want to." Despite the horror of those living on the west side of town, exposed to the gunshots, the visual of ducks being shot from the sky, dead & injured ducks floating in the waters- eventually the duck hunting season ended, and peace returned to our neighborhoods & our waterfront. Most of Benicians assumed that due to the public protests about the duck hunting, that the duck hunters would not return.

But in October 2021, the duck hunters returned. Again, the community pleaded with the hunters, repeatedly asking for them to hunt in many of the nearby designated areas (Suisun, Grizzly Island, Mare Island, along the shores of San Pablo Bay, and the non-residential sections of the Napa river (all close by). But the hunters were indignant. I myself have encountered them when they were bringing their boat back to the 9th Street launch. When I told them how the neighbors feel about it, they glared at me, & folded their arms across their chests as if to warn me to "back off". Many have approached them, but with no success or compassion from the hunters. The duck hunters have actually become rather aggressive & made verbal threats to file claims of 'harassment' against some of the folks who tried to engage with them. They have chased after the vehicles of those who took photos of their fishing boat & 'duck blind' equipment, & flipped their middle fingers at residents who watch with disapproval from the shores, their backyards & outdoor balconies & patios.

Again, calls were made to the local police, and to the Fish & Wildlife Dept. Residents began to organize, and consulted with the Benicia mayor, the city attorney, the city police chief, & the city manager. Calls & letters were sent to our local Supervisor Monica Brown, Representative Mike Thompson, Assembly Member Tim Grayson, & Senator Bill Dodds. Despite the outpouring of public protest, the bottom line is that as long as it is officially 'legal', there is nothing anyone could do to stop it. Eventually, the waters usually full of peaceful recreational sports, (windsurfing, kayaking & paddle boarding) succumbed to the duck hunters. (Who

wants to share the waters with men shooting guns?) It has now changed the very nature of our shoreline, and our experience of the Carquinez Straights & the Southampton Bay waters. It threatens to change the very nature of our town- our economy, & our dependence upon Benicia being a tourist destination & a "Main Street" community. It threatens to make our city motto "It's a Great Day on the Bay", a sad reminder of how quickly a natural haven can become a desecrated locale. Needless to say, it's a 'kill joy' to our many shoreline restaurant diners whose appetites are lost while being exposed to gunshots from out across the water.

At the December 15th meeting of the Fish & Wildlife Commission, several Benicia residents including the Mayor of Benicia spoke to address this issue. It was obvious the level of distress these hunters are causing to this community. The mayor, Steve Young requested that the current duck hunting regulations be changed, &/or that the distance required from shore be increased. Actually, increasing the distance requirement from the shoreline will not solve the problem. The sound of gunshots will still reverberate in the channel of the straights, & the duck hunters will then be more visible & within greater earshot of an even larger section of the community. One of the residents who spoke at that meeting is a police officer of 30 years afflicted with PTSD, that suffers every time she hears the gunshots. Pushing the duck hunters further out into the straights would actually create an even more dangerous situation. The Carquinez straights are a major commercial shipping channel, & a fairly narrow one. Huge cargo ships carrying oil refinery products & automobiles traverse these waters daily. Men shooting guns in any direction out on these waters poses a potential hazard- be it to other watersport participants sharing the space, to the families peacefully enjoying the shoreline parks & trails, the residents of homes close enough to be traumatized by the sights & sounds they are exposed to, or to the nearby cargo ships transporting oil refinery products & automobiles. A handful of rogue duck hunters creating this kind of disturbance & potential environmental & human disaster is simply unacceptable.

So here we are- common sense has failed. Our efforts at diplomacy have failed. Our appeals to city & governing officials have proven pointless. Our only option at this point is to petition the Fish & Wildlife Commission to change the laws/regulations such that it prevents duck hunting off the Benicia shoreline, in the Southampton Bay & the Benicia State Park waters. Sometimes laws & regulations need to be changed in order to meet the needs & safety of society. This is one of those times.

Date of petition: January 11, 2022.

SECTION II: Optional Information

5. Date of Petition: January 11. 2022 Click here to enter text.

6. Category of Proposed Change

☐ Sport Fishing
☐ Commercial Fishing
Hunting
☐ Other, please specify: **Restrict duck hunting in the Benicia State Park, the Southampton Bay waters, & off the Benicia shoreline.**

7. The proposal is to: (*To determine section number(s), see current year regulation booklet or https://govt.westlaw.com/calregs*)
☐ Amend Title 14 Section(s):**Amend 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 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: **As soon as possible**.

10. Supporting documentation: Identify and attach to the petition any information supporting the proposal including data, reports and other documents: http://beniciaindependent.com/oppose-gunfire-in-the-carquinez-strait-near-our-benicia-homes-and-recreation/;

Benicia Herald article on duck hunti

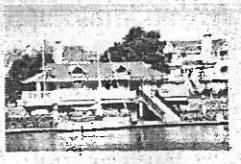
If PDF won't open, please go online to read the article in the Benicia Herald Newspaper. **BeniciaHeraldOnline.com** (Sunday Dec 19th, 2021 edition). Cover story. Front page article written by the newspaper editor, Galen Kusic. Titled: "**Residents Reach Out For Help as Duck Hunting Continues in Southampton Bay**" .

BENICIA HE

First Street business since 1898 BeniciaHeraldOnline.com; Find us on Facebook and

Sunday
December 19
2021

A special good morning to subscriber
John Regalado



Sunrise 7:20 a.m.
Sunset 4:51 p.m.
High /Low Tides
2:43 a.m. 4.21' 12:39 p.m. 5.63'
7:04 a.m. 2.81' 8:43 p.m. -0.36'

High 48 Low 41
Winds E up to 10 mph
Showers late

"You'll never find a rainbow if you're looking down."

- Charlie Chaplin

A Different Drummer

Residents reach out for help as duck hunting continues in Southampton Bay

Benicia residents near Ninth St. Park along the waterfront to Benicia State Park have reported an uptick in duck hunting in Southampton Bay, causing major disturbances early in the morning, a decrease in wildlife viewing and water recreation use.

Benicians call for Southampton Bay to be deemed wildlife sanctuary

Galen Kusic
Editor

For the past 40 years, Southampton Bay has been relatively quiet. Wildlife, kayakers, windsurfers and fisherman live in relative harmony as large ships pass through the Carquinez Strait.

According to residents over the past two years, that has all changed.

Largely in part they say due to a pair of duck hunters that insist on hunting the waters that used to be left alone "as a common courtesy to residents." The hunters begin at 6 a.m., waking up residents to the sounds of gunfire.

The uproar of residents has resulted in a less that favorable conclusion: the hunting is actually entirely legal. But they are demanding change.

On Wed., Mayor Steve Young and residents appealed to the California Fish and Game Commission for a change to the law after dozens of calls have fallen on deaf ears.

See **HUNTING**, *Page A9*

HUNTING

Continued from front

Currently, hunters are allowed to hunt 150 yards from homes on the city limit line. Only CDFW has the authority to move the line or further restrict the location.

"It is disturbing hundreds of homes and residents," said Young. "They (two hunters) have been asked to move to any of the other nearby places like Mare Island or Suisun Bay, away from people, but they are resistant."

CDFW claimed that staff "will be in touch" after the meeting. Benicians have written letters and contacted representatives, including Solano County Supervisor Monica Brown, who represents Benicia. Brown drafted a letter to Charlton "Chuck" Bonham, Director of CDFW.

"This is a new issue to them (residents)," wrote Brown. "They are concerned with noise and guns being fired this close to their homes...I request that you take any available steps to stop duck hunting on any waterfront or wetland or similar area near residential neighborhoods."

Residents have noted that it is negatively affecting PTSD survivors and some of their children now "only talk about guns, how it scares them and their aggressive sound."

"Without some type of action to stop this, it may well grow to more and more hunters, eventually altering the personality and character of our town," said resident C. Bennett. "It will impact the type of tourists we attract and the type of businesses that may or may not prosper. It will quite likely change the very nature of our town."

The community has met via online forum and in person to discuss options. Residents are now working to preserve Southampton Bay's natural habitat by working to declare the area between the Carquinez and Benicia bridges as a wildlife sanctuary.

"This is a massive disturbance, discomfort and threat to safety and peace in our community," said resident Elizabeth Lewis, a 42-year resident of Benicia and mother to a four and one year old. "My children are woken up to gun shots every weekend and are left screaming and crying all before 6:30 a.m. some mornings. My children are terrified and now my daughter looks out to the water, having to witness them flipping off their neighbors, who have kindly asked to them stop."

A resident of W. K St. that wishes to remain anonymous in fear or retribution, notes that these hunters "bully residents" and have been "outright aggressive" toward people.

"What once was a peaceful community has been shattered by these unconscionable hunters," said the anonymous resident. "We have tried diplomacy with these hunters and it has failed."

Several residents claim that for the last 40 or more years hunters have been respectful of the homeowners and Benicia State Park visitors and have refrained from hunting Southampton Bay. The area between 9th St. Park and Dillon Point has always been heavily populated with ducks and other wildlife. Since the hunting began in Jan. 2020, residents see evidence that the duck population has diminished significantly.

"We have no issue with duck hunting itself," said an anonymous resident. "But what once was an unpopulated area 100 years ago is now an inhabited area with public use shoreline and waterways and the State Park Recreational Area. The time for duck hunting in these waters has passed."

Residents fear that if the hunting continues, Benicia's economy may suffer from unforeseen impacts.

"Because of these duck hunters, kayakers, windsurfers and paddle boarders have stopped using the waters for their recreational use," wrote resident Jean Walker. "After all, who wants to share the water with someone shooting guns?"

Residents of Glen Cove in the Vallejo city limits have reportedly also been negatively affected by the gunfire as well.

"We must therefore be prepared to designate the waters along the Benicia shoreline and the State Park off-limits to hunting," said Bennett. "We need to establish a legal basis to return to the common sense and courtesy that prevailed for much of the past four decades. To accomplish this will require us to combine our individual voices, to unify for a common cause, and be prepared to take the necessary steps to restore and protect the peaceful enjoyment of this beautiful oasis we call Benicia."

The Benicia Independent ~ Eyes on the Environ...

CARQUINEZ STRAIT, GUN CONTROL

OPPOSE GUNFIRE IN THE CARQUINEZ STRAIT NEAR OUR BENICIA HOMES AND RECREATION!

NOVEMBER 30, 2021 | ROGER STRAW

Is Duck hunting off the Benicia residential shoreline really a good idea?

By C Bennett, by email

For those of you who haven't yet been woken at dawn by the sound of gunshots, for the second season in a row a group of local resident duck hunters have been hunting off the Benicia shoreline & State Park waters. Our beautiful straits that used to be filled with peaceful water recreation, have recently been overshadowed by duck hunters from late October to late January. Our usual mixture of kayakers, paddleboarders, windsurfers & hang gliders have reced-

ed. Who can blame them? Sharing the waterways with men shooting guns is a kill joy, not to mention unsafe.

It turns out it is technically legal. For the past 40+ years duck hunters have known that hunting was inappropriate so close to a residential community, so they hunted in nearby appropriate venues including Grizzly Island, Suisun Marsh, Mare Island & along the shores of San Pablo Bay & non-residential sections of the Napa River (all quite close by). Hunters respected the residential shoreline of Benicia & the State Park waters as off-limits to hunting. But a new generation of local hunters think differently, despite the polite request of their neighbors to hunt elsewhere. Their response is, "It's legal. We can hunt here if we want to." So they persist- 2-3 days a week, starting usually at sunrise, sometimes staying out on the water til noon, (or all day) returning at sunset.

Dozens of calls to the **Fish & Wildlife Dept** have failed to impart any change. Benicia police say, "It's out of our jurisdiction." Residents have consulted the mayor, the city attorney, the police chief, and the city manager. Apparently, as long as it is technically legal, there is nothing the city of Benicia, or its residents can do to stop it. Casual hikers along the SF Bay Trail, families & children playing or picnicking in the waterfront parks, bicyclists on the State Park pathways, & people whose houses look out upon the straits are unwittingly exposed to the jolting harshness of gunfire, & a visual of ducks being shot from the skies. On the west side of town it wakes and alarms children, sends dogs into a panic, and triggers those with PTSD. It is an intolerable affront to the peaceful enjoyment of our lives. Without some type of action to stop this, it may well grow to more & more hunters, eventually altering the personality & character of our town. It will impact the type of tourists we attract, & the type of businesses that may or may not prosper. It will quite likely change the very nature of our town. To most nature lovers, being viscerally exposed to duck hunting along the Benicia shoreline is not consistent with our motto

"**It's a Great Day by the Bay**".

All this said, 'duck hunting' itself is ***not*** the problem. Duck hunting off of the Benicia shoreline & the State Park waters is the problem. I'm calling upon all of our conscientious duck hunters in this town to speak to these younger duck hunters. Share with them your integrity, your knowledge of right from wrong, & help them understand the give & take of being part of a larger community. So far diplomacy has failed. We must therefore be prepared to designate the waters along the Benicia shoreline & the State Park off-limits to hunting. We need to establish a legal basis to return to the common sense and courtesy that prevailed for much of the past four decades. To accomplish this will require us to combine our individual voices, to unify for a

common cause, & be prepared to take the necessary steps to restore & protect the peaceful enjoyment of this beautiful oasis we call Benicia.

Respectfully submitted,

C Bennett

F T E S

BENICIA CA CARQUINEZ STRAIT GUN CONTROL


Benicia
WHIMSICAL PUBLIC ART INITIATIVE BRINGS COLOR TO OUR TOWN
THURSDAY EVENINGS SAILBOAT RACING & FARMERS MARKET
57257
SANTA CRUZ CA
$2.50
ECRWSS
PRSRT STD
US POSTAGE
PAID
PORTLAND OR
PERMIT NO. 2160
POSTAL CUSTOMER
***** ECR WSS *****
Volume 13 Issue 10 AUG 2018
Please deliver 7/31-8/2

Downtown businesses

Benicia Kite & Paddleboard rentals

Downtown Benicia at night

Southampton Bay- Benicia State Park

Commercial shipping channel next to Southampton Bay

Benicia is “A Great Day by the Bay”

Benicia State Park looking out at Southampton Bay

Benicia waterfront homes

Benicia shoreline park overlooking Southampton Bay

C.

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: Duck hunting off the shoreline of Benicia changes not only the peaceful nature of our community, but it will impact our economy as well. In addition to being a waterfront community & a “Main Street” town, Benicia is also a town of historical significance. Benicia was the 3rd capitol of the state from early 1853 to late 1854. Benicia is the site of a historical military arsenal built before the civil war. Ulysses S Grant was stationed here. Jack London wrote about the Southampton Bay in his book, “Tales of the Fish Patrol”. Benicia hosts multiple museums & historical structures that draw tourists & classroom field studies from all over the SF bay area.

    In 1960 when the military arsenal was decommissioned, it was repurposed as a community of artists & craftsmen. We are proud of our “Arts Benicia” newly located in the historic Commandant’s Residence in the Arsenal. Benicia is home to hundreds of artists of every genre & has over a dozen art galleries & event venues dotting our downtown. Benicia not only draws artists, but art lovers & art students. Scattered along the shoreline you can find Plein Air painters set up in groups of classes. We also have more than a dozen nature photographers

who make their living capturing the natural beauty of our land, water & the wildlife that inhabit it. Benicia's colorful history & the artist community are celebrated as part of our attractiveness as a tourist destination. Visitors enjoy "A Great Day by the Bay" with visits to our museums, galleries, shops, & dining in our restaurants. The sound of gunshots, &/or the visual encounter of men shooting ducks from the sky & falling dead or injured to the water is a threat to Benicia's tourist viability. It diminishes our appeal & attractiveness to those seeking to enjoy nature- not witness its carnal destruction. As with other SF Bay area destinations, the Benicia business community depends of the steady flow of tourists. Duck hunting has no place off the waters of Sausalito or San Francisco. Why should it be acceptable in Benicia?

Another fiscal impact related to duck hunting is the need for increased oversite by the Fish & Game wardens. Currently there is little (if any) monitoring of duck hunters in Benicia. What started as only a few hunters has this year turned into a handful, and it is only likely to increase as the "tolerance" is tested. Oversite of licensing, permits, & adherence to limits have been left to chance. Benicia will require additional Fish & Game warden visits & supervision. It may require that the Fish & Wildlife Commission hire additional staff to man the phone lines, & respond to resident complaints. Those complaints are only likely to increase unless the duck hunting is stopped. Duck hunters who choose to defy the strongly stated objections of their neighbors, cannot be trusted in an "honor system". We have little faith that these hunters will adhere to proper protocol & regulations. Residents have already reported seeing "breasted" ducks, left for dead & floating up onto the shore. This is abhorrent to anyone who comes upon it.

Another potential impact to our community is that these duck hunters are hunting alongside a busy & narrow commercial shipping channel that borders the Southampton Bay. As I stated previously, if the hunters move further away from the shoreline out toward the open waters they then become a bigger danger to the cargo ships transferring automobiles & oil refinery products. It would be reckless & a potential environmental disaster should these hunters accidentally cause damage to a container ship, or get too close or in the path of one of these tanker ships causing an accident. There is simply no justification to continue to allow duck hunting in these waters. Period.

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

Click here to enter text.

SECTION 3: FGC Staff Only

Date received: 1/12/2022

FGC staff action:

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

Tracking Number

Date petitioner was notified of receipt of petition and pending action: 1/26/22

Meeting date for FGC consideration: Receive 2/16-17/22, consider 4/20-21/22

FGC action:

☐ Denied by FGC

☐ Denied - same as petition _____
Tracking Number

☐ Granted for consideration of regulation change

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: _____

Meeting date for FGC consideration: _Receive 2/16-17/22; __

FGC action:

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

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]

State of California
Department of Fish and Wildlife

Received April 11, 2022
Signed copy on file.

Memorandum

Date: March 24, 2022

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

From: Charlton H. Bonham
Director

Subject: Recommendation to Accept for Further Consideration Regulation Change Petition No. 2021-020 to Amend Regulation 7.50(b)(169), Yuba River, North Fork

The Department of Fish and Wildlife (Department) has reviewed Fish and Game Commission Petition for Regulation Change No. 2021-020 to amend inland fishing regulations on the North Fork Yuba River from the western boundary of Sierra City to the confluence of Ladies Canyon (Regulation 7.50(b)(169) Yuba River, North Fork). Regulation 7.50(b)(169) currently allows year-round fishing with artificial lures and a two trout bag limit. Petition 2021-020 proposes adopting the following regulations: Last Saturday in April through November 15, only artificial lures with single barbless hooks, 2 trout; From November 16 through the Friday preceding the last Saturday in April (winter), only artificial lures with barbless hooks, 0 trout.

The Department recommends granting this Petition for further consideration in a future rulemaking. The Department is still gathering relevant information and will evaluate the feasibility of the proposed changes as described in the Petition in the context of that rulemaking.

If you have any questions regarding this matter, please contact Jay Rowan, Chief of Fisheries, at (916) 212-3164 or Jay.Rowan@wildlife.ca.gov.

ec: Chad Dibble, Deputy Director
Wildlife and Fisheries Division

Kevin Thomas, Regional Manager
North Central Region (Region 2)

Sarah Mussulman, Env. Program Manager (Acting)
Fisheries Branch
Wildlife and Fisheries Division

Colin Purdy, Env. Program Manager
North Central Region (Region 2)

State of California
Department of Fish and Wildlife

Memorandum

Date: April 13, 2022

Received April 14, 2022;
original signed copy on file

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

From: Charlton H. Bonham
Director

Subject: Regulation Change Petition No. 2021-027: Request to amend black bear hunting regulations to eliminate open hunting season until an empirical study is conducted of the state's black bear populations; the effects of drought and recent wildfires on the state's bear populations are adequately studied; and the state's bear management plan is updated

Background

At the February 2022 meeting, the California Fish and Game Commission (Commission) referred Petition 2021-027 to the California Department of Fish and Wildlife (Department) for review and recommendation. The petitioner requests the Commission to eliminate open black bear hunting season until an empirical study is conducted on the state's black bear population, an analysis of the effects of drought and wildfire is completed, and the statewide black bear management plan is updated. The petition specifically raises concerns that the black bear population in California is experiencing a steep decline and is further threatened by the negative effects of wildfires, drought, and climate change, and that the Department has not adequately studied the effect of these threats to the bear population to support the continuation of bear hunting.

Analysis of Petition and Response

The Department has reviewed the petition and acknowledges the concerns expressed by the petitioner and provides the following information in response. In addition to the information discussed here, the Department is also providing a presentation by Dr. Brett Furnas, Senior Environmental Scientist, for the April 2022 meeting to explain the Department's current information on the status of California's black bears and welcomes further in-depth discussion at the meeting. Please find attached a copy of the presentation regarding the science currently used by the Department.

Black Bear Abundance in California

The population estimate in question from the petitioner can be found in the annual Black Bear Take Report 2020. This is a report produced by the Department which summarizes hunter success, hunter effort, tag sales, method of take, and sex based on tag returns. The population estimate in that report was derived from an age-at-

harvest model which was developed in the late 1970s. The petitioner raised concerns that the estimate in the 2020 shows a dramatic decline from previous Department estimates of about 30,000. To further make their point, the petitioner also raised concerns over the decrease in hunter harvest from 2019 to 2020 which they believe to be additional evidence that California is experiencing a steep decline in black bear abundance.

As noted in the 2020 harvest report, the apparent sudden drop in the reported bear population was a result of the statistical model we used and not a reflection of true population status. The bear population model we have been using (Fraser 1976) includes high quality data on how the age distribution of bears changes from year to year. This age data is measured from collected premolar teeth of harvested bears. There is a long history of using this type of information to monitor game species and commercial marine fisheries. However, the model we were using was highly sensitive to an assumption of constant hunter effort across years (Harris and Metzgar 1987). The apparent 30–50% drop in the California bear population after 2012, when the use of dogs to hunt bears was discontinued, was entirely an artefact of the model's inadequacy to address this sudden change in hunter effort. With respect to the decrease in hunter harvest from 2019 to 2020, some annual variability is to be expected but it is important to remember that California was in the middle of a pandemic with stay-at-home orders as well as public land closures from wildfires which we believe, based on stakeholder comments, limited the ability for many hunters to get into the field.

Bear Population Modeling

Despite the results presented in the 2020 harvest report, the Department, using the best available science is developing a new Bayesian integrated population model (IPM; Allen et al. 2018) which provides a more robust approach to accurately monitor bear population size using the same age structure data. This approach is being adapted by state wildlife agencies in Wisconsin and Minnesota to monitor upper Midwest bear populations. The IPM estimates population sizes over a time series that could lead to the observed age and sex distributions provided by the age-at-harvest data, which are assumed to reflect the combined harvested and unharvested population. In contrast to the original model, the new IPM model (Allen et al. 2018) relies on a variety of demographic rate estimates (e.g., reproduction and survival) that govern transition probabilities among years.

The Department applied this new model to the existing age-at-harvest data from 1990–2017 and, because we did not have recent age data available yet due to delays during COVID, we used a 5-year moving average to estimate the statewide bear population for each year after 2018 (Figure 1). The results suggest a stable bear population over 25 years at levels comparable, but somewhat higher, to our estimates based on the old model prior to the dog hunting rule change. We estimated a total of

34,686 (95%CI: 24,916–49,830) bears in 2021. We caution that these results are preliminary; a next step includes refinement of the demographic rate parameters to make sure they are based on either the best available local literature or new data collected in California. For example, we already have updated local information on cub survival.

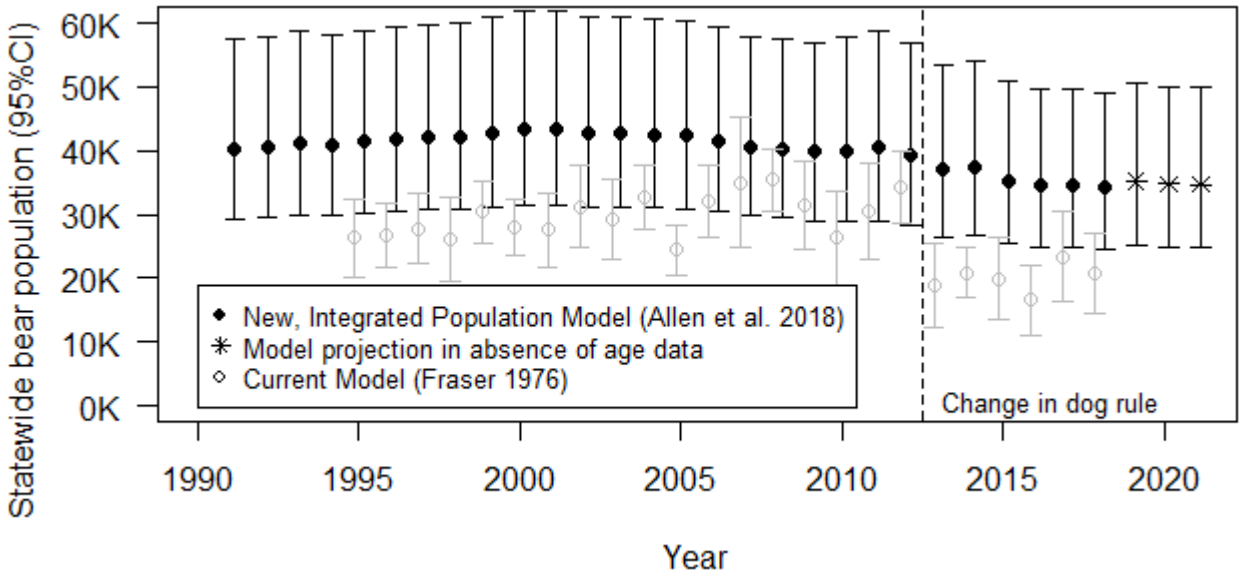


Figure 1. Estimated statewide bear populations by year for California based on an integrated population model (IPM) of age-at-harvest data. The figure shows comparison against the older, less-reliable method used to estimate bear populations. Because laboratory results from recent years' tooth age data has been delayed by the COVID pandemic, the Department used a 5-year average to extrapolate estimates for 2019-2021.

To estimate population sizes within smaller regions of management interest (e.g., ecoregions, counties, or hunt zones), we analyzed how bear detections from camera traps from across the state (3,558 sites from Department and U.S. Forest Service surveys, see presentation slide 10, attached) varied with habitat conditions. This allowed us to map an index of abundance across the entire state. We then calibrated this index on total population size from the IPM to get a map of true density (Figure 2). We then used bootstrapping of the spatial model predictions to get county-level population estimates and their 95% confidence intervals (see presentation slide 12, attached). A next step is to further improve performance of the camera trap modeling and extrapolation by adding additional camera data from the Transverse Ranges and the South Coast region.

Initial comparison of our density map (Figure 2) against eight local bear population studies from California indicates that the new IPM may be undercounting the statewide population such that the true population could be twice as high as our

preliminary estimate of 35,000 bears (see presentation slides 13–16, attached). The information presented here is not intended to provide a final estimate of the statewide bear population, although these estimates do represent our best available science currently. As noted earlier, we expect that accuracy and precision will improve as we continue to refine the IPM and begin to include local information on reproduction and survival rates.

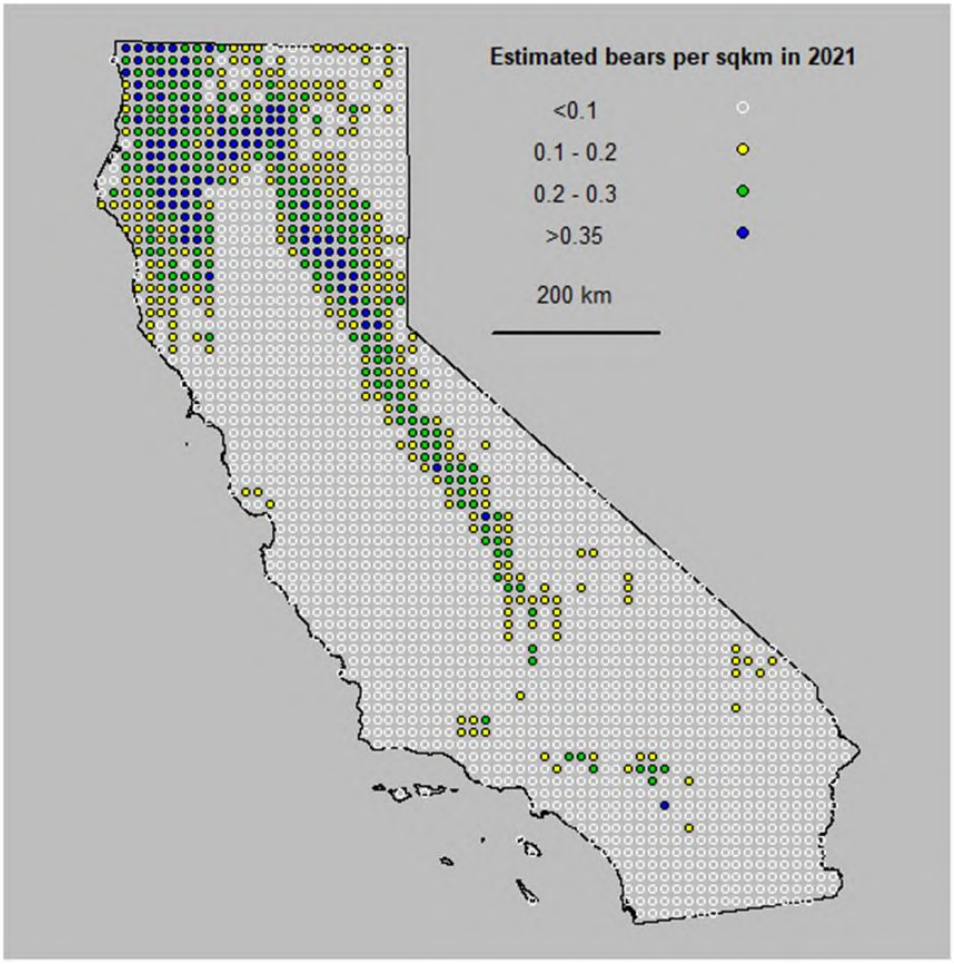


Figure 2. Spatial variation in estimated bear density in 2021. The Department combined occupancy modeling of camera traps with results from an integrated population model to spread out the statewide bear population across the state. This allowed the Department to break up our statewide estimate by counties. The Department plans to further improve model performance by adding camera trap data from the Transverse Ranges and the South Coast region.

These results illustrate a potential path forward for switching to a more robust analytical framework for monitoring bear populations at the state and local scales. Older models were not robust to changes in hunter effort, and the resulting low numbers were a result of the violations of those model assumptions from administrative changes (e.g., regulation changes, season closures, reduction in hunter

efforts). The low numbers are not representative of biological changes or the quality of the data. The age structure and camera trap data we (and others) are already collecting can form the foundation of our new modeling approach. However, we can increase the inferential value and credibility of the results by investing in additional field data pertaining to reproduction and survival rates and how they may change over time and space. To validate results from the integrated modeling we present here, we can also invest in a small number (e.g., 5–10) of regional studies that estimate bear density using more cost-intensive, spatial capture-recapture methods (Furnas et al. 2018, Owen-Ramos et al. 2022).

The Department is making good progress in modernizing its approach to bear monitoring. First, we are combining use of the new IPM with analysis of the camera data so that we can monitor population trends at smaller scales such as within each county. Second, we are investing in regional studies where we use more intensive genetic-based methods to estimate local abundance using spatial capture-recapture modeling (Owen-Ramos et al. 2022, Fusaro et al. 2017). We are using these local abundance estimates to validate the total statewide estimate based on the age data. All in all, the Department is developing a multi-pronged approach to bear monitoring that does not rely overly on any one data source. We expect that this flexibility will provide a robust basis for guiding bear conservation and management decisions well into the future.

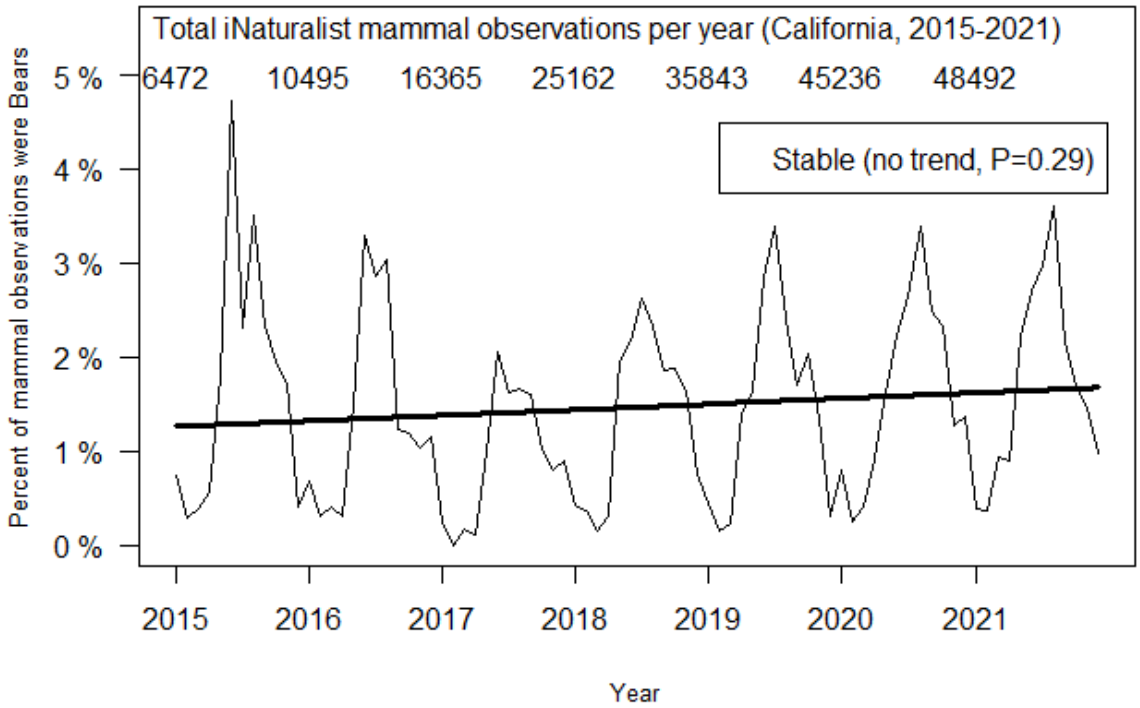


Figure 3. Bear detections over time based on iNaturalist detections, showing no statistical trend in bears (i.e., stable population). Note the seasonal pattern of increased observations in summer.

Two further analyses corroborate and underscore the previous results. First, analysis of animals photographed at thousands of remote camera stations throughout Northern California (where most of the statewide bear population occurs) shows that bears occupy 75% of the forested landscape (Furnas et al. 2021) and that their population has been stable over the past decade (e.g., 2009-2019). Second, Department staff used iNaturalist (a large, worldwide, citizen science database using public photographs and machine learning like Wildlife Insights) to assess the trend of all California "research grade" bear records from 2015 to 2021. After controlling for user participation (which is increasing) staff found evidence of a stable population (i.e., no trend) in the annual rate of bear detections (Figure 3, see Furnas et al. 2020 for application of this method for population monitoring of other species). Staff also detected a seasonal pattern (peaking in summer), as would be expected and confirmed by analysis of other data sources (e.g., human wildlife conflict incidents). In summary, we have provided three independent analyses indicating there is no evidence of a steep bear decline, and in fact affirmatively support the condition of a stable, abundant population.

With this information in mind, the current level of hunter harvest – itself significantly reduced after the ban on hunting with dogs – affects less than five percent of the total bear population each year. When taken together with the aforementioned long-term stable populations, it is unlikely that hunting represents a significant adverse impact to the overall bear population status.

Hunting Data as an Information Source

One of the many tools to assess overall health of the bear population includes hunting data. When bears are harvested by hunters, the bear is taken to a Department check station to validate the tag. At that time, the bear's sex is noted, and a premolar is collected for later cementum analysis to determine age of the bear. This age-and-sex-at-harvest information is the main source of data for the current model and will be a key component in the IPM moving forward. While the Department may be able to eventually replace hunter harvest data with another source of age data, the loss of age data provided by hunters will weaken the Department's ability to robustly monitor statewide and regional bear populations in the near term (e.g., next five years) or assess potential impacts due to wildfire, drought, climate change or other stressors.

Implementing a new approach to monitor the black bear population in the absence of hunter obtained information would be vastly more costly and time intensive. It would take a significant investment and commitment and would be several years before the new methods produced any useable results. This would require a large, statewide expansion of genetic spatial capture recapture surveys implemented in close coordination with co-located camera grids and GPS-collaring efforts requiring animal capture and release. Therefore, the data collected by the Department from bear harvests cannot be easily replicated through other methods. Hunting is a critical

source of information to assess the ongoing status of bear populations in California.

Decision Matrix

The Department annually evaluates the effects of hunting on California's black bear population via a decision matrix in accordance with the Black Bear Management Plan and the Environmental Document for Bear Hunting. The decision matrix is based on the wide array of methods used to monitor black bear harvest and consists of four metrics: 1) median age of harvested females and combined sexes, 2) percent of females in the harvest, 3) total harvest, and 4) combined kill per hunter effort and population estimate. If a defined "threshold of concern" is passed for any of these four metrics, the Department will recommend to the Commission that the bear harvest be reduced. There is an exception to this procedure if the change is caused by an administrative action (e.g., regulation changes, season closures), because such actions can create changes not caused by biology.

During the 2020 bear take evaluation, none of the four thresholds of concern were exceeded, though one was unable to be measured. Due to social distancing restrictions resulting from the COVID-19 pandemic, only a limited number of teeth were collected from harvested bears. While there was a statistically significant reduction in the harvest compared to the previous three-year average, this was not independent of administrative action (i.e., the ban on hound hunting, government-mandated stay-at-home orders), and was not a reflection of an actual reduction in bear abundance. Initial results from the 2021 hunt show a harvest of 1,266 black bears, which is up from the 1,028 harvested in 2020.

Wildfire and Climate Change

The petition points out concerns about the effects of wildfire and climate change on black bears, including potential reductions in food resources and shifting denning patterns. Wildfire is often a mosaic of varying burn severities that either destroy all vegetation or burn through understories while leaving some or all of the overstory trees alive (presentation slide 18, attached). While the overall extent of wildfires does appear to be increasing, there is still more low than high severity fire on the landscape (Figure 4). Bears benefit most from low severity fire but also from a diversity of fire severities (Furnas et al. 2021). A mix of fire severities can help maintain bear habitat by creating snags and logs for dens while also promoting growth of fruits and other food items. Prescribed burning is a forest management tool that can be used to mimic the effects of low severity fire. The Governor's budget includes millions of dollars for expediting these forest health restoration activities which are likely to benefit bears and other wildlife species.

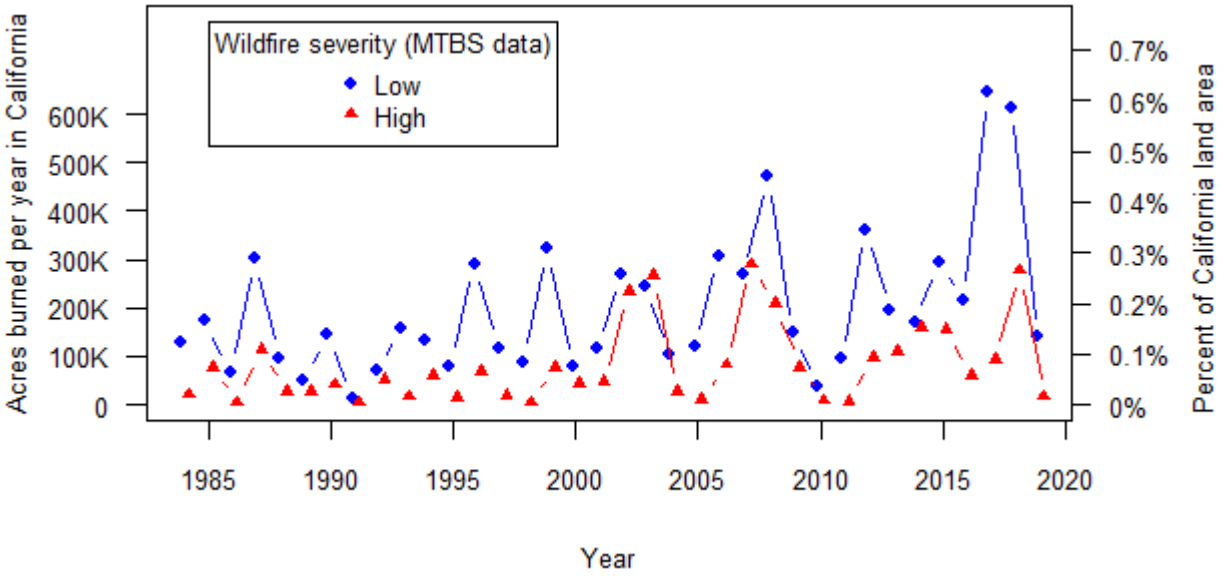


Figure 4. Low and high burn severity amounts in California through time.

To effectively respond to wildfire, drought, climate change, and other stressors it is important for the Department to continue investments in long-term, large-scale monitoring activities that use cameras, sound recorders, genetics, and other methods to efficiently monitor multiple species of wildlife across the state using occupancy methods (see Rich et al. 2019, Furnas et al. 2020, Furnas et al. 2021 for recent examples). The Department is expanding its use of these methods statewide through its California Environmental Monitoring and Assessment Program (CEMAP). At the same time, through its partnership with Wildlife Insights, the Department is consolidating all of its camera survey data (>10,000 locations) into a single cloud computing platform that uses advanced machine learning methods to streamline data processing and expedite scientific analyses relevant to conservation planning decisions.

Bear Management Plan

The Department recognizes the need to update the bear management plan to reflect advances in scientific methods. In support of this, the Department has been implementing newer scientific studies and diversifying its scientific approach since 2014. The Department is currently implementing five local in-depth scientific investigations to assess black bear populations.

The five projects across the state include areas both within and outside of the hunt zone. These projects assess demographic rate and abundance estimates at a local scale and all are using genetic-based, spatial capture-recapture and occupancy modeling techniques as part of a statewide effort to monitor bears on local (i.e., County) and regional scales (i.e., Forest District). The projects also include capture and GPS collaring of black bears to monitor the health, survival, movement patterns,

and habitat use.

The five projects are: San Gabriel Mountains Black Bear Project, Angeles National Forest, July 2016 – ongoing; San Bernadino Mountains Bear Project, San Bernadino National Forest and Wildlands Conservancy, July 2016 – ongoing; Warner Mountains Bear Project, eastern Modoc and eastern Lassen counties, July 2016 – June 2022; Southern and Central Sierra Nevada Mountains Bear Project, Inyo and Mono counties, July 2010 – ongoing; and the North Bay Black Bear Project, Napa and Sonoma counties, July 2020 – ongoing.

Pilot scientific studies are commonly conducted as a precursor to adopting new management approaches that can then be integrated into an updated management plan. A diversified approach of new monitoring methods and scientific investigation is being used to assess the status of black bears. The Department has also expanded the collection of data to include areas of the state outside the hunt zone, where data has been limited, to provide additional data to compliment the data from hunter harvest. In addition to genetic mark-recapture methods using hair snares and telemetry studies to look at habitat use and demographics, the Department is also looking at occupancy modeling using camera traps and DNA extraction from teeth. The tooth genetic data, obtained from hunters, has resulted in over 3,000 samples and is currently being analyzed as part of the California Genomics Project. The genetic spatial capture-recapture projects are not being conducted at the statewide level. In addition to assessing local population levels, data from telemetry and photos from over 3,500 camera traps also provides important information on habitat use, which is critical in a changing environment. These local projects will continue to guide development of a multi-pronged monitoring approach that does not rely overly on any one data source which will be integrated into an update of the management plan.

Recommendation

The Department recognizes the concerns expressed by the petitioner regarding the modeling approach in the 2020 harvest report, but given the information provided above, recommends that the petition be denied. The population size estimates reported as part of the harvest reports are an artefact of the limitations of the model and not a reflection of true population status. Our best available science, from multiple lines of evidence, points to an abundant and stable black bear population. Hunting affects only a small fraction of that population and serves as a management tool to provide key population monitoring data that cannot be easily obtained otherwise. The Department recognizes the challenges California's wildlife faces with increasing frequency of wildfires and prolonged drought under a changing climate regime. The Department is investing unprecedented amounts of funding to monitor, respond, and reduce the effects of these climate-related impacts to the state's wildlife, with significantly more funding identified in the Governor's budget for Fiscal Year 2022-23.

If you have any questions, please contact Scott Gardner by phone at 916-801-6257 or via email at Scott.Gardner@wildlife.ca.gov.

Enclosure

ec: Chad Dibble, Deputy Director
Wildlife and Fisheries Division

Scott Gardner, Chief
Wildlife Branch

David Bess, Deputy Director
Law Enforcement Division

Brad Burkholder, Environmental Program Manager
Wildlife Branch

Brett Furnas, Senior Environmental Scientist Specialist
Wildlife Branch

References

Allen, M. L., A. S. Norton, G. Stauffer, N. M. Roberts, Y. Luo, Q. Li, D. MacFarland, and T. R. Van Deelen. 2018. A Bayesian state-space model using age-at-harvest data for estimating the population of black bears (Ursus americanus) in Wisconsin. Scientific Reports 8:12440.

Fraser, D. 1976. An estimate of hunting mortality based on the age and sex structure of the harvest. Trans. N. Am. Moose Conf. Workshop 12:236-273.

Furnas B. J., B. R. Goldstein, and P. J. Figura. 2021. Intermediate fire severity diversity promotes richness of forest carnivores in California. Diversity and Distributions 28:493–505.

Furnas B. J., R. H. Landers, R. G. Paiste, and B. N. Sacks. 2020. Overabundance of black-tailed deer in urbanized coastal California. Journal of Wildlife Management 84:979–988.

Furnas, B. J., R. H. Landers, S. Hill, S. S. Itoga, and B. N. Sacks. 2018. Integrated modeling of data from fecal DNA, camera stations, and telemetry to estimate population size and composition of mule deer (Odocoileus hemionus) in California. Journal of Wildlife Management 82:1429–1441.

Fusaro J. L., M. M. Conner, M. R. Conover, T. J. Taylor, M. W. Kenyon Jr, J. R. Sherman, and H. B. Ernest. 2017. Comparing urban and wildland bear densities with a DNA-based capture-mark-recapture approach. Human–Wildlife Interactions 11:9.

Harris, R.B., and L. H. Metzgar. 1987. Estimating harvest rates of bears from sex ratio changes. Journal of Wildlife Management 51:802-811.

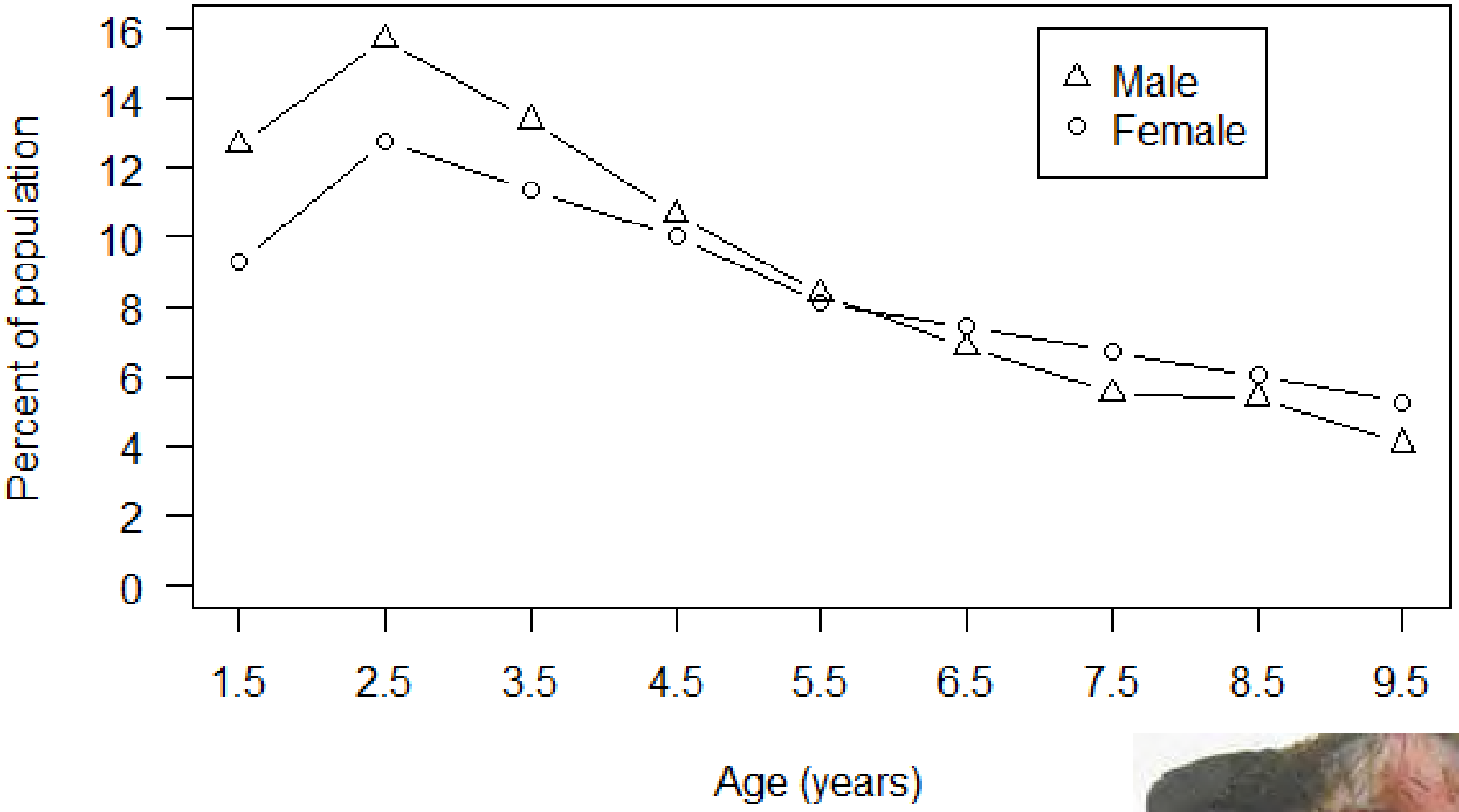
Owen-Ramos, J. D., C. J. Sanchez, S. Blair, S. Holm, B. J. Furnas, and B. N. Sacks. 2022. Use of fecal DNA to estimate black bear density in an urban-wildland interface. Wildlife Society Bulletin: in press.

Rich L. N., B. J. Furnas, D. S. Newton, and, J. S. Brashares. 2019. Acoustic and camera surveys inform models of current and future vertebrate distributions in a changing desert ecosystem. Diversity and Distributions 25:1441–1456.

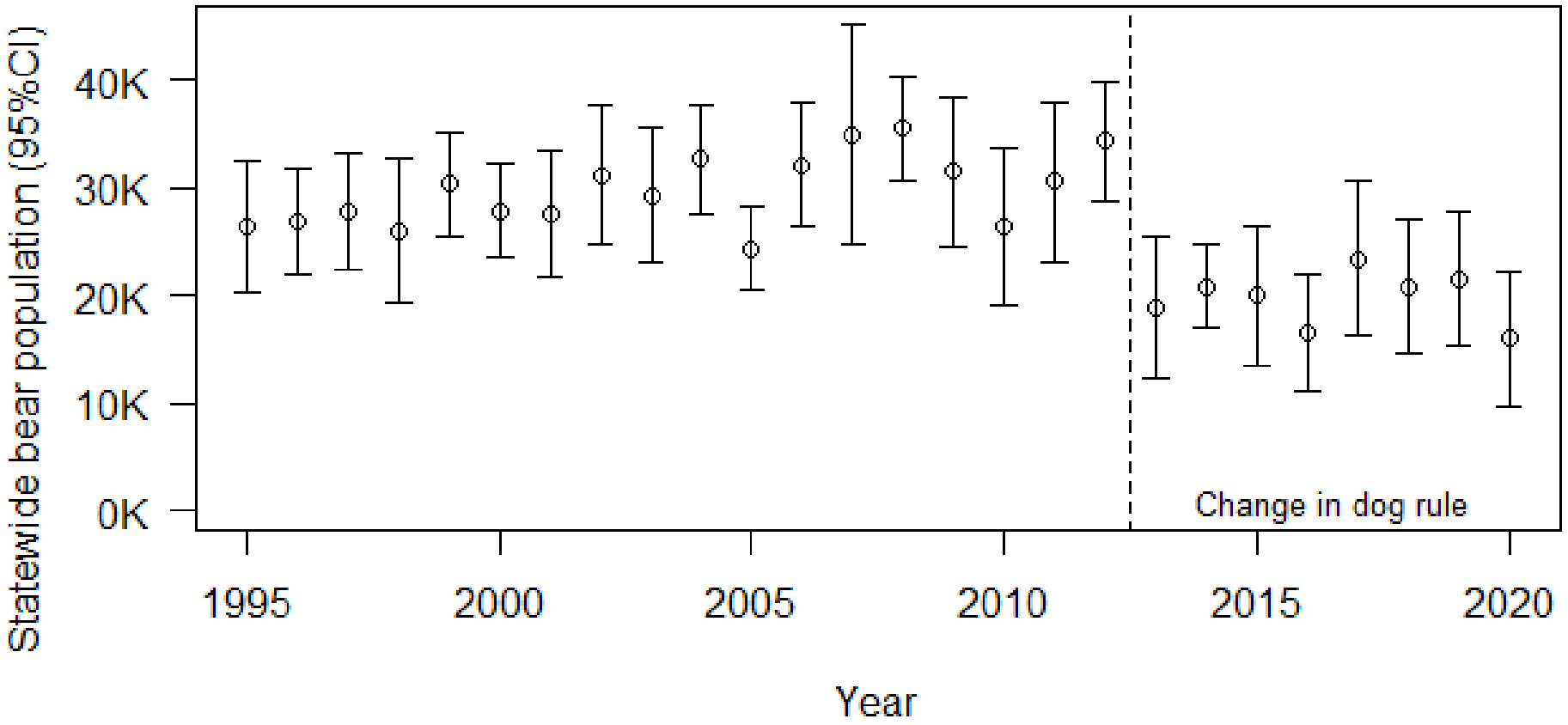
Royle, J. A., and J. D. Nichols. 2003. Estimating abundance from repeated presence-absence data or point counts. Ecology 84:777–790.


2009-08-23 3:55:13 PM M 1/3 20°C
CALIFORNIA
DEPARTMENT OF
FISH &
WILDLIFE
Modernizing California's
Bear Population Model
Brett Furnas, Ph.D.
Quantitative Ecologist
California Department of Fish and Wildlife
DFG R1 CAM12368
RECONYX

Current approach to estimating bear population size uses good data but an outdated model (Fraser 1977)

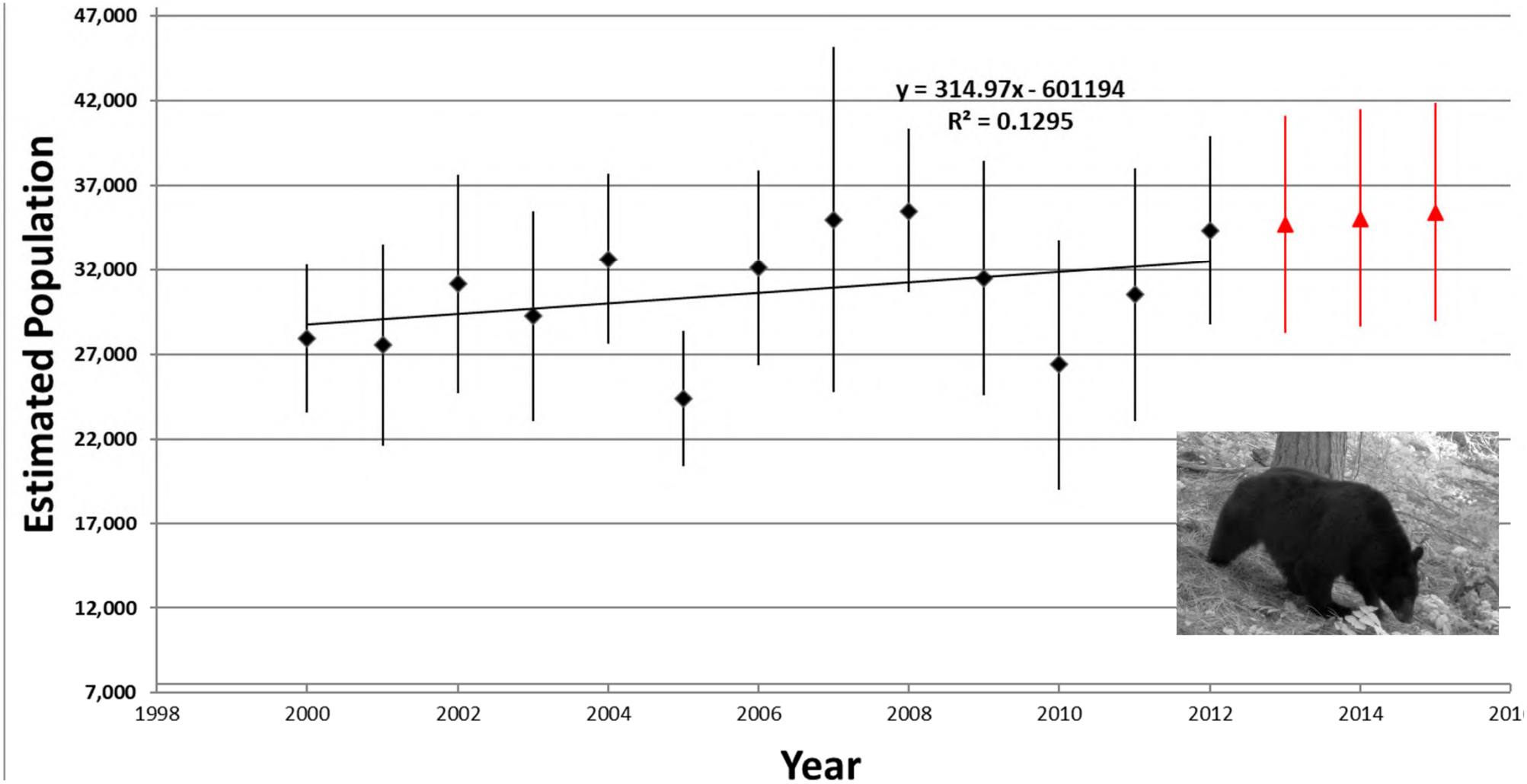


Current model (Fraser 1977) assumes no changes in hunter effort



A temporary fix to population estimation after 2012

(correction shown in red below)

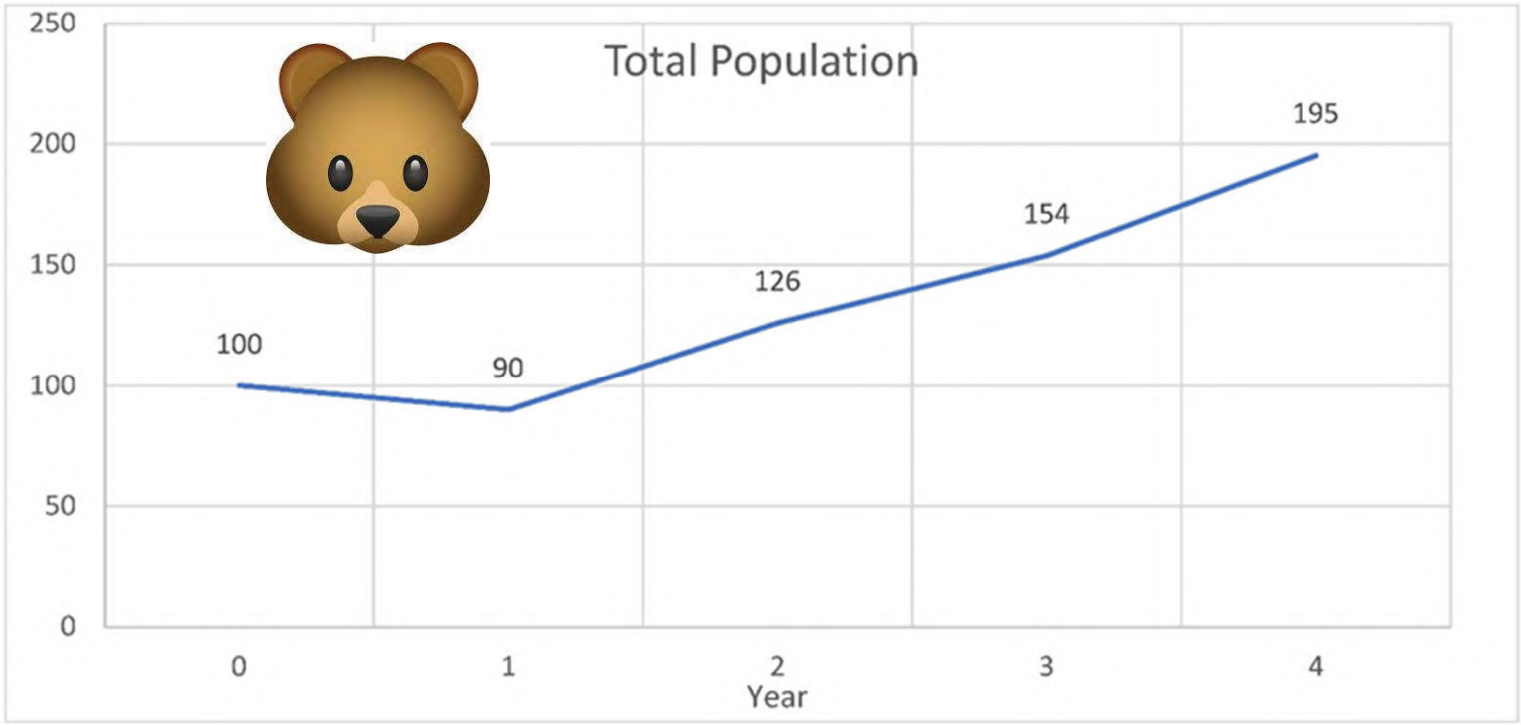


Example of an age-structured integrated population model

Survival	90%
Reproduction (1+)	50%

Age Structured Population Model

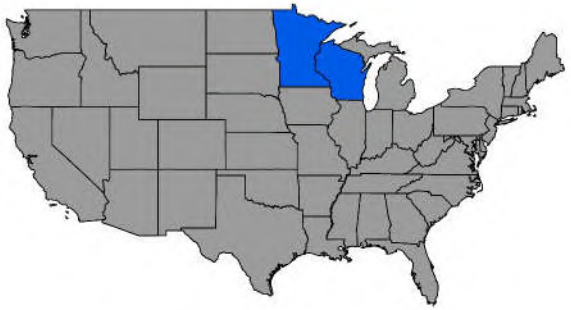
	Age Class					
Year	0	1	2	3	4	TOTAL
0	100	0	0	0	0	100
1	0	90	0	0	0	90
2	45	0	81	0	0	126
3	41	41	0	73	0	154
4	57	36	36	0	66	195



Use of age-structured population models in the Upper Midwest

Minnesota (Fieberg et al. 2010 PlosOne)

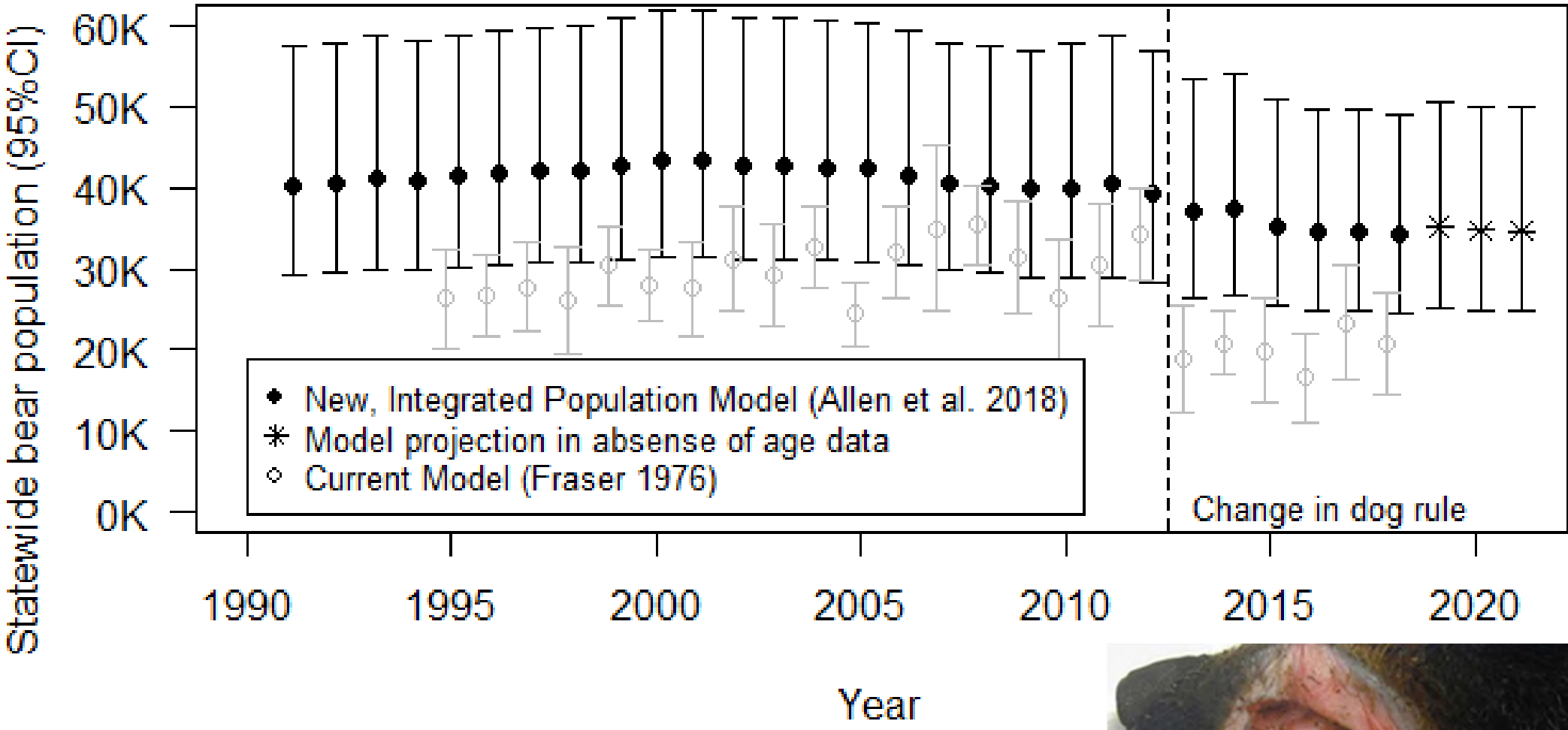
"Integrated population modeling provided a reasonable framework for synthesizing age-at harvest data…. Collection and analysis of these data appear to form the basis of a robust and viable population monitoring program."



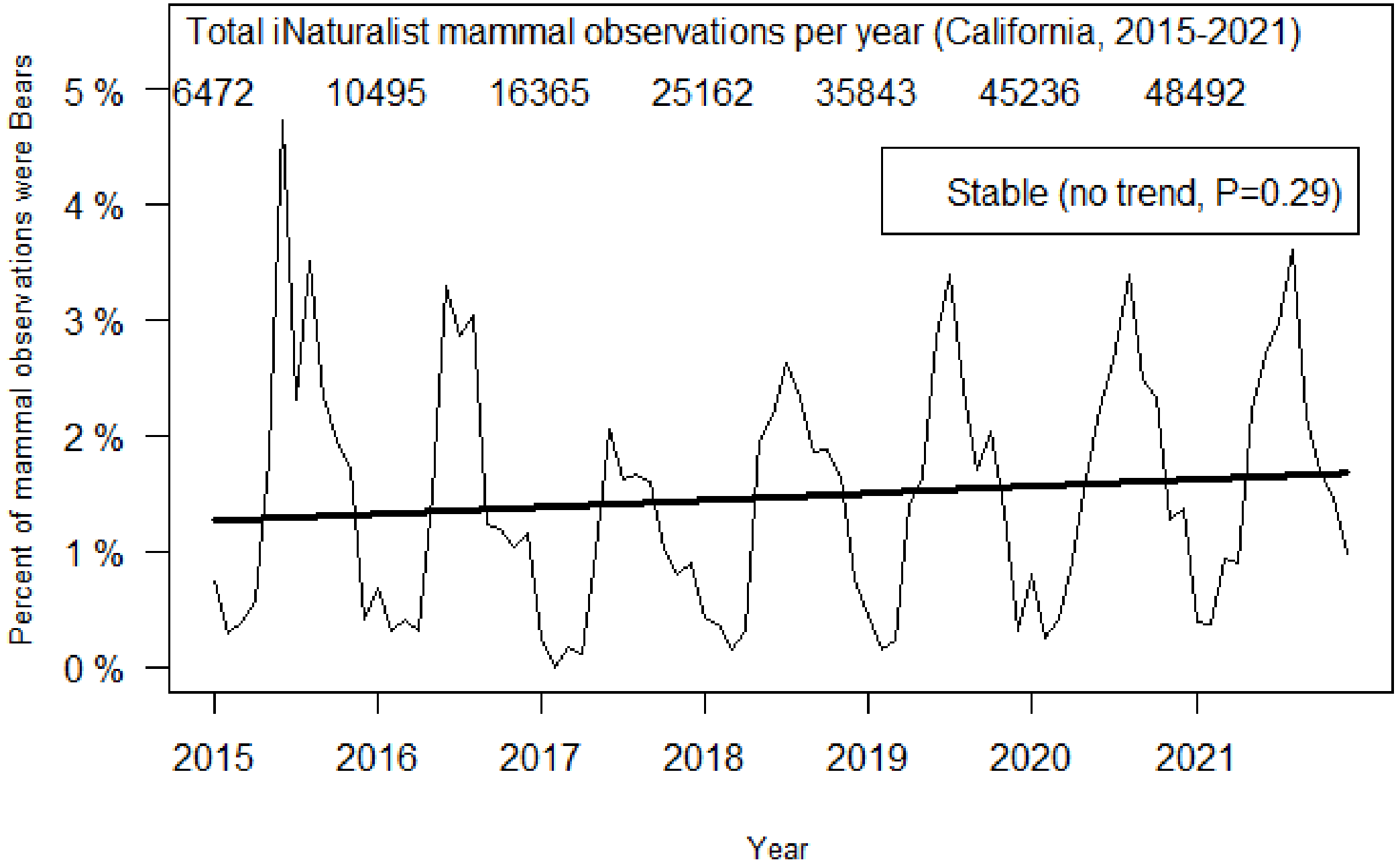
Wisconsin (Allen et al. 2018)

"We fit age-at-harvest data … to create an accurate and precise estimate of black bear population abundance in Wisconsin."

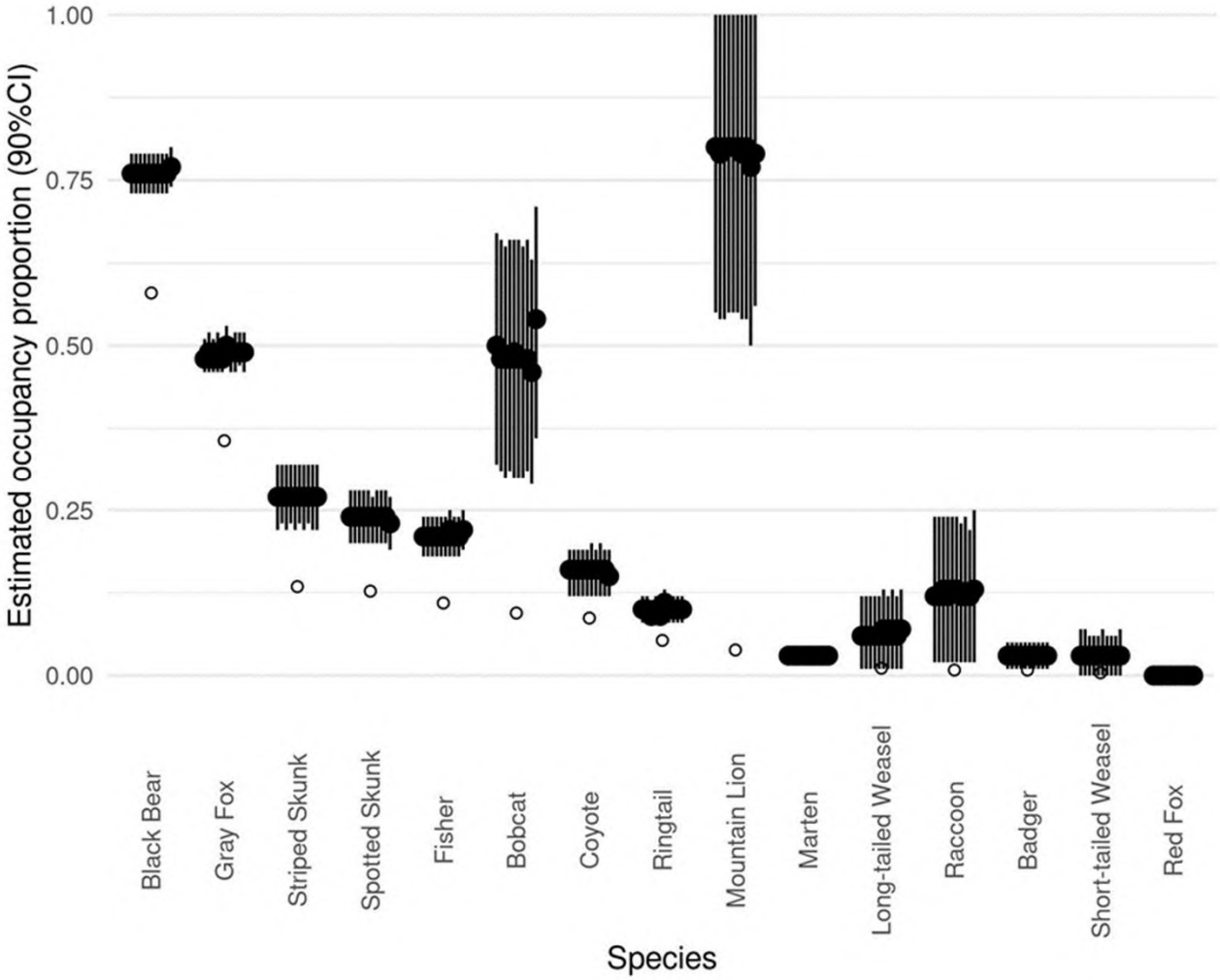
Preliminary results using an integrated population model for age-structured data in California



Two other independent sources of data confirm stable bear population in California

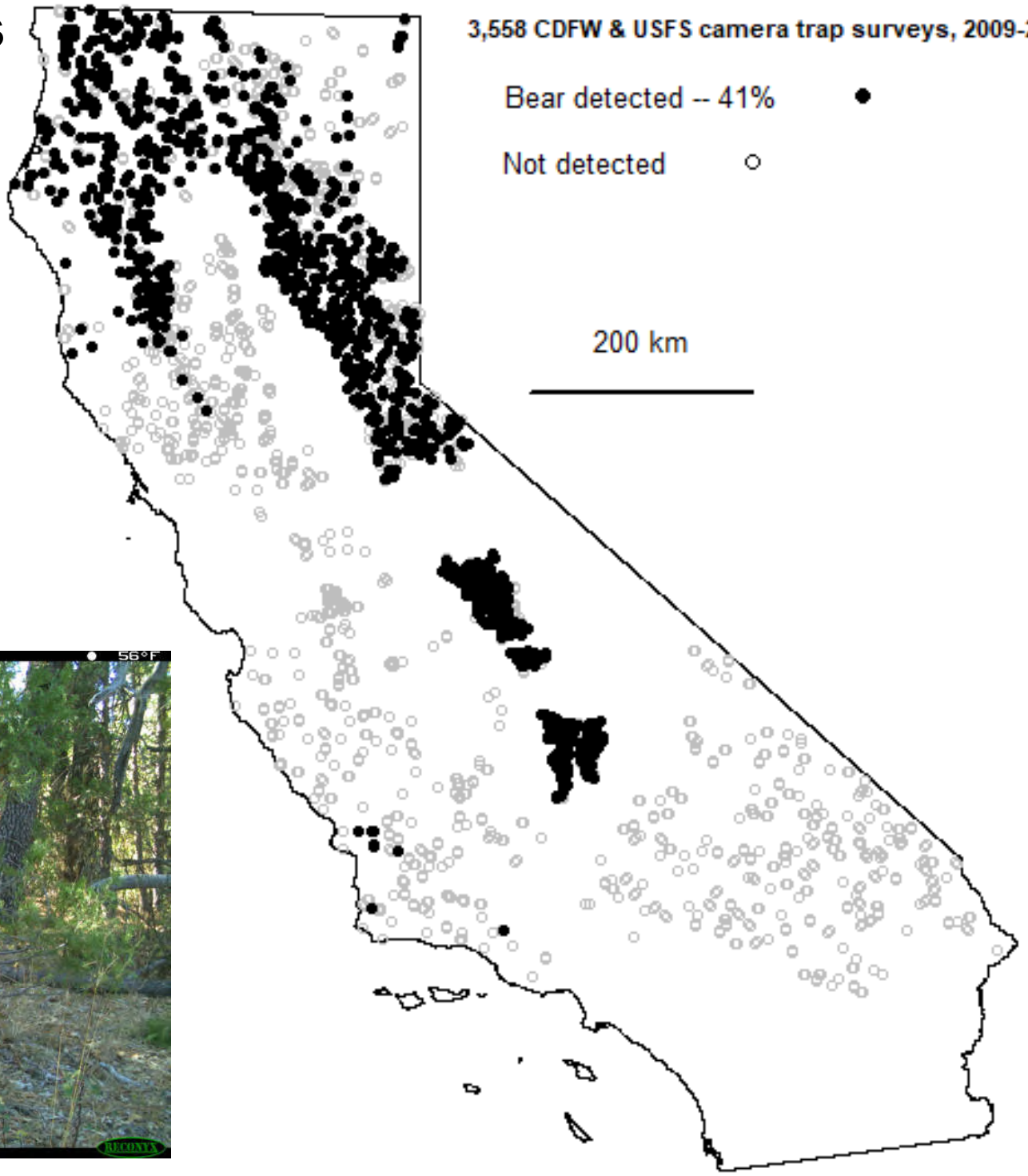


Bears detected by camera traps

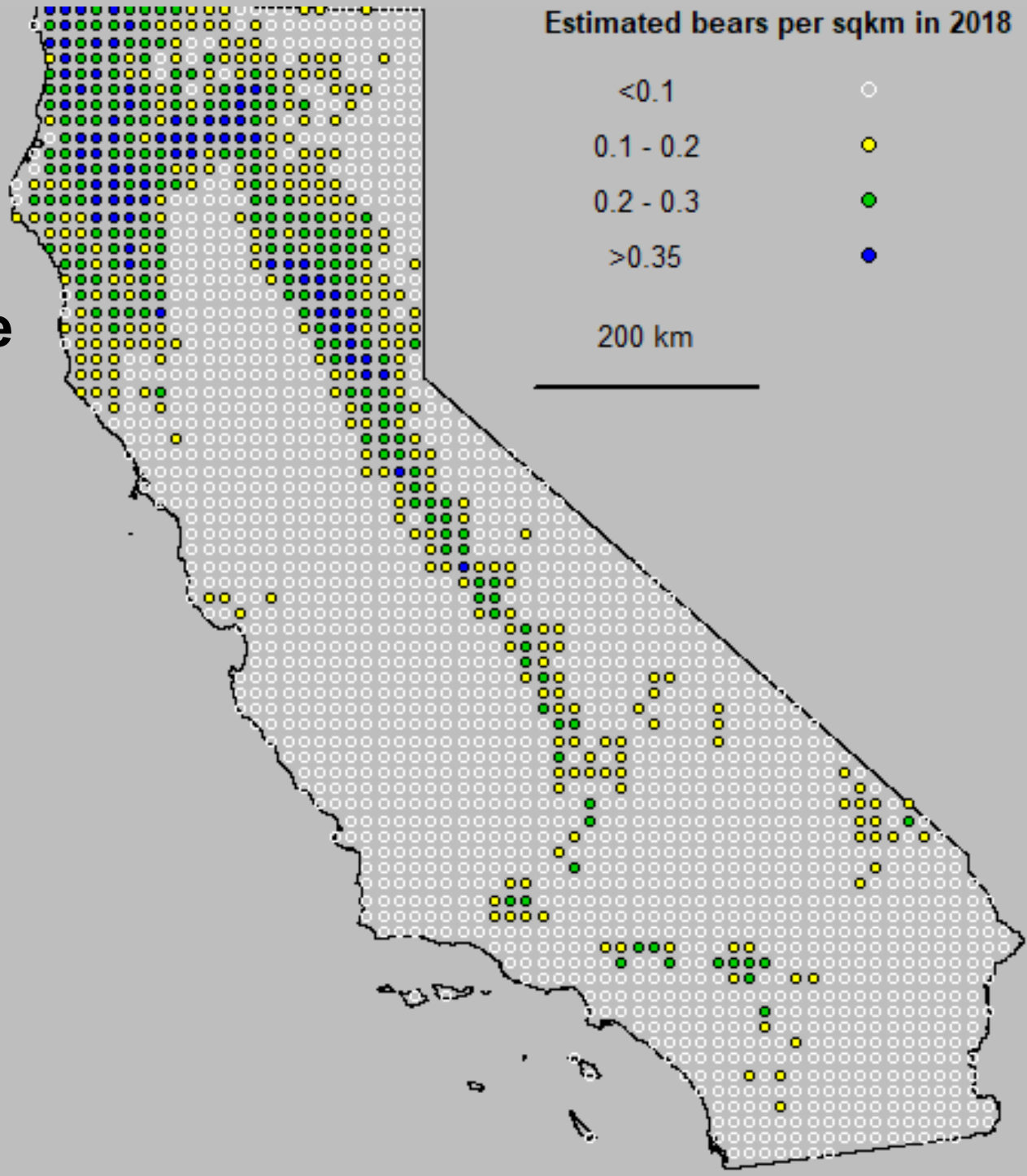


Furnas et al. 2021 Diversity and Distributions

Using camera traps to extrapolate bear density across the state



Bear density increases with forest cover, tree size, elevation, and rainfall and latitude



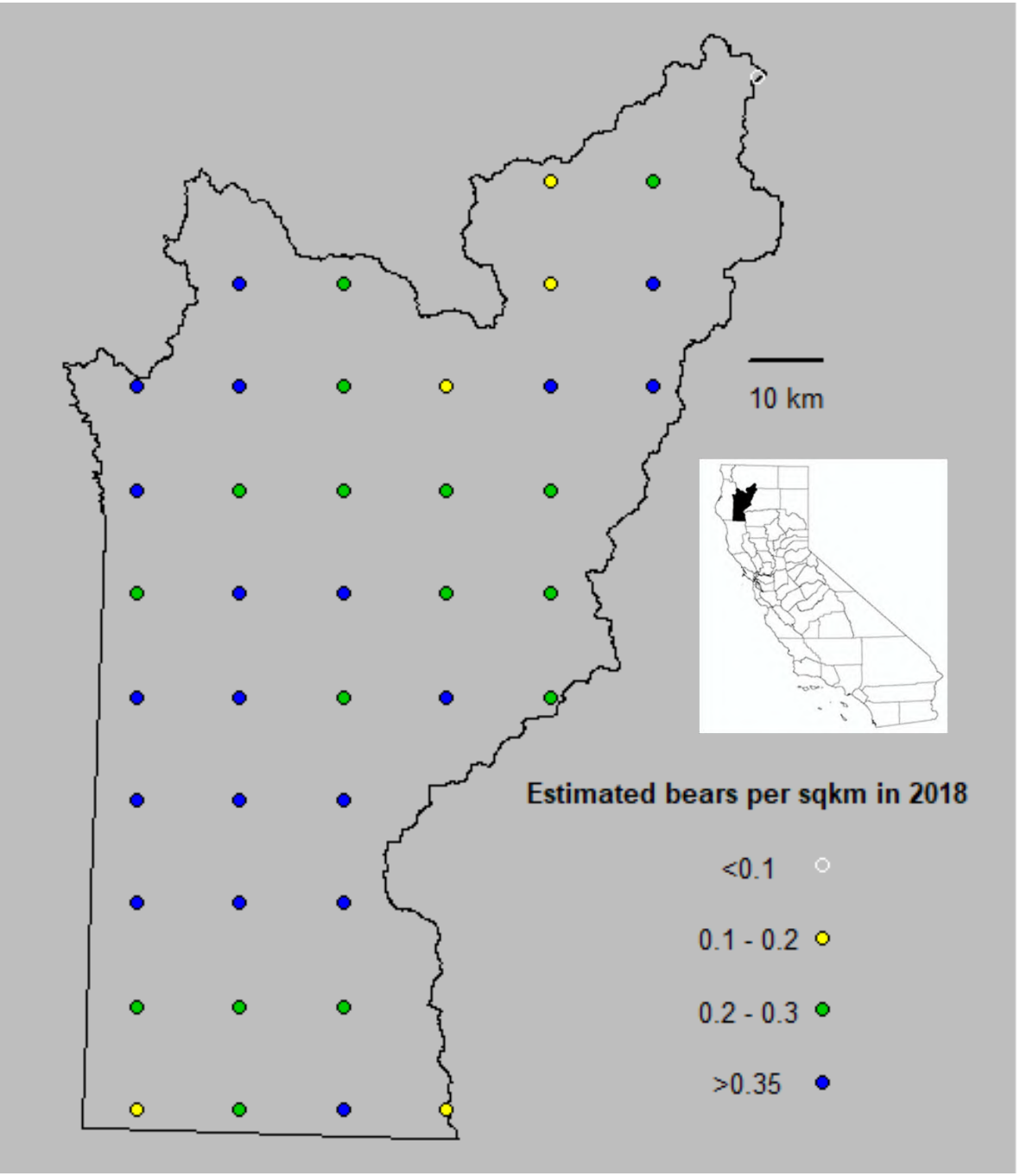
County-level population estimates (preliminary)

County	Density	Population (2018)	95% CI Lower	95% CI Upper
Siskiyou	0.21	3,516	2,352	4,428
Trinity	0.32	2,683	1,811	3,371
Humboldt	0.26	2,373	1,598	2,994
Shasta	0.23	2,251	1,520	2,821
San Bernardino *	0.04	2,057	1,353	2,674
Mendocino	0.18	1,675	1,134	2,108
Plumas	0.24	1,597	1,081	2,005
Inyo	0.05	1,236	811	1,612
Tehama	0.14	1,067	725	1,333
Lassen	0.08	998	667	1,267

* This estimate is likely too large due to insufficient camera data from the area

Local bear density studies

Comparison against local density studies (Trinity County)



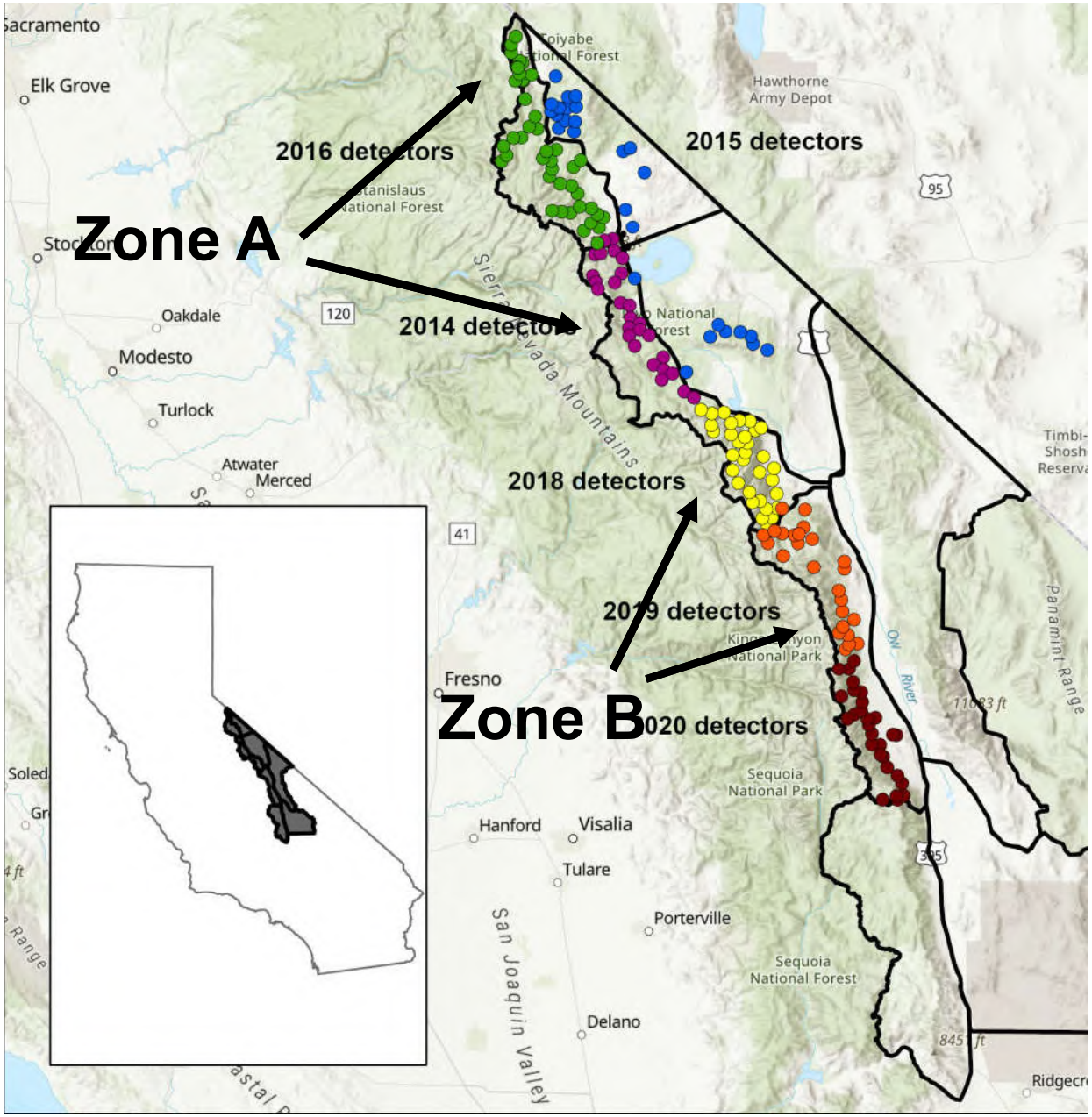
<u>IPM & camera model</u>
0.31 bears / sqkm

<u>Local Studies</u>
0.42 bears / sqkm
(Kelleyhouse 1975)

0.77 bears / sqkm
(Piekielek & Burton 1975)

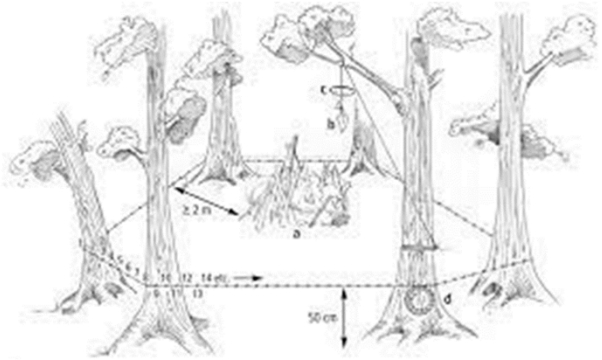
0.76 bears / sqkm
(Matthews et al. 2008)

Comparison against local density studies (Mono County)

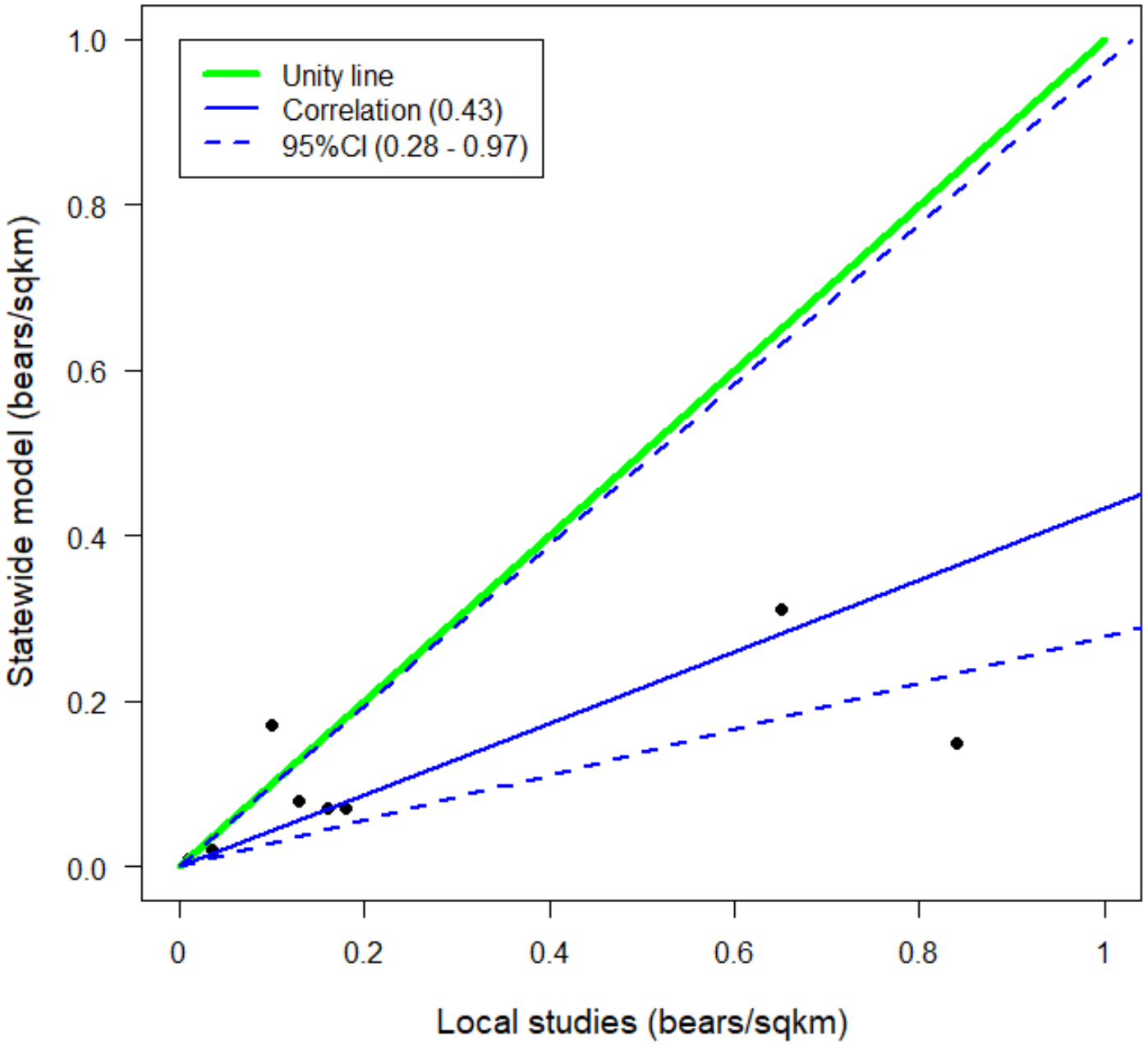


bears / sqkm

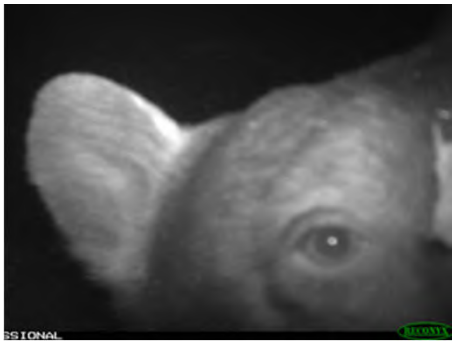
Zone	Statewide Model	Local SCR
A	0.07	0.16
B	0.02	0.04



Comparison against local density studies (Statewide)



Next steps for improved bear population monitoring in California



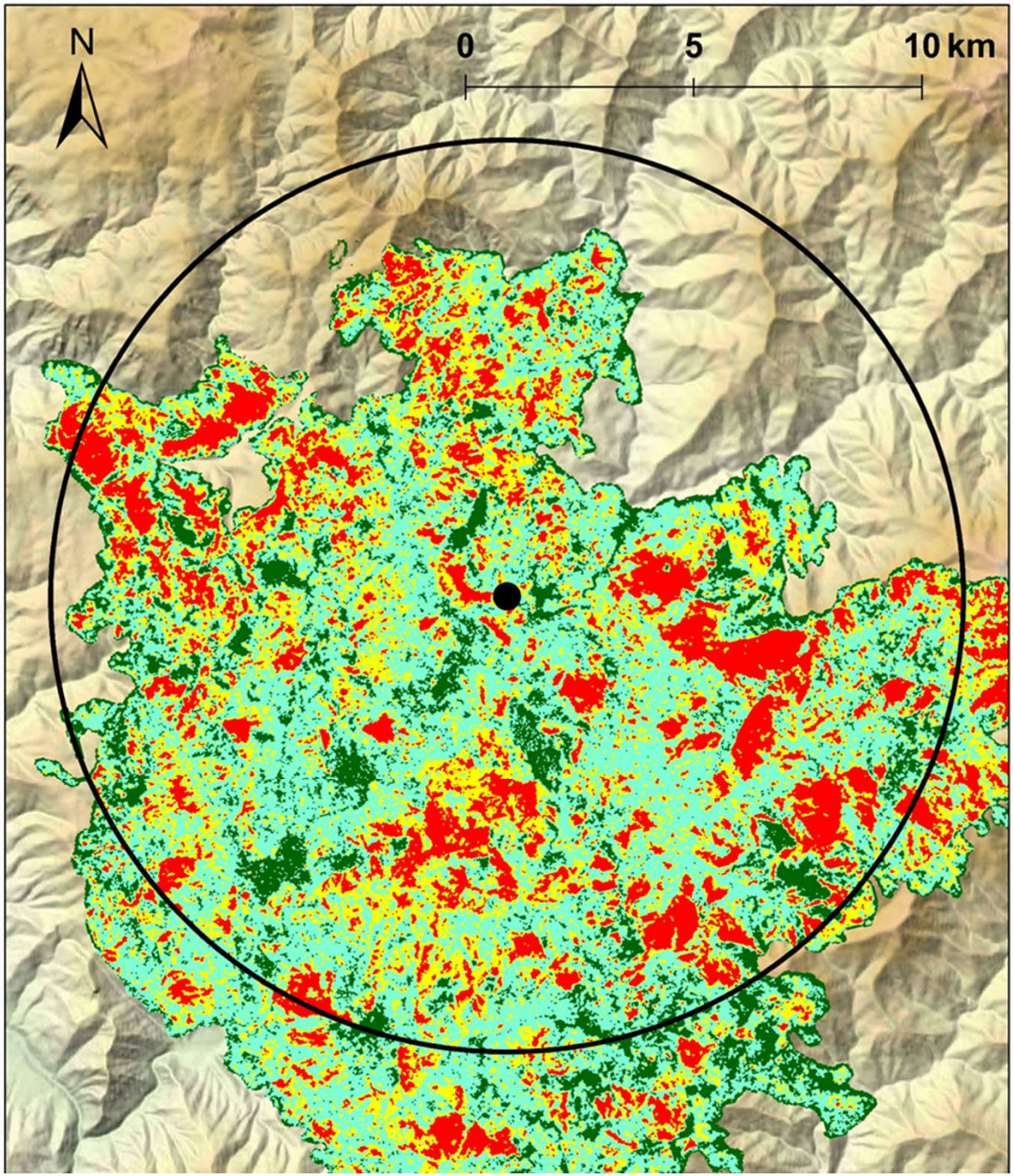
1. Refine the model and evaluate its sensitivity to changes in assumptions.

2. Improve extrapolation accuracy by adding camera traps from Southern California.

3. Invest in demographic rates (reproduction and survival) monitoring studies for these key input parameters to the population model.

4. Invest in a small set (5-10 locations) of validation studies throughout the state that estimate bear density using a different method (fecal DNA for spatial capture recapture models).

Bears and Wildfire



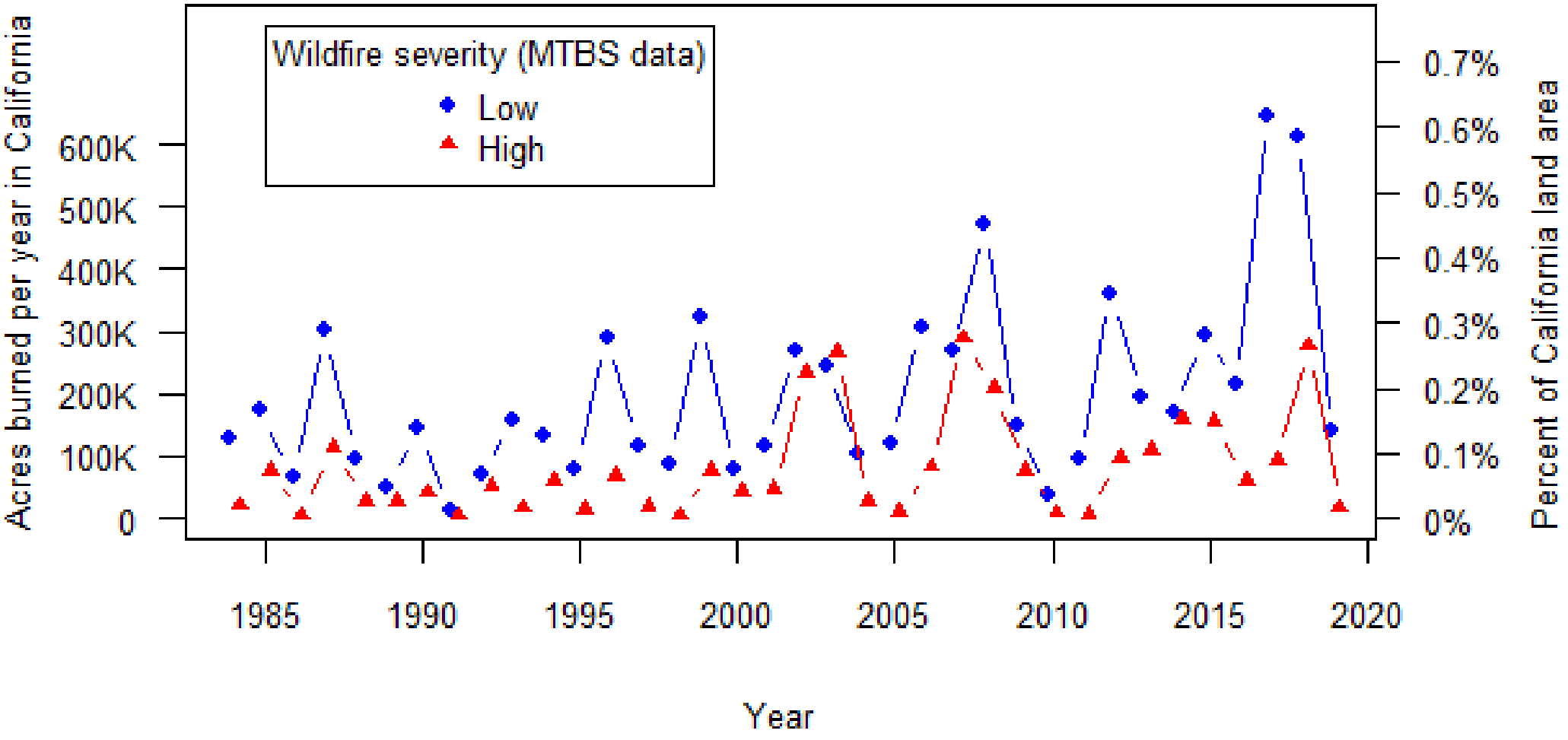
1–2% low severity fire per year is optimal for bears and other forest Carnivores

Furnas et al. 2021
Diversity and Distributions

<u>Fire Severity</u>

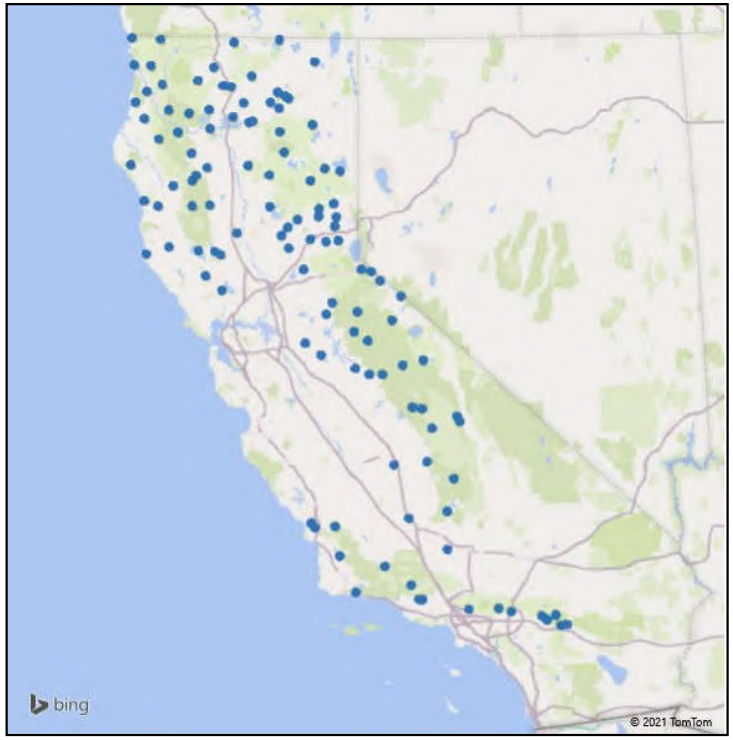
Red – High
Yellow – Moderate
Teal – Low
Dark Green - Unburnt

There is still more low than high severity fire in California which is probably good for bears…overall



Statewide genomic study underway

- Collaboration btwn UCSC and CDFW
- Whole genomes for 150 bears statewide
- Unprecedented data re:
  - Pop structure, diversity, inbreeding, genetic health, etc.
- Simulate viability under different hunting scenarios




2014-09-09 1:27:25 AM M 1/3
17°C
Questions?
PC900 PROFESSIONAL
RECONYX

6 April 2022

California Fish and Game Commission
Peter S. Silva, President
715 P Street, 16th Floor
Sacramento, CA 95814

Re: Agenda Item 30 (B) II – April 2022 Commission Meeting
HSUS Petition # 2021-027 – Black Bear Hunting

Dear Commissioners:

On behalf of Safari Club International, I would like to thank you for the opportunity to comment on the Humane Society of the United States (HSUS) Petition # 2021-27 regarding closing the hunting season for black bears until certain HSUS demands are met, including that the California Department of Fish and Wildlife (CDFW) has studied the state's black bear populations, the impacts of drought and wildfire upon the bear population, and has updated the state's Black Bear Management Plan.

The reality is that the CDFW's best available science shows that the black bear population is currently in great shape. HSUS repeatedly cites portions of inapplicable studies from other states and cherry picks other data while unsuccessfully attempting to discredit the fact that the population of black bears in California is in excellent condition.

HSUS also claims that wildfires, climate change, poaching, depredation, and roadkill have contributed to dramatic declines in bear populations and that bear populations cannot sustain any increased mortality from "super-additive" hunter harvest. However, no scientific evidence supports the claim that the black bear populations in California are not at levels that can be sustainably hunted.

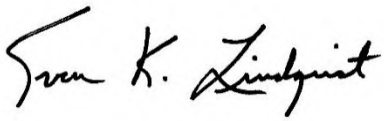
It is recognized that climate change, drought, and wildfires can have an impact on wildlife in California, including black bears. CDFW should and does already monitor the effects of these landscape level changes on the health of the black bear population. CDFW also has nonlethal methods available to reduce bear depredation and negative human interaction. And there are no documented recent reports of landscape level poaching of bears as a serious threat to population levels of California bears.

SCI believes that sound science-based conservation involving hunting as the primary management tool, while maximizing opportunities for all huntable species, including bears, is necessary to the long-term health of wildlife. Besides providing hunter opportunity and funding for the department, the hunting of bears may also reduce negative human-bear interaction and decrease depredation by bears. Hunters have long paid the way for conservation, both game and non-game wildlife, and maximizing opportunity for hunting is also key to long-term funding for all conservation. Hunting benefits wildlife conservation.

Thank you again for the opportunity to comment on the HSUS petition. In summary, CDFW is using the best available scientific methods to monitor California's black bear population and has ample scientific evidence to demonstrate the bear population is currently in excellent condition. And simply put, HSUS will not be satisfied until all hunting is stopped, as they have stated and shown many times over, regardless of the science or benefit. SCI respectfully requests the Commission deny the petition of the HSUS.

SCI is dedicated to protecting the freedom to hunt and we appreciate the continued partnership with the CDFW and the Commission.

Sincerely,



Sven Lindquist
President
Safari Club International

COUNTY OF SISKIYOU
Board of Supervisors

P.O. Box 750 ▫ 1312 Fairlane
Yreka, California 96097
www.co.siskiyou.ca.us
8005

(530) 842-8005
FAX (530) 842-8013
Toll Free: 1-888-854-2000, ext.

March 15, 2022

Melissa Miller-Henson, Executive Director
California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

Subject: Humane Society of the United States Petition to the California Department of Fish and Wildlife: Black Bears - OPPOSITION

Dear Ms. Miller-Henson:

The Siskiyou County Board of Supervisors is writing this letter to express our strong opposition of the Humane Society of the United States petition to the California Department of Fish and Wildlife asking that the California Fish and Game Commission ban all hunting of black bears throughout California.

As you may be aware, black bear populations in California are conservatively estimated at 30,000 to 40,000, more than triple the population over 40 years ago. In addition, the state's hunting quota of 1,700 bears has not been reached in years, and in 2020 only 919 tags were filled.

The most commonly reported cause of black-tailed and mule deer fawn mortality in northern California is predation from a diverse guild of mammalian predators including black bears (Ursus americanus), coyotes (Canis latrans), and mountain lions (Puma concolor); and black bears have long been known to be an important predator of fawns (Heiko U. Wittmer, 2021). Consequently, the combined effect of high predation of fawns from black bears, has heavily contributed to a rapid, short-term decline of black-tailed deer throughout Siskiyou County (Heiko U. Wittmer, 2021). Siskiyou County expects that as black bear populations continue to rise, predation on juvenile deer will increase, and in turn, deer populations will continue to decrease. In turn, black bears could reach a level that results in over competition of feed sources, without the adequate ungulate populations to support them. It is therefore critical that black bear populations are managed, and responsible hunting is the most effective tool for such management.

We encourage the California Fish and Game Commission to deny the Humane Society's petition. Please contact Elizabeth Nielsen, Deputy County Administrator at enielsen@co.siskiyou.ca.us or (530) 842-8012, if you have any questions or would like to discuss this further. This letter was approved by the Siskiyou County Board of Supervisors on March 15, 2022, by the following vote:

AYES: Supervisors Criss, Kobseff, Ogren, Valenzuela and Haupt
NOES:
ABSENT:
ABSTAIN:

Sincerely,

DocuSigned by:
Brandon A. Criss
41A60BC31636457...
Brandon A. Criss, Chair

Board of Supervisors
cc: Congressman Doug LaMalfa
Senator Brian Dahle
Assemblywoman Megan Dahle
Chuck Bonham, CDFW
Siskiyou County Gun Owners
Siskiyou County Fish & Game Commission
Rural County Representatives of California

References

Heiko U. Wittmer, B. C. (2021). *Final Report Siskiyou Deer-Mountain Lion Study (2015-2020)*. Santa Cruz, California : Environmental Studies Department, Univeristy of California, Santa Cruz.

SISKIYOU COUNTY GUN OWNERS
Est. 2021
CRPA ORG
CHAPTERS
BE SAFE. SHOOT STRAIGHT. FIGHT BACK!

California Fish and Game Commission,

Siskiyou County Gun Owners would like to express our strong opposition to the petition of the Humane Society of the United States to ban bear hunting in California. The Humane Society of the United States has a track record of cramming their feelings and emotions down the throats of hunters and fishermen across the country.

The basis of the petition has no sound facts or basis. To argue that our bear population is in danger is absolutely ridiculous.

Making a management decision such as this, while the department doesn't even have a bear biologist on staff, is extremely irresponsible and dangerous. The commission has a responsibility to manage wildlife based on science and proven facts. Black bear incidents are at an all time high. Depredation permits for black bears are just as high now as they were in the 1990's. This would completely contradict the claims that the population is in decline.

Siskiyou County Gun Owners support sound science and responsible management practices. The banning of bear hunting in California does not meet such efforts.

HSUS has shown that their strategy to remove hunting is based on feelings and emotion, and has no intention of promoting responsible wildlife management or conservation. This is the same as the Sierra Club and others fighting to end logging. Now that logging is minimized drastically, our state has become overgrown. The result of such irresponsible action has become extremely destructive fire seasons. Now, these same people that forced action on logging are admitting that we need forest thinning. Making decisions of this nature based on feelings and emotions, instead of science, result in this type of catastrophe. What we have seen in our failures to manage the forest should encourage us not to make the same mistake when it pertains to our wildlife.

Siskiyou County Gun Owners ask that the California Fish and Game Commission reject the HSUS petition for such an irresponsible request. Accepting such a petition would create a very dangerous precedent that would show that California will continue to base decisions regarding wildlife on feelings and emotions, instead of science and facts.

Chairman-Siskiyou County Gun Owners
SiskiyouCRPA@Gmail.com
530-643-9084
1001 Meadowlark Ln
Yreka, CA 96097

March 30, 2022

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

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

Dear Director Bonham,

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

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

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

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

Research on California Black Bears

Active Black Bear Studies in California:

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

Prior Black Bear Projects in California:

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

a. Organization: University of California Davis
b. Year: 2016-2018 and 2018 - 2020
c. Purpose: Genotyping of fecal DNA used for estimating abundance of mule deer, elk, and black bear
d. Budget: $500,000; 2018 – 2020 $1,000,000

8. Technical Support for monitoring of bighorn sheep, mule deer, black bear, and pronghorn
    a. Organization: Utah State University
    b. Year: 2016 – 2019
    c. Purpose: Technical support for population monitoring.
    d. Budget: $302,602

California Black Bear Literature

Peer-Reviewed Scientific Literature Covering California Black Bears

(Note: This list is not comprehensive)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Master's Theses and PhD Dissertations Covering California Black Bears

(Note: This list is not comprehensive)

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

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

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

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

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

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

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

(Note: This list is not comprehensive)

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

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

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

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

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

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

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

Relevant Black Bear Scientific Literature by Topic

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

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

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

1) *"…black bear biologists warn that wildlife managers must limit recreational black bear killing to reduce total mortality, and especially during years of poor natural food production… "*
    a. The Johnson et al. 2018 article does not say wildlife managers must limit recreational black bear killing to reduce total mortality during years of poor natural food availability. The authors actually state that wildlife managers "increasing harvest near residential development could exacerbate bear population declines while having limited success in reducing conflicts." They identify urban areas as a population "sink." The authors explain the leading cause of mortality for the bears they studied are vehicle collisions and conflict removal (56%). Hunting contributed to 23% of bear mortality of GPS-collared bears.
2) "*…in a Colorado bear study, the female cohort of the population declined by 57% because of human-caused mortalities from vehicle collisions, hunting and predator control…"*

a. The authors of the Colorado study did not say the population declined by 57%; the authors state the leading cause of death of bears that were GPS-collared was vehicle collisions and conflict removal.
b. The authors suggest reducing conflicts by "implementing strategies that discourage bears from foraging around residential development" (e.g., deploying bear-resistant trash containers). The authors did not suggest a prohibition on bear hunting. They encourage strategies that take into account coexistence with carnivores in areas of residential development.
c. CDFW is actively working to reduce the primary causes of mortality identified in the Johnson et al. 2018 article. CDFW just updated their human-bear conflict policy that priorities using non-lethal techniques statewide to reduce human-bear conflicts. This year, CDFW hired human-wildlife conflict biologists specifically to execute the objectives of the new policy. Furthermore, CDFW is working with Caltrans and non-profit organizations throughout the state to build more wildlife crossings to reduce roadkill of bears and other wildlife.

3) *"California has no such equivalent in population monitoring"* referring to the Colorado study
   a. The CDFW does have equivalent studies including in South Lake Tahoe and in Mono County; where bears are GPS-collared and DNA-based survey techniques are used. Long term monitoring of black bears via GPS-collars also occurs in Yosemite and Sequoia & Kings Canyon National Parks.
   b. It is also important to note that Colorado estimates their bear population to be between 17,000 and 20,000 statewide. There were 30,455 bear hunters who harvested 1,561 bears in Colorado in 2020. These are very similar numbers of hunters and harvest levels of California. California has more bears and more bear habitat.
      - Colorado Parks and Wildlife harvest reports can be found here: https://cpw.state.co.us/thingstodo/Pages/Statistics-Bear.aspx
      - CPW also has a bear management plan that is focused on reducing bear population sizes through hunting in many of their bear units. The plans for each unit can be found here: https://cpw.state.co.us/thingstodo/Pages/HerdManagementPlans.aspx

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

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

- High intensity fires can allow for regrowth of meadow systems and assist with pinon/juniper encroachment.

b. Furnas, B. J., B. R. Goldstein, and P. J. Figura. 2022. Intermediate fire severity diversity promotes richness of forest carnivores in California. Diversity and Distributions 28:493–505.
   - Study Area: Northern California
   - Year(s): 2009 - 2018
   - Camera trap Survey – 1,451 sites in low, moderate, and high severity wildfire areas
   - Results: Carnivore richness was highest at locations with intermediate fire severity. Overall results suggest that carnivores would benefit from landscapes managed for greater, but not maximal, fire severity diversity. Our results also suggest that prescribed, low severity burns may provide ecological services to wildlife not otherwise provided by silviculture in a managed forest landscape. Highest number of sites (58%) detected black bears with next highest carnivore being gray fox located at 35.6% of sites. Predicted occupancy for black bears in the study area was approximately 76%. No statistically significant difference in use of low to high severity wildlife fires for black bears.

c. Lara-Díaz, N. E., H. Coronel-Arellano, C. A. López-González, G. Sánchez-Rojas, and J. E. Martínez-Gómez. 2018. Activity and resource selection of a threatened carnivore: the case of black bears in northwestern Mexico. Ecosphere 9:e01923.
   - Desert adapted black bears indicates bears will persist through climate change

d. Lundgren, E. J., K. T. Moeller, M. O. Clyne, O. S. Middleton, S. M. Mahoney, and C. L. Kwapich. 2022. Cicada nymphs dominate American black bear diet in a desert riparian area. Ecology and Evolution 12:e8577.
   - Desert adapted black bears indicates bears will persist through climate change

e. Souliere, C. M., S. C. Coogan, G. B. Stenhouse, and S. E. Nielsen. 2020. Harvested forests as a surrogate to wildfires in relation to grizzly bear food-supply in west-central Alberta. Forest Ecology and Management 456:117685.
   - Black bears would have a similar response and likely do in harvested forests of northern California.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Literature Cited:

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

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

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

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

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

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

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

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

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

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

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

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

Literature Cited:

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

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

D. Black bear hunting is unpopular amongst California residents

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

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

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

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

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

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

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

Bill Gaines, Gaines & Associates, (916) 337-9031
Devin O'Dea, Backcountry Hunters & Anglers, (415) 246-5329
Jonathan Fusaro, Wildlife Biologist, Backcountry Hunters & Anglers, (401) 742-0299

Sincerely,

Ryan Bronson, Director of Government Affairs
Rocky Mountain Elk Foundation

Don Martin, President
California Chapter – Wild Sheep Foundation

Dan Whisenhunt, Chief Executive Officer
California Deer Association

Keely Hopkins, Western States Coordinator
Congressional Sportsmen's Foundation

Fred Harpster, President
Black Brant Group

Mark Hennelly, Vice President of Government Relations
California Waterfowl Association

Steve Miller, President
Tulare Basin Wetlands Association

Gary F. Brennan, President
San Diego County Wildlife Federation

Corey Thompson, President
Cal-Ore Wetland and Waterfowl Council

Chriss Bowles, President
California Bowmen Hunters/State Archery Association

James Stone, President
Nor-Cal Guides & Sportsmen's Association

Roy Griffith, Legislative Director
California Rifle & Pistol Association

Adam Chavez, President
California Hawking Club

Steve Chappell, Executive Director
Suisun Resource Conservation District

Lori Jacobs, President
California Houndsmen for Conservation

Logan Young, Executive Director
Bear Trust International

Devin O'Dea, California Chapter Coordinator
Backcountry Hunters & Anglers

Steven Rinella, Founder and Chief Creative Officer
MeatEater

Robert Kroger, Founder/Executive Director
Blood Origins, Inc

Joe Kondelis, President
Western Bear Foundation

Joel Pedersen, President/CEO
Mule Deer Foundation

Dan Reid, Western Regional Director
National Rifle Association – Institute for Legislative Action

Dawnita Harwood, President
California State Chapter – National Wild Turkey Federation

Cathie Nelson, President
San Francisco Bay Area Chapter - Safari Club International

cc: Mr. Chad Dibble, Deputy Director, DFW Fisheries and Wildlife Conservation Division
Mr. Scott Gardner, Chief, DFW Wildlife Branch

From: ROY LEE [redacted]
Sent: Saturday, February 26, 2022 2:02 PM
To: FGC <FGC@fgc.ca.gov>
Subject: Petition 2021-027

Director - CA Fish & Wildlife & CA Fish & Game COMMISSION:

I would like to provide the following comments/information concerning Petition 2012-027 proposed by the Humane Society of the United States (HSUS).

UNDERSTANDING THE SYSTEM

A distinct advantage hunters have today over our ancestors of just a few generations ago is a science-based understanding of the environment we live in. Hunters intuitively understand that we are part and parcel of the natural world and biotic community and not external to it. In truth, the human hunter's role and identity as a predator is just as natural, and logical, and integral as that of a wolf, bear, or mountain lion. Because of the increasing awareness of the importance of the natural world's functioning to our everyday lives, and the scientific studies which document and inform us that the environment is composed of interrelated ecosystems, hunters as informed members of society understand that upsetting the predator / prey balance can cause unwanted trickle-down effects.

We humans - through our various activities and management strategies can either strategically promote, or significantly adversely affect, the proper ecological functioning of the environment. My role as a hunter - a natural predator - is to help sustain balance.

An effective biodiversity strategy must be based in scientific data and include all stakeholders. Most importantly, as human populations continue to expand, the solution to biodiversity must involve coexistence between humans and wildlife. There are no ecosystems in North America that haven't been altered by the hand of man. It is not a question of whether people should intervene in nature, but how. Through participation and management, hunters play a key role in ensuring increased and sustainable biodiversity levels.

in order to effectively conserve large land areas, an incredible amount of funding and local support is needed. Hunting is a low impact, high revenue generator; my money, pooled with tag and license revenue from thousands of other hunters, goes to benefit not just the animal itself, but most importantly, its habitat, which indirectly benefits a host of other animals, humans included. Nationwide hundreds of millions of dollars are generated from a relatively small number of hunters. This funding goes towards conservation of the land area, employment through conservation jobs in local communities, and a sustainable way for communities near wild lands, and people living in more isolated rural environments, to mitigate human wildlife conflicts.

Most Americans care about conservation; but don't know much about the role of hunting in conservation. Vehemently anti-hunting and anti-trapping individuals and organizations such as the HSUS attempt to dictate the management of wildlife based upon emotionally based; but not scientifically informed rationales. The management of predators and/or prey species should not be left to political bias or emotion; but be based upon the biological facts arrived at by studies conducted by people who dedicate their lives to the study of these animals and their habitats.

Two Form Letters were recently received by the WA DWFW and presented to the Commissioners in the hearings for the proposed Spring Bear Hunting Season 2022. Form Letter #1 identifies that "Decisions about our state's wildlife…should reflect the will of most Washington residents." Form Letter #2 identifies that "Spring bear hunting is not supported by the majority of the public because it violates basic principles of ethical hunting and fair chase."

I would be willing to bet a month of my retirement income that 98 + percent of the entire population that supports the information presented in both of these form letters have never undertaken even a cursory review of the wildlife studies associated with predation by Black Bears, especially predation by black bears on ungulate neonates; and that 98 + percent of the entire population that supports the information presented in both of these form letters have absolutely no clue concerning the strategies utilized by hunters in pursuit of black bears in the State of Washington when hunting bears in the Spring. Lacking this information it is impossible for the people submitting form letters or variants of form letters to make an informed decision concerning whether or not a violation of the basic principles of ethical hunting and fair chase is, or has, occurred.

Multiple research studies have been recently completed taking a close - and sometimes hard - look at the deeply complex interrelationships between carnivores, elk, deer and other prey species. We need to educate people that the population components of both predator and prey animals is essential for management of healthy ecosystems; and about the role of hunting in conservation. Every state in the United States is continually adapting their hunts to meet local needs, working to stabilize big game populations while sustaining black bears, mountain lions, wolves and coyotes and other predators.

"The ecology of everything" should be the focus of research in the future. Researchers are in the process of putting GPS equipment on a suite of predators and a suite of prey. Ongoing studies will incorporate competition, predation, nutrition, indirect competition, variables related to seasonal weather and climate change - all of these different processes that occur; and ultimately: when you mess with one part of a system what does it do to all the other parts? These studies will help us to better understand some of the possible answers to questions such as: If you reduce bears in a particular area and elk or deer abundance does not go up, why?

The top-down effects of predators on their ungulate prey has long been hotly debated (e.g., Wilby and Orwin 2013), even while there is increasing evidence that scavengers and carrion subsidies may indirectly influence prey through increasing top-down forces (Elbroch and Wittmer 2013, Moleón et al. 2014, Pereira et al. 2014). New and improved GPS technologies have shown that carnivore kill rates, including those of pumas, are higher than previously assumed and cannot be explained by energetic requirements alone (Elbroch et al. 2014).

Results linking high seasonal kill rates of a top predator with kleptoparasitism by a dominant competitor (black bears) provides strong evidence that predation can only be understood within a community framework (Moleón et al. 2014). This framework must simultaneously evaluate the direct influence of predators on prey and the availability of carrion, in combination with the effects of carrion, scavengers, and competitors on predator foraging and prey populations. Such community approaches to predation studies are needed to understand whether predator foraging behaviors in general already account for the ubiquitous effects of kleptoparasitism, or whether there are indeed thresholds of kleptoparasitism that increase predation rates. Only then will be able to differentiate the relative contributions of predators and competitive scavengers on prey dynamics.

By necessity, many ecosystems / wildlife habitats now require management / a helping hand to balance the desires of man with the needs of wildlife. There has to be more prescribed fire, and improvements to summer ranges, and we need to protect winter ranges from suburban development and associated disturbances, and from innumerable human related disturbance activities. Carnivores are just part of the issue, and so are we. For the sake of sound ecological functioning we must put science based solutions at the heart of the management of wildlife in the State of California.

Please incorporate this information into your decision-making when you undertake your deliberations concerning Petition 2012-027 proposed by the Humane Society of the United States (HSUS).

Thank you for your time and attention.

Respectfully submitted.

Roy E. Lee
[redacted]

From: Chris Conley [redacted]
Sent: Wednesday, April 6, 2022 8:44 PM
To: FGC <FGC@fgc.ca.gov>
Subject: Stand Up for the CA Black Bear Hunt

Dear Commissioners,

As a proud hunter and conservationist, I urge you to reject Petition 2021-27 regarding closing Black Bear hunting seasons. The California Department of Fish and Wildlife's best available science shows that the black bear population in California is currently in great shape.

The proposed HSUS petition disregards scientific, responsible and sustainable management of black bears. I believe that sound science-based conservation involving hunting as the primary management tool, while maximizing opportunities for all huntable species, including bears, is necessary to the long-term health of wildlife.
Besides providing hunter opportunity and funding for the department, the bear season may also reduce negative human-bear interaction and decrease depredation by bears. Hunters have long paid the way for conservation, both game and non-game wildlife, and maximizing opportunity for hunting is also key to long-term funding for all conservation. Hunting benefits wildlife conservation.

Please stand on the side of science, hunting, and conservation and reject Petition #2021-27. Thank you for the opportunity to comment on this important issue.

Sincerely,
Chris Conley
[redacted]

ANIMAL LEGAL DEFENSE FUND EST 1979

525 East Cotati Avenue
Cotati, California 94931

T 707.795.2533
F 707.795.7280

info@aldf.org
aldf.org

April 6, 2022

Via Email fgc@fgc.ca.gov

Petition 2021-027: California black bears

Samantha Murray, President
Erika Zavaleta, Vice President
Jacque Hostler-Carmesin, Commissioner
Eric Sklar, Commissioner
California Fish and Game Commission
715 P Street, 16th Floor, Sacramento, CA 95814
fgc@fgc.ca.gov

Re: Comment in support of the Humane Society of the United States' Petition 2021-027 re: California black bears

Dear President Murray, Vice-President Zavaleta, and Commissioners Hostler-Carmesin and Sklar:

On behalf of the Animal Legal Defense Fund ("ALDF")—a national non-profit organization and its more than 300,000 members and supporters (nearly 20,000 in California)—we submit this comment in support of the Humane Society of the United States' ("HSUS") Petition 2021-027 (the "Black Bear Petition"). Specifically, ALDF urges the Commission to adopt the Black Bear Petition's request to require a scientifically reliable and valid population survey of the California black bears to determine proper management techniques and to hold future hunting seasons in abeyance until that survey is completed.

The California Department of Fish and Wildlife's own reports demonstrate its population model is flawed and cannot be relied upon. Currently there is no scientifically reliable assessment of the population of California black bears in this state. The California Department of Fish and Wildlife's ("CDFW") "black bear population estimate [model] relies on hunter harvest, in part."[1] As the Black Bear Petition demonstrates, relying so significantly upon the number of hunted bears to extrapolate population is not empirically sound and is therefore unreliable.[2]

This inherent unreliability has been demonstrated by the CDFW's own experience with the model's limitations.[3] As the CDFW has conceded, because the model relies so heavily on the number

[1] *See* 2013 Take Report at 1, https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=89695.

[2] Black Bear Petition at 3.

[3] 2013 Take Report at 1.

of bears hunted, a "resulting reduction in harvest due to changing method of take would result in an erroneous estimate of the population if the same method to estimate population were to continue to be used."

Yet, CDFW has continued to use that model[4] even after a significant change to methods of take that admittedly "violated a key assumption in that model":

> "In 2013, the use of hounds in the sport take of bears was prohibited, which violated a key assumption in that model regarding consistent hunter effort. Annual bear harvests have been relatively lower since this ban (Figure 2), resulting in correspondingly lower population estimates."[5]

To address the fact that a core assumption of the model was no longer accurate, CDFW used a different model in 2013-2016: "[a] regression best fit graph line using data of bears taken without dogs…" to determine a trend post-2013.[6] That new model resulted in estimates in 2013 through 2016 between approximately 34,000 to 35,500.

But in 2017 when CDFW returned to the prior model, those estimates dropped dramatically by nearly half to a range between 16,000 to 21,000. While CDFW asserts "that the reduced population estimates are solely an artifact of the model's constraints,"[7] and not a reflection of true population change, the fact the model's output was so substantially impacted by one regulatory change (the ban on hound hunting) demonstrates this method has never been scientifically reliable and is merely an extrapolation of a data point (number of bears hunted) that may or may not have any correlation to the true population.

Indeed, that the use of a different model reached exponentially different results demonstrates that it is the model itself that is driving the population output, not any connection to the actual population trends being experienced by California's black bears.

The model's large margin of error range also makes any assessment of trends equally flawed and meaningless. Even before 2013, the CDFW model was not providing meaningful population estimates. In 2010, the CDFW first used the current modeling system and applied it to 2009 data, resulting in a projection with a margin of error range of 25% of the estimate.[8] That margin of error

---

[4] The CDFW population estimate model does not estimate the statewide population of California black bears; rather, it "only estimates bears within the current bear hunt areas, prior to the commencement of the previous year's hunting season. As bears occupy habitats outside the bear hunt areas, the statewide population is likely greater than this number." *See, e.g.*, 2020 Take Report at 12, https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=195525. The bear hunt areas "encompass approximately 87% of the estimated bear range" in California. *Id.* at 2.

[5] 2020 Take Report at 12.

[6] 2013 Take Report at 10; 2016 Take Report at 10, https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=158958

[7] 2017 Take Report at 11. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=195522; *see also* 2020 Take Report at 12.

[8] 2010 Take Report at 2, https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=82763 ("The Department has recently updated the method for estimating the statewide black bear population number. While the theoretical basis for determining the population estimate has remained unchanged, the Department revised the mathematical technique. This revision now provides the Department with a standard

has expanded to nearly 40% in the latest 2020 data.[9] But with such a substantial margin of error, it is impossible to determine any population trends or reach any meaningful conclusions about population.

To put this margin of error in context, if this were the method used in a political poll between two candidates, an output showing "Candidate 1" had an apparently insurmountable lead of 80% to 20% over "Candidate 2" could actually mean that in fact "Candidate 2" was winning easily by 60% to 40%. Such a poll is obviously worthless as a tool of predication. So too is CDFW's population model scientifically worthless as its output has no connection to reality and the California bear population might be as low as 9,000, as high as in the 30,000's, somewhere in between—or even outside those parameters completely. *The fact is neither CDFW nor anyone else knows the population of California black bears nor what trends have existed during the last 2 decades*.

Given the purpose of the population model is to allow the CDFW to assess whether its management methods need adjustment based on changes in the bear population, the model fails to serve its purpose forcing CDFW to make management decision in total ignorance.

We greatly appreciate your time and consideration of this comment and the Black Bear Petition and urge you to require CDFW to engage in a scientifically valid population analysis before authorizing any additional hunting seasons.

****

Respectfully,

Jennifer Hauge
Legislative Affairs Manager
Animal Legal Defense Fund
jhauge@aldf.org

error and thus confidence intervals about the population estimate. In essence, the Department is now more confident that the true population lies between an upper limit and a lower limit. The latest black bear population estimate (hunt-year 2009) is estimated to be 31,432 (+/- 7,991) bears.").

[9] *See, e.g.,* 2020 Take Report at 12 (projecting an output of "15,934 (+/-6,163: 95%CI)."

From: Nickolaus Sackett <nick@socialcompassion.org>
Sent: Wednesday, April 6, 2022 11:23 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Support Petition #2021-027

Peter S. Silva, President
Samantha Murray, Vice President
Jacque Hostler-Carmesin, Member
Eric Sklar, Member
Erika Zavaleta, Member

California Fish and Game Commission
715 P Street, 16th floor, Sacramento, 95814
P.O. Box 944209, Sacramento, CA 94244-2090

Dear Commissioners,

On behalf of Social Compassion in Legislation, I am writing to urge you to consider the petition #2021-027 submitted to put a pause on bear hunting in California until there is a new management plan and an updated population study.

Each year, California's black bears face numerous threats, including trophy hunters, habitat loss, drought and historic wildfires. Yet, to date, the Department of Fish and Wildlife has not analyzed the effects these threats will have on the state's black bear population, food sources or their habitats. They also have not updated the management plan in nearly 25 years.

Given the threats California black bears face and the indications of their population decline — factors that the Commission is required to consider in making its annual determination of whether to continue the black bear hunting season — we're asking the Commission to eliminate the season until an empirical study is conducted of the state's black bear populations. This includes making sure the effects of drought and recent wildfires on the state's bear populations are adequately studied and the state's outdated bear management plan is updated to include the best available science, including social science.

Thank you for your consideration,

--

Nickolaus Sackett | Director of Legislative Affairs

Social Compassion in Legislation | www.socialcompassioninlegislation.org

C 415-238-3179 | nick@socialcompassion.org

SCIL
Social Compassion
in Legislation

California Fish and Game Commission
715 P Street, 16th floor, Sacramento, 95814
P.O. Box 944209, Sacramento, CA 94244-2090

Dear Commissioners,

On behalf of Social Compassion in Legislation, I am writing to urge you to consider the petition #2021-027 submitted to put a pause on bear hunting in California until there is a new management plan and an updated population study.

Each year, California's black bears face numerous threats, including trophy hunters, habitat loss, drought and historic wildfires. Yet, to date, the Department of Fish and Wildlife has not analyzed the effects these threats will have on the state's black bear population, food sources or their habitats. They also have not updated the management plan in nearly 25 years.

Given the threats California black bears face and the indications of their population decline—factors that the Commission is required to consider in making its annual determination of whether to continue the black bear hunting season—we're asking the Commission to eliminate the season until an empirical study is conducted of the state's black bear populations. This includes making sure the effects of drought and recent wildfires on the state's bear populations are adequately studied and the state's outdated bear management plan is updated to include the best available science, including social science.

Thank you for your consideration,

nickolaus sackett

Nickolaus Sackett
Director of Legislative Affairs
Social Compassion in Legislation

From: nancyaflores@[redacted]
Sent: Thursday, April 7, 2022 11:31 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Yes on petition number (#2021-027)

I request the Fish and Game Commission to stop the black bear hunting season until an empirical study is conducted on black bear population numbers, the extremely serious effects of drought and wildfires on food and water and the remaining sources of habitat . The current management plan is 22 years old. Drought, climate change, forest fires and human structural growth have significantly worsened in the state since then. In 2021, California documented a record 3 million acres burned in California, including in old growth forests. Current data state approximately 30,000 bears exist in California, but now it could be as low as 9,771 individuals. Because bears rely on over 90% of vegetative food sources, the droughts and loss of foods from fire contributed to a food crisis for bears as well as limiting areas for dens and for finding mates. Over 1,000 bears in California are being killed by trophy hunters every year and prominent conservation biologists stress that this hunting of large carnivores unsustainable and can lead to extinction.

Bear conflict mitigation is achieved by preventing hunter/bear interaction and employing commonsense solutions such as secured dumps, electric fencing, and cleaning calving areas, along with public education campaigns. 76% of American voters oppose trophy hunting of black bears, including 72% of Republicans polled, 86% of Democrats, and 66% of nonpartisan voters. A supermajority, 70%, do not want California black bears killed for sport or for a trophy and even if a bear were to attack someone in California, less than 30% of Californians agree that the bear should be killed. Also, trophy hunters are economically insignificant. In 2021, less than one percent (0.66%) of California residents held a paid hunting license. In 2021, less than 0.1% of the total population in California bought a bear tag. Similarly, revenue from bear hunting tags makes up only 5% of the revenue earned by the DFW from hunting license and tag sales.

Black bears are an important umbrella species and are ecological actors who increase the biodiversity of their forest ecosystems. They bears disperse seeds across vast distances—even more seeds than birds—open canopies and amend soils through their various behaviors. They eat fruits and deposit them across long distances. Bears cause small-scale ecological disturbance to the canopy that allows sun to filter to the forest floor, which creates greater biological diversity. Bears break logs while grubbing, which helps the decomposition process and facilitates the return of nutrients to the soil. Bears are highly sentient and have the largest brain size of any carnivore. They spend prolonged periods of time raising and nurturing their young. Cubs and mothers have strong family bonds. Bears know when they are hunted and change behaviors in response to hunting pressures. During the early fall when they should be concentrating on feeding themselves to survive hibernation, they must instead expend precious energy hiding from and evading trophy hunters.

We don't need this massacre. Let the bears navigate their land in peace, for our benefit, if not for their's.

Nancy Oliver

*1 California Department of Fish and Game, "Black Bear Management and Harvest [Links to Annual Bear Take Reports, 2008-2020]." 2 Ryan Sabalow, "Citing Wildfires, Animal Rights Activists Petition California Officials to Stop Bear Hunting," Sacramento Bee, Jan. 20, 2022; Louis Sahagun, "Mother Bears and Cubs Battle for Survival as Wildfire, Drought and Traffic Take Heavy Toll," Los Angeles Times, Jan. 16, 2022. 3 Remington Research Group, "California Public Opinion," (2020). 4 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). 5 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).

STATE OF CALIFORNIA

FISH AND GAME COMMISSION
MEMORANDUM

DATE: April 15, 2022

TO: Samantha Murray, President
Erika Zavaleta, Vice President
Jacque Hostler-Carmesin and Erik Sklar, Members

FROM: Melissa Miller-Henson, Executive Director
Ari Cornman, Wildlife Advisor

SUBJECT: Regulation Change Petition 2021-027

Received by the Commission at its December 15-16, 2021 meeting, Regulation Change Petition 2021-027 requests that the Commission eliminate the open black bear hunting season until: (1) an empirical study is conducted of the state's black bear populations, (2) the effects of drought and recent wildfires on the state's bear populations are adequately studied, and (3) the state's bear management plan is updated to include the best available science, including social science (Exhibit 30B.3 for the April 20-21, 2022 Commission meeting). At its February 16-17, 2022 meeting, the Commission referred the petition to the California Department of Fish and Wildlife (Department) for review and recommendation.

The Department reviewed the regulation change petition and has provided the Commission with a memo transmitting its evaluation and recommendation (Exhibit 30B.7 for the April 20-21, 2022 Commission meeting). The Department recommends that the Commission deny the petition.

This memo contains a staff analysis of the subject petition that is intended to complement the Department's response, which presents information regarding bear data collection and modelling. The memo demonstrates conclusively that California's bear population is not experiencing a decline, and current evaluations may even be underestimating the population. This staff analysis relies on the information provided in the Department memo and directly addresses some of the additional threats to bear populations that the petition identifies.

Modelling and Hunter-Derived Information

The petition characterizes the current model as not "empirical" because it uses hunter harvest data. Data gathered by hunters is repeatable, verifiable, and reliable – it is, in short, empirical. Data derived from hunters is used for population estimation in numerous species, by virtually every state wildlife agency in the country. It is useful, meaningful data with a track record of generally good to excellent reliability.

The model currently used by the Department is a well-established "sex-and-age-at-harvest" scientific model with a long history of use by agencies (Rossell and Litvaitis

1994). Like all models, it subsumes assumptions and has limitations (Skalski and Millspaugh 2002, Millspaugh et al. 2009, Norton et al. 2013). Indeed, the Department concedes that one of the model's assumptions was violated when the use of dogs to hunt bears was banned, resulting in a sharp drop in hunter effort (Malcolm and Van Deelen 2010) and success rates (Mattson and Moritz 2008), which violated an assumption of constant hunter effort. Therefore, the apparent reduction in abundance is a function and artefact of the model used and not a real, biological effect of decline We note, however, that this model perturbation would be less and less likely to skew results as more data is added to the model (S. Mayhew, MI DNR, pers. comm.).

The Department's in-progress move to a Bayesian integrated population abundance model that incorporates various data sets will undoubtedly be more robust (Fieberg et al. 2010), resulting in a framework with multiple data sources and fewer assumptions and limitations. Nevertheless, age-at-harvest data will continue to be a critical input (Conn et al. 2008). For example, Michigan's bear model relies primarily on harvest data but is periodically calibrated through the use of supplementary information, such as catch-release and hair snare data (Mayhew 2019; S. Mayhew, pers.comm.). It is important to note that essentially all data collection methods, such as genetic data (Draheim et al. 2015), hair traps (Sawaya et al. 2012), and cameras (Mace et al. 1994) may have biases, complications, or statistical difficulties. Characterizing hunter-obtained age and sex data as inherently inferior is not substantiated by the science.

Models that combine different data sources generally give more accurate, reliable results. According to the Department's memo, gathering some genetic, mark-recapture, telemetry, and/or camera trap data will likely be part of the Department's modelling solution going forward, but these methods are extremely costly and labor-intensive (Skalski and Millspaugh 2002). To maintain the same data quality and quantity without hunter-harvested data would be pragmatically infeasible, not to mention discarding a useful and important line of evidence to integrate into models.

Climate Change

Few climate change analyses address black bear vulnerability directly, but two that do are from Michigan (Hoving et al. 2013) and Washington (Hudec et al. 2019). The results range from presumed stable (Michigan) to moderately sensitive (Washington). Black bears are classified as carnivores but can utilize many different nutritional sources (Rayl et al. 2018) and are habitat generalists. They are wide-ranging and able to shift their ranges and foodstuffs to adapt to changing conditions. Another study in New Mexico did rate black bears as particularly vulnerable (Friggens et al. 2013, also see Bagne et al. 2014), but the bears in that study utilize unique riparian and montane habitats that are likely dissimilar to elsewhere and may be much more vulnerable to climate change than California's primary bear range.

There can be no doubt that climate change is a serious, pervasive threat that affects virtually all species, and some in dire ways. However, it is likely that black bears are one of the more adaptable species. FGC staff is not aware of any credible direct evidence that, currently, black bears are suffering population declines (rather, multiple lines of evidence that populations are stable) declining due to climate effects. The Department is committed to monitoring the effects

of climate change, including drought, wildfires, and habitat degradation for all species in California.

While Johnson et al. (2018) does find that food limitation can result in altered bear denning habits, aside from a passing remark that altered denning "could alter the harvest risk" for bears, Commission staff can find no recommendation in this or any other peer-reviewed publication that "wildlife managers must limit recreational black bear killing" as a response to this circumstance as suggested in the petition. This is likely because altered denning could affect bears in many different ways, and a one-size-fits-all recommendation is inappropriate. Ultimately, current levels of hunting are so low with respect to the population, that banning it (even temporarily) will not address the climate-related issues raised by the petition.

Human-Caused Mortality Rates

The petition asserts that bears can only sustain a human-caused mortality rate of 4 to 10 percent before attaining super-additive mortality which would result in population declines. Commission staff is unsure from where those figures are derived based on the cited literature, and whether those values are appropriate for California. Yet even if we stipulate those parameters, given the low harvest pressure in California in the absence of dog hunting (averaging 1383/year, the mean harvest from 2017-2019, harvest years more typical than 2020) and high bear abundance (conservatively 30,000), and even if poaching, roadkill, and other human mortality factors equal harvest numbers, this conservative estimate of human-caused mortality rises to 9.2 percent, close to the maximum but well within the window asserted by the petition.

Additionally, bear harvest pressures are not spatially uniform (Jones et al. 2015, Schmidt et al. 2021); there are areas of higher and lower harvest success, including within California (Table 2, CDFW 2020 take report). Areas with higher and lower bear productivity and survival, ostensibly related to non-uniform densities (Welfelt et al. 2019), would tend to complicate the simple calculation above. A full source-sink or metapopulation study would better characterize the true landscape of human-caused mortality (e.g., Hellgren et al. 2005, Draheim et al. 2016). But until that research is done, given the best available information of a stable population and low harvest rates, human activity does not appear to be causing super-additive mortality to unsustainable levels.

The mechanism the petition cites as causing excessive mortality is not prevalent in California. The petition asserts that since "hunters like to target adult breeding animals," disruption of bear social affiliations and infanticide are reducing bear populations. Note that the two cited papers examine trophy hunting. However, most California bear hunters are primarily seeking deer, and buy a bear tag on the off chance they encounter a bear while deer hunting. Some tribes also take bears for ceremonial or cultural purposes. Mostly, the primary motivation for California bear hunters is food rather than trophy animals. While California hunters certainly would target adults and would (more often than not) prefer to take a larger individual, very often they take the first bear they see, since they may not encounter another. Males are taken more often than females (Fig. 1, attached; source: CDFW), but this is to be expected given their wider roaming habits and is a pattern found in hunts throughout the nation, even in sustainable hunts. Given the concerns the petition raises regarding female mortality, a bias

toward male harvest is likely a positive, although it is easy to overestimate the effects of female mortality (Hristienko et al. 2004).

California Fish and Game Code Section 4304 expressly prohibits the waste of harvested meat.[1] Ghasemi (2021), cited by the petition with respect to super-additive mortality, even states that "trophy hunting can be distinguished from other forms of hunting that are done for survival, subsistence or cultural purposes." Braczkowski et al. (2015), the other citation used in the petition, states that trophy hunting "differs from other forms of harvest (e.g. for bushmeat or the traditional medicinal trade) in that offtake can be regulated and is typically selective, focusing on individuals with attractive secondary sexual attributes such as large horns, tusks or manes." The "professional hunters" surveyed in that study preferred large, adult males in the extreme, and they would be willing to forgo many sightings for days on end to take a large male. This does not appear to be the typical pattern in California, and would likely be less so if abundances (and therefore hunter-bear encounter rates) were substantially low.

Additionally, a significant level of infanticide is not a given simply because a bear population is hunted. Many hunted populations show no evidence of such dynamics (Miller et al. 2003, Czetwertynski et al. 2007, Norton et al. 2018), and many that have significant levels of infanticide appear to be hunted much more heavily than California's bears (e.g., LeCount 1987).

Conclusion

Ultimately, the petition raises many concerns regarding extant threats to California's bear population, including climate change (and its attendant effects) and human-caused mortality. However, the petition fails to demonstrate that these threats are significant enough to be causing current bear population declines in California, particularly in light of the Department's analyses showing no significant reduction in bear abundances. It must be acknowledged that, in fact, some of these dynamics may be in play in California's bear population, but there is no evidence that their effects on bears are sufficiently systemic and widespread to cause bear numbers to be falling so low as to justify a moratorium on bear hunting; there is abundant evidence to the contrary. Staff recommends that the Commission deny the petition.

Citations

Bagne, K. E., M. M. Friggens, S. J. Coe, and D. M. Finch. 2014. The importance of assessing climate change vulnerability to address species conservation. Journal of Fish and Wildlife Management 5:450–462.

Braczkowski, A. R., G. A. Balme, A. Dickman, D. W. Macdonald, J. Fattebert, T. Dickerson, P. Johnson, and L. Hunter. 2015. Who bites the bullet first? The susceptibility of leopards Panthera pardus to trophy hunting. PLOS ONE 10:e0123100.

Conn, P. B., D. R. Diefenbach, J. L. Laake, M. A. Ternent, and G. C. White. 2008. Bayesian analysis of wildlife age-at-harvest data. Biometrics 64:1170–1177.

Czetwertynski, S. M., M. S. Boyce, and F. K. Schmiegelow. 2007. Effects of hunting on demographic parameters of American black bears. Ursus 18:1–18.

[1] Code states, in part, "nor shall any person at any time leave…any game mammal which is in his possession, or any portion of the flesh thereof usually eaten by humans, to go needlessly to waste."

Draheim, H. M., V. Lopez, D. Etter, S. R. Winterstein, and K. T. Scribner. 2015. Effects of sampling scale on American black bear spatial genetic structure. Ursus 26:143–156.

Draheim, H. M., J. A. Moore, D. Etter, S. R. Winterstein, and K. T. Scribner. 2016. Detecting black bear source–sink dynamics using individual-based genetic graphs. Proceedings of the Royal Society B: Biological Sciences 283:20161002.

Fieberg, J. R., K. W. Shertzer, P. B. Conn, K. V. Noyce, and D. L. Garshelis. 2010. Integrated population modeling of black bears in Minnesota: implications for monitoring and management. PLOS ONE 5:e12114.

Friggens, M. M., D. M. Finch, K. E. Bagne, S. J. Coe, and D. L. Hawksworth. 2013. Vulnerability of species to climate change in the Southwest: terrestrial species of the Middle Rio Grande. General Technical Report, U.S. Forest Service, Fort Collins, CO. <http://www.fs.usda.gov/treesearch/pubs/43922>. Accessed 28 Mar 2022.

Ghasemi, B. 2021. Trophy hunting and conservation: Do the major ethical theories converge in opposition to trophy hunting? B. Muraca, editor. People and Nature 3:77–87.

Hellgren, E. C., D. P. Onorato, and J. R. Skiles. 2005. Dynamics of a black bear population within a desert metapopulation. Biological Conservation 122:131–140.

Hoving, C. L., Y. M. Lee, P. J. Badra, and B. J. Klatt. 2013. Changing climate, changing wildlife: a vulnerability assessment of 400 species of greatest conservation need and game species in Michigan. Wildlife Division Report, Michigan Department of Natural Resources, Lansing, Michigan. <http://www.mich.gov/documents/dnr/3564_Climate_Vulnerability_Division_Report_4.24.13_418644_7.pdf>. Accessed 28 Jun 2013.

Hristienko, H., D. Pastuck, K. J. Rebizant, B. Knudsen, and M. Laurene Connor. 2004. Using reproductive data to model American black bear cub orphaning in Manitoba due to spring harvest of females. Ursus 15:23–34.

Hudec, J. L., J. E. Halofsky, D. L. Peterson, and J. J. Ho. 2019. Climate change vulnerability and adaptation in southwest Washington. Gen. Tech. Rep. PNW-GTR-977. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 249 p. 977. <http://www.fs.usda.gov/treesearch/pubs/59057>. Accessed 28 Mar 2022.

Johnson, H. E., D. L. Lewis, T. L. Verzuh, C. F. Wallace, R. M. Much, L. K. Willmarth, and S. W. Breck. 2018. Human development and climate affect hibernation in a large carnivore with implications for human–carnivore conflicts. Journal of Applied Ecology 55:663–672.

Jones, M. D., J. L. Berl, A. N. Tri, J. W. Edwards, and H. Spiker. 2015. Predicting harvest vulnerability for a recovering population of American black bears in western Maryland. Ursus 26:97–106.

LeCount, A. L. 1987. Causes of black bear cub mortality. Bears: Their Biology and Management 7:75–82.

Mace, R. D., S. C. Minta, T. L. Manley, and K. E. Aune. 1994. Estimating grizzly bear population size using camera sightings. Wildlife Society Bulletin (1973-2006) 22:74–83.

Malcolm, K. D., and T. R. Van Deelen. 2010. Effects of habitat and hunting framework on American black bear harvest structure in Wisconsin. Ursus 21:14–22.

Mattson, K. M., and W. E. Moritz. 2008. Evaluating differences in harvest data used in the sex-age-kill deer population model. The Journal of Wildlife Management 72:1019–1025.

Mayhew, S. L. 2019. A synthesis of bear population dynamics in Michigan. Ph.D. Dissertation, Michigan State University.

Miller, S. D., R. A. Sellers, and J. A. Keay. 2003. Effects of Hunting on Brown Bear Cub Survival and Litter Size in Alaska. Ursus 14:130–152.

Millspaugh, J. J., J. R. Skalski, R. L. Townsend, D. R. Diefenbach, M. S. Boyce, L. P. Hansen, and K. Kammermeyer. 2009. An evaluation of sex-age-kill (SAK) model performance. The Journal of Wildlife Management 73:442–451.

Norton, A. S., D. R. Diefenbach, C. S. Rosenberry, and B. D. Wallingford. 2013. Incorporating harvest rates into the sex-age-kill model for white-tailed deer. The Journal of Wildlife Management 77:606–615.

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

Rayl, N. D., G. Bastille-Rousseau, J. F. Organ, M. A. Mumma, S. P. Mahoney, C. E. Soulliere, K. P. Lewis, R. D. Otto, D. L. Murray, L. P. Waits, and T. K. Fuller. 2018. Spatiotemporal heterogeneity in prey abundance and vulnerability shapes the foraging tactics of an omnivore. Journal of Animal Ecology 87:874–887.

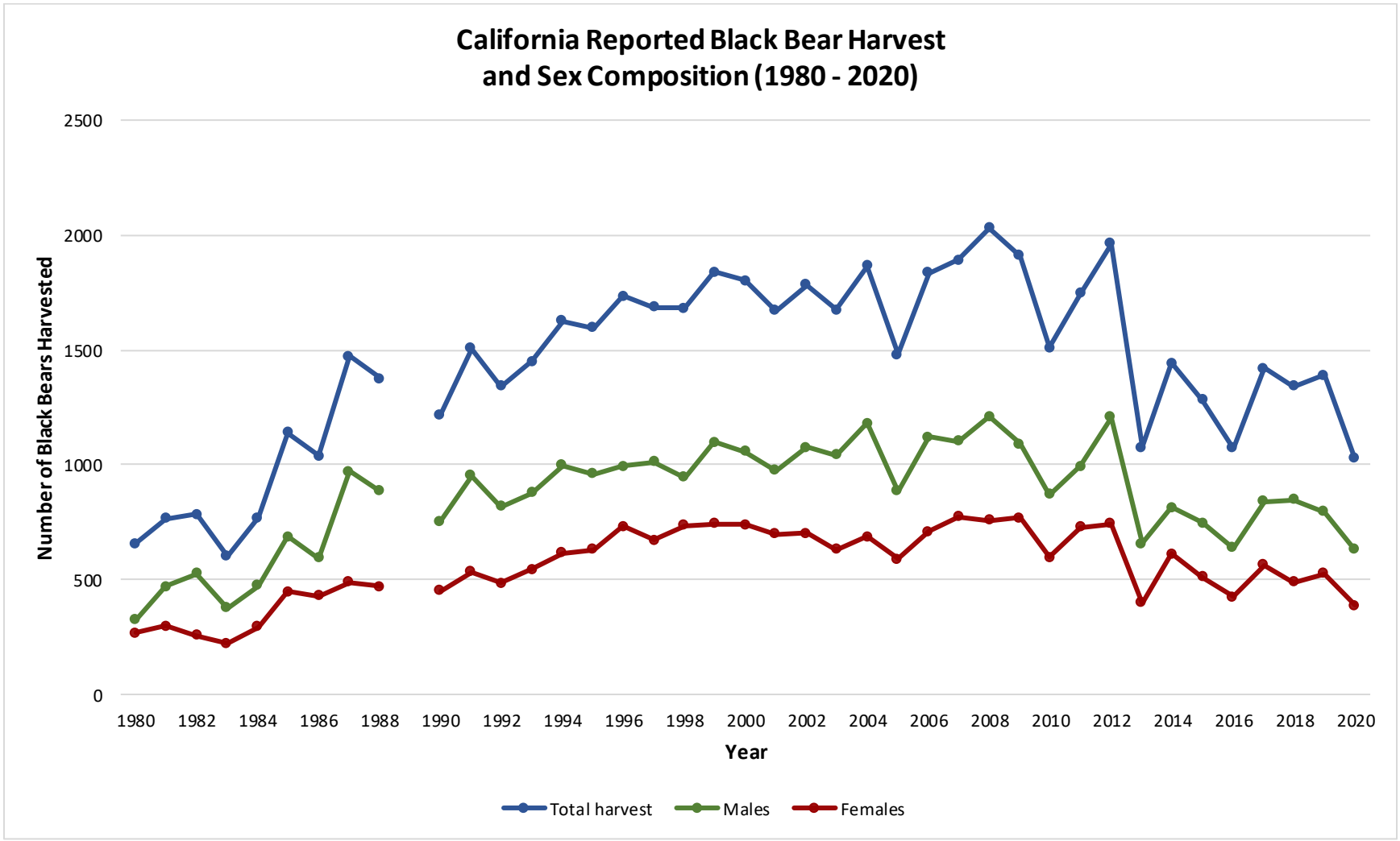
Rossell, C. R., and J. A. Litvaitis. 1994. Application of harvest data to examine responses of black bears to land-use changes. Bears: Their Biology and Management 9:275.

Sawaya, M. A., J. B. Stetz, A. P. Clevenger, M. L. Gibeau, and S. T. Kalinowski. 2012. Estimating grizzly and black bear population abundance and trend in Banff National Park using noninvasive genetic sampling. PLoS ONE 7:e34777.

Schmidt, J. H., H. L. Robison, L. S. Parrett, T. S. Gorn, and B. S. Shults. 2021. Brown bear density and estimated harvest rates in northwestern Alaska. The Journal of Wildlife Management 85:202–214.

Skalski, J. R., and J. J. Millspaugh. 2002. Generic variance expressions, precision, and sampling optimization for the sex-age-kill model of population reconstruction. The Journal of Wildlife Management 66:1308–1316.

Welfelt, L. S., R. A. Beausoleil, and R. B. Wielgus. 2019. Factors associated with black bear density and implications for management. The Journal of Wildlife Management 83:1527–1539.


California Reported Black Bear Harvest
and Sex Composition (1980 - 2020)
Number of Black Bears Harvested
2500
2000
1500
1000
500
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
Year
Total harvest
Males
Females