California Fish and Game Commission

Wildlife Resources Committee

Meeting Binder

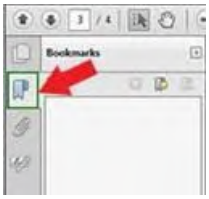
September 15, 2022

Arcadia

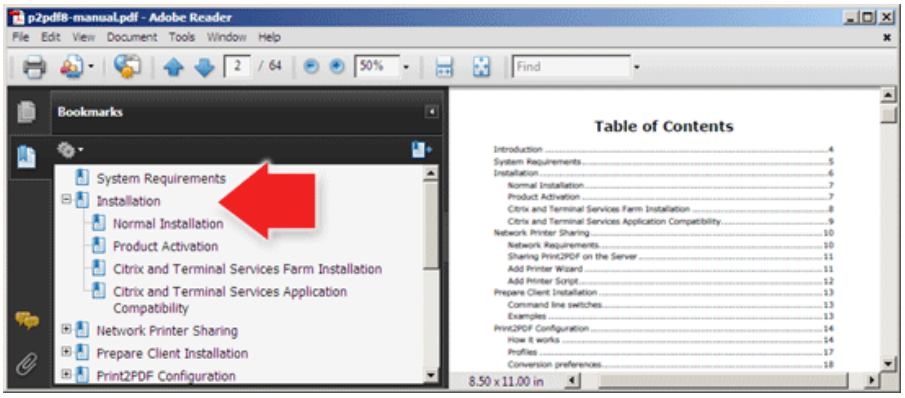
EASY GUIDE TO USING THE BINDER

1. Download and open the binder document using your Adobe Acrobat program/app.

2. If a bookmark panel does not automatically appear on either the top or left side of the screen, click/tap on the “bookmark symbol” located near the top left-hand corner.



3. To make adjustments to the view, use the Page Display option in the View tab. You should see something like:



4. We suggest leaving open the bookmark panel to help you move efficiently among the staff summaries and numerous supporting documents in the binder. It’s helpful to think of these bookmarks as a table of contents that allows you to go to specific points in the binder without having to scroll through hundreds of pages.

5. You can resize the two panels by placing your cursor in the dark, vertical line  located between the panels and using a long click /tap to move in either direction.

6. You may also adjust the sizing of the documents by adjusting the sizing preferences located on the Page Display icons found in the top toolbar or in the View tab.

7. Upon locating a staff summary for an agenda item, notice that you can obtain more information by clicking/tapping on any item underlined in blue.

8. Return to the staff summary by simply clicking/tapping on the item in the bookmark panel.

9. Do not hesitate to contact staff if you have any questions or would like assistance.

OVERVIEW OF FISH AND GAME COMMISSION COMMITTEE MEETING

- Welcome to this meeting of the _____ Committee. The Committee is comprised of up to two Commissioners who co-chair each meeting; members are assigned by the Commission annually.

- Our goal today is informed discussion to guide future decision making, and, we need your cooperation to ensure a lively and comprehensive dialogue.

- We are operating under Bagley-Keene Open Meeting Act, but it is important to note that the Committee chairs cannot take action independent of the full Commission; instead, the chairs make recommendations to the full Commission at regularly scheduled meetings.

- These proceedings may be recorded and posted to our website for reference and archival purposes.

- Items may be heard in any order pursuant to the determination of the Committee Co-Chairs.

- As a general rule, requests for regulatory change need to be redirected to the full Commission and submitted on the required petition form, FGC 1, titled “Petition to the California Fish and Game Commission for Regulation Change” (Section 662, Title 14, CCR). However, at the Committee’s discretion, the Committee may request that staff follow up on items of potential interest to the Committee and possible recommendation to the Commission.

- Committee meetings operate informally and provide opportunity for everyone to provide comment on agenda items. If you wish to speak on an agenda item, please follow these guidelines:
    1. Raise your hand and wait to be recognized by the Committee.
    2. Provide your name, affiliation (if any), and the number of people you represent.
    3. Time is limited; please keep your comments precise to give others time to speak.
    4. If several speakers have the same concerns, please appoint a group spokesperson.
    5. If speaking during public comment, the subject matter you present should <u>not be related</u> to any item on the current agenda (public comment on agenda items will be taken at the time the Committee members discuss that item).

INTRODUCTIONS FOR FISH AND GAME COMMISSION WILDLIFE RESOURCES COMMITTEE

FISH AND GAME COMMISSIONERS

Erika Zavaleta	Committee Chair (Santa Cruz)

COMMISSION STAFF

Melissa Miller-Henson	Executive Director
Ari Cornman	Wildlife Advisor
Cynthia McKeith	Staff Services Analyst

DEPARTMENT OF FISH AND WILDLIFE

Chad Dibble	Deputy Director, Wildlife and Fisheries Division
David Bess	Deputy Director and Chief, Law Enforcement Division
Jay Rowan	Chief, Fisheries Branch
Scott Gardner	Chief, Wildlife Branch
Chris Stoots	Assistant Chief for Administration, Law Enforcement Division
Jonathan Nelson	Environmental Program Manager, Fisheries Branch
Joe Croteau	Klamath Watershed Program Manager
Brandon Munk	Wildlife Veterinarian
Dan Skalos	Senior Environmental Scientist Supervisor
Brett Furnas	Senior Environmental Scientist, Wildlife Branch
Karen Mitchell	Senior Environmental Scientist, Fisheries Branch
Heather Perry	Wildlife Rehabilitation Program Coordinator
Tom Batter	Elk and Pronghorn Coordinator
Melanie Weaver	Waterfowl Program Biologist

I would also like to acknowledge special guests who are present:
(i.e., key DFW staff, elected officials, tribal chairpersons, other special guests)

STATE OF CALIFORNIA
Gavin Newsom, Governor

Fish and Game Commission

Wildlife Heritage and Conservation
Since 1870

Melissa Miller-Henson
Executive Director
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www.fgc.ca.gov

WILDLIFE RESOURCES COMMITTEE

Committee Chair: Commissioner Zavaleta

Meeting Agenda
September 15, 2022; 9:00 a.m.

Los Angeles County Agricultural Commissioner
Weights & Measures Department
Butterfly Room
12300 Lower Azusa Road, Arcadia, CA 91006

and

Webinar and Teleconference

To participate in the meeting, you may join via Zoom or by telephone. Click here or go to https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=202845&inline for instructions on how to join the meeting.

Note: Please see important meeting procedures and information at the end of the agenda. Unless otherwise indicated, the California Department of Fish and Wildlife is identified as Department. All agenda items are informational and/or discussion only. The Committee develops recommendations to the Commission, but does not have authority to make policy or regulatory decisions on behalf of the Commission.

Call to order

1. Approve agenda and order of items

2. General public comment for items not on agenda
The Committee may not discuss or take action on any matter raised during this item, except to consider whether to recommend that the matter be added to the agenda of a future meeting [Sections 11125, 11125.7(a), Government Code].

3. Department updates
The Department will highlight items of note since the last committee meeting.
(A) Wildlife Branch
(B) Fisheries Branch
(C) Law Enforcement Division

4. Bear management plan

Receive updates and discuss development of the Department's bear management plan.

5. Initial recommendations for regulations

Discuss and potentially make recommendations on regulatory options for the 2023-24 seasons for:

(A) Upland (resident) game birds

(B) Mammal hunting

I. Elk hunting

II. Chronic wasting disease

(C) Waterfowl hunting

(D) Central Valley sport fishing

(E) Klamath River Basin sport fishing

(F) Inland sport fishing

I. Boat limits

II. Striped bass

6. Klamath River and tributaries above Iron Gate Dam post-dams removal

Discuss regulatory options for sport fishing in the Klamath River after the removal of Iron Gate, COPCO 1, and COPCO 2 dams.

7. Preference points and refunds for hunting tags

Discuss and potentially make recommendations on regulatory options for big game preference points and refunds.

8. Wildlife rehabilitation

Discuss a potential future rulemaking to make improvements to the regulatory framework for authorizing wildlife rehabilitation, including forms, wildlife care standards, permit revocation and denial standards, and other changes.

9. Upland game hunting draws

Discuss a potential future rulemaking to integrate bird and mammal special hunts into the Department Automated License Data System.

10. Bullfrogs and non-native turtles

Receive options for potential action, and discuss preliminary results and analysis from, the American Bullfrog and Non-native Turtles Stakeholder Engagement Project.

11. Commission Regulation Change Petition 2021-017

Discuss and potentially make recommendations on various changes to big game hunting regulations proposed under petition 2021-017.

12. Future agenda items

(A) Review work plan agenda topics and timeline

(B) Potential new agenda topics for Commission consideration

Adjourn

California Fish and Game Commission
Meeting Schedule

Note: As meeting dates and locations can change, please visit www.fgc.ca.gov for the most current list of meeting dates and locations.

Meeting Date	Commission Meeting	Committee Meeting
October 12-13, 2022	North Tahoe Event Center 8318 North Lake Blvd. Kings Beach, CA 96142	
November 17, 2022		**Marine Resources** Mission Valley State Building 7575 Metropolitan Drive San Diego, CA 92108
December 13, 2022		**Tribal** Mission Valley State Building 7575 Metropolitan Drive San Diego, CA 92108
December 14-15, 2022	Mission Valley State Building 7575 Metropolitan Drive San Diego, CA 92108	
January 12, 2023		**Wildlife Resources** Los Angeles Area
February 8-9, 2023	Sacramento	
March 16, 2023		**Marine Resources** Monterey/Santa Cruz Area
April 18, 2023		**Tribal** Fresno/Bakersfield Area
April 19-20, 2023	Fresno/Bakersfield Area	

Other Meetings of Interest

Association of Fish and Wildlife Agencies

- September 18-21, 2022 – Fort Worth, TX
- September 23-27; 2023 – Calgary, Alberta, Canada

Pacific Fishery Management Council

- November 2-8, 2022 – Orange County, CA
- March 2023 – Seattle, WA
- April 2023 – Location TBD
- June 2023 – Vancouver, WA
- September 2023 – Spokane, WA
- November 2023 – Garden Grove, CA

Pacific Flyway Council

- February 2023 – Location TBD
- August 2023 – Location TBD

Western Association of Fish and Wildlife Agencies

- Jan 6-11, 2023 – Santa Ana Pueblo, NM
- July 9-14, 2023 – Santa Fe, NM

Wildlife Conservation Board

- November 17, 2022 – Sacramento, CA
- February 2023 – Sacramento, CA
- May 2023 – Sacramento, CA
- August 2023 – Sacramento, CA
- November 2023 – Sacramento, CA

Important Committee Meeting Procedures Information

Welcome to a meeting of the California Fish and Game Commission's Wildlife Resources Committee. The Committee is composed of and chaired by up to two Commissioners; these assignments are made by the Commission each year.

The goal of the Committee is to allow greater time to investigate issues before the Commission than would otherwise be possible. Committee meetings are less formal in nature and provide for additional access to the Commission. The Committee follows the noticing requirements of the Bagley-Keene Open Meeting Act. It is important to note that the Committee chairs cannot take action independent of the full Commission; instead, the chairs make recommendations to the full Commission at regularly scheduled meetings.

The Commission's goal is preserving our outdoor heritage and conserving our natural resources through informed decision-making; Committee meetings are vital in developing recommendations to help the Commission achieve that goal. In that spirit, we provide the following information to be as effective and efficient toward that end. Welcome, and please let us know if you have any questions.

Persons with Disabilities

Persons with disabilities needing reasonable accommodation to participate in public meetings or other Commission activities are invited to contact the Department's Equal Employment Opportunity (EEO) Office at (916) 653-9089 or EEO@wildlife.ca.gov. Accommodation requests for facility and/or meeting accessibility and requests for American Sign Language (ASL) Interpreters should be submitted at least two weeks prior to the event. Requests for Real-Time Captioners should be submitted at least four weeks prior to the event. These timeframes are to help ensure that the requested accommodation is met. If a request for an accommodation has been submitted but is no longer needed, please contact the EEO Office immediately.

Submitting Written Materials

The public is encouraged to attend Committee meetings and engage in the discussion about items on the agenda; the public is also welcome to comment on agenda items in writing. You may submit your written comments by one of the following methods (only one is necessary): **Email** to fgc@fgc.ca.gov; **mail** to California Fish and Game Commission, P.O. Box 944209, Sacramento, CA 94244-2090; or **deliver** to California Fish and Game Commission, 715 P Street, 16th floor, Sacramento, CA 95814**;** or **hand-deliver** to a Committee meeting.

Comment Deadlines

The ***Written Comment Deadline*** for this meeting is 5:00 p.m. on **September 2, 2022**. Written comments received at the Commission office by this deadline will be made available to Commissioners prior to the meeting.

The ***Supplemental Comment Deadline*** for this meeting is noon on **September 12, 2022**. Comments received by this deadline will be made available to Commissioners at the meeting.

*The Committee **will not** consider comments regarding proposed changes to regulations that have been noticed by the Commission. If you wish to provide comment on a noticed item, please provide your comments during Commission business meetings, via email, or deliver to the Commission office.*

Note: Materials provided to the Committee may be made available to the general public.

Regulation Change Petitions

As a general rule, requests for regulatory change must be redirected to the full Commission and submitted on the required petition form, FGC 1, *Petition to the California Fish and Game Commission for Regulation Change* (Section 662, Title 14, California Code of Regulations). However, at the Committee's discretion, the Committee may request that staff follow up on items of potential interest to the Committee and possible recommendation to the Commission.

Speaking at the Meeting

Committee meetings operate informally and provide opportunity for everyone to comment on agenda items. If you wish to speak on an agenda item, please follow these guidelines:

1. You will be given instructions during the meeting for how to be recognized by the Committee co-chair(s) to speak.
2. Once recognized, please begin by giving your name and affiliation (if any) and the number of people you represent.
3. Time is limited; please keep your comments concise so that everyone has an opportunity to speak.
4. If there are several speakers with the same concerns, please try to appoint a spokesperson and avoid repetitive comments.
5. If speaking during public comment for items not on the agenda (Agenda Item 2), the subject matter you present should not be related to any item on the current agenda (public comment on agenda items will be taken at the time the Committee members discuss that item). As a general rule, public comment is an opportunity to bring matters to the attention of the Committee, but you may also do so via email or standard mail. At the discretion of the Committee, staff may be requested to follow up on the subject you raise.

Visual Presentations/Materials

All electronic presentations must be submitted by the ***Written Comment Deadline*** and approved by the Commission executive director before the meeting.

1. Electronic presentations must be provided by email to fgc@fgc.ca.gov or delivered to the Commission on a USB flash drive by the deadline.
2. All electronic formats must be Windows PC compatible.

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

2. GENERAL PUBLIC COMMENT

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

Receive public comments for items not on the agenda.

Summary of Previous/Future Action (N/A)

Background

WRC receives two types of correspondence or comment under general public comment, that is requests for WRC to consider new topics and informational items. As a general rule, requests for regulation changes must be submitted to FGC on petition form FGC 1, *Petition to the California Fish and Game Commission for Regulation Change*. However, WRC may, at its discretion, request staff to follow up on items of potential interest for possible recommendation to FGC.

Significant Public Comments (N/A)

Recommendation

Staff recommends any potential new agenda items — based on issues raised — be held for discussion under Agenda Item 12, *Future agenda items.*

Exhibits (N/A)

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

3. DEPARTMENT UPDATES

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

Receive updates on DFW activities.

Summary of Previous/Future Actions (N/A)

Background

This is a standing agenda item for DFW to provide updates on activities of interest related to wildlife and inland fisheries. Verbal updates are expected from:

(A) Wildlife Branch

(B) Fisheries Branch

(C) Law Enforcement Division

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits (N/A)

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

4. BEAR MANAGEMENT PLAN

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

Receive updates and discuss development of DFW's revised bear management plan.

Summary of Previous/Future Action

- Previous discussion May 19, 2022; WRC, Redding
- **Today's update and discussion** **Sep 15, 2022; WRC, Arcadia**

Background

DFW adopts management plans for a host of species under its jurisdiction, generally based on a determined need for large-scale planning and on available funding. Although FGC does not approve wildlife and inland fisheries management plans, the bear plan broadly guides bear management for the foreseeable future, including hunting regimes, human-wildlife conflict considerations, and other factors under FGC's authority.

DFW's *Black Bear Management Plan* has not been revised since 1998 and DFW is embarking on an update. Given the public's high level of interest and concern for bear populations, FGC has agreed to allow WRC meetings to be a venue for public discussion and input on the plan's revisions. Consequently, today DFW will provide a presentation (Exhibit 1) on the process for completing the update, plans for tribal outreach, and a preliminary outline for the updated plan.

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits

1. DFW presentation

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

5. INITIAL RECOMMENDATIONS FOR REGULATIONS

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

Discuss and potentially make recommendations on regulatory options for the 2023-24 seasons for:

(A) Upland (resident) game bird hunting
(B) Mammal hunting
    I. Elk
    II. Chronic wasting disease
(C) Waterfowl hunting
(D) Central Valley sport fishing
(E) Klamath River Basin sport fishing
(F) Inland sport fishing
    I. Boat limits
    II. Striped bass

Summary of Previous/Future Action

- Initial discussions — May 19, 2022; WRC, Redding
- **Today's potential recommendations** — **Sep 15, 2022; WRC, Arcadia**
- FGC potentially approves WRC recommendations — Oct 12-13, 2022; Kings Beach

Background

This item provides the public an opportunity to engage in discussions with WRC, FGC staff and DFW, and for WRC to potentially make recommendations to FGC, about proposed regulation changes for five categories of seasons, three hunting and two sport fishing.

(A) ***Upland (resident) game bird hunting:*** FGC has the authority to adopt regulations governing the take of resident game birds that are not on the federal migratory bird species list. WRC will discuss upland (resident) game bird hunting, including receiving suggestions from the public for future regulation changes. DFW is not recommending any upland game bird regulation changes at this time.

(B) ***Mammal hunting (2023-24):*** FGC adopts regulations governing the take of mammals, including hunting. WRC will discuss and potentially make recommendations on DFW-proposed changes to hunting regulations for elk (Exhibit 2) and other regulatory changes to lower the risk of introducing chronic wasting disease (Exhibit 3). The proposed elk revisions are in response to expanding and shifting populations, human-elk conflict, disease, and other factors. Chronic wasting disease, which affects cervid populations, is found in many states outside California (including states as close as Idaho, Utah, and New Mexico) and there is a concerted effort to curtail its spread into the state; the proposed regulations will help prevent from inadvertent introduction. If

recommended and approved by FGC, itt is likely staff will recommend that these two sets of regulation changes be rulemaking processes independent from one another.

(C) ***Waterfowl hunting (2023-24):*** FGC annually adopts migratory waterfowl hunting regulations to conform State regulations with federal regulations. The U.S. Fish and Wildlife Service adopts federal regulations each Oct based, in part, on recommendations from four regional flyway councils. DFW then makes recommendations to FGC consistent with the federal regulations. Migratory waterfowl include American coot, common moorhen, ducks, black brant and geese, among others. Today, DFW will present its proposed regulatory changes (Exhibit 4).

(D) ***Central Valley sport fishing (2023):*** FGC annually adopts Central Valley sport fishing regulations for the American, Feather, Sacramento, and Mokelumne rivers to conform State regulations with federal regulations. The National Marine Fisheries Service (NMFS) adopts federal Central Valley salmon escapement goals each Apr based, in part, on recommendations from the Pacific Fishery Management Council (PFMC), and then DFW proposes regulation changes for consistency with those goals. Today, DFW will present its proposed regulatory changes (Exhibit 5).

(E) ***Klamath River Basin sport fishing (2023):*** FGC annually adopts regulations to conform State regulations with federal regulations in the Klamath River Basin. NMFS adopts federal Klamath River Basin salmon allocations each Apr based, in part, on recommendations from PFMC, and then DFW proposes regulation changes based upon those allocations. Today, DFW will present its proposed regulatory changes (Exhibit 6).

(F) ***Inland sport fishing:*** FGC regulates the take of fish and other aquatic organisms in inland waters, including recreational fishing. Inland sport fishing regulations include a wide variety of fish species in non-marine waters throughout the state.

I. *Inland boat limits:* In Feb 2019, FGC denied regulation change Petition 2018-014, regarding inland boat limits, to provide sufficient time to complete the "Sport Fishing Regulation Revision and Simplification" rulemaking. At that time, FGC requested DFW work with the petitioner to seek further clarification of the proposed regulation change (including geographic scope and applicable species) and to explore the concept more thoroughly for a potential future sport fishing rulemaking. After a series of conversations with the petitioner, at WRC's May 2022 meeting DFW provided its recommendation to not pursue a regulation change implementing inland boat limits (Exhibit 1). WRC will discuss DFW's recommendation and potentially make a recommendation to FGC on inland boat limits.

II. *Striped bass slot limits:* Today, DFW will provide an update (Exhibit 7) on a recent town hall meeting it held in Aug 2022 both virtually and at the DFW Fisheries Branch headquarters to solicit input on a potential slot limit regulation for striped bass. DFW will also provide information on an online angler survey regarding the potential regulation; the survey is available at https://www.surveymonkey.com/r/SPJL6DR through Sep 30. DFW is anticipated to provide a recommendation on a striped bass slot limit at the Jan 2023 WRC meeting.

Significant Public Comments (N/A)

Recommendation

FGC Staff: Support DFW's proposed regulation changes for mammal hunting (elk updates and chronic wasting disease), waterfowl hunting, Central Valley sport fishing, and Klamath River Basin sport fishing. Do not move forward with a regulation change to implement inland boat limits, as recommended by DFW.

DFW: Do not move forward with a regulation change to implement inland boat limits, as detailed in Exhibit 1.

Exhibits

1. DFW memo regarding inland boat limits, dated May 15, 2022
2. DFW presentation: Elk hunting
3. DFW presentation: Chronic wasting disease (to be provided separately)
4. DFW presentation: Waterfowl hunting
5. DFW presentation: Central Valley sport fishing
6. DFW presentation: Klamath River Basin sport fishing
7. DFW presentation: Striped bass slot limit

Committee Direction/Recommendation

The Wildlife Resources Committee recommends that the Commission support the proposed regulation changes for mammal hunting (elk updates and chronic wasting disease), waterfowl hunting, Central Valley sport fishing, and Klamath River Basin sport fishing. Further, the committee recommends the Commission not move forward with a rulemaking to implement inland boat limits.

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

6. KLAMATH RIVER ABOVE IRON GATE DAM, POST-DAM REMOVAL

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

Discuss regulatory options for sport fishing in the Klamath River after the removal of Iron Gate, Copco No. 1, and Copco No. 2 dams.

Summary of Previous/Future Actions

- Previous discussion — May 19, 2022; WRC, Redding
- **Today's discussion** — **Sep 15, 2022; WRC, Arcadia**
- Potential WRC recommendation — Jan 12, 2023; WRC, Los Angeles area

Background

To restore historic fish passage, four dams on the Klamath river – Iron Gate, Copco No. 1, Copco No. 2, and J.C. Boyle – has been proposed for removal. All but the J.C. Boyle Dam are located in California. In late Aug, the Federal Energy Regulatory Commission — the federal agency that regulates hydroelectric dams — issued its final environmental impact statement, with its staff recommending the commission approve the application to remove the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams from the Klamath River. If the application is approved, decommissioning could begin as early as 2023 on the smallest dam and in 2024 for the three larger dams.

DFW anticipates proposing new sport fishing regulations for the areas above Iron Gate Dam, with the goal of having regulations in effect once the dams are demolished. With the potential for the dams to be removed in the relatively near future, it is important to have the conversation now about what sport fishing regulations may be necessary.

Today, DFW will provide an update on the dam removal process and timing, and WRC will discuss potential sport fishing regulations for that section of the Klamath River above Iron Gate Dam.

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits

1. DFW presentation (to be provided separately)

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

7. PREFERENCE POINTS AND REFUNDS FOR HUNTING TAGS

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

Discuss and potentially make recommendations on regulatory options for big game preference points and refunds.

Summary of Previous/Future Actions

- Preference point regulation adopted — Feb 16-17, 2022; Webinar/Teleconference
- Vetting of ideas for preference points and hunting tag refunds — Jan 13, 2022; Webinar/Teleconference
- **Today's potential recommendation** — **Sep 15, 2022; WRC, Arcadia**

Background

Because demand for certain hunting tags exceeds available opportunities, FGC authorizes a modified preference point drawing system for issuing hunting tags for bighorn sheep, pronghorn antelope, elk, and certain deer hunts in California. To address excess demand, the drawing system gives points to hunters who have applied for, but not obtained, tags in past drawings; the points increase and accumulate incrementally in subsequent years until the hunter is successful in obtaining tags.

In the summer of 2021, large, early-season wildfires caused the closure of many public lands normally accessible for hunting. While wildfire has often impacted hunting opportunities, in recent years the scale and magnitude have increased dramatically. Many hunters who have accumulated points for years and were finally drawn, stand to lose these "once in a lifetime" opportunities.

At its Feb 2022 meeting, FGC approved a regulation change that would allow preference points to be reinstated and tag fees to be refunded for particular bighorn sheep, pronghorn antelope, and elk hunts, and add preference point reinstatement for the closure of high-demand deer areas. Originally, the rulemaking was announced as having a sunset date, to facilitate another rulemaking that would consider various other options that had been suggested prior to the official rulemaking. Although FGC ultimately adopted a rule without a sunset date, it directed staff to work with DFW to consider all the suggestions and comments received to date under the auspices of WRC. FGC further directed staff to bring recommendations to WRC by the end of 2022 on whether to implement any of the suggestions (or explain why they should not be implemented), to inform recommendations from WRC to FGC. Additional detail is provided in the staff summary from FGC's Feb 2022 adoption hearing (Exhibit 1).

DFW's recommendations for several options that were discussed by WRC in Jan 2022 are detailed in Exhibit 2. DFW has also provided a table of deer preference point reinstatements by year and hunt to provide context to those recommendations concerning deer preference points and refunds (Exhibit 3). FGC staff concurs with DFW's recommendations.

Today, WRC will discuss the options and potentially make recommendations to FGC on any requisite changes to the hunting tag preference point and refund regulations.

Significant Public Comments (N/A)

Recommendation

FGC Staff: Based on DFW's recommendations, recommend a future rulemaking to address tag returns and preference point reinstatements, including return dates for postseason tag returns, party tags, a junior second tag rule, and the preference point reinstatement value, with any modifications discussed today.

DFW: See Exhibit 2 for DFW's recommendations.

Exhibits

1. Staff summary from Feb 16-17, 2022 FGC meeting
2. DFW recommendations, received Sep 8, 2022
3. *Deer Preference Point Reinstatements by Year and Hunt*, DFW, received Aug 29, 2022

Committee Direction/Recommendation

The Wildlife Resources Committee supports a future rulemaking to address tag returns and preference point reinstatements, including return dates for postseason tag returns, party tags, a junior second tag, and preference point reinstatement value, as recommended by DFW and discussed today.

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

8. WILDLIFE REHABILITATION

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

Discuss a potential future rulemaking to make improvements to the regulatory framework for authorizing wildlife rehabilitation, including forms, wildlife care standards, permit revocation and denial standards, and other changes.

Summary of Previous/Future Actions (N/A)

Background

In California, a wildlife rehabilitation facility is defined as "a site where activities are undertaken to restore to a condition of good health, for the purpose of release to the wild, animals occurring naturally and not normally domesticated in this state" (Exhibit 1). Currently, 85 wildlife rehabilitation facilities operate under permits issued by DFW. Wildlife rehabilitation permits are issued for a three-year period and include (by reference) international wildlife care standards that each facility must abide by in its operations (Exhibit 2). The standards currently referenced in Section 679 were developed in 2000 and are the minimum facilities must use; however, the standards were updated in 2021 and are the more appropriate reference for FGC's regulations.

The permit application system consists of paper or PDF applications sent to DFW via mail service or email (Exhibit 3). Each permit is accompanied by a memorandum of understanding (MOU) that outlines specific terms and conditions governing the permit.

Today, DFW will present its proposed regulation changes to update the regulation to modern standards (Exhibit 4), including:

- incorporating language used in MOUs that are issued with each permit;
- updating forms and other documents incorporated into the regulation by reference;
- bringing animal care standards to the most modern criteria established by the field; and
- moving to an electronic permitting system.

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits

1. Wildlife rehabilitation facilities: Section 679, Title 14, California Code of Regulations, current through Aug 19, 2022
2. Wildlife care standards: *Minimum Standards for Wildlife Rehabilitation*, 2000, Third Edition, published by the International Wildlife Rehabilitation Council and the National Wildlife Rehabilitators Association (incorporated by reference into Section 679)
3. Wildlife rehabilitation application and forms
4. DFW presentation

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

9. UPLAND GAME HUNTING DRAWS

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

Discuss a potential future rulemaking to integrate bird and mammal special hunts into the DFW Automated License Data System (ALDS).

Summary of Previous/Future Actions (N/A)

Background

DFW uses lottery draws for issuing almost all hunting permits, with most opportunities having transitioned from the antiquated DFW Special Hunts System to ALDS; however, some hunts remain in the system because existing regulations do not accommodate lottery drawings using ALDS.

The application and attendance rates for apprentice hunts through the DFW Special Hunts System are low; in the most recent season, there were fewer applications than permits available. DFW data indicates that public exposure and interest in hunts have increased significantly when the hunts are brought into ALDS (e.g., turkey and pheasant).

DFW proposes regulatory changes to add all special hunts to ALDS to provide "one-stop" shopping for customers and give DFW flexibility to accommodate additional hunting draws. The proposed changes would also allow for drawings involving "priority" numbers for apprentice hunters. The proposed changes would provide summary statistics allowing assessment of program goals, marketing and outreach.

Today, DFW will provide an overview of the proposed changes (Exhibit 1).

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits

1. DFW presentation (to be provided separately)

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

10. BULLFROGS AND NON-NATIVE TURTLES

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

Receive options for potential future actions and discuss preliminary results and analysis from the American Bullfrog and Non-native Turtles Stakeholder Engagement Project.

Summary of Previous/Future Actions

- Project referred to WRC — Dec 12-13, 2018; Oceanside
- Discussed preliminary project results — Jan 13, 2022; WRC, Webinar/Teleconference
- Discussion of draft staff analysis — May 19, 2022; WRC, Redding
- **Today's discussion of staff recommendations** — **Sep 15, 2022; WRC, Arcadia**

Background

In Dec 2018, FGC referred to WRC a stakeholder engagement plan to track progress in addressing issues around non-native American bullfrogs and turtles that are imported into California for food and the pet trade. The plan involves three independent groups developing situation analyses and strategies for addressing the threats, challenges, and opportunities posed by bullfrogs and non-native turtles and their impacts on native wildlife. The fourth group identified in the plan is the California State Legislature, which will be engaged in the process now that the work of the three groups is mostly complete. WRC has received regular progress updates throughout 2020, 2021 and 2022.

For the situation analyses and strategies work, the independent groups were formed and composed of representatives from three different spheres of California society that have a vested interest in bullfrog and non-native turtle concerns. The first group was composed of representatives from local, state, and federal government agencies, the second from environmental and animal welfare groups, and the third from various commercial sector and industry groups.

The groups met separately and worked on the same task (in parallel) to analyze: (1) threats to California's environment posed by bullfrogs and non-native turtles, (2) benefits and cultural values of bullfrogs and turtles in California's communities and other intersections with human well-being values, (3) knowledge gaps in our understanding of the relevant systems and operative biological processes, and (4) opportunities for progress in addressing the issues posed by invasive bullfrogs and non-native turtles in California's environment. The three groups used a flexible, comprehensive process called the *Open Standards for the Practice of Conservation* (see https://conservationstandards.org/about/ for more information) to guide their analyses.

Previously, staff presented an account of the stakeholder process results (Exhibit 1) and various analyses of that information (Exhibit 2) to support WRC discussion. Since the May 2022 WRC meeting, staff held another meeting with participants of the stakeholder process to discuss the outcomes of the three groups. Participants commented on the WRC documents,

and all participants were encouraged to participate in subsequent public dialogue. Staff sincerely thanks the many participants for their diligence and sharing their expertise.

Today, staff will present a suite of draft options and recommendations for potential FGC consideration to address the many issues surrounding bullfrogs and non-native turtles in California's environment (Exhibit 3). The draft recommendations are based on the work to date, public input, and the most recent stakeholder meetings. WRC will discuss the information provided to date and next steps to arrive at a recommendation to FGC.

Significant Public Comments (N/A)

Recommendation

Staff recommendations for the suite of draft options are provided in Exhibit 3 and will be presented verbally during the meeting.

Exhibits

1. *Preliminary Results from the Conservation Standards Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process*, dated Jan 7, 2022
2. *Draft Staff Analysis of the Conservation Standards Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process, dated Sep 6, 2022*
3. *Draft Staff Recommendations from the Bullfrog and Non-Native Turtle Stakeholder Engagement Process* (to be provided separately)

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR SEPTEMBER 15, 2022 WRC

11. REGULATION CHANGE PETITION 2021-017

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

Receive DFW recommendations for the big game hunting regulation changes proposed under petition 2021-017, and potentially make recommendations to FGC.

Summary of Previous/Future Actions

- FGC received petition 2021-017 — Oct 14, 2021; Webinar/Teleconference
- FGC referred petition to WRC — Dec 15-16, 2021; Webinar/Teleconference
- Petition workshop — Jan 27, 2022, WRC; Webinar/Teleconference
- WRC discussion — May 19, 2021; WRC, Redding
- **Today's discussion and potential recommendation** — **Sep 15, 2022; WRC, Arcadia**

Background

In late 2021, FGC received petition 2021-017 (Exhibit 1) seeking a number of changes to big game hunting regulations that fall broadly into five categories: general regulations, bear, elk, desert bighorn sheep, and deer. At its Dec 2021 meeting, FGC referred the petition to WRC for discussion and recommendation. At its Jan 2022 meeting, WRC requested that staff schedule a workshop to continue discussing the petition; the workshop was held on Jan 27, 2022.

At today's meeting DFW will offer recommendations on some of the proposals in the petition (Exhibit 2), for general discussion and potential recommendations by WRC.

Significant Public Comments (N/A)

Recommendation

FGC Staff: Reject proposals for returned tag reissuance, second bear tag, non-resident elk opportunity, and archery and muzzleloader desert bighorn sheep hunts based on rationales in Exhibit 2. Recommendations regarding an elk antlerless season change and hunting party applications will be made under other topics for this meeting (item 5 and item 7, respectively).

DFW: Recommendations and responses on petition proposals are contained in Exhibit 2.

Exhibits

1. Petition 2021-017, received Sep 2, 2021
2. *Petition 2021-017 for Big Game Hunt Changes*, DFW, received Sep 8, 2022

Committee Direction/Recommendation

The Committee recommends that the Commission reject proposals for returned tag reissuance, second bear tag, non-resident elk opportunity, and archery and muzzleloader desert bighorn sheep hunts.

COMMITTEE STAFF SUMMARY FOR SETEMBER 15, 2022 WRC

12. FUTURE AGENDA ITEMS

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

Review upcoming agenda items scheduled for the next and future WRC meetings, hear requests from DFW and stakeholders for future agenda items, and identify new items for consideration.

Summary of Previous/Future Actions

- **Today's discussion** — **Sep 15, 2022; WRC, Arcadia**
- FGC potentially approves WRC recommendations — Oct 12-13, 2022; King's Beach
- Next WRC meeting — Jan 12, 2023; WRC, Los Angeles area

Background

Committee topics are referred by FGC and scheduled as appropriate. FGC-referred topics and the current schedule are shown in the WRC work plan (Exhibit 1). To date, the committee has placed emphasis on issues of imminent regulatory importance.

WRC Work Plan

Draft agenda topics anticipated to be proposed for the Jan 2022 WRC meeting are shown in the work plan in Exhibit 1.

Discuss and Recommend New WRC Topics

Today is an opportunity to identify any potential new agenda topics to recommend to FGC for referral to WRC. No new topics have been identified by staff for potential referral to WRC at this time.

Significant Public Comments (N/A)

Recommendation

FGC staff: Review the list of topics identified for the Jan 2022 WRC meeting in the WRC work plan and the current FGC rulemaking timetable (Exhibit 2), determine if any work plan topics should be revised, and identify any new topics to recommend to FGC for WRC evaluation.

Exhibits

1. WRC work plan, updated Aug 5, 2022
2. *FGC Perpetual Timetable for Anticipated Regulatory Actions*, updated Sep 7, 2022

Committee Direction/Recommendation

The Wildlife Resources Committee recommends that the Commission approve the topics for the Jan 2022 WRC meeting, as reflected in Exhibit 1.

Revision of the Black Bear Conservation and Management Plan

Update to the Wildlife Resources Committee
California Fish and Game Commission
15 September 2022

Prepared by Brett Furnas, PhD
Quantitative Ecologist, Senior Environmental Scientist
Acting Supervisor, Big Game Unit
Wildlife Branch, California Department of Fish and Wildlife

Steps taken towards drafting a revised Black Bear Conservation and Management Plan

1. Tribal notification and outreach

2. External peer review of the population modeling and monitoring approach

3. Technical Advisory Group within CDFW

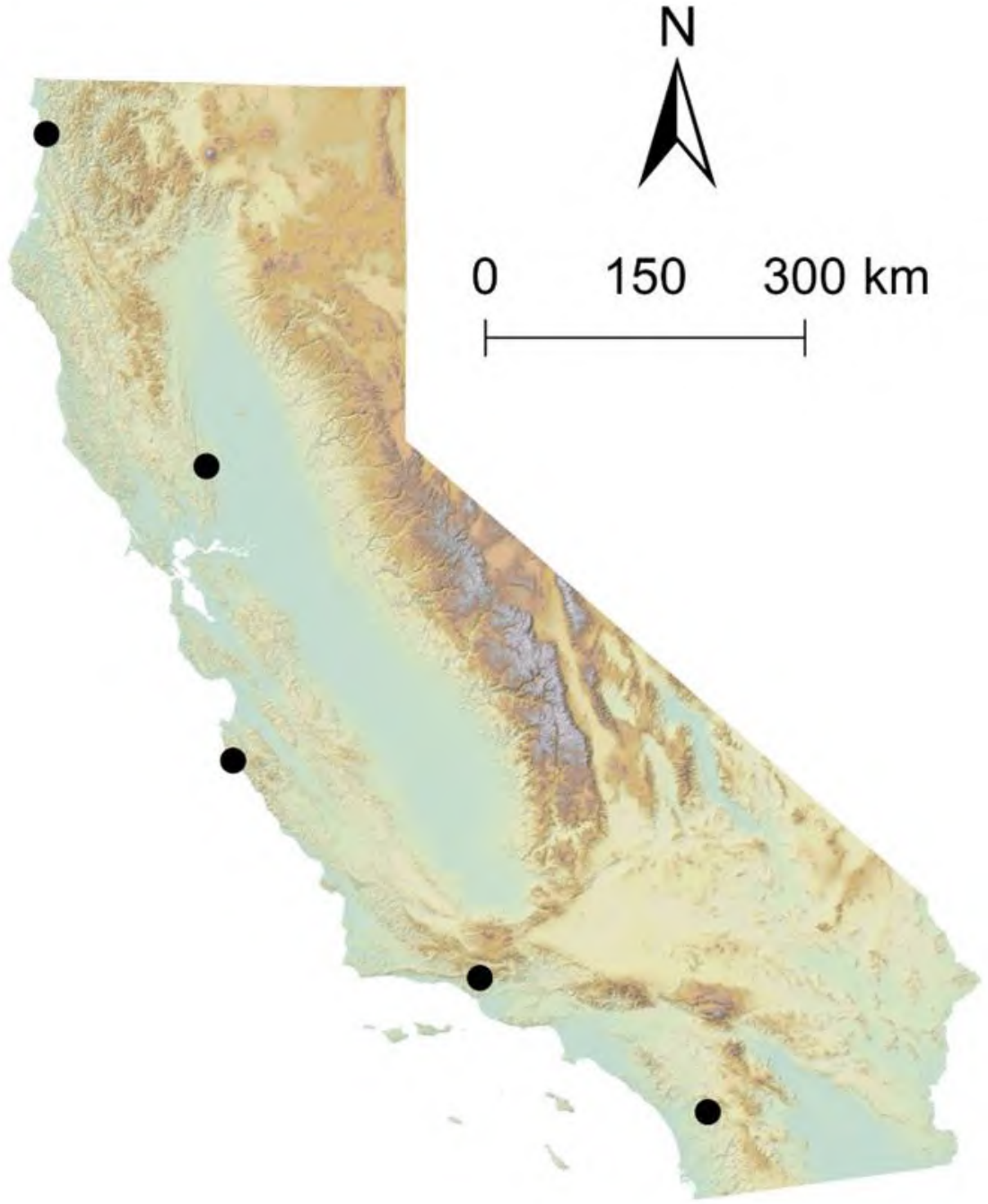
4. Background research

Outreach to California Tribes

- ~300 notifications sent out on June 24, 2022

- 5 responses so far regarding consultation. We intend to follow up to get the word out about consultation.

- We are actively seeking input from Tribes for integrating into the Bear Plan Revision.



Draft Outline for the Revised Bear Plan

1. Executive summary
2. Purpose and legal framework
3. Summary of black bear biology and ecology
4. Conservation framework
5. Population modeling and monitoring
6. Other data for informing conservation and management
7. Adaptive management
8. Research, resources, and organizational support required for plan implementation

State of California
Department of Fish and Wildlife

Original on file,
received May 17, 2022

Memorandum

Date: May 16, 2022

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

From: Charlton H. Bonham
Director

Subject: Recommendation to Deny Regulation Change Petition No. 2018-14 Re: Boat Limits

On February 6, 2019, the Department of Fish and Wildlife (Department) recommended the denial of Regulation Change Petition 2018-014 to provide sufficient time to complete the Sport Fishing Regulation Revision and Simplification Project. While denying the petition, the Fish and Game Commission requested that the Department work with the petitioner to seek further clarification of the proposed regulation change (including geographic scope and applicable species) and to explore the concept more thoroughly for a future potential sport fishing rulemaking.

The Department has met with the petitioner several times over the last two years and has received additional clarity on the regulation change sought by the petitioner. The petition has been further defined as: when two or more persons who are licensed or otherwise authorized to sport fish in *anadromous waters of the Central Valley from the Carquinez Bridge to the upstream end of anadromy* are angling for *fall-run Chinook salmon* aboard a vessel, fishing by all authorized persons aboard may continue until boat limits of *fall-run Chinook Salmon* are taken and possessed aboard the vessel. Boat-limit in this case is defined as *the number of licensed anglers aboard the boat multiplied by the number of fall-run Chinook Salmon* each angler is allowed to take.

At this time, the Department is not in support of a boat-limit for fall-run Chinook Salmon in Central Valley anadromous waters due to (1) the likely creation of socioeconomic inequities the change would create, and (2) the downward-trending abundance of Sacramento River fall Chinook Salmon (SRFC) in the Central Valley.

The Department believes the application of a differential angling regulation that provides more angling opportunity for anglers fishing from boats than those fishing from shore would create an equity issue in the Sport Fishing Regulations. In inland waters, boat and shore-based anglers are often fishing for the same individual fish in overlapping sections of waters. A critical piece of the Department's mission is working to ensure that Californians have equitable access to outdoor recreation. Introducing an inequity into the Sport Fishing Regulations that gives increased opportunity to people with a higher socioeconomic status (e.g., those that can afford a boat or a guide with a boat), and potentially race and ethnicity, is inconsistent with Department and Commission policies on Justice, Equity, Diversity, and Inclusion.

While the Department does have a regulation in place in Section 27.60 that allows boat limits for persons fishing in vessels in the ocean, we do not view this as a socioeconomic difference in opportunity because in the ocean, anglers in vessels are fishing areas of water and targeting individual fish that are unavailable to shore anglers and vice versa.

SRFC have not met escapement targets most of the last ten years. In 2018, SRFC met the criteria for overfished status as defined in Section 3.1 of the Pacific Coast Salmon Fishery Management Plan. Fisheries designated as overfished require development of a Salmon Rebuilding Plan and Environmental Assessment (Rebuilding Plan). While the Rebuilding Plan did not highlight inland sport fishing as a major contributing factor to the overfished status, the Rebuilding Plan contains allowable exploitation rates with the goal of SRFC meeting the expected minimum escapement target of 122,000 hatchery and natural area adults.

While it may or may not be the explicit intention of a boat-limit regulation to increase exploitation rates and harvest opportunities in the vessel portion of the fishery, an increase in exploitation rate and harvest would certainly be the practicable result. Although in high abundance years a boat-limit regulation is likely to result in little-to-no impact to the fishery, in low abundance years, which have been occurring more frequently over the last decade, increased exploitation rates and harvest are likely to cause impacts to the fishery. The Harvest Control Rule specifies *de minimis* exploitation rates during low abundance years, which allow for some fishing opportunity, but result in the expected escapement falling below the minimum escapement target of 122,000 adults. In addition, from 2010 to 2017, the SRFC exploitation rate has steadily increased from a low of 2% in 2010 to a high of 36% in 2017 – meaning a higher percentage of adult SRCS are being harvested, even at declining total escapement numbers. The upward trend in exploitation rate appears to be due to changes in adult SRFC migration to certain holding areas where fish are more susceptible to catch and harvest. The addition of a boat-limit regulation is likely to exacerbate the increase in exploitation rate and the degree to which escapement falls below the minimum targets in low abundance years, which may require the Department to consider more restrictive actions such as reducing the daily bag and possession limits to minimize impacts.

For the combined reasons of equity for all Californians and the downward trend in SRFC, the Department does not support this proposal.

If you have any questions regarding this matteer, please contact Jay Rowan, Fisheries Branch Chief, at (916) 212-3164.

ec: Chad Dibble, Deputy Director
Wildlife and Fisheries Division
Department of Fish and Wildlife

Jay Rowan, Branch Chief
Fisheries Branch
Wildlife and Fisheries Division
Department of Fish and Wildlife

Chris Stoots, Assistant Chief
Law Enforcement Division
Department of Fish and Wildlife

Jonathan Nelson, Program Manager
Fisheries Branch
Wildlife and Fisheris Division
Department of Fish and Wildlife

Ari Cornman, Wildlife Advisor
Fish and Game Commission

David Thesell, Manager
FGC Regulations Unit

Proposed Elk Hunting Regulation Changes for 2023-24

Dr. Tom Batter

Elk and Pronghorn Coordinator

Game Conservation Program – Wildlife Branch

California Department of Fish and Wildlife

Wildlife Resources Committee Meeting

California Fish and Game Commission

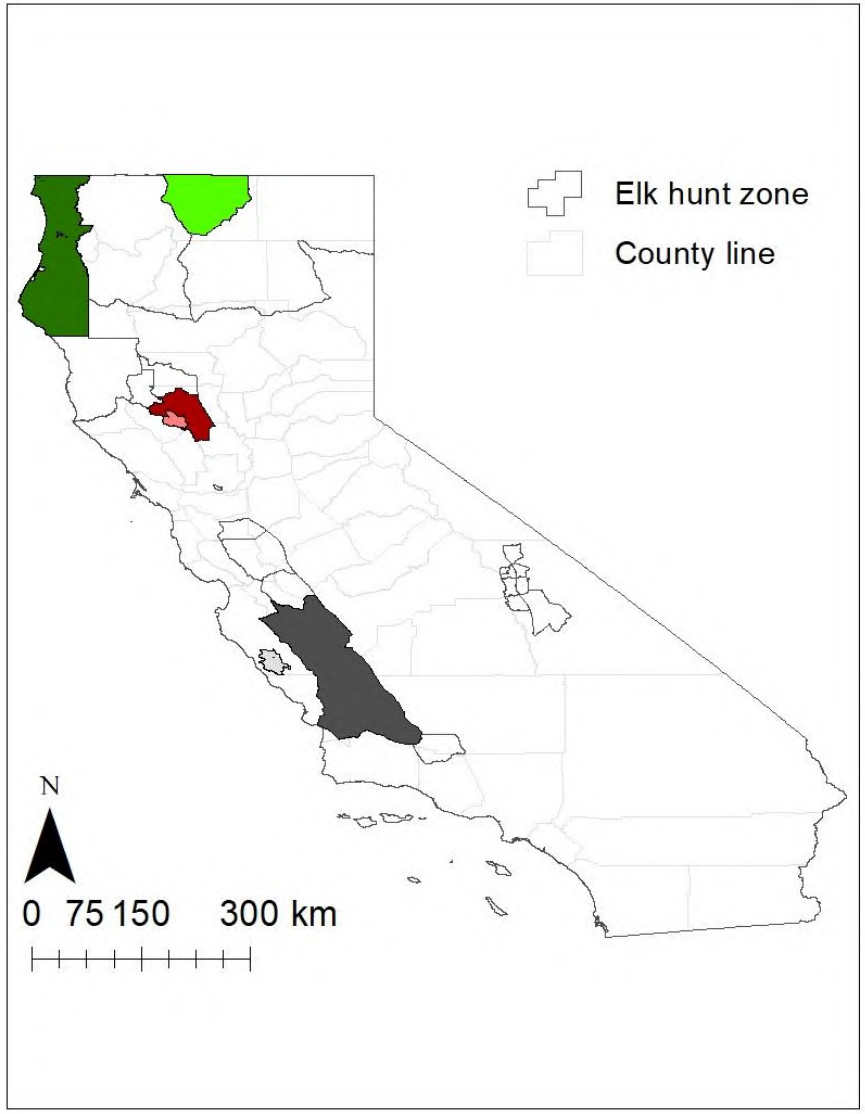
Los Angeles, Calif.

September 15th, 2022

Background

- Elk populations are increasing and expanding/shifting range
- Human-elk conflict above acceptable levels
- Threat of disease and potential hybridization
- Bull:cow objectives not being met

Region 1 – Northern Region
Region 2 – North Central Region
Region 4 – Central Region

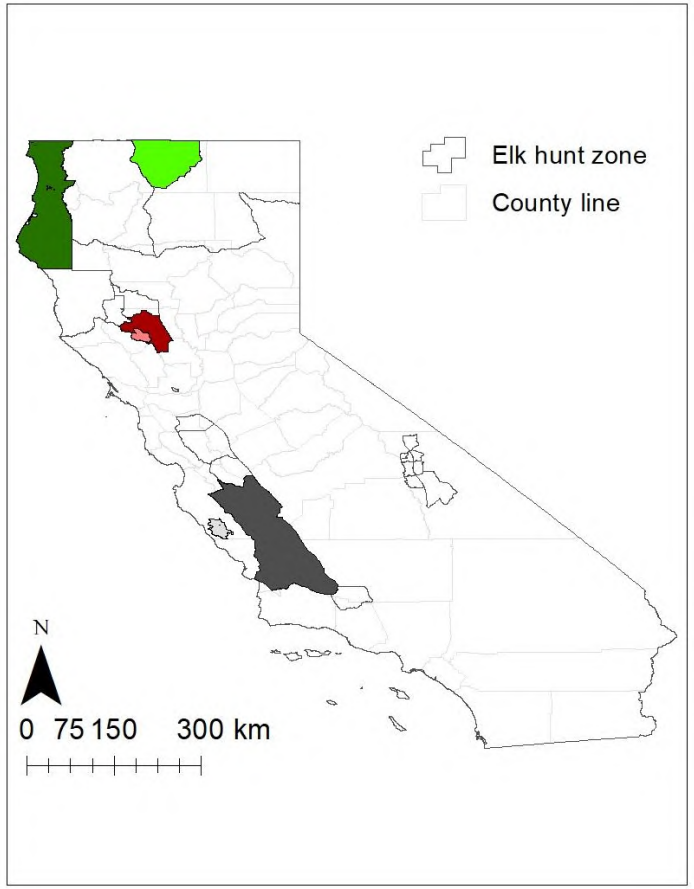


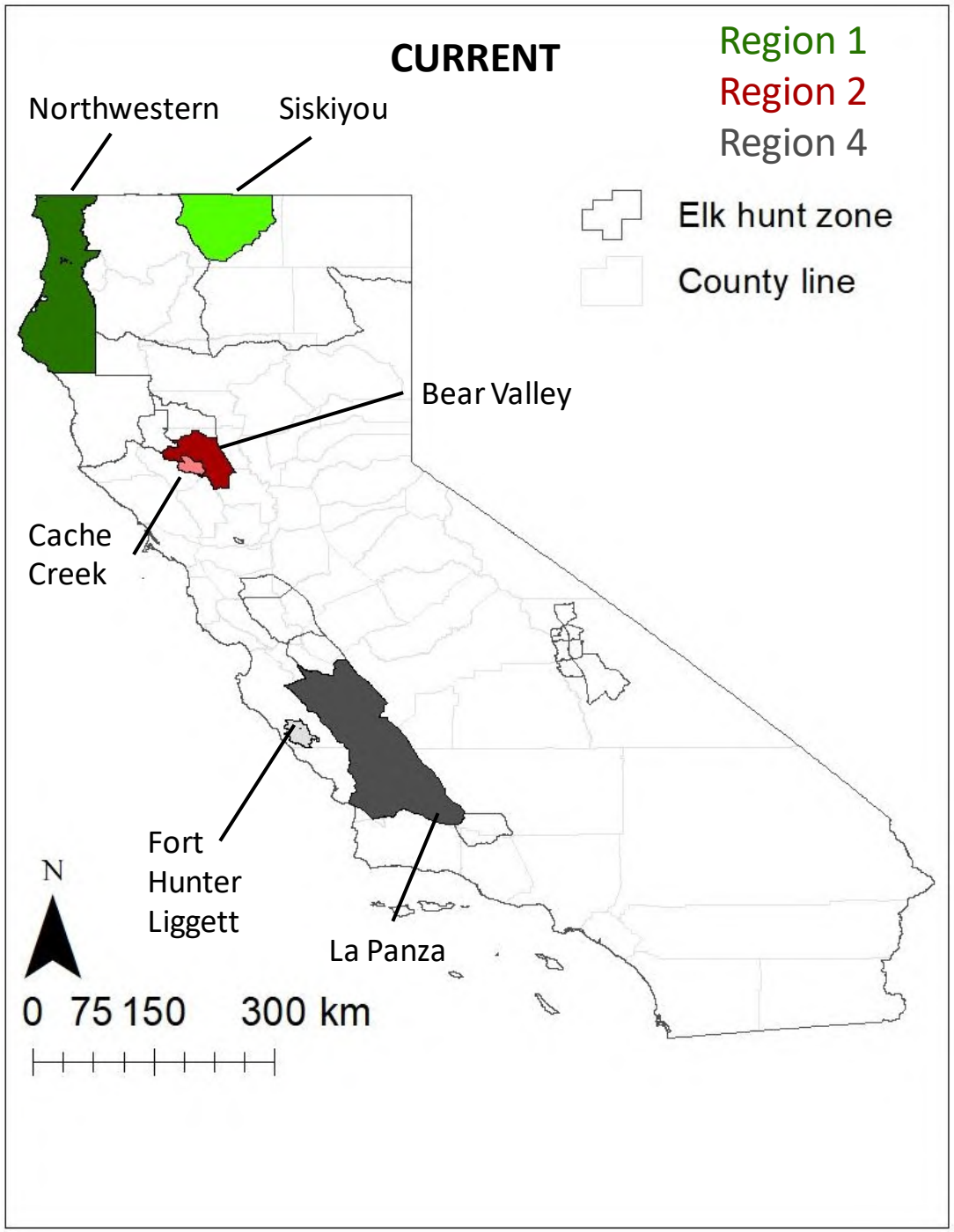
2023-24 Elk Hunting Regulation Change Proposals

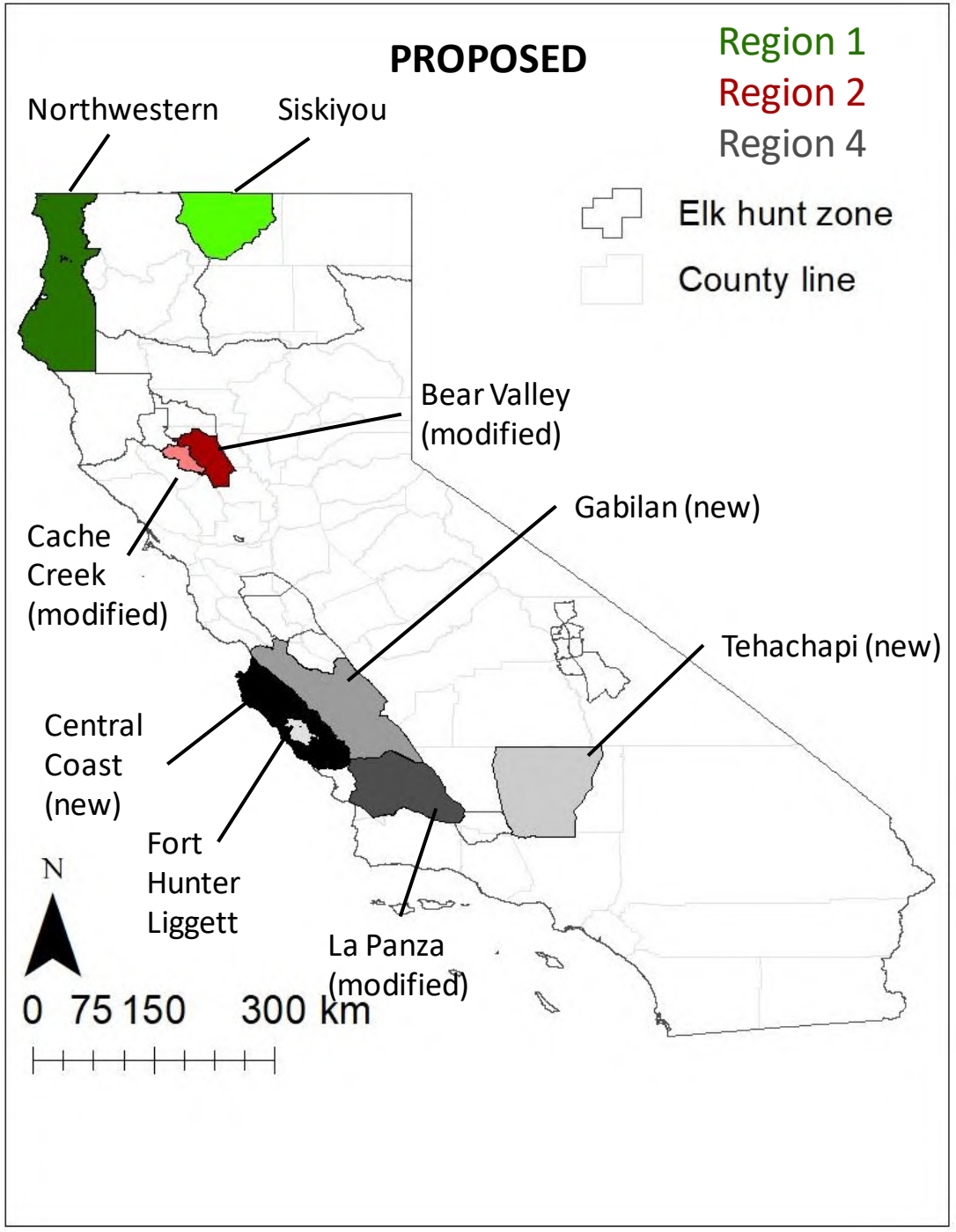
- Region 1 – Northern Region:
  - Increase tag quotas for 2 Roosevelt Elk Hunt Zones
  - Adjust season dates for 1 Roosevelt Elk Hunt Zone

- Region 2 – North Central Region:
  - Modify hunt zone boundaries for 2 adjacent Tule Elk Hunt Zones

- Region 4 – Central Region:
  - Establish 2 new Tule Elk Hunt Zones/General Methods hunts and modify boundary of 1 Tule Elk Hunt Zone
  - Establish 1 new Rocky Mountain Elk Hunt Zone/General Methods hunt




CURRENT
Region 1
Region 2
Region 4
Elk hunt zone
County line
Northwestern
Siskiyou
Bear Valley
Cache Creek
Fort Hunter Liggett
La Panza
N
0 75 150 300 km


PROPOSED
Region 1
Region 2
Region 4
Elk hunt zone
County line
Northwestern
Siskiyou
Bear Valley (modified)
Gabilan (new)
Cache Creek (modified)
Tehachapi (new)
Central Coast (new)
Fort Hunter Liggett
La Panza (modified)
N
0 75 150 300 km

Intended Outcomes

- Provide increased public hunt opportunity
- Alleviate human-elk conflict
- Establish boundaries that reflect population dynamics
- Achieve bull:cow objectives

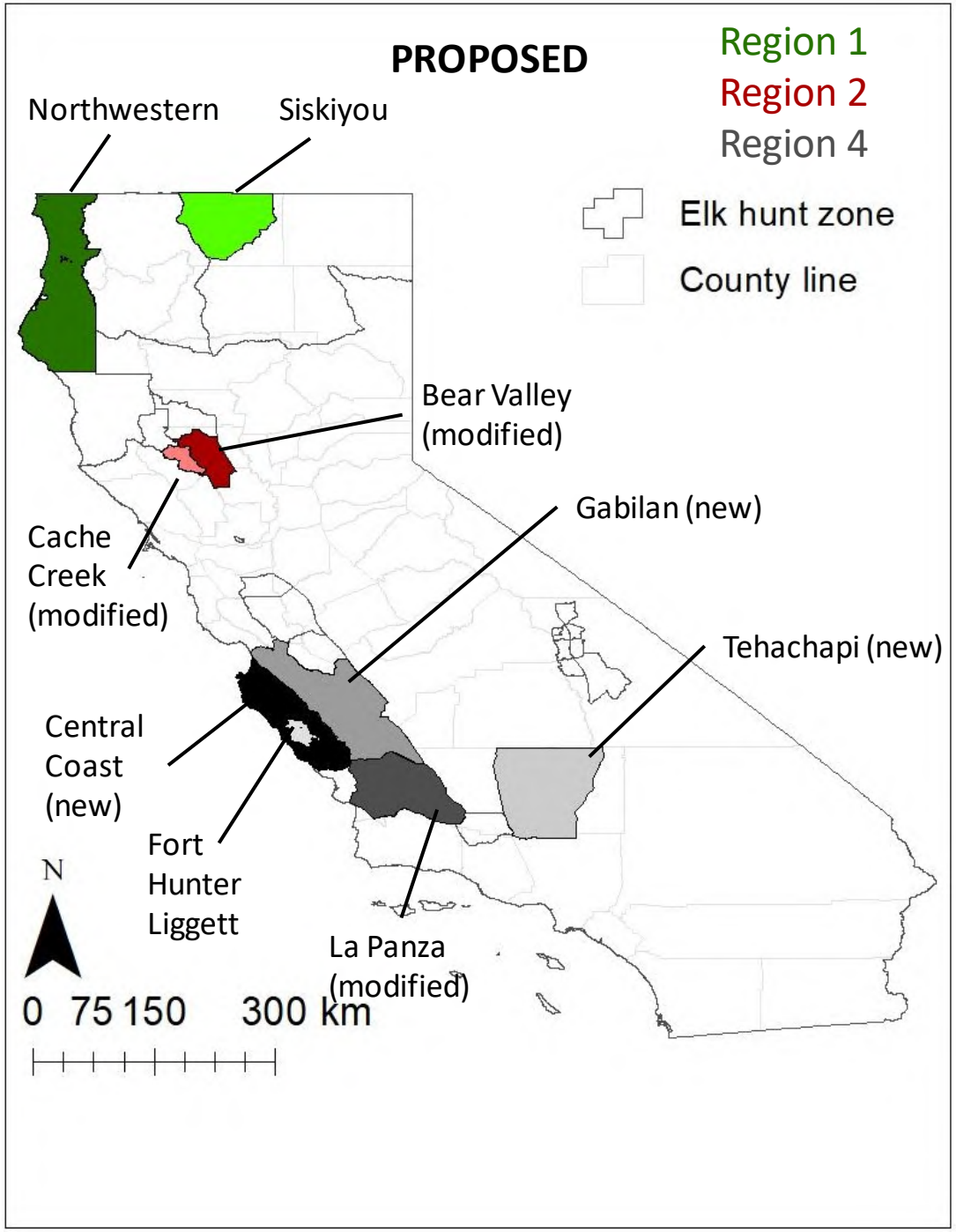


Photo credit: Orlando Rocha, Region 3

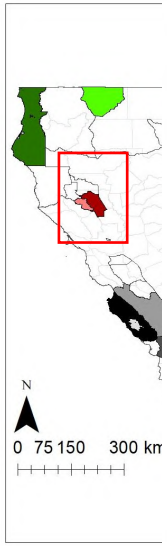
Dr. Tom Batter

Thomas.Batter@wildlife.ca.gov

Elk and Pronghorn Coordinator

Game Conservation Program – Wildlife Branch

California Department of Fish and Wildlife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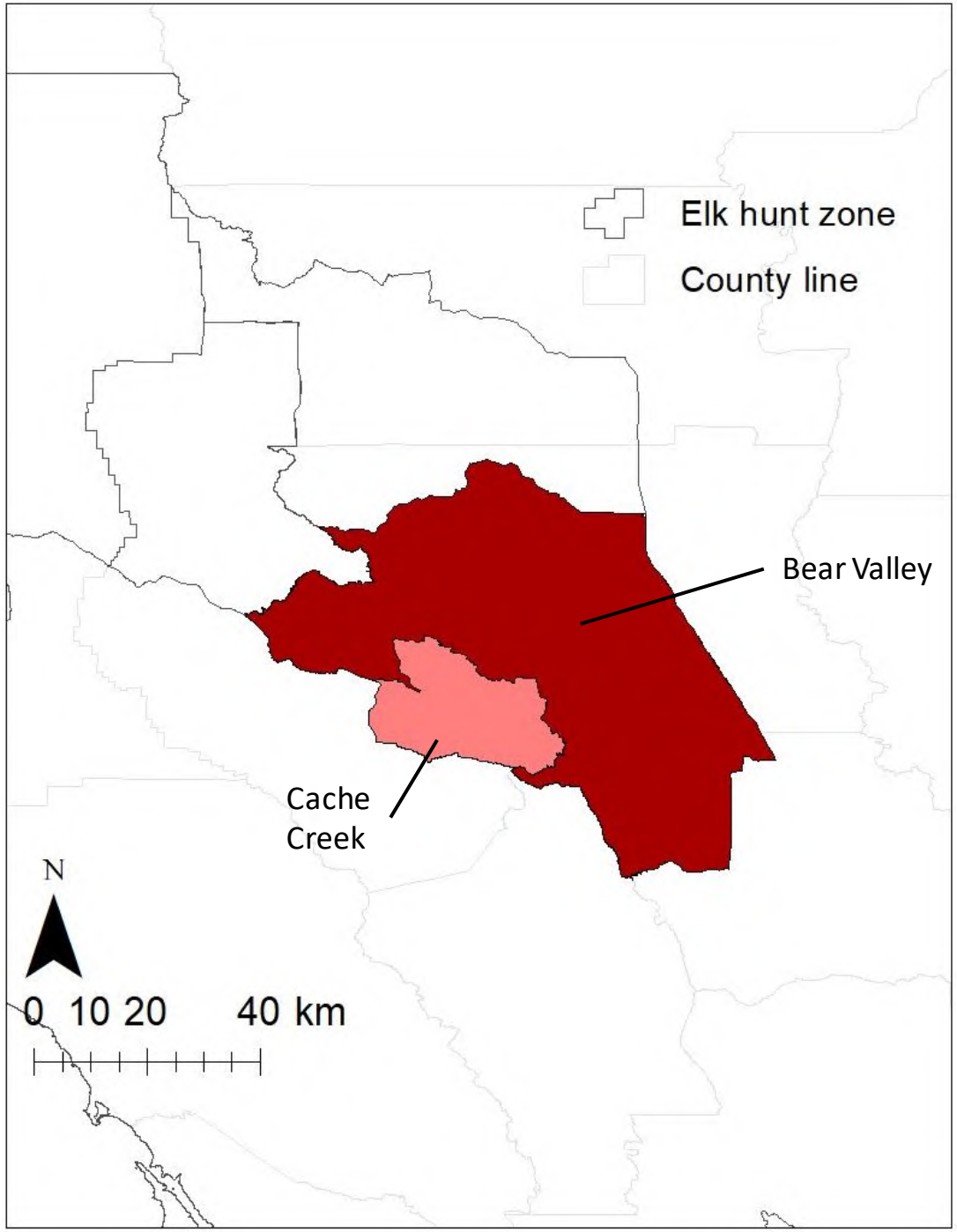
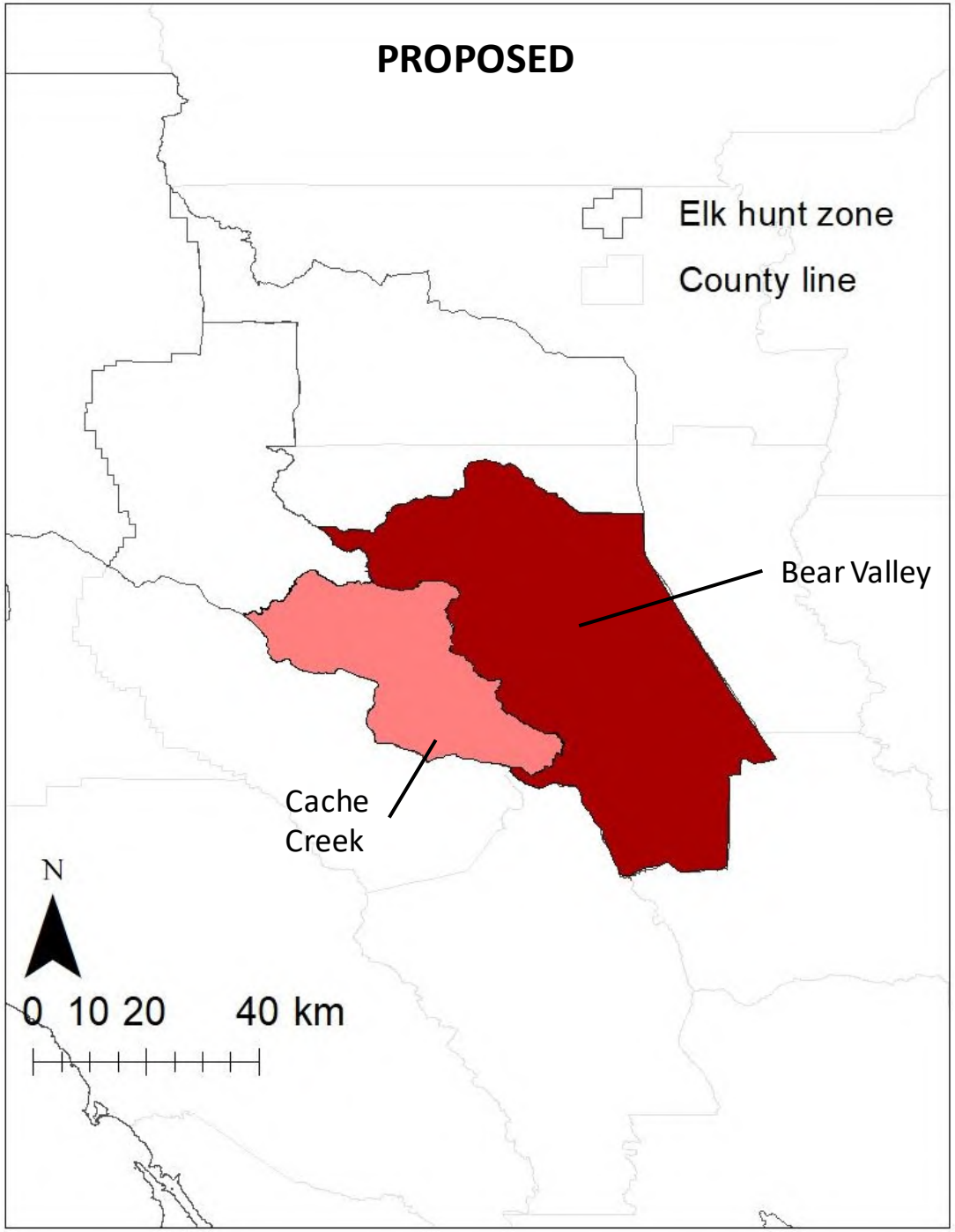
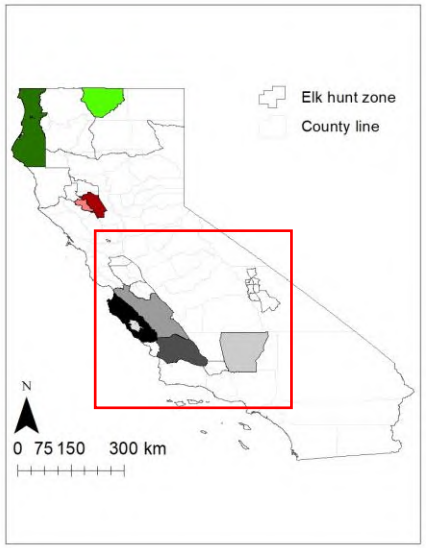

Elk hunt zone
County line
Bear Valley
Cache Creek
N
0 10 20 40 km


PROPOSED
Elk hunt zone
County line
Bear Valley
Cache Creek
N
0 10 20 40 km



CURRENT

Elk hunt zone
County line

Fort Hunter Liggett

La Panza

N

0 30 60 120 km

PROPOSED

Elk hunt zone
County line

Gabilan (new)

Tehachapi (new)

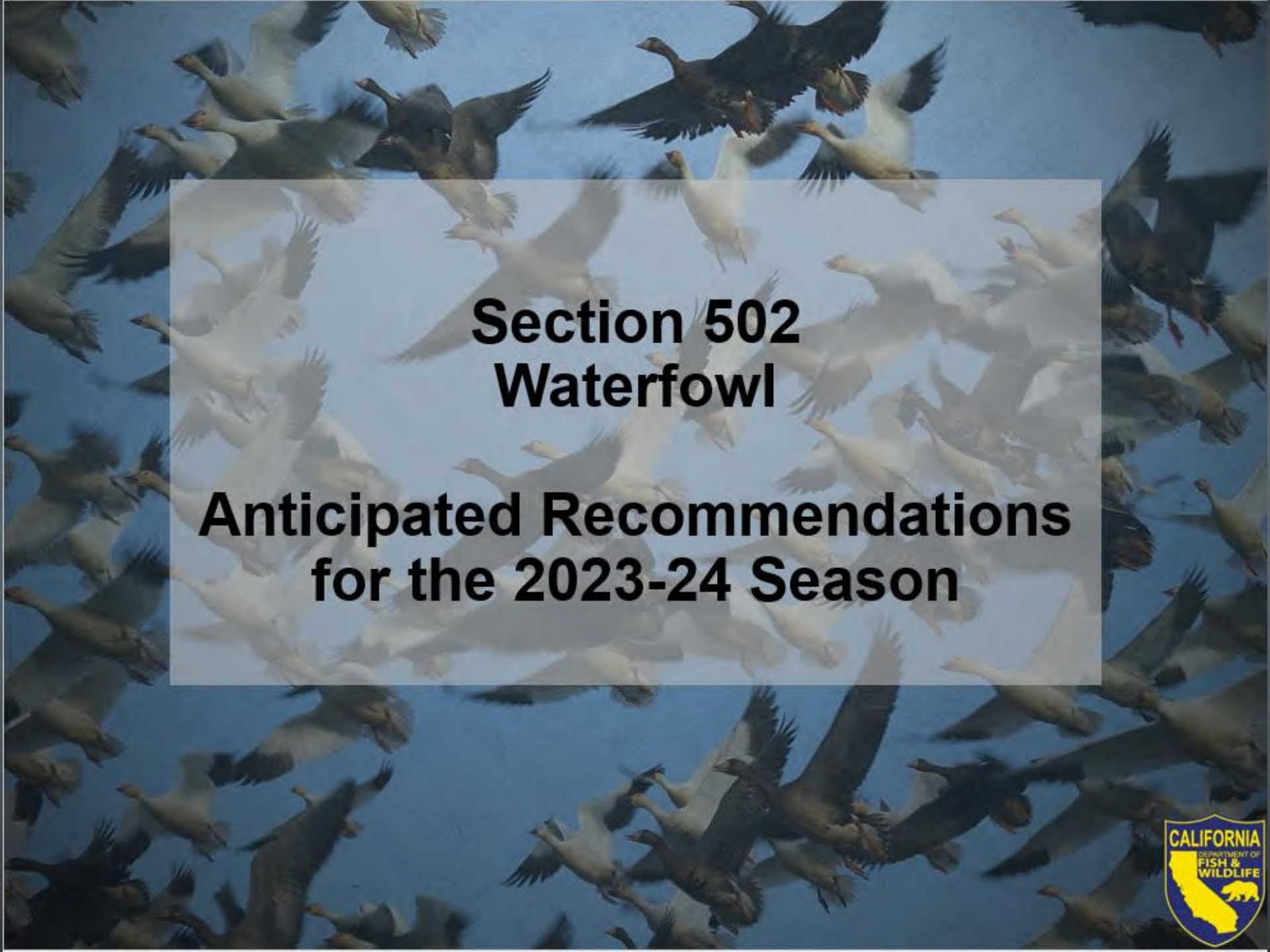
Central Coast (new)

Fort Hunter Liggett

La Panza (modified)

N

0 30 60 120 km



Section 502
Waterfowl

Anticipated Recommendations for the 2023-24 Season

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

Recommended Changes

- Increase most duck season lengths to 103 days to accommodate January 31 closure and traditional Saturday opener in late October.
  - Eliminates falconry only season
- Consider combining Youth Hunt Days with Vet Hunt Days (same weekend)
  - NE Zone likely
  - Reviewing remaining zones

QUESTIONS?

Melanie Weaver
Waterfowl Program Coordinator
Melanie.weaver@wildlife.ca.gov

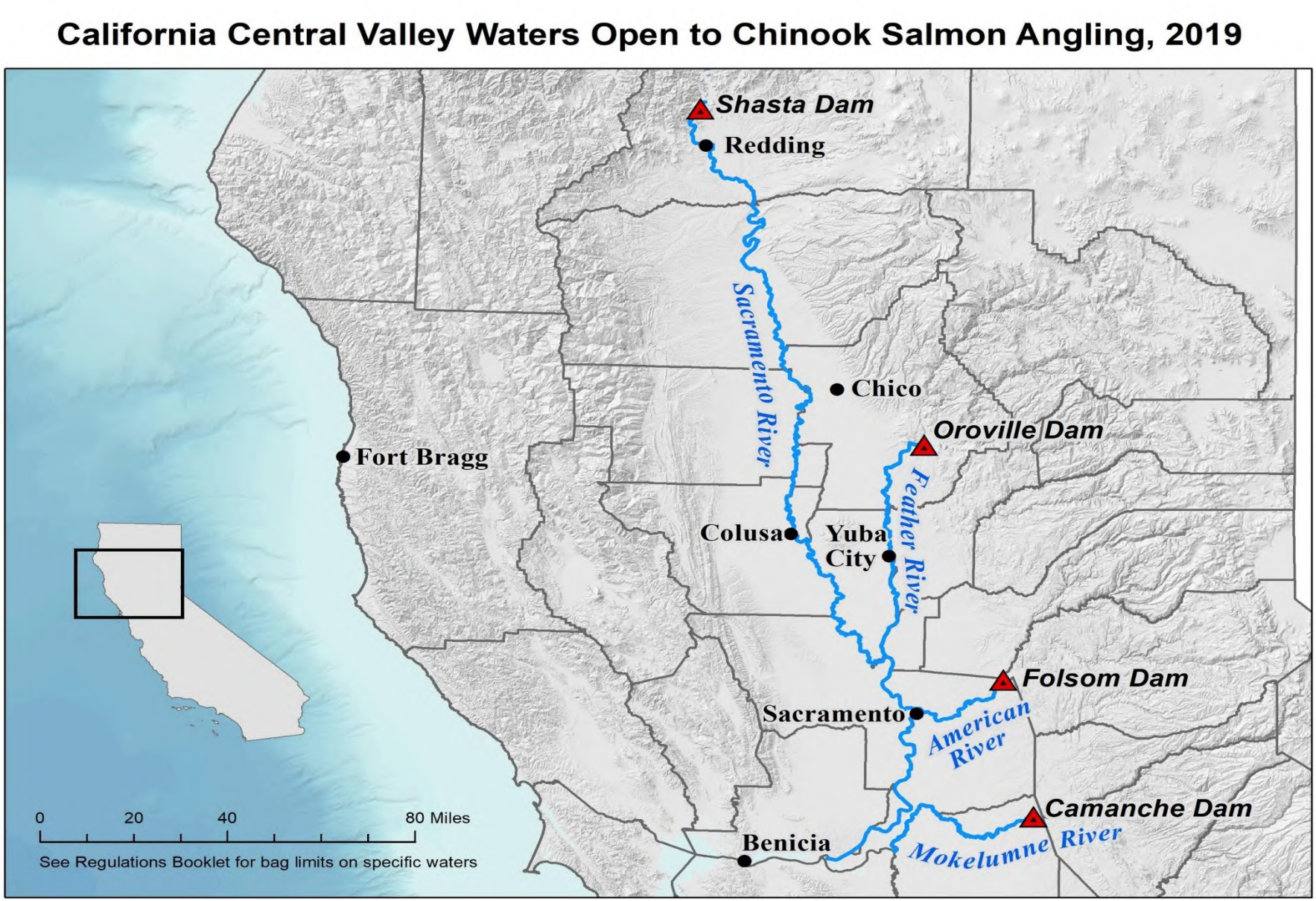
2023 Central Valley Sport Fishing Regulations

Presentation to the Wildlife Resources Committee

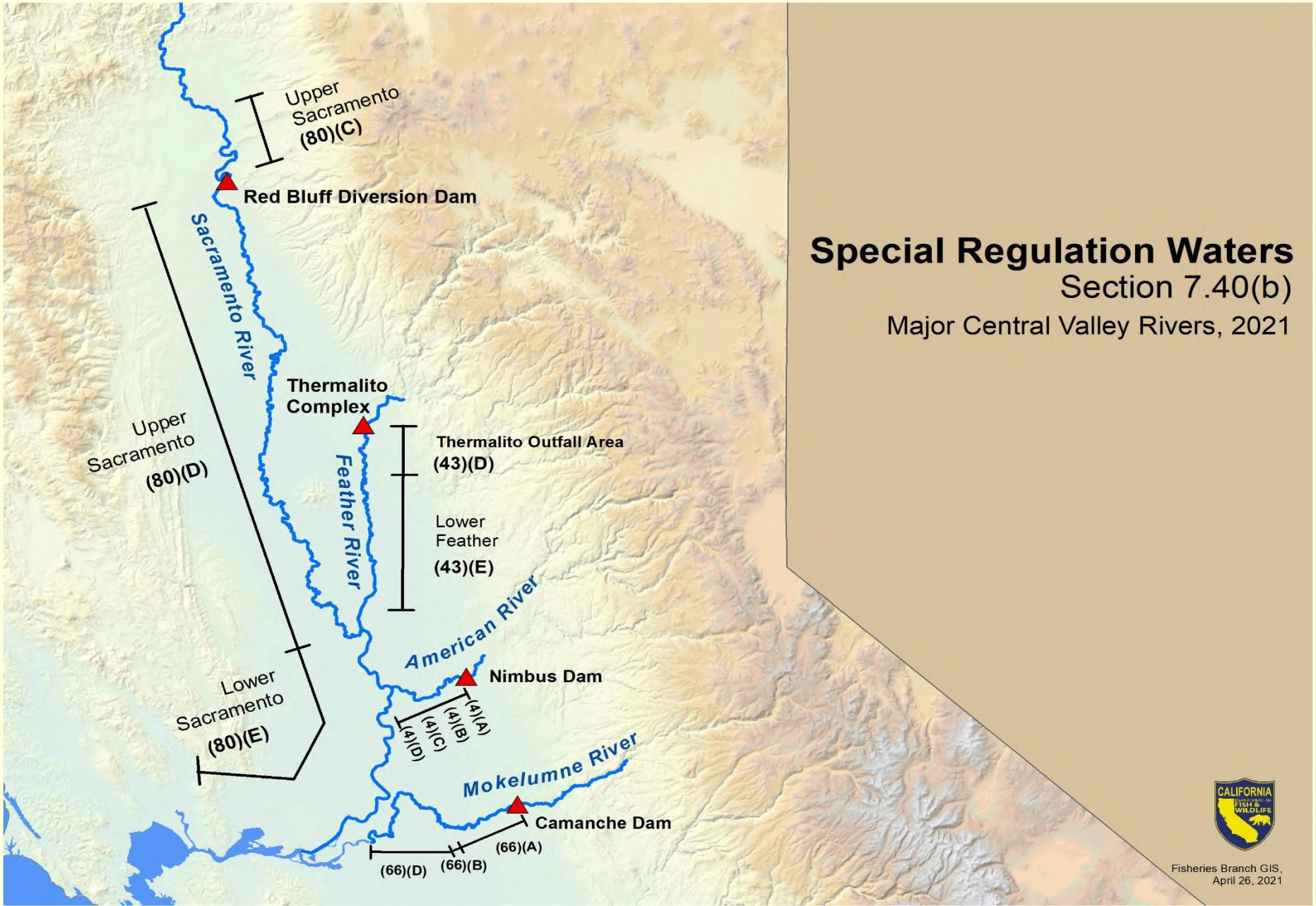
September 15, 2022

Jay Rowan
Chief, Fisheries Branch

Central Valley Waters Open to Chinook Salmon Angling



Special Regulation Waters - Major Central Valley Rivers



2022 Central Valley Sport Fishing Regulations

- Lower American River
  - 2 fish daily bag / 4 fish possession limit
- Feather River
  - 2 fish daily bag / 4 fish possession limit
- Sacramento River
  - 2 fish daily bag / 4 fish possession limit
- Mokelumne River
  - 2 fish daily bag / 4 fish possession limit

2023 Regulatory Options

- Option 1 – Any size Chinook Salmon fishery
  - [0-4] salmon per day, [0-12] salmon in possession
- Option 2 – Adult and grilse fishery
  - limited number of adults, with grilse making up the remainder of the daily bag and possession limits
- Option 3 – Grilse-only fishery

Range of Possible Bag and Possession Limits

- Lower American River
  - Bag limit: 0-4 fish; Possession limit: 0-12 fish
- Feather River
  - Bag limit: 0-4 fish; Possession limit: 0-12 fish
- Mokelumne River
  - Bag limit: 0-4 fish; Possession limit: 0-12 fish
- Sacramento River
  - Bag limit: 0-4 fish; Possession limit: 0-12 fish

Questions ◈ Thank You

Jay Rowan

Chief, Fisheries Branch

(916) 212-3164

Jay.Rowan@wildlife.ca.gov

2023 Klamath River Basin Sport Fishing Regulations

Presentation to the Wildlife Resources Committee

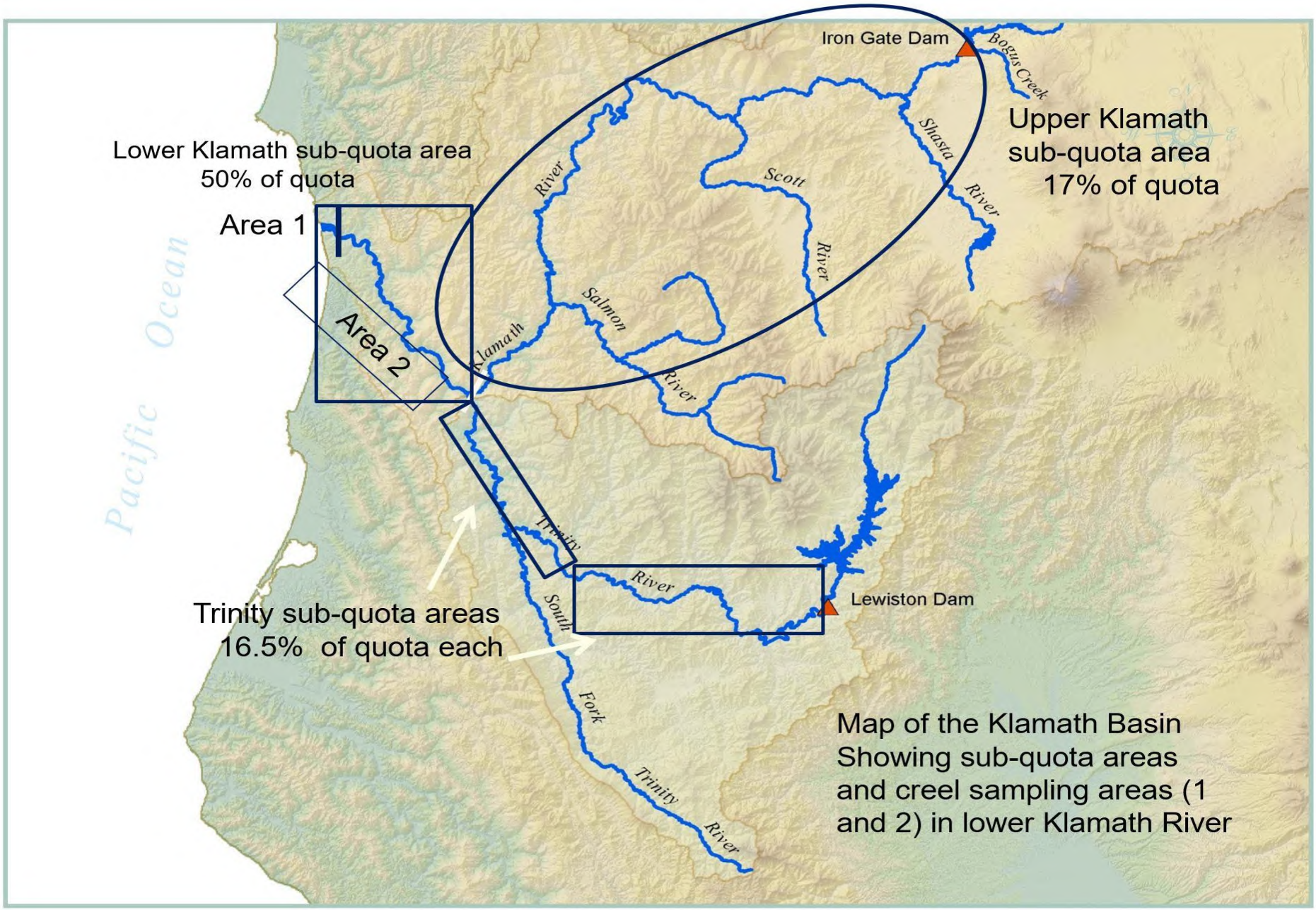
September 15, 2022

Jay Rowan
Chief, Fisheries Branch

Presentation Overview

- Map of Klamath River Basin sub-quota areas
- Klamath River fall Chinook Salmon (KRFC) management
- 2022 Klamath River Basin sport fishing regulations
- 2023 Klamath River Basin regulatory options

Klamath River Basin Fishing Sub-Quota Areas



KRFC Management

- The Pacific Fishery Management Council (PFMC) establishes harvest allocations and natural spawning escapement goals
- The PFMC will recommend the 2023 recreational fishery allocation in April
- Klamath River Basin quota allocation typically conforms to PFMC recommendations (minimum of 15% of non-tribal allocation)
- DFW determines bag and possession limits based on quota

2022 Klamath River Basin Sport Fishing Regulations

- Klamath River Basin quota: 2,119 adult KRFC > 23 inches
- Daily bag limit: 2 fish, no more than 1 adult > 23 inches
- Possession limit: 6 fish, no more than 3 adults > 23 inches
- Season: Aug. 15 – Dec. 31 (Klamath River)
- Season: Sept. 1 – Dec. 31 (Trinity River)

2023 Regulatory Options

- Klamath River Basin quota range: 0-67,600 fish > 23 inches
- Bag limit range: 0-4 fish > 23 inches
- Possession limit range: 0-12 fish > 23 inches
- Season: Aug. 15 – Dec. 31 (Klamath River)
- Season: Sept. 1 – Dec. 31 (Trinity River)

Questions ◈ Thank You

Jay Rowan

Chief, Fisheries Branch

(916) 212-3164

Jay.Rowan@wildlife.ca.gov

California Department of Fish and Wildlife Regulation Petition Evaluation

20-30 inch Striped Bass Slot Limit

Proposed by:
Nor-Cal Guides and Sportsman Association

Wildlife Resources Committee Meeting
September 15, 2022

Jonathan Nelson
Anadromous Fisheries Program Manager
CDFW Fisheries Branch

Petition Background

The Nor-Cal Guides and Sportsmen's Association (NCGASA) submitted a regulation change proposal to the FGC that would restrict the harvest of Striped Bass (SB) to a "slot limit" between 20 and 30 inches for inland anadromous waters. Under the proposal, all SB caught below 20 inches in length and above 30 inches in length would have to be released.

The slot limit would apply to any striped bass caught by recreational anglers in all anadromous inland waters of the state, which includes coastal and Central Valley (CV) rivers and streams and the Sacramento-San Joaquin Delta to the Carquinez Bridge near Vallejo. This proposal would not include inland reservoirs or lakes or ocean waters, which include the San Francisco and San Pablo bays up to the Carquinez Bridge.

The stated goal from NCGASA is to protect the species by increasing the minimum length to allow more fish to mature and successfully spawn prior to harvest and to protect the larger fish that tend to be the most prolific spawners and are becoming increasingly rare in the fishery.

Petition Background Continued

Under existing regulations, anglers fishing for striped bass in anadromous waters are limited to two SB per day, each with a minimum size of 18 inches in total length and no more than two in possession. The daily limit would not change under the proposal.

The California Department of Fish and Wildlife (CDFW) is in the process of evaluating the proposal to determine how this proposed change may affect the SB fishery, including harvest opportunities and biological processes.

Public Outreach

- In-person SB Angler Preference Survey - Implemented in November 2021
  - ~ 200 anglers surveyed
- Online SB Angler Preference Survey – posted to CDFW Website July 11, 2022
  - ~ 18,000 responses as of August 30, 2022
  - Currently looking into developing multi-lingual versions
- CDFW Angling License Holder e-mail – July 26, 2022
  - Distributed to ~960,000 anglers
- CDFW Online News Release – July 28, 2022
- CDFW Online Angler Update – August Edition
- CDFW Social Media posting
- Public Town Hall Meeting – Aug 24, 2022 – Hybrid in-person/online
  - 155 Public Participants – 107 phone/online; 48 in person
  - 45 Public Comment - 40 support; 2 non-support; 3 neutral

Central Valley Angler Effort and Catch Trends For Striped Bass

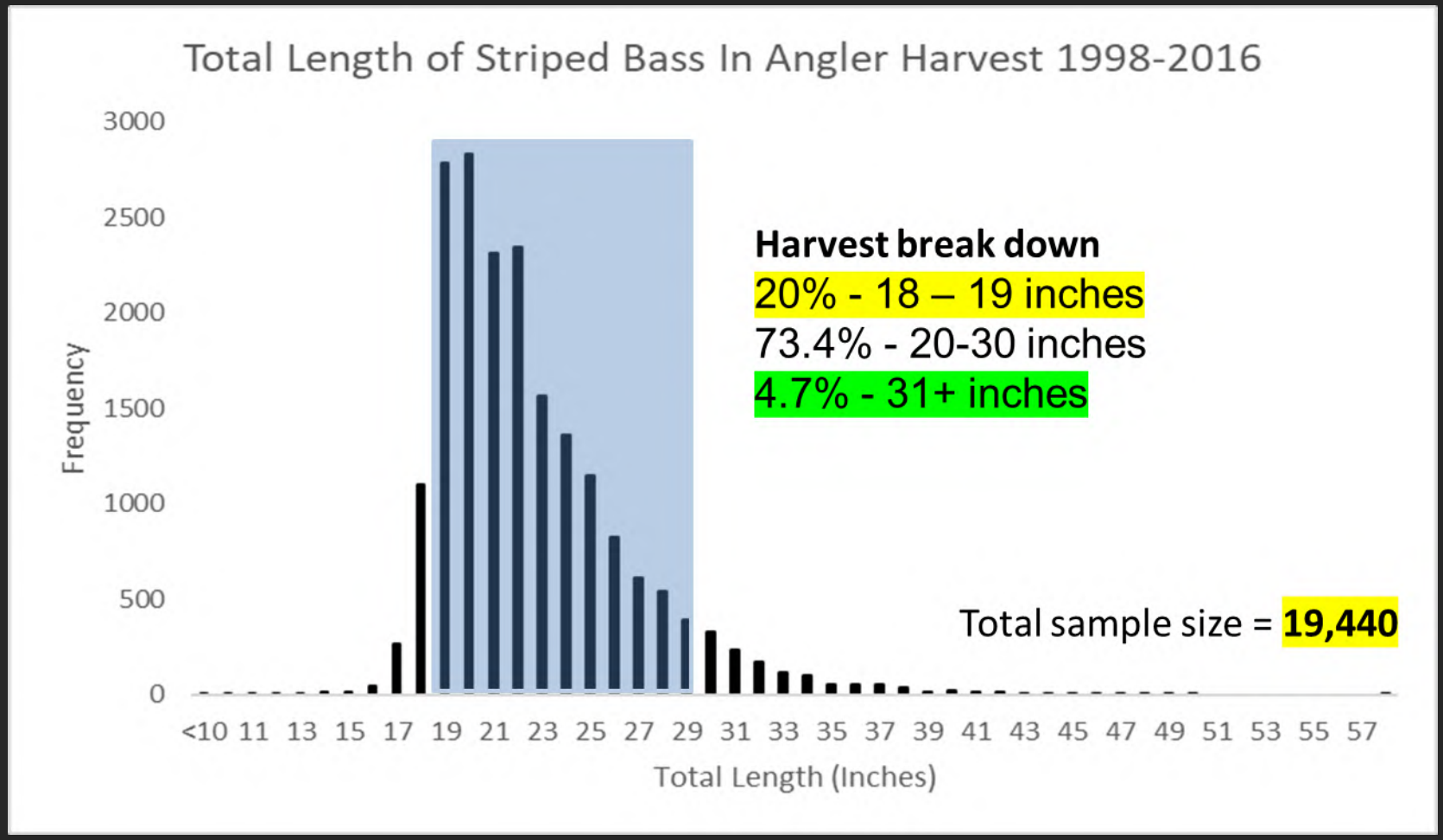
CDFW Central Valley Angler Survey (CVAS) creel data collected between 1991-2016* was used to evaluate angler effort and catch trends for Striped Bass (SB) in the Sacramento River Basin**.

- Fishing effort targeting SB has not changed significantly over time
- Anglers are catching significantly more SB
- Catch-per-unit-effort (CPUE) has significantly increased
- Anglers appear to not be harvesting more SB
- Anglers are releasing significantly more SB
  - Reasons include: fish are undersized; not desirable size; practicing catch and release
- CVAS estimates an average of ~ 17% of SB are harvested annually
- CVAS estimates less than 5% of SB > 30 inches are being harvested annually and over time

** Survey years include 1991-1994, 1998-2000, 2008-2016 – 16 total years*

*** Survey Locations include Sacramento (Redding to Rio Vista), American, and Feather rivers*

Size Distribution of Striped Bass Harvest



- The long-term average for harvested SB is 23.1 inches total length
- The highlighted area overlays the proposed 20-30 inch slot limit

Commercial Passenger Fishing Vessel Log Data

The Department summarized log data from the Commercial Passenger Fishing Vessels (CPFV) in the San Francisco Estuary from 1995-2020.

- No length data for SB are collected/available
- Trends in CPFV log data mirror CVAS data
- CPUE has significantly increased over time
- No significant trends in harvest over time
- Significant increase in released SB

CDFW Adult Striped Bass Monitoring Programs

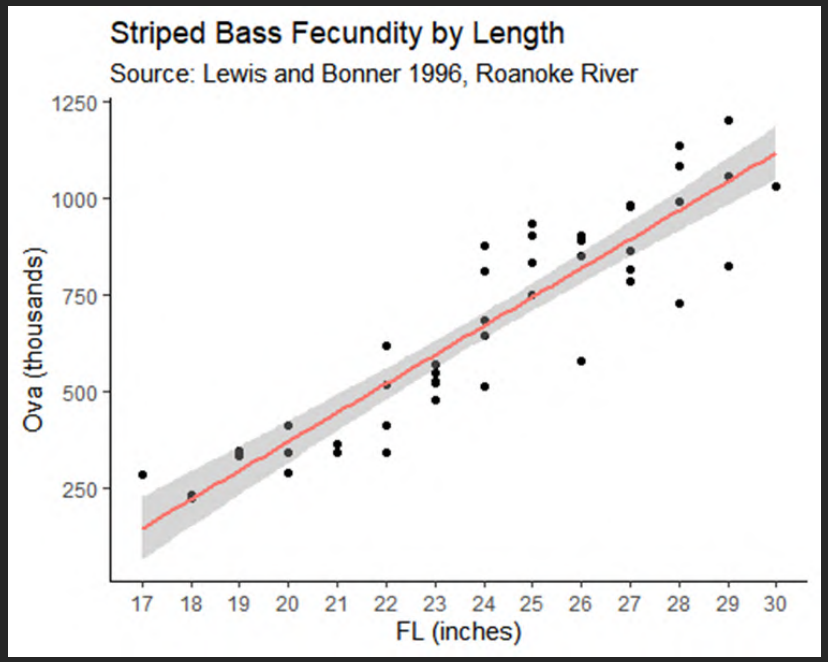
CDFW has implemented various monitoring efforts for adult SB over the past 30 years.

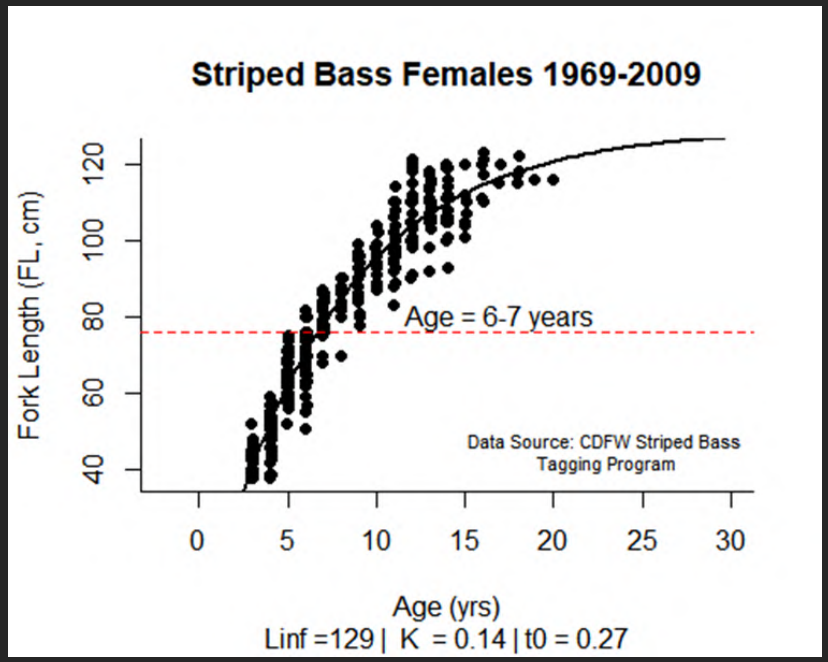
The data collected from the monitoring indicate that catch has not significantly changed over time.

- Fyke Net Monitoring Data – 1994-2009
  - No significant trends over time for either total catch ($p = 0.2$) or catch of SB $\geq$ 30 inches (FL) ($p = 0.5$) per sample hour
  - Trapping occurs in Knights Landing/Verona areas.

- Gill Net Monitoring Data - 1994-2009
  - No significant trends over time in either total catch ($p = 0.6$) or catch of SB $\geq$ 30 inches (FL) ($p = 0.9$) per sample hour
  - Netting occurs in the Delta waterways

Striped Bass Fecundity by Size and Age





- Fecundity (# of eggs) in female samples from Atlantic SB show a tight linear relationship (Upper Left Figure)
  - ~250,000 per female at 17-18” length to 1,000,000+ at 30” length.
- Age reconstruction from scale reads for San Francisco Estuary SB estimate a 30” female is ~ 6-7 years old and a male is ~ 7-8 (Upper Right Figure)
- Many females spawn at age 4 (~21 inches) and nearly all by age 6 (~27 inches)

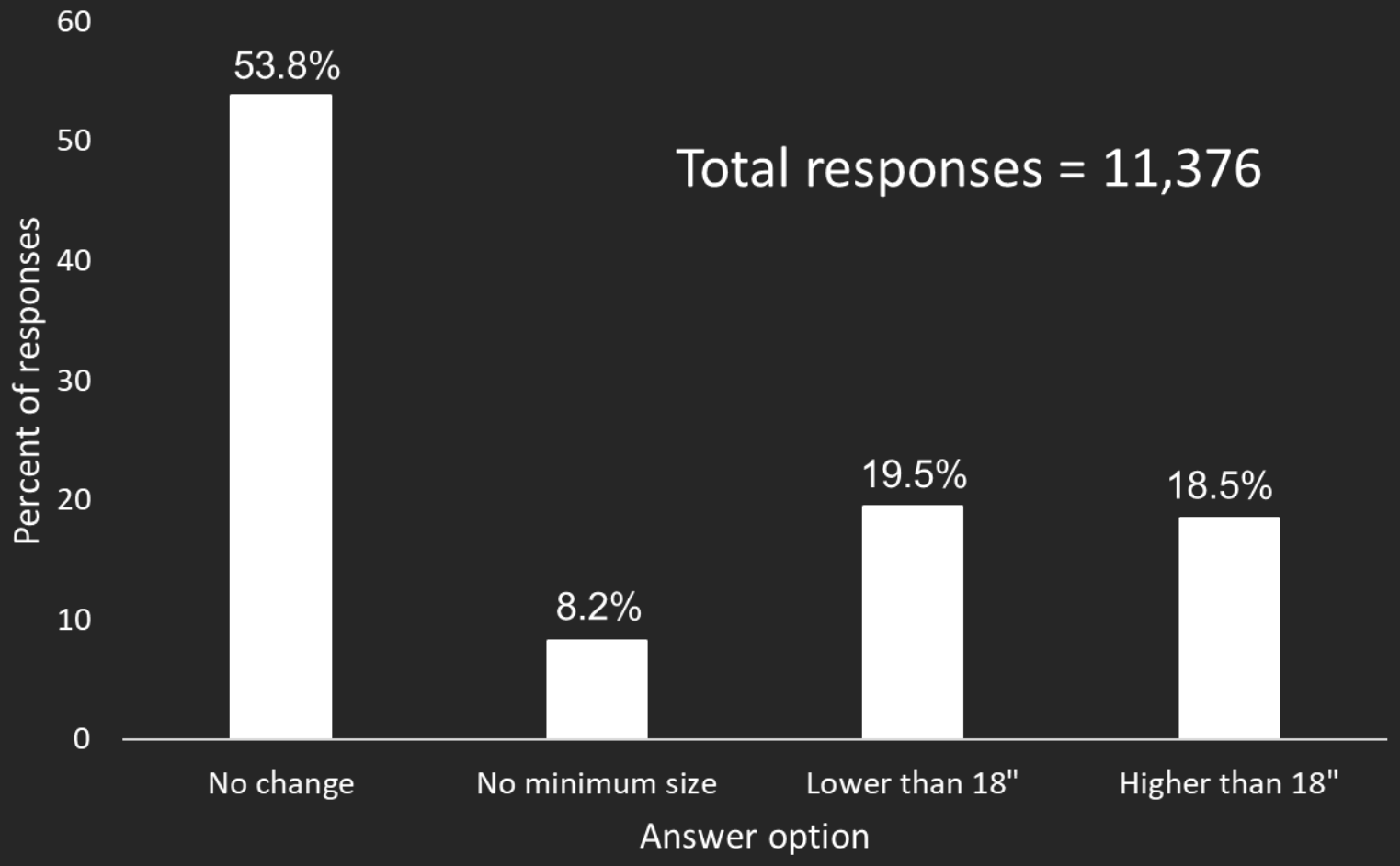
Striped Bass Angler Preference Survey

Question #	Question asked	Yes (%)	No (%)	Total responses
1	Do you fish for Striped Bass?	70.6	29.4	18,267
2	Do you support the current minimum size limit?	70.5	29.5	11,551
3	Do you support the current bag limit?	67.5	32.5	11,534
6	Would you support a catch and release fishery for trophy sized Striped Bass? This would require setting a maximum size/slot limit on Striped Bass that can be harvested.	63.7	36.3	11,498
7	Are you a member of any professional fishing association?	9.2	90.8	11,552
8	Are you associated with any state natural resource agency?	3.9	96.1	11,529

- These are results as of August 30, 2022
- The survey will be open through September 30, 2022

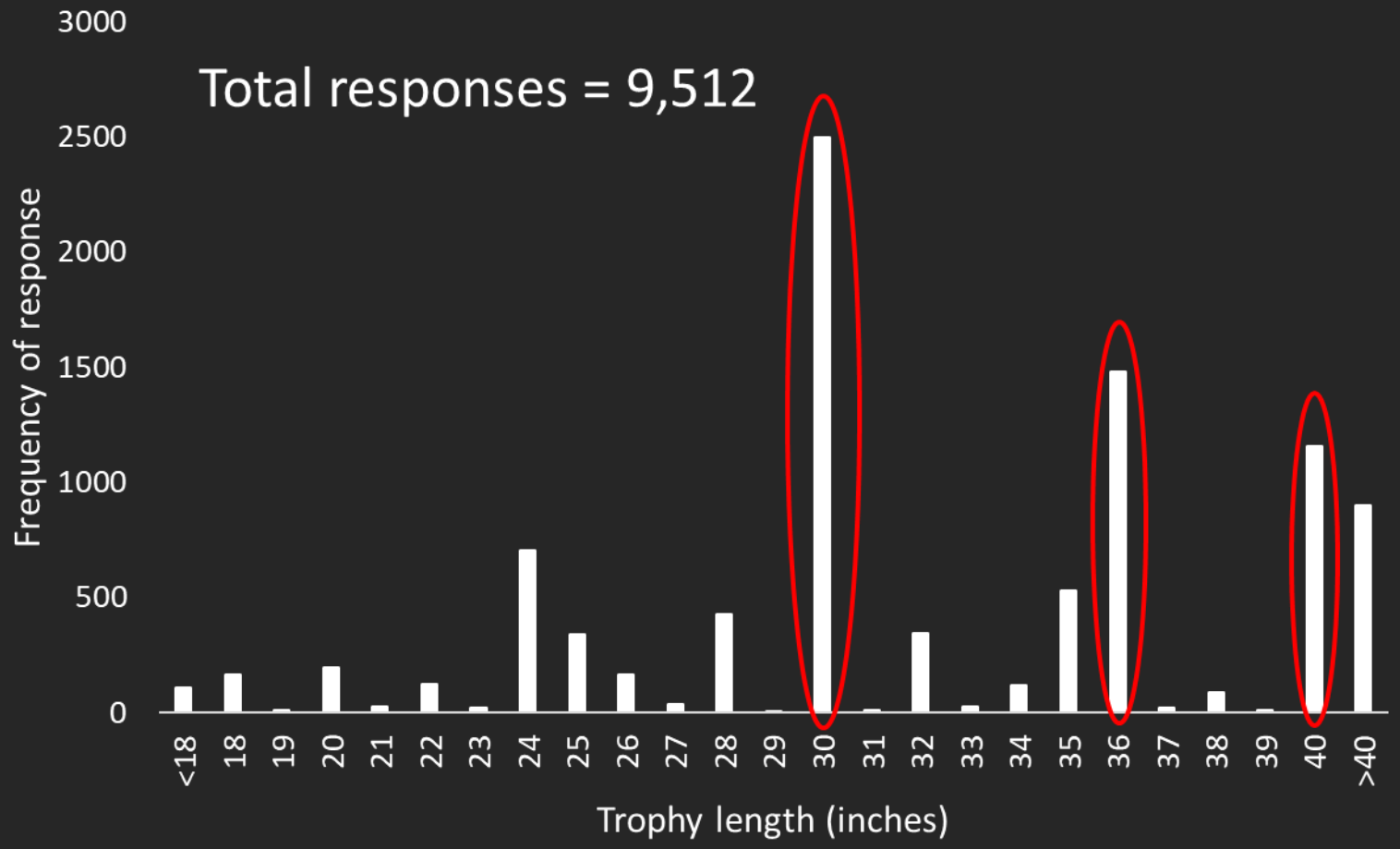
Striped Bass Angler Preference Survey Q4

Question 4. Would you like to see the minimum size limit for harvest of Striped Bass?



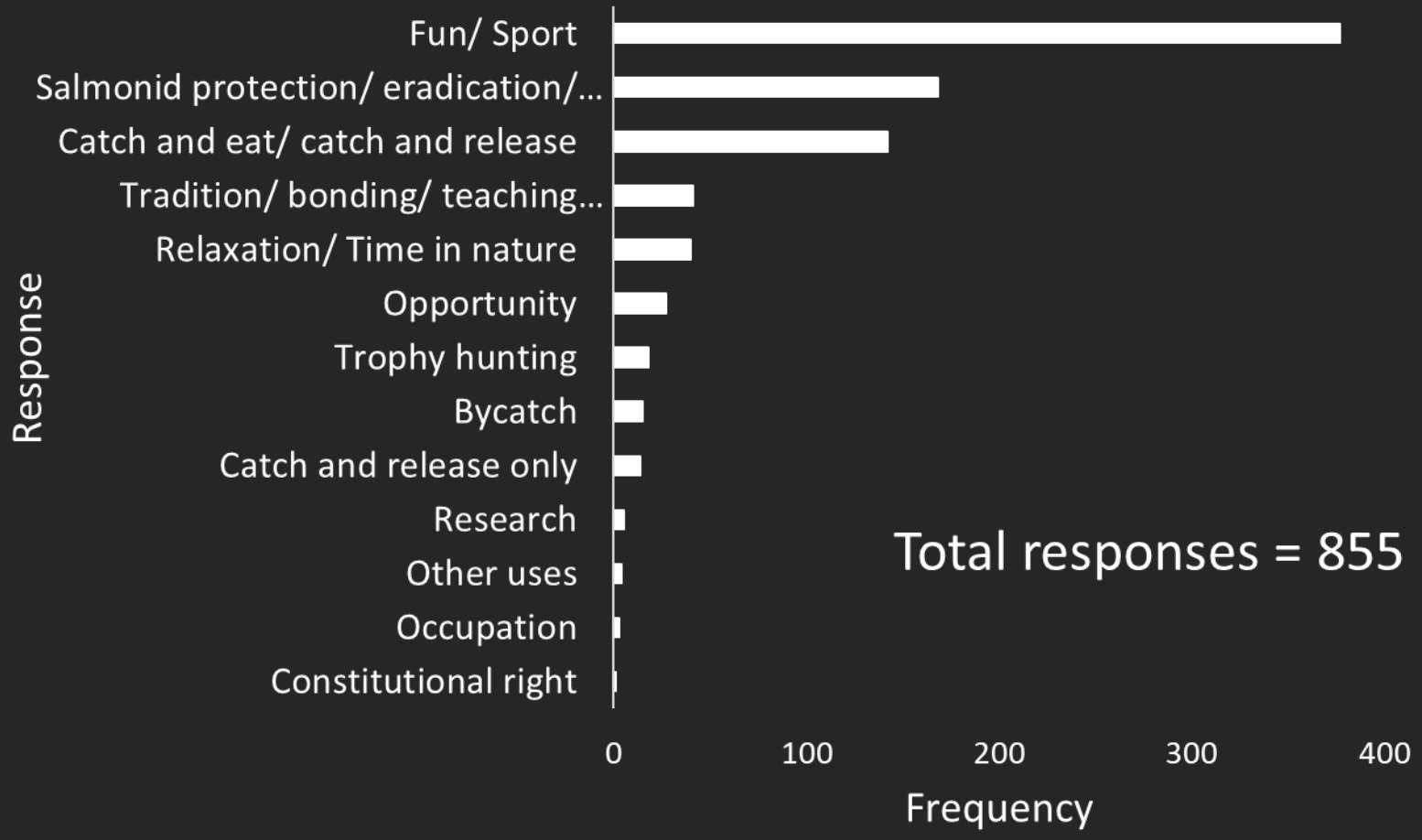
Striped Bass Angler Preference Survey Q5

Question 5. What length do you consider a trophy?



Striped Bass Angler Preference Survey Q10

Question 10. Why do you fish for Striped Bass?



CDFW Evaluation – Next Steps

Develop FAQ from Town Hall Meeting and public e-mails

Continue online survey through September 30, 2022

Develop summary report for survey results

Evaluate available fish predation and SB biological studies in the Central Valley and Delta waters

Confirm status of NCGASA petition for SB Slot Limits in ocean regulations and coordinate with Marine Region

Tentative decision at WRC January 12, 2023 Meeting

Additional questions and/or comments contact:

California Department of Fish and Wildlife

StripedBass@wildlife.ca.gov

For background purposes only

STAFF SUMMARY FOR FEBRUARY 16-17, 2022

29. BIG GAME PREFERENCE POINTS REINSTATEMENT AND TAG REFUNDS

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

Consider adopting proposed changes to big game regulations for the reinstatement of preference points and tag refunds due to public land closures.

Summary of Previous/Future Actions

- WRC vetting — Sep 16, 2021; WRC, Webinar/Teleconference
- Notice hearing — Oct 14, 2021; Webinar/Teleconference
- Discussion hearing — Dec 15-16, 2021; Webinar/Teleconference
- **Today's adoption hearing** — **Feb 16-17, 2022; Webinar/Teleconference**

Background

Because demand for certain hunting tags exceeds available opportunities, FGC authorizes a modified preference point drawing system for issuing hunting tags for bighorn sheep, pronghorn antelope, elk, and certain deer hunts in California. To address excess demand, the drawing system gives points to hunters who have applied for, but not obtained, tags in past drawings; the points increase and accumulate incrementally in subsequent years until the hunter is successful in obtaining tags.

In the summer of 2021, large, early-season wildfires caused the closure of many public lands normally accessible for hunting. While wildfire has often impacted hunting opportunities, in recent years the scale and magnitude have increased dramatically. Many hunters who have accumulated points for years and were finally drawn stand to lose these "once in a lifetime" opportunities.

At its Oct 2021 meeting, FGC approved a notice of proposed regulation change that would allow preference points to be reinstated and tag fees to be refunded for particular bighorn sheep, pronghorn antelope, and elk hunts, and add preference point reinstatement for the closure of high-demand deer areas. Additional detail is provided in the staff summary from the Oct 14, 2021 notice hearing (Exhibit 1).

The proposed changes were published in the California Notice Registry on Nov 12, 2021. Since that time, only one change to the proposed regulatory text has been made; the term 'deer' was deleted in subsection 708.14 (k)(2)(A), because that section does not pertain to deer and the term was inadvertently included. Further explanation is available in the pre-adoption statement of reasons (PSOR; Exhibit 5). DFW reports that no additional land closures went into effect following the publication of the initial statement of reasons (ISOR; Exhibit 3), therefore, the figures listed in the ISOR represent the final number of tags and points eligible for reinstatement and/or refunds for the 2021 license year.

Proposed Amendments

Although previous descriptions of this proposed regulation change have characterized it as effective for two years while a longer-term solution was developed, the currently proposed

regulatory text is written such that the regulation has no expiration date or specified seasons. Staff proposes two options for resolution:

- *Option 1:* Adopt the currently proposed regulatory text and authorize a 15-day notice to clarify that the regulation does not sunset. Direct FGC staff to work with DFW to consider all the suggestions and comments received to date for a long-term solution. By the end of 2022, bring recommendations to WRC on whether to implement any of those suggestions (or explain why they should not be implemented), to inform recommendations from WRC.
- *Option 2:* Approve a two-season regulation as originally described (or some other limited time frame) and authorize a 15-day notice to add a sunset provision to the regulation. Direct FGC staff to work with DFW to consider all the suggestions and comments received to date for a long-term solution. Before the end of the designated time period, initiate a new rulemaking to permanently implement the desired system.

If adopted by FGC, staff will request that the regulation changes be made effective no later than Apr 22, 2022.

Significant Public Comments

1. A commenter states that unused hunting tags should not be refunded but rather used to further the conservation and maintenance of public lands. In addition, land policies specific to fire hazards should be limited to areas near active fires. (Exhibit 8)
2. A non-governmental organization suggests that purchasing hunting tags comes with no guarantees, opportunities may be lost for a variety of reasons, FGC and DFW have no control over public land closures, and DFW should focus on its responsibility to sell only the correct number of tags (Exhibit 9).

Recommendation

FGC staff: Select option 1 to adopt the regulatory text as proposed in the ISOR (with deletion of the word 'deer') and authorize a 15-day notice to clarify that the regulation does not sunset. Direct staff to work with DFW to consider all the suggestions and comments received to date and bring recommendations for the various suggestions to WRC prior to the Jan 2023 WRC meeting.

DFW: Adopt the regulation as proposed in the ISOR with the deletion of the word 'deer.'

Exhibits

1. Staff summary from Oct 14, 2021, FGC meeting (for background purposes only)
2. DFW memo, received, Oct 4, 2021
3. ISOR
4. DFW memo, received Feb 3, 2022
5. PSOR
6. Revised proposed regulatory text
7. Economic and fiscal impact statement (Std 399) and addendum
8. Email from Colin Gallagher, received Jan 21, 2022

For background purposes only

STAFF SUMMARY FOR FEBRUARY 16-17, 2022

9. Letter from Marilyn Jasper, Chair, Public Interest Coalition, received Feb 3, 2022

Motion

Moved by _____ seconded by _____ that the Commission adopts the proposed changes to Section 708.14 related to big game preference points and tag refunds. The Commission authorizes publication of a 15-day notice as needed.

OR

Moved by _____ seconded by _____ that the Commission adopts changes to Section 708.14 related to big game preference points and tag refunds with the addition of language to sunset these provisions on _____. The Commission authorizes publication of a 15-day notice as needed.

Big Game Tag Refunds and Preference Points Reinstatement: Background

Big Game Tag Applications

Big game tags are assigned through an annual drawing. Hunters submit draw applications for deer, elk, pronghorn and bighorn sheep.

Deer

For deer, hunters may select up to three sequentially ranked hunts. Hunters may apply in parties of up to six. Applicants pay the entire tag fee with the application. Deer tags are non-refundable with the exception of a partial refund for non-resident hunters. Deer tag winners are automatically mailed tags.

Elk, Pronghorn and Bighorn Sheep

For elk, pronghorn and bighorn sheep, hunters select a single first-choice hunt. Hunters may apply in parties of up to two for elk and/or pronghorn. Applicants pay only the application fee with the application. Tag winners may purchase a tag after the draw and an alternate list is maintained to award tags to the next in line as relevant. Tag winners do not lose preference points unless they purchase a tag.

Preference Points

Customers gain a preference point each year they are unsuccessful in getting their first-choice hunt in the draw, or, if they choose not to apply for a hunt, may purchase a preference point. A portion of the tags are awarded to customers with the most preference points and all preference points are lost when a customer is issued a tag for their first-choice hunt. High demand hunts require many preference points to guarantee success in the draw; some low demand hunts do not require any points.

Tag Returns

Pre-Season Tag Returns

Tags can currently be returned before the season starts and are then automatically eligible for point reinstatement under current regulations. Deer tag fees are non-refundable and tags are not reissued. Preference points may be reinstated for premium deer upon tag return. Elk, pronghorn and bighorn sheep tags are refundable less a processing fee. Tags are offered to the first alternate, and so on.

Post-Season Tag Returns

If a hunt area is inaccessible for sixty-six percent (66%) or more of a hunt season due to a public land closure caused by wildfire, customers may return their tags for preference points reinstatement and, if applicable, tag refund.

Big Game Tag Refunds and Preference Points Reinstatement: Proposals and Recommendations

Post-Season Tag Refunds and Preference Points Reinstatement

Issue Credits in Lieu of Refunds

Tag refunds are issued for applicable species. Credits are not currently issued. Proposal to issue credits in lieu of refunds.

Recommendation: Reject Proposal

Do not issue credits. There is no authority to issue credits in Fish and Game Code.

Issue Point Reinstatements but No Refunds

Tag refunds are currently issued with points reinstatement for elk, pronghorn and bighorn sheep. Points reinstatement, but no refunds, are issued for premium deer. Proposal to issue points reinstatement but no refunds. Hunters and non-hunters expressed sentiment that refunds are not necessary; if you take a risk, you might not get your money back.

Recommendation: Reject Proposal

Continue to issue refunds and points reinstatement for elk, pronghorn and bighorn sheep, unless Department data indicates the fiscal loss from refunds is significant and warrants a policy reversal. Continue to issue points reinstatements, but no refunds, for premium deer.

Issue Point Reinstatements and Tag Refunds

Tag refunds are currently issued with points reinstatement for elk, pronghorn and bighorn sheep. Points reinstatement, but no refunds, are issued for premium deer. This is the "no change" alternative.

Recommendation: Reject Proposal

Continue to issue refunds and points reinstatement. Consider changes to the tag return deadline and calculation of point reinstatement. Continue to issue points reinstatements, but no refunds, for premium deer.

Rollover Tags to the Following Year

Tags do not rollover to the following year. Preference points are reinstated and tags are refunded. Proposal to rollover tags to the following year in lieu of point reinstatement and/or tag refunds.

Recommendation: Reject Proposal

Do not rollover tags to the following year. There are many logistical issues with tag rollover including, but not limited to: potential quota conflicts, management of tag reissue and the need for extensive modifications to the existing ALDS system. Additionally, there is potential that some customers will not want the tag

to rollover. Not allowing tag rollover is consistent with other states' policies, according to a Department query of R3 managers.

Remove Premium Deer Point Reinstatements

Premium deer are included the current points reinstatement option. Proposal to remove premium deer from the current points reinstatement option.

Recommendation: Reject Proposal

Do not remove premium deer from currents points reinstatement. Continue to offer points reinstatement for premium deer, as all premium deer require use of preference points.

Issue Tag Refunds for All Deer Tags

Deer tags are currently partially refunded for non-residents and are not refunded for residents. Proposal to offer refunds for all deer tags.

Recommendation: Reject Proposal

Do not refund all deer tags. Continue to offer partial refunds for non-residents. Refunding all deer tags would require extensive modifications to the existing ALDS system and would negatively impact the fiscal health of the Department.

Set Stricter Return Dates for Postseason Tag Return

Customers must currently return tags for points reinstatement and/or tag refunds by February 28 (postmarked). Proposal to (1) set an earlier static date for returns, (2) use season end date for returns (3) use date calculated at two-thirds of the season. Specifically, for proposal (1): set a static date of December 31, as no deer seasons extend beyond December 31 and later seasons are generally not affected by fires. For proposal (2): customers are aware of the season end date and can return tags by the end date. For proposal (3): customers have no need to retain a tag if fires have prevented them from hunting for two-thirds of the season.

Recommendation: Accept proposal

Use season end date as postmark deadline for tag returns (2). The season end date is both effective and memorable. Staggered tag returns may have a positive impact on ALDS workload.

Harvest Report

Customers are not currently required to submit a harvest report with a post-season tag return. Proposal to require submission of a harvest report with a tag return.

Recommendation: Reject proposal

To be eligible for post-season point reinstatement, customer must have previously submitted a completed harvest report or include a completed harvest report with their submission.

Pre- and Post-Season Tag Returns and Preference Points Reinstatement Proposals

Party Tags

All party members may return tags, potentially invoking the "Grandma loophole." Although there are no patterns of major abuse of the loophole, it should be closed, as more hunters have become aware of the loophole. Tag returns have increased significantly due to recent environmental conditions.

Recommendation: New proposal

Individual party members may return tags only if their points are less than or equal to the party points average. All party members must return their tags for all points reinstatement.

Junior Second Tag Rule

If a junior hunter is awarded two first choice tags, they may return one for preference points reinstatement. Proposal to require return of both tags for preference points reinstatement.

Recommendation: New proposal

To be eligible for preference points reinstatement, junior hunters must return all first choice tags.

Preference Point Reinstatement Value

Preference points reinstatement value is currently the point value in the draw, plus an additional point for participation in the draw. Proposal to reinstate only the point value in the draw, with no additional point for participation.

Recommendation: New proposal

Continue to offer reinstatement of the point value, plus an additional point for participation in the draw, unless the "Grandma loophole" in party tags is not addressed.

California Department of Fish and Wildlife
Deer Preference Point Reinstatements by Year and Hunt

This data represents the preseason tag returns for deer and excludes the 2021 returns that were accepted as part of the emergency regulation implemented last year.

Sum of PointReturns	Column Labels												
Hunt Code	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Grand Total
A1		1	1			1	4	1			13		21
A11								2		1	34		37
A12				1			1	1	3		56	8	70
A13								2	1		6		9
A14									1		4	3	8
A15											3	2	5
A16									1		1	1	3
A17							1				1	1	3
A19											1		1
A20				1				1	2			1	5
A21							1			1	3		5
A22											1		1
A24							1			13	2		16
A25									1	2	4	1	8
A26								2		2	3		7
A27							3	1	1	1	2		8
A3										1	29	8	38
A30							1	1	1	22	7		32
A31				1						1			2
A33								1	1	4	1		7
A4									1	1	3		5
A5											7	1	8
A6							2	4			4		10
A7								3	1		47	4	55
A8								1			1		2
A9									2			2	4

C	4	3	3	1		1	2	3	3	75	74	5	174
D12							1	2	2	1	3		9
D14										1			1
D16				2									2
D17		1								1	2		4
D6					1		2		2		6		11
D9					1								1
G1		1					2		4	38	44	2	91
G12										1	4		5
G13										2			2
G19							1			1	1		3
G21							2	1		12			15
G3									1	1	1		3
G37								1	2	5	3		11
G38					1		5	5	6	25	14	2	58
G6							1		1	15	10		27
G8								1			1	1	3
G9	12												12
J1								1	3	1	1		6
J10					1		7	1		1			10
J11								2					2
J17								1					1
J18											2	2	4
J19										2	1		3
J20											2		2
J21									1				1
J4											1		1
J8								1	1				2
J9							1						1
M11						1		1		3	1		6
M3								1		1	7		9
M4										2	2		4
M5									1		1		2
M6										2	1		3

M7							1	1				1	3
M8									1	3	3	1	8
M9											2		2
MA1										1	3		4
MA3							1						1
X1							6	4	7	58	120	2	197
X10							1	2	1	44	12	1	61
X12							3	4	3	104	29	2	145
X2							2	4	3	37	44	4	94
X3A	1						7	6	4	46	31		95
X3B							15	12	16	101	63	8	215
X4						1		3	4	51	122	4	185
X5A							1		1	16	19	4	41
X5B		1						4	1	6	4		16
X6A							3	6	23	77	171	1	281
X6B							3	4	10	61	187	5	270
X7A							3	2	2	50	40	1	98
X7B							1	4	4	34	20	1	64
X8								4		36	42	2	84
X9A							1	2	7	182	47		239
X9B								6	1	100	35	2	144
X9C								1	1	14	6	4	26
Grand Total	**17**	**7**	**4**	**6**	**4**	**4**	**86**	**110**	**132**	**1260**	**1415**	**87**	**3132**

§ 679. Possession of Wildlife and Wildlife Rehabilitation.
14 CA ADC § 679
Barclays Official California Code of Regulations

Barclays California Code of Regulations
Title 14. Natural Resources
Division 1. Fish and Game Commission--Department of Fish and Game (Refs & Annos)
Subdivision 3. General Regulations
Chapter 3. Miscellaneous

14 CCR § 679

§ 679. Possession of Wildlife and Wildlife Rehabilitation.

Currentness

(a) General Prohibition on Possession of Wildlife. Except as provided in subsection (b) below or as otherwise authorized, it is unlawful for any person to possess any live game mammal or bird, nongame mammal or bird, furbearer, reptile or amphibian.

(b) Temporary Confinement of Wildlife. Except for big game mammals listed in Section 350, Title 14, CCR, injured, diseased or orphaned animals may be temporarily confined by persons if they notify the nearest regional office of the department within forty-eight (48) hours of finding or confining such wildlife. Notification shall include name and address; the species of wildlife and a description of its injury, disease or condition; the date and location the wildlife was found; and the location where the wildlife is confined. Confined animals must be disposed of pursuant to department direction, which may include placement in a department-approved wildlife rehabilitation facility. (Department offices: Northern Region (Redding), North Central Region (Rancho Cordova), Bay Delta Region (Yountville), Central Region (Fresno), South Coast Region (San Diego), Inland Deserts Region (Ontario), and Marine Region (Monterey).)

(c) Prohibition on Possession of Big Game Mammals or Fully Protected, Threatened or Endangered Species Except Under Department Permit. No person or wildlife rehabilitation facility may possess any big game mammal listed in Section 350, Title 14, CCR, or any fully protected, endangered or threatened bird, mammal, fish, reptile or amphibian without specific written authorization from the department.

(d) Prohibition on Picking up Disabled Wildlife in a Department Designated Oil/Toxic Spill Area. No person may enter a department designated oil/toxic spill area for the purpose of

picking up disabled wildlife or transport or possess wildlife disabled by an oil spill or other spilled toxic substance unless that person has completed the training required by subsections 817.02(i) and (j), Title 14, CCR, and has authorization from the department. Designated oil/spill areas shall be clearly posted by the department.

(e) Wildlife Rehabilitation Facilities.

(1) Wildlife Rehabilitation Facility Defined. For the purposes of these regulations, a wildlife rehabilitation facility is defined as a site where activities are undertaken to restore to a condition of good health, for the purpose of release to the wild, animals occurring naturally and not normally domesticated in this state.

(2) Approval of Wildlife Rehabilitation Facility.

(A) The department may approve and issue a permit in the form of a Memorandum of Understanding (MOU) to only those wildlife rehabilitation facilities which meet the wildlife care standards set forth in the Minimum Standards for Wildlife Rehabilitation, 2000, Third Edition manual published jointly by the International Wildlife Rehabilitation Council and the National Wildlife Rehabilitators Association; or as provided in the MOU. The above wildlife care standards are hereby adopted and made a part of this Title 14. All wildlife rehabilitation facilities, regardless of when established, shall comply with the wildlife care standards.

(B) A person seeking a MOU with the department for operating a new wildlife rehabilitation facility shall submit to the department two letters from permitted facilities in the nearby vicinity (the permitted facilities will be identified by the department), stating that they believe there is a need for a new facility. Within 30 days of receiving the letters, the department will provide a written determination stating whether such a facility is needed. If the department determines that there is not a need for a new facility the applicant may request a hearing before the commission to show cause why their permit request should not be denied. If the department determines that a new wildlife rehabilitation facility is needed, that person shall submit, along with this written determination, an application packet to the department that contains all of the following:

1. A complete application form “Wildlife Rehabilitation Permit Application/Renewal form,” FG 542 (Rev 03/07) which is hereby incorporated by reference;

2. Documentation of the applicant's experience working (paid or unpaid) at a permitted wildlife rehabilitation facility. The applicant must document four hundred hours within a two year period of experience working with a permitted wildlife rehabilitation facility in California, or experience that the department determines is equivalent, to be eligible for a permit.

3. A letter from a veterinarian who agrees to sponsor the applicant by overseeing diagnoses, medication and surgical procedures by the proposed facility.

4. Pictures or diagrams of the proposed facility's caging or proposed caging sufficient to demonstrate that the caging will be appropriate for the types of animals the facility is planning to rehabilitate and will comply with the standards identified in subsection (e)(2)(A).

5. A statement of general intent that includes a list of the species and number of animals that the applicant proposes to rehabilitate and hold at the proposed facility; and plans describing the proposed facility's record-keeping system, animal intake process, euthanasia protocol, plan for carcass disposal, protocol for handling public phone calls, volunteer training protocol, animal diets, and disinfectant and disease control protocols. Plans provided as part of this statement must be consistent with the requirements of subsection (f) and the standards identified in subsection (e)(2)(A).

6. Payment of a non-refundable application processing fee of $41.00 and an inspection fee of $114.54 to be determined by the department pursuant to Fish and Game Code Section 2150.2 and adjusted annually pursuant to Fish and Game Code Section 713.

(C) The department shall determine whether the application is complete and request any additional information it believes is necessary to evaluate the proposal. The department may enter into a MOU with the California Council for Wildlife Rehabilitators (CCWR) for the purpose of obtaining CCWR's assistance with processing and evaluating applications. Such assistance may include but is not limited to helping review and evaluate applications, inspecting proposed facilities, and preparing recommendations to the department. Any MOU between the department and CCWR may also provide for payment by the department from revenue generated by the application and inspection fees collected under subsection (e)(2) to reimburse CCWR's expenses in providing assistance to the department. Within sixty days of receiving the application, the department shall make a determination that the applicant and the proposed facilities meet the requirements in subsection (e)(2). If the department determines that the application is incomplete or that the applicant or the proposed facilities do not meet the requirements in subsection (e)(2), the department shall deny the permit and will return the inspection fee.

(D) If the department determines that the application is complete and that the applicant and the proposed facilities meet the requirements in subsection (e)(2), the proposed facility shall be inspected by the department, CCWR or another designee. Failure to cooperate with inspectors provided by the department, CCWR or another designee may result in application denial.

(E) After inspection of the proposed facility, the department shall approve a MOU to permit a new wildlife rehabilitation facility only if the applicant and facility meets all applicable standards specified above. The department may deny a permit if the applicant has failed to allow an inspection of the proposed facility by the department or its designee or it is found that the facility does not meet the minimum standards. An applicant has one year to build the proposed facility from the time the MOU is signed by both parties. If the applicant has not built the proposed facility within one year of when the MOU was signed the permit will be revoked. Any person denied a permit under these regulations may request a hearing before the commission to show cause why their permit request should not be denied. MOU will be valid for three years. At the end of three years if a permittee wishes to renew a wildlife rehabilitation permit, a permit renewal form FG 542 (Rev 03/07) will be submitted along with a processing fee of $41.00 pursuant to Fish and Game Code Section 2150.2 and adjusted annually pursuant to Fish and Game Code 713.

(f) Provisions Related to the Operation of a Wildlife Rehabilitation Facility.

(1) Responsibility for Costs Incurred. The operator of a wildlife rehabilitation facility shall be responsible for any and all costs incurred in connection with the treatment, confinement or transportation of wildlife.

(2) Liability. The operator of a wildlife rehabilitation facility shall indemnify, defend and save harmless the State, its officers, agents, and employees from any and all claims and losses occurring or resulting to any person or property in connection with the treatment, confinement or transportation of wildlife.

(3) Restrictions Related to Holding Wildlife. Wildlife temporarily held for rehabilitation must be maintained separate from domestic animals and shall not be displayed to the public. Such wildlife shall have minimal direct human contact. Every effort shall be made to prevent imprinting.

(4) Department Approval Requirement for Release of Wildlife Back into the Wild. Rehabilitated wildlife may be released back into the wild only as directed by the department. The department may provide bands and tags for rehabilitated wildlife when deemed necessary by the department. If any animal cannot be released, it shall be transferred to a zoological garden, museum, college, university or other educational/research institution or wildlife exhibitor. If it cannot be released or transferred, it shall be humanely euthanized. These regulations do not authorize any person, facility or organization to accept, possess or relocate nuisance wildlife. Any healthy wildlife trapped in towns or cities or removed from under buildings or otherwise taken or trapped in accordance with Section 4152 or 4180, Fish and Game Code shall be immediately released in the area where trapped or disposed of as directed or authorized by the department. Any such wildlife that has been determined by a veterinarian to be so seriously ill that it cannot be treated shall be euthanized and tested as directed by the appropriate county public health agency or the department.

(5) Notification Requirement for Dead or Diseased Animals. The operator of a wildlife rehabilitation facility shall notify the nearest department region office within twenty-four (24) hours if any animal dies of a disease specified in the facility's permit or is suspected to have died from one of those diseases and shall make the dead animal available for delivery to the department or other facility as directed by the department.

(6) Written Record Requirement. The operator of a wildlife rehabilitation facility shall maintain a written record for each animal being cared for. This record shall include the name and address of the person finding the animal, the location where the animal was found (when available), a description of its condition and treatment, the dates it was received and transferred from the facility and the location of its final disposition.

(7) Availability of Records. The operator of a wildlife rehabilitation facility shall make all records, wildlife being rehabilitated and any materials used for the confinement, treatment, or care of wildlife, available for inspection by department employees or employees of the Department of Food and Agriculture or Department of Health Services or any other person authorized to enforce these regulations.

(8) All wildlife rehabilitation facility personnel, professional and volunteer, shall satisfactorily complete one department-approved wildlife rehabilitation training session each year. Training may include sessions of wildlife identification, wildlife capture and restraint, wildlife laws and regulations, veterinary medical and other subjects approved by the department.

The training shall be a minimum of two hours.

(g) Compliance With Other Restrictions. These regulations, or any permit issued pursuant thereto, do not authorize possession of any wild animal in violation of any other Federal, state, city, or county law, ordinance or regulation, including but not limited to any California Department of Health Services Rabies Control regulations.

Credits

NOTE: Authority cited: Sections 200, 1050, 2000, 2127, 2150.2, 3005.5, 3800 and 4150, Fish and Game Code. Reference: Sections 200, 713, 1008, 2000, 2001, 2150.4, 2192, 3005.5, 3511, 3800, 4150, 4190 and 4800, Fish and Game Code; and Section 8670.61.5, Government Code.

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END OF DOCUMENT

MINIMUM STANDARDS
FOR WILDLIFE REHABILITATION

Third Edition, 2000

Edited by Erica A. Miller, DVM

International Wildlife
Rehabilitation Council

National
WILDLIFE REHABILITATORS
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CODE OF ETHICS

A Wildlife Rehabilitator's Code of Ethics

1. A wildlife rehabilitator should strive to achieve high standards of animal care through knowledge and an understanding of the field. Continuing efforts must be made to keep informed of current rehabilitation information, methods, and regulations.

2. A wildlife rehabilitator should be responsible, conscientious, and dedicated, and should continuously work toward improving the quality of care given to wild animals undergoing rehabilitation.

3. A wildlife rehabilitator must abide by local, state, provincial and federal laws concerning wildlife, wildlife rehabilitation, and associated activities.

4. A wildlife rehabilitator should establish safe work habits and conditions, abiding by current health and safety practices at all times.

5. A wildlife rehabilitator should acknowledge limitations and enlist the assistance of a veterinarian or other trained professional when appropriate.

6. A wildlife rehabilitator should respect other rehabilitators and persons in related fields, sharing skills and knowledge in the spirit of cooperation for the welfare of the animals.

7. A wildlife rehabilitator should place optimum animal care above personal gain.

8. A wildlife rehabilitator should strive to provide professional and humane care in all phases of wildlife rehabilitation, respecting the wildness and maintaining the dignity of each animal in life and in death. Releasable animals should be maintained in a wild condition and released as soon as appropriate. Non-releasable animals which are inappropriate for education, foster-parenting, or captive breeding have a right to euthanasia.

9. A wildlife rehabilitator should encourage community support and involvement through volunteer training and public education. The common goal should be to promote a responsible concern for living beings and the welfare of the environment.

10. A wildlife rehabilitator should work on the basis of sound ecological principles, incorporating appropriate conservation ethics and an attitude of stewardship.

11. A wildlife rehabilitator should conduct all business and activities in a professional manner, with honesty, integrity, compassion, and commitment, realizing that an individual's conduct reflects on the entire field of wildlife rehabilitation.

MESSAGE FROM THE PRESIDENTS

Fellow Wildlife Rehabilitators,

We are pleased to offer to you this revised and updated *Minimum Standards for Wildlife Rehabilitation*. This is a cooperative effort that represents the most current knowledge, expertise and techniques in our field. It is a reflection of what we have learned collectively, and have successfully applied during the last three decades. These *Minimum Standards* are based on accepted norms in biology, medicine, behavior, natural history, and, of course, wildlife rehabilitation. The information pertains to all who rehabilitate wildlife, regardless of numbers and types of wildlife cared for, budget size, number of paid or volunteer staff, and size and location of activity.

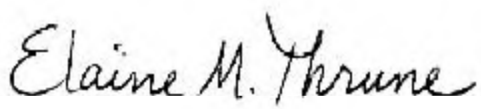
This book is a foundation upon which each wildlife rehabilitator can build an appropriate and effective practice. The goal is to give each animal the best chance of post-release survival in its natural place in the wild. Wildlife rehabilitators should combine information from *Minimum Standards*, current publications, wildlife veterinarians, experienced mentors, and personal experience, along with common sense and good judgment to make the best decisions for each individual animal. All rehabilitators are encouraged to improve upon these standards as they strive to provide the best possible care.

Although this edition is our current foundation, we recognize that as we learn more about housing sizes and materials, nutrition, species behavior, and other aspects of wildlife rehabilitation and medicine, we will certainly improve our methods. Future editions will incorporate the advancements we make.

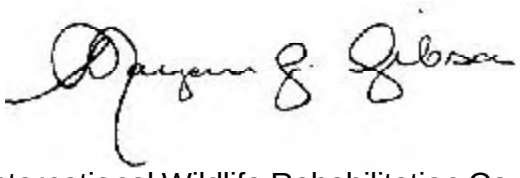
This document has been designed BY wildlife rehabilitators FOR wildlife rehabilitators. We understand that some wildlife agencies have chosen to use all or parts of our *Minimum Standards* in their permitting or licensing processes. We encourage such use but stress that the information must be kept in context and used to improve the rehabilitative care of wildlife. Our intent is not to exclude, but to include and encourage rehabilitators as they strive to improve.

Our Wildlife Rehabilitator's Code of Ethics is a part of these *Minimum Standards* and is based on the principles of honesty, integrity, responsibility, and treating others as we would have them treat us. The Code of Ethics provides basic rules of conduct for each of us to incorporate into our practice. The resulting self-respect, peer respect, and community respect and credibility will increase our effectiveness in animal care, networking, fund-raising, volunteer management, educational efforts, and all aspects of wildlife rehabilitation. Ethical and professional conduct by each wildlife rehabilitator will also contribute significantly to the credibility of our field as a whole, which, in turn, will benefit all of us.

We are proud of this collaborative effort! We encourage all wildlife rehabilitators to actively use this document to help improve the care, treatment, and successful release of wildlife.



Elaine M. Thrune, President
National Wildlife Rehabilitators Association



International Wildlife Rehabilitation Council

STATEMENT OF PURPOSE

The *Minimum Standards for Wildlife Rehabilitation (Minimum Standards)* is a document created by and for wildlife rehabilitators. This document is intended to help increase the number of rehabilitated wildlife that are successfully returned to wild populations by providing: a) standards and guidelines for care; b) a mechanism for self-evaluation; and c) recommendations and information regarding wildlife care. All rehabilitators are encouraged to explore and understand the principles underlying these standards, and to apply them in the everyday care of wild animals.

This document is not intended to be an enforcement program. Each state or province may or may not have its own requirements for rehabilitation activities and facilities. Permit requirements vary and are not necessarily related to this document. Some state and provincial agencies, however, use this document when establishing permit programs. The U.S. Fish and Wildlife Service uses the information contained in this document as part of the Standard Conditions attached to rehabilitation permits for migratory birds and endangered species.

The *Minimum Standards* is not a static textbook, but a living document that changes constantly as the field of wildlife rehabilitation grows and improves, and as the needs of individual animals demand. The procedures and cage sizes described herein have been developed by experienced wildlife rehabilitators, and are considered to be **MINIMUM** standards - i.e., more detailed procedures or larger cages are certainly acceptable and encouraged! Because wildlife patients undergoing rehabilitation are individuals, each with different injuries and unique behaviors, recommended cage sizes and techniques may not apply to every case. The wildlife rehabilitator is encouraged to alter techniques for housing, pre-release conditioning and other aspects of the rehabilitation process, so long as basic natural history, comfort, and hygiene needs are met. Cage dimensions can be modified to accommodate special needs of the facility, animal or new advancements in the field.

These *Minimum Standards* do **NOT** apply to animals kept beyond the normal scope of wildlife rehabilitation. Animals that are kept for educational, display, or captive breeding purposes have different housing requirements based on the needs of the individual. Those specific needs are not addressed in this document.

Chapter 1 - MINIMUM STANDARDS FOR REHABILITATION PROCESS

Minimum Standards for Wildlife Rehabilitation is a joint effort of the National Wildlife Rehabilitators Association (NWRA) and the International Wildlife Rehabilitation Council (IWRC). The objectives of this document are to establish professional standards for wildlife rehabilitation, to encourage the development of improved wildlife rehabilitation programs, and to improve care for all wild animals in rehabilitation.

Complying with *Minimum Standards* requires self-examination by the rehabilitator. Improvements in care and treatment protocols can be made and better facilities can be planned for using the information set forth in this publication. These minimum standards have been formulated by committee members, with extensive input from IWRC and NWRA members, and approved by the board of directors of both of these wildlife rehabilitation organizations.

This document has been designed to accommodate both the individual rehabilitator and the rehabilitation organization.

1.1 Background

The need for minimum standards for wildlife rehabilitation only became apparent in the past 15 years or so. Wildlife rehabilitation on the other hand, in one form or another, has existed for many years; it has ranged from the good-hearted individuals who first applied improvised methods for returning injured or orphaned wildlife to their native habitat, to the dedicated individuals and institutions that today continue this tradition with the increased knowledge, resources and support that results from decades of collective experience. Organized wildlife care programs originated as an outgrowth of nature and science centers and humane societies in response to public concern for injured wildlife. Some of these programs are now over thirty years old.

The field of wildlife rehabilitation experienced rapid growth beginning in the early 1970s as people became more environmentally aware of the limits of our natural resources. Oil spills triggered large scale attempts to save thousands of oiled water birds and helped raise the consciousness of industry, government and the public about the multiple hazards faced by wildlife. Programs were organized to address the impacts of human populations on native wildlife. Most of these efforts were accomplished with few funds, volunteer assistance, pre-existing facilities, and without government support.

In the early 1980s, financial support for these endeavors came mainly from private sources and, in a small part, from government sources. The numbers of paid staff positions began to increase as newly established organizations developed fund-raising abilities and benefitted from the support of the public. During the 1980s and 1990s, there was an increase in the development of entirely new wildlife care facilities to replace the makeshift facilities used in the 1970s.

Concurrent with these growth trends in the field, the Boards of Directors of the NWRA and the IWRC saw a need to establish basic minimum standards for both the individual rehabilitator and rehabilitation centers. This was partly due to the difference in willingness among participants to continually upgrade their programs, a step deemed necessary in a field with rapidly changing information and techniques.

1.2 Minimum Care Requirements

This chapter of the *Minimum Standards* walks the wildlife rehabilitator through a series of steps specifically designed to increase the chance of a successful release. The information in this first chapter will orient the rehabilitator to basic protocols and familiarize her/him to the information in the following chapters.

The goal of this chapter is to provide a blueprint for successful rehabilitation and guide the rehabilitator through the care and clinical protocols. An example of an information form is found in Appendix A. Using forms ensures that vital information is gathered for each patient. Written records are important in measuring how rehabilitation affects wildlife; therefore, a section describing statistical standards is provided. Many rehabilitation permits require a cooperating veterinarian as a condition for legitimate operation of a wildlife care facility (of any size), and a veterinary policy is provided to clarify how this relationship is intended to work. A facilities review checklist at the end of this chapter is a useful self-evaluation tool.

Minimum standards for wildlife rehabilitation apply not only to the facilities used for rehabilitation, but to all aspects of the work involved. The outline in Table 1 is meant to serve both as guidance for the rehabilitator, and as an explanation of the rehabilitation process for the non-rehabilitator.

Various steps of the process will change from one patient to another, depending on the species, the condition of the individual animal, and other conditions specific to that case. In all cases, additional steps may certainly be added; however, the rehabilitator should try to include these basic steps for each patient. The order of the steps taken and the specifics involved in each step (for example, the type and quantity of fluids) will depend on each animal, its condition, and the materials and experience available to the rehabilitator. The initial treatment will vary the most, depending again on the nature of the injury, the individual animal, the overall condition of the animal, and the materials and experience available to the rehabilitator.

Table 1: Chronologic Outline of the Rehabilitation Process - Minimum Care Procedures For Wildlife Rehabilitation

1) Admission of the animal
   a) Gather history from the person presenting the animal
   b) Record all information (see Form 2, Appendix A)
   c) Provide relevant educational material to the presenter
2) Stabilization of the animal
   a) Evaluate the animal quickly when transferring to a holding pen/cage/etc.
   b) Examine for critical conditions and administer emergency care as needed
   c) Provide warmth (unless hyperthermic)
   d) Provide quiet rest space
   e) Prepare materials needed for exam
3) Initial Examination
   a) Weight
   b) Temperature (as able)
   c) Visual exam
   d) Palpate limbs
   e) Examine orifices
   f) Assess nutritional status and condition
4) Initial Treatment
   a) Provide fluids
   b) Clean and treat any wounds
   c) Stabilize fractures
   d) Administer medications (antibiotics, steroids, etc.)
   e) Provide appropriate, palatable nutrition for species and status
   f) Conduct or schedule any ancillary diagnostics (radiographs, bloodwork, fecals, etc.) and any additional treatments (surgeries, follow-up wrap changes, etc.)
5) Intensive Rehabilitation
   a) Monitor weight
   b) Provide ongoing, appropriate nutrition
   c) Treat medical problems as needed
   d) Provide comfortable, appropriate housing and habitat, minimize interaction with human activity
6) Intermediate Rehabilitation (restricted activity)
   a) Monitor weight
   b) Provide ongoing, appropriate nutrition
   c) Treat medical problems as needed (should be minimal)
   d) Provide comfortable, appropriate housing and habitat with mental stimulation, minimize interaction with human activity
   e) Provide manual physical therapy as needed

7) Pre-Release Conditioning (unlimited activity)
    a) Provide larger, outdoor housing
    b) Monitor weight and general condition
    c) Provide ongoing, appropriate nutrition, introducing a more natural diet
    d) Treat any primary or secondary medical problems as needed (should be minimal)
    e) Exercise daily, as appropriate for that species
8) Release Evaluation (some exceptions for each category)
    a) Ability to self-feed (perhaps catch live prey)
    b) Normal mobility and function, reasonable level of physical fitness and stamina necessary for foraging, breeding, or territory defense behavior if predicted
    c) No evidence of disease
    d) Normal weight for that species/sex/season
    e) Normal blood values (where appropriate/feasible and known)
    f) Suitable release sites available (see Section 7.2)
    g) Normal behavior (the animal exhibits reasonable responses to human activity, exhibits normal socialization with both same and other species)
9) Release
    a) Provide proper/safe transportation
    b) Choose appropriate season/time of year (migration, breeding season, etc.)
    c) Choose appropriate time of day
    d) Provide food if appropriate
    e) Monitor post-release if possible

1.3 Recording & Reporting Requirements

Records are a vital part of any rehabilitation program, and are particularly important when an individual or an organization is trying to learn from previous work in an effort to improve the care given to wildlife. Record keeping has been placed in two categories: required information and recommended information. Records should be kept on all animals. Formats may vary. Records can be consolidated for healthy litters or clutches of animals raised for release. Daily forms for animals by pen, enclosure, or cage are required to verify that food, medications, and care are being provided.

Statistics should conform to specifications listed in Section 1.4. Annual statistics and, in some cases, individual case information are required to be reported to U.S. Fish and Wildlife Service and many state and provincial agencies.

All birds (dead or alive) that indicate suspected poisoning or other criminal activity must be reported to the U.S. Fish and Wildlife Service Law Enforcement Office immediately upon acquisition. All threatened or endangered species (dead or alive) and all bald or golden eagles must be reported to the permit-issuing office within 48 hours.

Required Information

- Species
- Date admitted
- When and where found
- Name/address/phone number of finder
- Presenting injury/problem
- Initial weight
- Case or acquisition number
- Record of notifying U.S. Fish and Wildlife Service Regional Permit office in cases of endangered or threatened species, or bald or golden eagles
- Record of notifying U.S. Fish and Wildlife Service Law Enforcement in cases of birds being shot, poisoned or victims of other illegal activity
- Final disposition (i.e., released, transferred, placed, died, euthanized), including date, and location of release where applicable
- Recipient information if transferred or placed (name, address, permit number and purpose of transfer), including the transfer or placement of carcasses for educational purposes
- Type and amount of euthanasia drug if a controlled substance was used
- Federal band number, where applicable
- Completed daily care forms
- Any additional information required by state or provincial permitting agency

Recommended Information

- Any additional history that might be provided by the presenter (regarding cause of injury, severity or time of injury/problem, any care given by the presenter, etc.)
- Physical examination data
- Daily treatment information and efficacy
- Data regarding surgery, clinical pathology, necropsy, histopathology (where applicable)
- Release weight
- In suspected poisoning cases, any additional information describing the site where the animal was found, weather, other species present, etc.

See Appendix A for a sample form used to collect information from the person presenting the animal, and a sample examination form for collection of the other data. The sample forms were designed for use with birds, but could be easily adapted for use with other wildlife.

1.4 Statistical Standards

Definitions

The code letters used by wildlife rehabilitators and rehabilitation centers can vary, but should be strictly defined for comparison purposes. Referenced categories should correspond to the following:

R (RELEASED): Any healthy, recovered animal that is returned to its natural, wild habitat

T (TRANSFERRED):

1) Any animal transported to another facility or wildlife rehabilitator for further rehabilitation efforts. (Note: if the animal is known to have been released by the receiving facility, it is still recorded as a 'T' by the original facility and as an 'R' by the receiving facility).

2) Any animal determined to be unreleasable while undergoing wildlife rehabilitation efforts that is placed in a non-rehabilitation situation.

NOTE: Agency permission (federal and state or provincial) is usually required prior to transfer of live animals, and the recipient must possess the proper permits.

For individual center's information, this can be further subdivided into (optional):

TR (TRANSFERRED FOR REHABILITATION)
TD (TRANSFERRED FOR DISPLAY)
TE (TRANSFERRED FOR EDUCATION)

P (PENDING): Any animal still undergoing rehabilitation efforts. These animals are only added to summary statistics after final resolution.

D (DIED): Used for any animal either received dead or which dies during the rehabilitation process. Can be subdivided into (optional):

DOA (DEAD ON ARRIVAL): Any animal that dies before any lifesaving measures or treatments can be implemented in the care facility. This assumes needed measures are undertaken immediately upon receiving the animal. Placing the animal in a quiet, dark environment is using a form of treatment.

DIC (DIED IN CARE): Any animal that dies subsequent to any handling, exam, treatment, or implementation of lifesaving measures in the care facility.

E (EUTHANIZED): Any animal that is suffering or non-releasable that is euthanized. Can be subdivided into (optional):

EOA (EUTHANIZED ON ARRIVAL): Any animal euthanized after an initial exam without further treatment measures being done.

E (EUTHANIZED): Any animal euthanized after treatment measures have been implemented.

Data Analysis for Release Rate for Releasable Animals

$$\% \text{ Released} = \frac{\text{\# Released}}{\text{(Total \# Received - DOA)}}$$

Note: released animals do NOT include transferred, placed or pending animals.

Rehabilitators are encouraged to divide their statistics further into the categories of avian, mammalian, and herpetile species, both for their own information, and to help with comparisons with data from other individuals and centers. This will help with statistical comparisons between those that deal strictly with avian species, those that deal with both avian and mammalian species, those that may deal strictly with herpetiles, etc.

1.5 Veterinary Policy

In most states and under most circumstances, the legal prescription of medical care for wildlife patients is the responsibility of a veterinarian. The veterinarian may delegate a portion of this responsibility to a rehabilitator by means of a mutually agreeable, written protocol wherein these responsibilities are clearly defined. Such an arrangement allows the veterinarian to prescribe a specific treatment protocol for a specific type of injury without having to see each individual patient (e.g., the veterinarian may prescribe a certain antibiotic to be given at a specific dosage, frequency and duration for all cat attack victims). This type of arrangement also requires that an appropriate veterinarian-rehabilitator-wildlife patient relationship exists and has the following components:

1. The veterinarian has assumed the responsibility for any medical judgments regarding the health of wildlife patients and the need for medical treatments.

2. The veterinarian has sufficient knowledge of wildlife medicine to permit a general or preliminary diagnosis. Furthermore, the veterinarian has recently seen and is personally acquainted with the general conditions and care of the wildlife patients through medically appropriate and timely visits to the premises where the wildlife patients are kept, or timely transport of wildlife patients to the facility of the attending veterinarian.

3. If the veterinarian intends to keep and treat any animal for more than 24 hours, the veterinarian must have the appropriate wildlife rehabilitation permit(s) or be listed as a subpermittee to the wildlife rehabilitator. Wildlife housed at a veterinary hospital must be housed in an area that is quiet and removed from domestic animals and human traffic.

4. The veterinarian is readily available for follow-up in case of adverse reactions or failure of the regimen of therapy. Such follow-up should be specific in any written agreement between the rehabilitator and the veterinarian.

5. Any agreement must abide by the laws and regulations governing the practice of veterinary medicine where and if they apply to wildlife rehabilitation.

1.6 Wildlife Rehabilitation Facilities Review

Rehabilitation facilities and individual rehabilitators often benefit from doing a regular self-evaluation or self-review. A form used to assist in this type of self-evaluation is found in Appendix A (Form 1). The purpose of this form is to provide wildlife care-givers suggestions to save time (for example, keeping reference materials at the phone), to ensure wildlife receives appropriate housing and medical treatment (exam area, caging, veterinary and diagnostic), and to protect both wildlife and humans from disease and contamination (food preparation, disinfecting, housekeeping). Not all items contained in the form will apply to everyone - an individual rehabilitator probably does not require a grievance committee or Worker's Compensation Insurance - but this form does provide an easy reference to be sure important considerations are not overlooked when changes, such as facility growth, occur.

Chapter 2 - DISEASE CONTROL

2.1 Rationale for Disease Control

The safety and health of the humans caring for wildlife is a critical facet of successful rehabilitation. Many diseases are transmitted from animals to humans, and also from animal to animal. This chapter instructs rehabilitators on effective ways to prevent the spread of disease from wildlife to caretakers, domestic animals, and other wildlife patients. Proper disease control is a serious concern for rehabilitators and permit granting agencies. Adherence to the suggested protocols is highly recommended by the NWRA and the IWRC.

Facility cleanliness is an integral part of disease prevention and containment. Proper cleaning agents combined with a sensible cleaning schedule will reduce the spread of disease within a facility. Cleaning protocols vary considerably based on the species and condition of animals in care, facility type, and cage construction. Choice of cleaning agent must be made with these variables in mind. Included in this chapter are cleaning agent descriptions and a table of agent properties that will help in making appropriate selections. The timing of cleaning efforts is another important feature of effective disease prevention. Suggestions for proper and regular maintenance in this chapter will help rehabilitators prevent disease within their facility.

2.2 Prevention of Disease Transmission

Since transmissible diseases are so diverse in their origin and action, it is most useful to approach their control according to their mode of transmission. The general modes of transmission are:

1. Diseases passing directly from one vertebrate host to another via direct contact (bite, etc.)
2. Indirect transmission involving one or more intermediate hosts (vectors) such as arthropods or prey species
3. Indirect transmission involving aerosol particles or fomites (inanimate objects such as clothing, utensils, food dishes, cage bedding, etc.)

Disease organisms enter the body by one or more of six routes:

1. Inhalation
2. Ingestion
3. Inoculation (animal bite, injection, insect bite, or direct contact via a preexisting opening in the skin)
4. Genital tract via coitus or contaminated instruments
5. Transplacental (from the mother - mammals only)
6. Across the umbilicus or yolk (from the mother)

For each of these modes of transmission there must be an effective strategy to interrupt the transmission cycle. The wildlife rehabilitator's primary defense against diseases communicable from animal to humans is a high standard of personal hygiene. The primary control of diseases communicable from animal to animal is containment, with the first line of defense being the individual cage or pen.

2.3 Standards to Prevent Disease Transmission within the Facility

2.3.1 Control of Diseases Transmissible from Animals to Humans

- Clothing should be clean and changed as often as necessary. It is suggested that the facility provide lab coats or other tops to volunteers and launder them on-site.
- Shoes and boots should be kept clean of fecal matter, dirt, and cage litter.
- Disposable gloves and surgical masks must be available for use during such procedures as necropsies or cleaning contaminated animal quarters. Necropsy procedures must adhere strictly to sanitary practices including the use of surgical masks and disposable gloves, appropriate outer garments, and the use of disinfectants.
- Lavatory facilities should be accessible with hand-washing sinks and suitable washing agents.
- Eating, drinking and smoking should be restricted to designated areas free of animal waste materials.
- The supervisory staff must be given basic information on zoonoses. Personal hygiene rules should be established and the supervisory staff should set an example.
- All personnel and volunteers should be advised to seek the consent of their physicians before working in the facility. They should acquire any necessary vaccinations (especially tetanus). If working with mammals, they should inquire about the possibility of pre-exposure rabies vaccinations. Female workers who become pregnant should be advised to renew medical consent. Rehabilitators handling potential Rabies Vector Species (RVS - most adult mammals) should have pre-exposure rabies vaccinations. See Section 2.3.3.
- There must be separate refrigeration facilities for food (animal food kept separate from human food) and for carcasses and postmortem specimens.

2.3.2 Control of Diseases Transmissible from Animal to Animal

- Cages should be designed for efficient cleaning. When possible, seamless, nonporous materials (such as stainless steel, fiberglass or plastics) should be employed for cage construction and food containers.
- Animal enclosures should be kept sanitary by having an adequate and routine cleaning regimen in which responsibilities are clearly defined and assigned to personnel. While daily removal of feces and urine from mammal cages is necessary to prevent odor, parasite re-infestation, and insect overpopulation, avian, reptile, and amphibian cages usually require less frequent cleaning. Many adult birds, especially songbirds, as well as other injured wildlife, are very easily stressed during the rehabilitation process, thus daily disturbances should be minimized. Infant mammal and bird caging requires much more frequent cleaning; bedding or nest cup linings should be changed each time the animals are fed. The floors of many indoor avian cages may be lined with layers of newspaper, paper towels, or other substrates, which can be removed one layer at a time for easy disposal of urates, feces, etc. Large flight aviaries may also be cleaned on a less frequent basis, provided there is a regular schedule for cleaning. Caging for aquatic herpetiles may be kept clean primarily through the use of proper water filtration systems.

- Indoor facilities are required to have efficient ventilation and air movement with minimal recycled or reused air.
- In all circumstances, protocols for regular cleaning should be in place, and all cages should be properly disinfected between patients (when an animal or group of animals is removed, the cage should be disinfected before new animals are placed in the cage). Because of the high incidence of *Baylisascaris procyonis* (the intestinal roundworm of raccoons), the fatal transmission of this parasite to other species, and the high resistance of this parasite to disinfectants, caging used for raccoons should be designated as such, and should not be used to house other species. Before a newly-acquired animal is introduced into a cage or enclosure that has previously been used by another animal, the cage must be thoroughly cleaned and disinfected and the bedding material changed.
- Animals confirmed or suspected of having contagious diseases must be kept isolated from all noninfected susceptible animals. Newly acquired animals should be housed separately from in-house animals upon arrival. Animals that are presented together (littermates or nestmates) may be housed together during this period. They should not be added to a group pen until it has been established that they are in good health.
- A routine examination for parasites should be performed on new arrivals, with re-examination at intervals during protracted rehabilitation.
- Bowls, feeding utensils, medical equipment, linens used for handling animals and for animal bedding, and gloves worn while handling wildlife should also be cleaned/replaced daily and disinfected between use on different animals.
- Water bowls should be cleaned and/or changed as needed to keep them clear of algae, leaves, feces, and other debris.
- Animal diets must be prepared and foodstuffs should be stored under sanitary conditions that ensure freedom from vermin and microbial contamination.

2.3.3 Public Health Responsibilities

- All organic refuse must be collected into airtight bags or containers and stored in a safe location until it is removed from the premises. The supervisory staff is responsible to local public health officials on matters regarding waste and postmortem material disposal.
- Domestic animals should not be allowed at the rehabilitation facility. If this is unavoidable, domestic animals should be fully vaccinated and should have no direct contact with, nor direct exposure to, wildlife.
- Personnel must take care to properly wash and change clothes before coming in contact with domestic animals.
- A program for rodent and insect control is recommended for wildlife care facilities; however, if pesticides are used, care should be taken to avoid contaminating both human and animal food and housing areas with pesticides.
- The rescuer or individual presenting an animal to a rehabilitator should be questioned regarding the possibility of any contact with the animal, such as bites or scratches. If injured, the individual should immediately be referred to his/her own physician for medical attention. The rehabilitator should also notify the public health department of any such

injuries, if required by state law. If the bite or injury is from an RVS, the animal should be euthanized and tested for rabies.

- All rehabilitators handling mammals (especially adults) should have pre-exposure rabies vaccinations and be knowledgeable in the handling of these species. Any bites from an RVS should be reported to the public health department. Animals suspected of rabies and that are to be tested should be refrigerated immediately following death or euthanasia; these carcasses should NOT be frozen or the test results will often be invalid.

2.3.4 Release Considerations

Rehabilitated adult animals should be released within the animal's normal home range, or within 10 miles from point of capture, when possible and reasonable. This practice minimizes the unnatural spread of parasites, diseases, and genetic material among wild populations, and maximizes the animal's chance of survival. Exact release location and time should be chosen at the discretion of the rehabilitator, based on the appropriateness of the habitat and the condition of the animal. When circumstances allow, rehabilitated adult birds should be released in a suitable habitat as close as possible to the point of their capture except during migration. If migration has occurred while the bird has been in captivity, the bird should be released in the area of the migratory destination. Studies have shown that rehabilitated reptiles and amphibians should be released within 1/2 mile of the point of capture to maximize their chance of survival.

If information regarding the location of capture is not available, the release of the animal should be within the standards set by the state/provincial wildlife agency and should meet all habitat requirements of the animal. Intimate knowledge of the species' natural history and behavioral patterns is essential in choosing the correct habitat. Studies that examine outcomes of released animals indicate that incorrect habitat selection increases mortality.

Juvenile animals, especially those that were brought into rehabilitation as infants, do not have to be released at the site of capture to ensure survival; however, efforts should still be made to release these animals within 10 miles of the capture site, if possible. When return is not possible (retrieval area is contaminated, contains definite hazards for the animal or the individual doing the release, etc.), these animals should be released in a suitable habitat.

Some considerations when assessing what a suitable habitat constitutes for a particular species include: adequate space not occupied by territorial conspecifics; suitable shelter; proper terrain and vegetation; good food and water supply; minimal number of predators; and suitable distance from human development.

2.3.5 Disposal of Carcasses and Animal Waste Products

Each animal that dies or is euthanized while under the care of a wildlife rehabilitator should always be examined carefully to confirm that the animal really is dead (lack of pulse or heart beat). Carcasses should then be disposed of properly and in accordance with local laws and parameters set forth in individual wildlife rehabilitation permits (e.g., the rehabilitator may be required to transfer the carcasses of endangered species to a specified location). Unless otherwise directed, all bald and golden eagle carcasses and loose feathers must be sent to the National Eagle and Wildlife Property Repository (Rocky Mountain Arsenal, Building 128, Commerce City, Colorado 80022, PH: 303-287-2110, EM: dennis_wiist@fws.gov).

If the rehabilitator plans to necropsy the carcass or transfer it to a diagnostic facility for the purpose of necropsy, the carcass should be wet with cold water, unless the animal is a suspected victim of pesticide poisoning (water might remove pesticides contaminating the outside of the animal). The addition of a small amount of detergent to the water will help to penetrate the fur or feathers, speeding up the process of cooling the body. If the necropsy is not performed immediately, the wet carcass should be placed in a plastic bag, sealed, labeled, and refrigerated in an ice chest or refrigerator not used for food storage. A necropsy performed shortly after death allows collection of more accurate information. This accuracy fades as more time passes due to postmortem changes which can alter or mask signs. Gloves and surgical mask must be worn while conducting necropsies. Necropsies should be performed in a well-ventilated location, separate from live animal and food preparation areas.

NOTE: Endangered or threatened species and bald or golden eagles must not be necropsied without first obtaining permission from the U.S. Fish and Wildlife Service.

Carcasses that are not necropsied may be transferred to local natural history museums, universities or other institutions for study and/or addition to their collections. The wildlife rehabilitator should contact these institutions and arrange for proper handling of the carcasses so that the institutions can gain the most benefit from them (e.g., carcasses may need to be frozen, placed in formalin, etc.). Specific data may also need to be recorded by the rehabilitator such as date and location animal was found, live body weight, etc. In many cases, the information provided by the rehabilitator can be as valuable as the specimen itself.

If the wildlife rehabilitator desires to keep specific parts or portions of avian carcasses (e.g., skeletons or skins for educational purposes, etc.), special permits must first be obtained from the U.S. Fish and Wildlife Service. Many state wildlife agencies also require special permits to possess wildlife parts. Special permits are not required for the rehabilitator to possess a limited number of feathers (excluding eagle feathers) for imping purposes.

All other carcasses and all animal waste products should be disposed of in accordance with acceptable practices as required by local ordinances as well as applicable state/provincial and federal regulations. Carcasses and organic wastes suspected of disease contamination should be either buried or incinerated. Where legal, burial of carcasses should be at a depth that will discourage scavenger species from unearthing them, and lime should be spread on top of the carcasses to assist in disease control. Incinerators are generally cost prohibitive to most rehabilitators and rehabilitation facilities, and special permits are required to operate incinerators in most areas. Many local animal control shelters or laboratories have incinerators and the rehabilitator may be able to arrange for these facilities to incinerate carcasses on a regular basis. Carcasses may be frozen for a limited period of time (in nonfood freezers) for storage prior to incineration or donation to pre-approved facilities (public institutions or individuals authorized to possess the specimens for educational purposes).

2.4 Disinfection

Disease control and prevention are the obvious "why's" of facility cleanliness. The following information pertains to the "how's" of creating and maintaining a clean facility.

2.4.1 Definition of Common Terms

Antiseptic:

A substance capable of preventing infection by inhibiting the growth of infectious agents (implies use on living tissue).

Bacterial spores:

The resting or vegetative stage of certain bacteria (especially *Bacillus* and *Clostridium*) characteristically very resistant to environmental changes.

Cytotoxic:

Having the characteristic of killing cells.

Diluent:

Substance used to make a concentrated solution more dilute. Sterile water and saline are common diluents for wound treatment, and tap water is a common diluent for general disinfection.

Disinfectant:

A substance that destroys microbial organisms or inhibits their activity.

Disinfection:

Destruction of vegetative forms of microorganisms (implies use on inanimate objects).

Sterilization:

The destruction of all microorganisms in or about an object (term is only used with inanimate objects). [Note: "cold sterilization" refers to the specific method of using a disinfectant solution to soak objects, rather than applying heat, pressure, or gas as used in other methods of sterilization].

Volatiles:

Agents that evaporate rapidly and pass readily in the form of a vapor. Toxic components within these vapors can be dangerous.

2.4.2 Types of Cleaning Agents

There are various disinfecting agents that should be used after regular cleaning to properly sanitize. Suggested uses are listed under each category of cleaning agent, and some products work better against specific disease entities. The rehabilitator, however, should be aware that none of these products is designed for any specific target or single use. In addition, none of these products is specifically effective against nematode eggs or larvae (intestinal worms). Most parasites are best removed from the environment by simple mechanical means (i.e., removal of feces and physical scrubbing of cages and cage contents), while other parasites, such as *Baylisascaris*, may be very difficult to completely remove from the environment. Many disinfectants emit potentially harmful volatiles; therefore, when disinfectants are used in cages, the cages should be allowed to dry thoroughly before placing animals into the cages. Some of the more common agents and methods are discussed here; additional information can be found in the references in Appendix B.

Detergents:
Detergents are cleaning compounds and include both soaps (anionic - alkali salts; negatively charged) and synthetic detergents (cationic - colloidal in solution; used as antiseptics, wetting agents, and emulsifiers; positively charged). While soaps are non-antibacterial, the physical scrubbing action of cleaning removes many of the microorganisms. Detergents alone do have minor disinfectant action against vegetative bacteria; however, they are not effective against fungi or viruses. Additionally, they lose their effectiveness in the presence of blood or tissue debris.
Examples: Dish detergents and laundry detergents.
Uses: Initial washing of cages, food bowls, etc., to remove organic matter.

Alcohols:
Solutions of 50-70% isopropyl alcohol or 70% ethyl alcohol are commonly used alone or combined with other disinfectants. Isopropyl has a wider range of antibacterial action and is less corrosive than ethyl alcohol. Alcohols act by denaturing soluble proteins, interrupting metabolism, depressing surface tension and lysing (breaking open) cells. Because it is cytotoxic, alcohol should not be used on open wounds. Alcohols inactivate phenols, so the two should not be combined. Alcohols are not effective for cold sterilization, and may damage rubber, plastic and other synthetic materials.
Example: Rubbing alcohol.
Uses: surgical preparation, antiseptic, instruments.
Use undiluted (i.e., 50-70%).

Aldehydes:
The two most common disinfectants in this group are gluteraldehydes and formaldehyde. Gluteraldehydes are often combined with a synthetic detergent. These substances are irritating and cytotoxic, so their use is limited to disinfection, and instruments should be rinsed well before use. Exposure of 3 hours is required to kill bacterial spores. Formaldehyde is considered a carcinogen.
Examples: Wavicide™, Cidex™.
Uses: Glutaraldehydes may be used for cold pack sterilization, disinfection; formalin (40% formaldehyde in water) may be used to fumigate premises.
Recommended dilution ratio: Use gluteraldehydes undiluted (i.e., 2.0%) for disinfection; use formalin at 1-10% for fumigation.

Chlorhexidine:
This bisbiguanide compound acts on bacterial cell membranes, precipitates intracellular contents, and inhibits ATP (adenosine triphosphate, an energy source for cells--in this case the energy source of the bacteria). The cell membrane damage causes leakage of potassium and pentoses, which kills the bacteria, but also harms host cells. Can dilute in water or saline. The brand name Virosan™ contains alcohol, making it effective against pseudomonads; however, once mixed with water this solution is only effective for 3-4 days.
Example: Nolvasan™(2%), Virosan™.
Uses: Surgical preparation, wound treatment, disinfection.
Recommended dilution ratio: 1ml chlorhexidine + 39ml diluent (0.5%) for wounds, and 1ml chlorhexidine + 19ml diluent (1.0%) for disinfection.

Chlorine:
Chlorine-based products are oxidizers, releasing free radicals that destroy cells. These compounds indiscriminately attack microorganisms, organic matter and living tissue. Chlorine decomposes in the presence of light and has toxic fumes that can lead to chemical pneumonia and skin and eye burns. Good ventilation, eye protection and gloves are recommended when using Chlorines.
Examples: Clorox Bleach™, Purex™ (should be 5.25% sodium hypochlorite).
Uses: Disinfection of nonmetallic objects and surfaces.
Recommended dilution ratio: 1:32 (1/2 cup of 5.25% bleach per gallon diluent).

Stabilized Chlorine Dioxides
Stabilized chlorine dioxide is an inorganic compound of oxygen and chlorine and is a powerful oxidizing agent. Chlorine dioxides stimulate an oxidation process that safely breaks and eliminates sulfur bonds responsible for organic odor. Can be safely used around birds. It will clean and provide disinfectant protection and is not harmful. For hard surfaces, the solution is sprayed on and then wiped off after a 5 minute exposure. Rinsing is not necessary. Oxyfresh Dent-a-gene™ is a full strength stabilized chlorine dioxide disinfectant that is a two-part product. The two parts are mixed (at this stage it does have toxic fumes) but once stabilized it is safe for use. A mixed solution can be used for 7 days if sealed tightly and kept out of the light.
Examples: Bio-Rite™, DioxiCare™, Oxyfresh Dent-a-gene™, Oxyfresh Cleansing Gele™
Uses: Washing/soaking solution for syringes, food dishes, feeders and water containers; general disinfection of premises.
Recommended dilution ratio: Varies with product, follow label directions.

Cresols:
Cresols are wood tar distillates that have solvent and antibacterial properties. Commercial cresols available as disinfectants usually consist of pine oils combined with soap. These substances are often difficult to remove from surfaces and may leave a slick coating to floors or other surfaces.
Examples: Hexol™, Pine-Sol™.
Uses: Disinfection of premises.
Recommended dilution ratio: None listed in literature.

Iodophores:
These compounds consist of iodine complexed with surfactants or polymers. The most common compound is povidone iodine (iodine + polyvinylpyrrolidone), available as a solution and as a scrub. The detergent used in the scrub form is cytotoxic and should not be used on open wounds. The polyvinylpyrrolidone has a high affinity for cell membranes, delivering the iodine more directly to the target cells (e.g., bacteria), but it is the free iodine that contains the disinfectant action; therefore, dilutions of povidone iodine actually disinfect or kill infectious agents better than more concentrated solutions. Iodine kills bacterial spores if contact time is greater than 15 minutes.
Example: Betadine™ Solution and Betadine™ Scrub(10%).
Uses: Surgical preparation, wound treatment, hand cleansers, foot baths, disinfection.
Recommended dilution ratio: 1ml povidone-iodine + 99ml diluent (0.1%) for surgical preparation and 1ml povidone-iodine + 9ml diluent (1.0%) for wound treatment.

Phenols:
Phenols are cytotoxic by disrupting cell walls and precipitating cellular proteins. Some phenols have been shown to cause neurotoxicity and teratogenicity (birth defects) after long dermal exposure, so animals should be removed from the quarters during cleaning; the use of goggles and gloves is recommended. Phenols are extremely toxic to cats and may be toxic to reptiles.
Examples: Avinol-3™, Lysol™, One Stroke Environ™.
Uses: General disinfection, foot baths.
Recommended dilution ratio: 1/2 ounce One Stroke per gallon diluent.

Quaternary Ammonium Compounds (QAC):
QAC's are a form of cationic detergent, but they are not compatible with other soaps or detergents, and even the residues of these substances and/or organic matter will inactivate QAC's. Activity is increased, however, by the addition of ethanol. These compounds act by direct denaturation of bacterial enzyme systems and neutralization of acidic elements in the bacterial cell walls.
Examples: Roccal D™, Parvosol™, Quintacide™.
Uses: Some wound treatment, general disinfection.
Recommended dilution ratio: 1 part QAC to 2,500 parts diluent for wounds; 1 part QAC to 200 parts diluent for disinfection.

General Comment on Potential Environmental Toxins:
Many disinfectants and their fumes, especially at full-strength, may cause skin, eye and lung irritation, and may be toxic if ingested. Care should be taken to wear gloves while using these products, and to work in a well-ventilated area. Most chemical compounds, including disinfectants, some cleansers and even some drugs, must be accompanied by a material safety data sheet (MSDS) explaining the potential health hazards and how to prevent or treat exposure. These information sheets are usually packaged with the products, or can be obtained from the manufacturer. The Occupational Safety and Health Administration (OSHA), as well as most insurance companies, require that a complete file of appropriate MSDS's be kept on scene and readily available/accessible to all employees and volunteers.

In addition to human safety, care must be taken to prevent chemical exposure to wildlife. Animals should be kept away from all volatile chemicals at all times. This includes phenols, ammonia, bleach, and most common household cleansers. If these cleansers must be used, the animals must be removed from the room they are being used in until it has thoroughly aired. If any of these chemicals are used to disinfect cages, they must be thoroughly rinsed and air-dried to prevent toxin accumulation. Cigarette smokers should not smoke near animals, particularly amphibians. Note that many pesticides will cause severe illness or even death in many birds, reptiles and nearly all amphibians.

Table 2: Properties of Disinfectants

Property or Spectrum of Action	Phenol	QAC	Cresol	Alcohol	Iodo-phore	Chlor-ine	Alde-hyde	Chlor-hexi-dine	Chlor-ine dioxide
GM^+ bacteria	high	high	high	high	high	high	high	high	high
GM^- bacteria	high	high	high	high	high	high	high	mod*	high
Bacterial spore	none	none	none	none	mod	none	mod	none	mod
Chlamydia	none	high	none	none	?	low	?	none	?
Fungi & yeasts	low	mod	mod	mod	high	high	high	mod	high
Viruses	mod	var	mod	mod	mod	high	high	mod	high
Protozoa	low	mod	?	mod	high	none	?	low	high
Effectiveness w/organic matter	mod	low	mod	none	mod	none	var	mod	low
Residual action	high	high	high	none	low	none	low	high	low
Effectiveness in hard water	var	low	var	NA	high	high	high	none	?
Most effective PH range	acid	alk	acid	NA	acid/ alk	acid	acid	alk	?
Corrosiveness	high	none	mod	low	mod	high	none	none	low
Toxicity	high	low	mod	low	low	low	var	mod	low
Biodegradable	?	no	yes	yes	yes	yes	no[#]	no	yes

KEYS

mod = moderate

var = variable with formulation

? = unknown or conflicting data published

NA = not applicable

alk = alkaline

∗ Virosan™ brand is effective against pseudomonads; other chlorhexidines are **not** effective against pseudomonads.

[#] Wavicide™ brand name product is biodegradable.

Other disinfectant notes

- Phenols and aldehydes perform better at warmer temperatures
- Iodophores are only stable as long as dark color is maintained and may stain.
- QAC destroys chlamydia but is usually expensive.
- Alcohols evaporate rapidly and may require reapplication.
- Chlorines break down in light and solutions must be fresh. Chlorines are usually inexpensive.

Chapter 3 - BASIC REQUIREMENTS FOR HOUSING WILD ANIMALS IN REHABILITATION

3.1 Overview

Wildlife rehabilitators should be able to provide enclosures or cages of appropriate size made from appropriate materials that contain appropriate furnishings for all ages of all species that they commonly treat. The cage sizes recommended in this document are minimal, and the suggested materials work well for many rehabilitators. Alternative techniques for housing and pre-release conditioning are encouraged, but must meet basic natural history, comfort, and hygiene requirements. Assigning cage size strictly by species is not always realistic; variations in an individual's size due to race or age, and variations in an individual's behavior due to age and season, will affect appropriate cage size. Dimensions can be modified to accommodate special needs of the facility or the individual animal and new advancements in the field.

Minimum standards for enclosures are based on common sense. All enclosures should be structurally sound, constructed of materials appropriate for species housed, maintained in good repair, and designed to protect the animal from injury, abuse, or harassment while containing the animal and restricting the entrance of other animals. Enclosures should provide sufficient shelter from overheating, excessive rain, snow, or cold temperatures. Each animal should be able to turn about freely, and lie or sit comfortably, unless medically restrained. The construction material should be of sufficient strength, and be of a nonporous, waterproof finish (when reasonable) to facilitate cleaning and disinfection.

The facility should have reliable and adequate potable water and electricity. Food and bedding should be stored in an appropriate manner that protects it from spoilage, infestation and contamination. Waste should be properly disposed of in accordance with all regulations, in a manner that minimizes vermin infestation, odors, and disease hazards. The facility should provide fresh air in a manner that avoids drafts, odors, and water condensation, and provides auxiliary ventilation when ambient temperature exceeds 85°F. Lighting should be adequate to allow for inspection and cleaning, while not stressing animals. Full spectrum lights may be necessary. The facility should be sufficiently drained to protect against sewage back up in traps and to rapidly eliminate water accumulation.

An effort should be made by the rehabilitator to obtain as much information as possible on each species admitted through reference and natural history literature and contact with other rehabilitators familiar with the species. Through an understanding of each species' behavior and natural history, proper choices can be made to provide suitable cage habitats.

All rehabilitators should be prepared to provide ***temporary*** housing for any species they are likely to encounter—including those species rarely encountered, and/or for which they are not currently licensed to treat. These animals should be transferred within 24 hours to another rehabilitator or facility that is both properly licensed and equipped for their care.

Many indoor and outdoor cages can be constructed for multispecies use. These cages can be quickly modified to accommodate different species through substituting different perches or other furnishings. Thus, a separate cage is not needed for each species the rehabilitator intends to treat, but cages should be able to be adequately disinfected and adapted to meet the minimum standards required for the species.

Many young animals (e.g., fledgling crows or infant raccoons) should be group-housed with conspecifics to avoid imprinting on and/or socialization to humans. When foster parents are available, young birds (when possible) should be transferred to facilities having those foster parents. Efforts should also be made to network with other rehabilitators to place individual (single) young animals with others of its own species.

When birds are developed sufficiently to perch or mammals to ambulate, cages meeting adult requirements are necessary. These adolescents may be more "behaviorally comfortable" being group-housed with conspecifics. Group-housing is not always feasible or the best option for adults. The natural history and seasonal behavior of the species are factors to consider before housing adult animals together.

Housing design must provide for the safety of both humans and animals. In addition to the above, some important considerations include:

- Avoid areas where animals can become tangled or trapped
- Avoid sharp edges or points (inside and outside cages)
- Allow for "running" distance for both human and animal, including hiding boxes
- Ensure proper footing by using flooring with good drainage
- Avoid ledges that can be used as unintended perches
- Secure all cages with appropriate locks
- Use food trapdoors if possible to minimize interaction

3.2 Cage Size Criteria Based on Medical Status

Appropriate cage space is conditional to the species, the behavior of the individual, the nature of the injury, and the specifics of treatment and recovery. Recommended cage dimensions are based on approximations of space requirements during three recovery periods, each defined by the activity level required of the patient(s). These levels are restricted activity/mobility, limited activity/mobility, and unlimited activity/mobility.

The following paragraphs describe the three activity levels and the caging best suited to them. Housing/caging should allow recovering animals the prescribed amount of self-imposed activity or supervised/forced activity during rehabilitation. Prescribed activity can be linked with cage size based on species and stage of recovery. Indoor caging is replaced by outdoor caging as the animal progresses through the rehabilitation process. Animals requiring large expanses of water (for example, grebes, loons, pelagic birds, and many marine mammals) present some challenges to wildlife rehabilitators and this set of activity descriptions; these descriptions may not apply directly to such species.

3.2.1 Restricted Activity/Mobility

Restricted activity/mobility means to hold an animal within a space small enough to restrict almost all movement, but to provide enough room for the animal to maintain a normal alert/upright posture and to stretch its body, limbs and tail, but not enough to leap, fly, or run. The enclosure should be small enough to facilitate easy capture, thereby minimizing capture stress and the possibility of injury during repeated periods of capture and treatment. Young mammals and birds confined to their nest prior to weaning and fledging are included in this category.

Conditions requiring restricted activity include rehydration, hypothermia, bandaged wing, or leg injury to mammals. Any animal with severely debilitating conditions such as shock, toxicity, neurological impairment, or other conditions that require close supervision and management should be considered as restricted activity patients.

Restricted activity areas are provided by incubators, veterinary cages, kennel carriers, and other small enclosures. Perches close to the cage floor (relative to the size of the bird) and/or walk-ups to perches should be provided depending on equilibrium and/or injury. Hiding areas such as boxes or towels must be provided for those species with more reclusive behavior such as raccoons, wrens, and rat snakes. Limited access to tubs or small pools might be provided to semiaquatic or pelagic species when the injury permits. Restricted activity is maintained primarily indoors in northern temperate areas.

3.2.2 Limited Activity/Mobility

Physical therapy and/or acclimatization comprise the next phase of the rehabilitation process once the anatomical and/or physiological problem has been corrected. Movement is now encouraged as part of the healing process. This physical therapy may be voluntary and/or forced by care-givers.

Limited activity/mobility is when restriction of the animal's movement is no longer necessary due to ongoing treatment, but periodic capture and medical treatment may still be necessary. These enclosures are also used for fledged birds and weaned mammals. Outdoor caging should provide the opportunity for short flights or walks/runs. Perches and walk-ups to perches (birds) or hiding areas and nest boxes (all animals) are appropriate furnishings. Semiaquatic and pelagic species should have access to tubs or pools of water for exercise. Creance flying may be appropriate physical therapy during this phase.

3.2.3 Unlimited Activity/Mobility

Unlimited activity/mobility uses large and complex outdoor caging. These enclosures provide physical and psychological conditioning or reconditioning through extended flights for birds and walks, runs and/or climbs for mammals. This housing should allow animals to improve their strength, develop stamina and coordination, restore muscle tone, and acclimate to ambient weather conditions. Physical therapy should be primarily voluntary although some may be forced by care-givers. Unlimited activity caging should be used to condition fledged birds and weaned mammals for release. At least two perches should be provided for birds. Hiding areas and nest boxes should be provided for all animals. Large pools of water should be provided for aquatic species. Creance flying may be appropriate physical therapy during

this phase as well. Please see notes on raptor housing for more specific details on how creance conditioning relates to cage size.

3.3 Natural History/Behavior

The natural history and behavior of any species must be considered in the enclosure design process. Not only does the enclosure provide for security and animal safety, it provides habitat in which the animal can learn or relearn behaviors specific to that species. Caging should provide animals undergoing rehabilitation the opportunities necessary for complete recovery from injuries and/or for learning and practicing vital behaviors such as foraging or hunting.

Cage design and furniture should address and encourage species-specific patterns of foraging, play, rest or sleep, hiding or predator avoidance, and social responses to conspecifics or cage mates. For example, many species such as crows and raccoons respond well to toys, hides, pools, climbs, and other species-appropriate enhancements. Other species, such as mourning doves and opossums seem to benefit less from such curiosity enhancements; however, even these species have been observed using these items over time. Suggestions for appropriate habitat furnishing can be found in the specific housing sections which follow, and in the reference material in Appendix C.

Animals should be fed palatable, nutritionally balanced food in a form and presentation appropriate to their natural behavior and their medical condition. Diets are highly specialized and specific dietary needs may vary from one individual to another; for this reason, a veterinarian or veterinary nutritionist should be consulted before formulating any new diets or adding vitamins or other supplements to existing diets. Some species may show strong preference to a specific food item, so efforts should be made to provide a varied diet and regularly monitor food intake and changes in body weight.

3.4 General Indoor Caging/Housing

Minimizing stress experienced by animals in rehabilitation is a key factor in the design of indoor enclosures. All indoor caging should be located in an area that provides quiet and minimal visual stimuli. Specific suggestions to minimize stressors are to cover cage doors, provide visual barriers, position cage fronts away from human activity, remove radios, and place the enclosures far from high traffic areas. When possible, natural daylight should be provided. Full-spectrum (UVB, UVA, visible light, and infrared) lighting should be used when natural lighting is not feasible. Some products are advertized as “full-spectrum” while only providing the full visible spectrum. The need for full-spectrum light can vary by species; for example, snakes do not require UVB light. Any artificial light source should be timed to mimic current seasonal daylight cycles.

3.5 General Outdoor Caging/Housing

Animals undergoing rehabilitation are generally housed in outdoor enclosures prior to release. Large, outdoor caging provides opportunities for exercise, behavioral rehabilitation, and acclimatization to weather conditions, while smaller outdoor caging may be used for short periods prior to this release conditioning.

The philosophy dictating cage size presupposes normal recovery times for the patient. None of the restricted or limited activity sizes is recommended for extended or permanent care. Housing for animals kept permanently (e.g., for educational, exhibit or captive-breeding purposes) is not addressed in this document, but can be found elsewhere *(see Appendix C).*

Special consideration must be made in the design of outdoor enclosures to provide adequate shelter, safety, and proper habitat for animals in rehabilitation. Enclosures should be made secure against local predators, including adequate perimeter control; for example, a cement floor and foundation or ½-inch galvanized hardware cloth buried under the cage floor and extending two feet up the walls may be considered adequate protective design. Enclosures and their contents should duplicate natural conditions wherever practical. Cage design should provide for ease of cleaning, proper ventilation, adequate light, and temperature control. Proper substrates and furnishings appropriate for each species should also be provided in each cage. Fresh water for drinking and/or bathing must be available in each enclosure.

Each outdoor enclosure should possess an area that provides necessary protection from the elements, yet still enables the animal to be conditioned for survival in the wild. All cages should have a roofed portion or contain a nest box or other means of protection from inclement weather. Feeding areas (and the food within) should be protected, as well. Protection from the wind and weather should also be provided on the north side of enclosures. In northern climates, roofs and doors should be constructed to withstand the weight and depth of snowfall.

Outdoor enclosures ideally protect the animal without habituating it to human activity. To avoid habituation to humans or even taming, cages should be surrounded by a fence or somehow placed out of view of the general public. As in the design of indoor enclosures, minimal human contact, both visual and auditory, is preferable. Domestic animals and other potential predators should be prevented from contacting animals in rehabilitation, as predator avoidance is an important factor in survival of rehabilitated animals. Consideration of these variables when designing outdoor enclosures is vital for proper rehabilitation of wildlife.

Outdoor caging alone may not be adequate for full conditioning of certain species and/or certain injuries; for example, the flight conditioning requirement for successful release of a peregrine falcon recovering from a shoulder fracture may exceed that provided by any caging. The large cages or deep pools necessary for proper conditioning of some species are not available to all wildlife rehabilitators. In many instances, cooperation with other rehabilitators or wildlife professionals may ultimately be the most successful strategy an individual rehabilitator can choose. Working with licensed falconers to provide pre-release training or transferring patients to other rehabilitators with more appropriate caging are suitable substitutes for the conditioning cages (unlimited activity) recommended below. The successful release and continued survival of rehabilitated animals is the goal of rehabilitators; networking to share information, skills and equipment is vital to the success of rehabilitation.

Chapter 4 - AVIAN HOUSING REQUIREMENTS

4.1 Overview

4.1.1 General Avian Housing Considerations

Enclosure dimensions are based on materials as well as species requirements. Exterior plywood is available in economical and easy-to-use 4-foot by 8-foot sheets and some caging dimensions have been calculated using numbers that are based on this material size. Maximum volume is achieved with cubic cages, and this fact is considered when determining cage dimensions. Enclosure design varies widely depending on materials used, climatic conditions, species housed, and many other considerations. While considerable thought and experience was employed to structure the cage sizes listed in Tables 3-5, it is beyond the scope of this document to list all possibilities in terms of material, design, or size.

Cage sizes specify minimums and are calculated for the species at different stages of rehabilitation. Intelligent substitution of height and ground area requirements is encouraged; for example, while pheasants and egrets are the same size, one requires ground space while the other needs height. Substitutions resulting in larger sized or differently shaped cages are encouraged.

Multiple occupancy by **compatible** species is not only acceptable but beneficial, particularly in conditioning (unlimited activity/mobility) caging for fledgling birds. Individuals of certain other species (e.g., herons, titmice, woodpeckers, etc.) may be extremely aggressive and may require individual housing.

4.1.2 Construction Materials

Many different types of construction materials for avian enclosures are used in rehabilitation. Selection of appropriate material is important for the proper construction of adequate enclosures. In general, aviaries should have a double-door entry system (not always necessary for birds less apt to fly in confined areas, such as waterfowl and seabirds). Solid walls for aviaries can be constructed of wood, fiberglass, or an equivalent. Hardware cloth, chicken wire, and chain-link fencing are not recommended if the birds can come into direct contact with them; these products may be used if appropriate netting or screening is used on the interior surface. If vertical wood lath, fiberglass screening, or netting prevent direct contact, wire can add extra security, and may be used as the external material for most cages.

4.1.3 Flooring Considerations

Flooring for aviaries varies with types of birds. Substrates, such as sand or pea gravel, should be changed as often as necessary, and biannually at a minimum. Natural flooring is acceptable in very large enclosures. This natural flooring must be turned over and disinfected on a regular basis, depending on the number and size of birds housed in the enclosure. Flooring substrates for small cages include towels, paper towels, raised netting over newspaper, newspaper alone, or dried pine needles. [Note: dried pine needles are not appropriate for ground-foraging birds such as doves, as crop rupture has been noted when these birds ingest the pine needles.] The selection of substrate is dependent on the species being housed.

4.1.4 General Avian Furnishings

Many types of cage furnishings are appropriate for birds undergoing rehabilitation. Bath pans or pools should be provided for all birds whose medical condition does not prohibit them from getting wet (e.g., bath pans are usually contraindicated for birds with wing wraps or foot bandages or for birds with neurologic deficits). When perching is required (see Tables 3-5), each cage should have a minimum of two perches for birds capable of perching. Waterfowl and seabirds will have different “perch” requirements. Perches and all surface substrates (including those on floors and perches) should be customized to the appropriate size and material for the species using them. Appropriate size and substrate will vary with the natural history of the species (e.g., limb-perchers vs. ledge perchers) and should be designed with the goal of minimizing foot damage. Outdoor caging should contain some sort of nest box for cavity nesters or sheltered area for other birds. Nest boxes and shelters provide a natural space that reduces stress and enhances security.

4.2 Housing for Songbirds

4.2.1 General Songbird Housing Considerations

The songbird (passerine or perching) group of birds includes a large number of individual species with wide ranges in size, behavior, habitat, foraging techniques, food items, and subsequent rehabilitation requirements. These requirements must be understood and addressed to ensure successful rehabilitation and eventual release of healthy, well-adapted individuals that are prepared for survival in the wild.

Understanding the natural history of any species in rehabilitation is necessary when considering caging arrangements. Songbirds have many natural predators such as hawks, owls, other birds, snakes and small mammals, as well as domestic animals associated with man (cats and dogs). Care should be taken to reduce exposure of these birds to potential predators, thereby reducing stress and/or potential injury. While some species may be housed together within this group, especially when young, some species such as jays and crows are predators of other species. Songbirds which are seed-eaters or omnivores have characteristic heavy beaks with the capacity to harm birds with much smaller insectivorous beaks. Certain other species, such as tufted titmice and vireos, can be aggressive towards other birds, including their own species.

The requirements for pre-release conditioning (unlimited activity) caging vary greatly among songbird species. White-breasted nuthatches, bushtits and titmice generally fly straight from their nests, requiring very little pre-fledge training. Larger birds, such as robins, mockingbirds and jays, leave the nest early, and spend a lot of time on the ground while developing flight feathers. During this time, the fledglings follow the adults and learn appropriate survival behaviors. Larger songbirds require exercise and practice to fly well so a larger aviary is recommended to house these species.

4.2.2 Construction Materials

External wire on outdoor caging for songbirds should be ½" x ½" galvanized hardware cloth. The use of chicken wire or chain-link is not recommended, as the large openings allow predator entry or accidental escape of cage inhabitants if the interior lining becomes torn or

loosened. Interior walls should be lined with screening or a very fine-meshed netting, such as shade-cloth. Mesh size is important, as large mesh may allow songbirds to catch toenails or even toes in the netting. Fiberglass screening is acceptable for most songbirds, but will not withstand the pecking behavior of titmice, jays, woodpeckers, and some other species. Wire screening has been used successfully without causing damage to feathers.

Selection of surface material depends on the natural history of the species being housed. No wood surfaces should be exposed in cages for Piciformes, as they will destroy these surfaces. Interior surfaces may be lined with metal or plastic siding, and may prevent the birds from climbing (thereby preventing feather damage). PVC pipe, reinforced with rebar inside, makes effective, indestructible cage framing and perches for larger woodpeckers.

Floors of both indoor and outdoor cages should be composed of or covered with appropriate substances to prevent slipping (splay leg) and/or bumblefoot. Suitable substrates to improve footing include, but are not limited to, newspaper, towels, paper toweling, foamy plastic shelf liner, sand, Astroturf™, and parasite-free dried pine needles. [Note: dried pine needles are not appropriate for ground-foraging birds such as doves, as crop rupture has been noted when these birds ingest the pine needles.]

4.2.3 Furnishings

Understanding the natural history of the species being rehabilitated, and then adapting the aviary accordingly for that species, can give the bird(s) a great advantage when released. Woodpeckers do well when raised with hollow logs for a nest; bushtits, on the other hand, are raised very well when they have a hanging sock for a nest and food is provided for them to find on tree branches and leaves throughout their aviary. Cavity dwellers/nesters should be provided with some sort of hide box or cavity-type container. Aviaries that are furnished with natural plantings help reduce stress and provide the birds with natural shading, perching, hiding, and foraging opportunities.

Table 3: Minimum Housing Guidelines for Songbirds & Misc. Avian Orders

Note: This table is not intended to be used independently; it should be used only in conjunction with the information in Chapter 4, Sections 4.1and 4.2

Order	Length of Bird	Restricted Activity (WxLxH)	Limited Activity (WxLxH)	Unlimited Activity (WxLxH)	Max#	Codes
Columbiformes (Pigeons, Doves)	>9"	12"x12"x12"	12"x12"x12"	16'x8'x8'	8 12	P, Pi, Q
Cuculiformes (Cuckoos)	<12"	18"x18"x18"	24"x24"x24"	8'x8'x8'	4-6	P, Q
	>12"	24"x24"x24"	36"x36"x36"	16'x8'x8'	4-6	P, Q
Caprimulgiformes (Nighthawks, Goatsuckers)	~9"	12"x12"x12"	12"x24"x12"	8'x16'x8'	6	C, P
Apodiformes						
Apodidae (Swifts)	<9"	12"x12"x12"	12"x12"x12"	8'x16'x8'	15-20	B, Ch
Trochilidae (Hummingbirds)	<5"	7"x11"x5"	12"x17"x7"	2'x4'x6'	4	P, Z
Coraciiformes (Kingfishers)	<9"	12"x12"x12"	18"x18"x18"	8'x16'x8'	4	C, F, Pi, S
Piciformes (Woodpeckers)	<9"	12"x12"x12"	18"x18"x18"	4'x8'x8'	2-4	C, D, H, W
	>9"	18"x18"x18"	24"x24"x24"	8'x16'x8'	2-4	C, D, H, W
Passeriformes						
(Perching	<5"	7"x11"x5"	12"x17"x7"	2'x4'x4'	4	H, P, Z
& Songbirds, Swallows)	>5"	12"x12"x12"	18"x18"x18"	4'x8'x8'	4-6	H, P, Z, W
Corvidae	<17"	14"x18"x18"	24"x18"x24"	8'x16'x8'	6	P
(Crows, Ravens & Magpies)	>17"	16"x22"x22"	24"x24"x24"	10'x30'x15'	6	P
Galliformes	<20"	2'x2'x2'	3'x3'x3'	4'x4'x8'	4	H
(Quail, Pheasants)	>20"	3'x3'x3'	4'x4'x8'	8'x12'x8'	4	H

(WxLxH) = Listed in order: Width x Length x Height
~ = approximately
< = less than
> = greater than
" = inches
' = feet
Max# = Maximum recommended number of conspecifics housed in “Unlimited Activity” enclosure; actual number will vary with season, age and temperament of the individual birds.

Codes for Special Housing Requirements Used in Table 3, Songbirds & Misc.

B Special vertical surfaces needed for swifts. Temporary confinement and recovery housing must be lined on all sides with a snag-free fabric or other material with enough texture for the birds to cling vertically. Two or more walls of the conditioning housing must be constructed of or covered with a roughly-textured material such as cork, rough-textured siding or fiberglass window screening.

C Birds such as woodpeckers and nuthatches require angled and/or vertical logs for climbing, and hollow logs for hiding/nesting. These logs also help to maintain beak and foot health, and allow the birds foraging experience as they hunt for ants, grubs, etc. Birds such as kingfishers and nighthawks require large, horizontally level, elevated logs for perching.

Ch A waist-high "artificial chimney" should be located in the center of the outdoor housing as a feeding station or roost; suggestions for construction may be found in Kyle, P. and G. Kyle, 1995.

D Birds with this designation require old logs, etc., as drumming materials.

F Special substrate needed. These species are susceptible to foot problems. Depending on the species, padded flooring, towels, linens/sheeting, carpets, natural kitty litter (no additives), or sand may be used.

H Hides; provide natural vegetative material or human-devised areas for cover. (All birds will benefit from an area of cover.)

P Requires two or more perches of varied diameter; materials may be natural branches, hemp or sisal rope from ¼" to ¾" diameter, dowel rods covered with self-adhering wrap (such as Vetrap™ 3M, St. Paul, MN), or other suitable substances (such as rubber drawer-liners). Varied substrates, diameters and locations allow the bird choices and minimize captivity-related foot problems.

Pi Piling or shelves required for perching; these should be covered with Astroturf™ or other suitable material to provide good footing and prevent bumblefoot lesions.

Q Quiet and extreme privacy required (very prone to stress).

S Bathing area required; "kiddie pool" size.

W Large pan with soil, leaves, grass and/or wood chips containing live worms, grubs, mealworms and/or insects to allow the birds to forage on their own. May not be required for all species in the orders listed - check natural history requirements.

Z Although larger conditioning cage sizes may be preferred, great care must be taken to seal off small openings or cracks that can act as traps.

4.3 Housing for Waterbirds

4.3.1 General Waterbird Housing Considerations

Waterbirds, as the name implies, are those birds that spend much of their time in, on or around the water. These birds all require some sort of pool in their outdoor (unlimited activity) caging. The size of the pool varies greatly from species to species and with the individual injury. The natural feeding, drinking, and bathing behavior of each species should be considered in the design of the pool, including depth of the water for swimming, bathing, and drinking. For example, sandhill cranes dip and scoop to drink water, so this species requires a water bowl with a minimum diameter of 12" and a minimum depth of 5".

The cage sizes recommended in this manual are minimums. Every bird would benefit from as large a flight area as possible and the rehabilitator is encouraged to construct larger cages whenever reasonable. The recommendations throughout the *Minimum Standards* have been tried by experienced rehabilitators and shown to be the minimums acceptable for safe and effective rehabilitation of the species indicated. Remember that large cages intended for animals with greater space requirements can be designed to be subdivided or furnished for other species when needed.

4.3.2 Construction Materials

Construction materials for aquatic birds are similar to those required for most other avian species. All materials should be easy to clean and disinfect. Use materials that are impervious to water or that can be sealed to become impervious. Materials utilized for walls should provide visual barriers, minimize chances of injury, provide adequate ventilation, and protect against predators and domestic animals. Pool materials include galvanized metals, plastics, fiberglass, cement and natural ponds. Any sharp or abrasive areas should be covered to prevent injury and substrates should be appropriate to prevent injuries to feet, e.g., matting, on flat surfaces such as cement, wood or fiberglass.

Most waterbirds spend the majority of their time in or near large bodies of water and are conditioned to seeing open sky overhead; thus, the majority of the roof on an outdoor cage should be open, allowing for a clear view of the sky. Netting works well for this application, and will prevent injury from collisions if the birds fly upwards. This type of construction is psychologically beneficial to the birds, and it encourages them to exercise.

Many of these birds are colonial foragers and nesters. Group housing for species that are colonial waterbirds may reduce stress while in captivity. A precise knowledge of the species' natural history will help in determining if the birds in rehabilitation are too territorial for group housing, or what the optimum number of individuals might be for any given enclosure dimensions.

4.3.3 Furnishings

Some factors in successful habitat construction are species-specific:

- Frigatebirds have some unique problems worth considering when housing them for rehabilitation. Their tail and primary feathers are long and fragile, requiring that they have tall

pens and perches that will keep their tails off the floor. In addition, although frigatebirds naturally feed and drink on the wing, if they land on the water, they are unable to take off and will drown. For this reason, pools should not be used in their cages, and long flight cages are needed for sufficient exercise.

- Gannets, loons and other diving species require deep pools and often will not even enter a shallow pool such as a kiddie pool. Rocks or short pilings for perches are required for gannets and some other divers, but should never be used for loons and grebes as these types of perches are too high and would cause keel damage if used. If waterproof, loons and grebes will remain in the water rather than perch; if not waterproof, netted floats or padded haul-out areas should be provided for these species.
- Cranes require tall cages to prevent head trauma as they tend to jump rapidly upwards. Some cranes bathe regularly, requiring pools up to 10" in depth. Because they are wading birds, the depth should be graduated.
- Terns and Oystercatchers will fly over and feed off of water, but they do not float or bathe in deep water. These species benefit from graduated pools, with the depth proportionate to their size (e.g., shallower for smaller terns).

Table 4: Minimum Housing Guidelines for Waterbirds

Note: This table is not intended to be used independently; it should be used only in conjunction with the information in Chapter 4, Sections 4.1 and 4.3

Order	Restricted Activity (WxLxH)	Limited Activity (WxLxH)	Unlimited Activity (WxLxH)	Codes
Gaviiformes				
Loons	15"x30"x30"	3' x 3' x 3'	Pool: 8' diam, 2' deep 2 birds maximum	N, PT, PP, SO
Podicipediformes				
Small grebes (Eared, Horned & Pied-billed)	12"x12"x12"	18" x 18" x 18"	Pool: 6' diam, 2' deep 4 birds maximum	N, H, PT, PP, SO
Large grebes (Western, Clark's & Red-necked)	18"x18"x18"	2' x 2' x 2'	Pool: 6' diam, 2' deep 4 birds maximum	N, PT, PP, SO
Procellariiformes				
Storm-petrels	12"x12"x12"	18" x 18"x 18"	Pool: 45" diam, 8" deep 5 birds maximum	N, PT, PP, SO, AG
Large petrels, Fulmar & Shearwaters	18"x18"x18"	3' x 3' x 2'	Pool: 6' diam, 12" deep 2 birds maximum	N, PT, PP, SO, AG
Albatrosses	3' x 3' x 3'	4' x 6' x 4'	Pool: 10' diam, 18" deep 2 birds maximum	N, PT, PP, SO, AG
Pelecaniformes				
Pelicans (Brown)	3' x 3' x 3'	4' x 8' x 4'	Aviary with Pool: Aviary: 12' x 30' x 10' Pool: 10' diam, 2' deep 6 birds maximum	PT, AP, SO
Pelicans (White)	4' x 4' x 4'	4' x 8' x 4'	Aviary with Pool: Aviary: 12' x 30' x 10' Pool: 10' diam, 2' deep 4 birds maximum	PT, AP, SO
Gannets, Boobies, Cormorants, Anhinga, Frigatebirds & Tropicbirds	3' x 6' x 3'	4' x 8' x 4'	Aviary with Pool: Aviary: 8 'x 16' x 8' Pool: 8' diam, 2' deep 6 birds maximum	PT, AP, SO, ST

Order	Restricted Activity (WxLxH)	Limited Activity (WxLxH)	Unlimited Activity (WxLxH)	Codes
Ciconiiformes				
Bitterns, Herons & Egrets * < 20"	18" x 18" x 18"	2' x 2' x 2'	Aviary with wading pool: Aviary: 4' x 12' x 8' Pool: 2-3' diam, 6-10" deep 2 birds maximum	AW, AG
Bitterns, Herons, Egrets, Storks, Ibis & Spoonbill * > 20"	3' x 3' x 3'	4' x 8' x 4'	Aviary with wading pool: Aviary: 10' x 25' x 10' Pool: 2-3' diam, 6-10" deep 4 birds maximum	AW
Anseriformes				
Swans	4' x 4' x 4'	4' x 8' x 4'	Aviary with wading pool: Aviary: 12' x 20' x 8' Pool: 8' diam, 2' deep 3 birds maximum	PT, AP
Geese	3' x 3' x 3'	4' x 6' x 4'	Aviary with wading pool: Aviary: 10' x 18' x 8' Pool: 6' diam, 2' deep 6 birds maximum	PT, AP
** Marsh Ducks & Whistling Ducks (dabblers)	18" x 18" x 12"	2' x 2' x 2'	Aviary with wading pool: Aviary: 6' x 10' x 8' Pool: 45" diam, 8" deep 3 birds maximum (up to 5 teal)	ON, PT, AP
♀Bay Ducks, ♋Sea Ducks & Mergansers (divers)	18" x 18" x 12"	2' x 2' x 2'	Pool: 6' diam, 2' deep 2 birds maximum (up to 4 buffleheads)	N, PT, PP, SO
Gruiformes				
Cranes	3' x 3' x 4'	4' x 8' x 8'	Aviary with Wading Pool Aviary: 10' x 25' x 10' Pool: 4' diam, 4-10" deep 4 birds maximum	AW
Rails * < 10"	12" x 12" x 12"	18"x 18" x 18"	Aviary with Wading Pool Aviary: 4' x 6' x 6' Pool: 3' diam, 3-5" deep 4 birds maximum	H, AW, FP

Order	Restricted Activity (WxLxH)	Limited Activity (WxLxH)	Unlimited Activity (WxLxH)	Codes
Rails, Gallinules & Coots * > 10"	18" x 18" x 18"	2' x 2' x 2'	Aviary with Wading Pool Aviary: 4' x 8' x 8' Pool: 45" diam, 8" deep 3 birds maximum	H, AW, FP
Charadriiformes				
Phalaropes	12"x12"x12"	18"x18"x18"	Aviary with SMALL land area (ledge) Pool: 45" diam, 6-8" deep 5 birds maximum	FP, PT, PP, SO
Sandpipers, Plovers & Shorebirds * < 10" (excluding Phalaropes)	12"x12"x12"	18" x18"x18"	Aviary with Wading Pool Aviary: 4' x 6' x 6' Pool: 3' diam, 1-3" deep 6 birds maximum	AW, FP
Sandpipers, Shorebirds & Avocets * > 10"	12"x18"x18"	2'x2'x18"	Aviary with Wading Pool Aviary: 4' x 8' x 8' Pool: 3' diam, 3-5" deep 6 birds maximum	AW, FP
Gulls & Terns * < 14"	12"x15"x18"	18" x18"x18"	Aviary with Pool Aviary: 6' x 12' x 8' Pool: 45" diam, 10" deep 6 birds maximum	PT, AP, SO
Gulls, Terns, Skimmers, Oystercatchers, Jaegers & Skuas * > 14"	18"x18"x18"	2'x2'x2'	Aviary with Pool Aviary: 8' x 16' x 8' Pool: 45" diam, 12" deep 4 birds maximum	NO, PT, AP, SO
Auks (Alcids) * < 12"	12"x12"x12"	18"x18"x18"	Pool: 6' diam, 2' deep 4 birds maximum	N, PT, PP, SO
Auks (Alcids) * > 12"	12"x18"x18"	2'x2'x2'	Pool: 6' diam, 2' deep 4 birds maximum	N, PT PP, SO

(WxLxH) = Listed in order: Width x Length x Height
diam = diameter
***** This measurement represents the length of bird from tip of beak to tip of tail with neck fully extended
****** These include: black, gadwall, mallard, pintail, wigeon, wood, shoveler, teal
♋These include: scoters, eiders, harlequin, oldsquaw
♌These include: canvasback, redhead, ring-necked, scaups, goldeneyes, bufflehead, ruddy

Codes for Special Housing Requirements Used in Table 4, Waterbirds

AG Note that these birds can be extremely aggressive, even with conspecifics. Use caution and observe the birds' interactions when introduced, before housing together unattended.

AP These birds require pre-release conditioning (unlimited activity) aviaries that contain pools to swim in and standing/perching surfaces.

AW These birds require pre-release conditioning (unlimited activity) aviaries that contain shallow wading pools and a variety of perches, especially up high.

FP These birds have very sensitive feet. Provide as much wading area (in addition to "swimming" pool) as possible in Limited and Unlimited Activity housing to help prevent husbandry injuries.

H Hides; provide natural vegetative material or human-devised areas for cover.

N Should be housed on tightly stretched, suspended netting as a substrate whenever bird is not in water.

ON When an individual of these species is housed inside and is emaciated (pronounced keel) or not standing, it should be housed on net bottom caging to protect feathers and keel until standing normally and of normal weight. Otherwise, when standing normally and keel is not extremely pronounced, housing substrate is solid and covered with toweling or matting.

PP These species, during pre-release conditioning, require only pool space. Prior to release, individuals must be able to stay in pool full time, without a haul-out area for a minimum of 48 hours without compromise to their waterproofing.

PT During recovery, bird should be allowed pool time as long and as often as medical condition allows (minimum kiddie pool size). This may include cold or warm water pools as appropriate for individuals.

SO Surface overflow of pool required to maintain water quality (this can be achieved by constantly running a hose or by overflowing pool, filtering and recirculating water).

ST As soon as they are standing, these stiff-tail-feathered birds should have a stump or stump-like perch to avoid breakage and soiling.

4.4 Housing for Raptors

4.4.1 General Raptor Housing Considerations

Sizing for raptor housing is based on a combination of the size and flight styles of the bird. While the cage information states a minimum rectangular size (Table 5), it has been found that an L-shaped enclosure will often be better to evaluate flight and angling abilities. As with other caging, the rehabilitator is encouraged to expand and enhance these minimum requirements, and create caging most suitable to their location, facility, caseload, and experience, keeping in mind the natural behavioral and physical needs of the birds.

The needs of raptors present several challenges to acheive successful release. Generally, these birds are large predators that hunt on the wing. Appropriate conditioning is crucial not only for foraging, but for territory defense and other behaviors. Thus, it is strongly recommended that the cage dimensions listed be followed or increased. Certain species, such as the bird-catching peregrine falcon, may require additional care. Hacking for nestlings, falconry exercise for better evaluation after injury, hunt training and conditioning may be necessary for some species. Creance flying may be used for evaluation and conditioning. Hunt training or live prey testing should be arranged when hunting ability is questionable, except for those birds hacked out or fostered into nests. Creance flying should not take the place of hunt training. Guidelines found in “Reconditioning Raptors: A Training Manual For The Creance Technique” (Arent, L., University of Minnesota Raptor Center, 2000) are recommended.

Rehabilitators using a flight cage, creance flying, or evaluating a patient’s progress throughout its exercise program, should apprentice under an experienced rehabilitator or falconer. A minimum of six months is recommended for apprenticeship; also recommended is attendance at a skills seminar on the proper use of each technique and methods for evaluating flight parameters. The wildlife rehabilitator should be aware that not all falconers will be able to provide useful instruction in the use of creance flying, as it is used very differently in rehabilitation than in falconry. Even if creance flying is being used, it is strongly recommended that conditioning cages of the referenced size either be used on-site or be found through networking with other rehabilitators or rehabilitation facilities. Raptors in stages immediately prior to release often need more exercise than can be provided on a creance. Movements up to perches, down to feed or water, or across to another perch also provide important exercise.

4.4.2 Construction Materials

Outdoor raptor facilities are most commonly constructed of wooden slats and/or solid sheets of wood. Chain link has been used successfully as roofing material, and can be used as an outer wall (outside of vertical barring) as a predator double wall. Other wire should only be used as a double wall outside of vertical slats; no wire should be used on walls where the bird might be able to cling or climb.

High stress raptors such as kites and accipiters should be housed in facilities adequate to the climate and that eliminate or minimize visual and auditory stress. Solid-sided walls and/or vertical slats with no more than one-inch gaps may be advisable. When secluded cages are not available, or when additional visual occlusion is necessary, translucent material (e.g., bed linens/sheets) may be hung on the outside of the slatted cage. These materials allow some

light to enter the enclosure, and slits or holes in the material allow for better ventilation than solid-sided cages.

4.4.3 Furnishings

Raptors require furnishings that are exceptionally sturdy and easily cleaned. All perching substrates must be chosen carefully based on the natural history and size of the species as well as the climate of the area (e.g., hemp or sisal rope rots very quickly in humid environments). Natural limbs (with bark), bow, block, and ring perches are appropriate for certain species of raptors. At least two perches should be placed in each cage, preferably at different heights and different angles. More than one surface substrate should be offered on the perches in each cage. Perches can be wood doweling or plastic piping (or the equivalent) covered by ¼-inch-pile Astroturf™, hemp, cocomat, or indoor/outdoor carpeting. Perches should have some degree of "give" for landings. Platforms, such as those used for peregrines, can be covered with ½-inch-pile Astroturf™, cocomat, or indoor/outdoor carpeting.

As for all animals in rehabilitation, adequate drinking water must be provided. Provide drinking/bathing water in unlimited activity flight enclosures or even in all cages if appropriate for the bird's medical condition (e.g., a bird with foot wraps or a wing-wrap should not have a bathing/water pan in any cage). Birds without access to drinking water should receive additional water injected into their food. Drinking water, when available, should be easily accessible to minimize disturbance. Pools must be a minimum of 2-6 inches deep and wider than the length of the raptor.

Table 5: Minimum Housing Guidelines for Raptors

Note: This table is not intended to be used independently; it should be used only in conjunction with the information in Chapter 4, Sections 4.1 and 4.4

Species*	**Restricted Activity** (WxLxH)	**Limited Activity** (WxLxH)	**Unlimited Activity** (WxLxH)
BOOW, BUOW, EASO, ELOW, FEPO, FLOW, NOPO, NSWO, PRSO, WESO, WHSO	12" x 17" x 16"	3' x 6' x 8'	8' x 8' x 8'
AMKE, APFA, EUKE, GRHA, HBKI, MERL, MIKI, **NOHO, NHOW, ROHA, SNKI, SSHA, STHA, WTKI	16" x 23" x 19"	6' x 6' x 8'	8' x 16' x 8'
BNOW, BWHA, COHA, HWHA, LEOW, RSHA, SEOW	16" x 27" x 22"	6' x 8' x 8'	10' x 30' x 12'
BDOW, CBCA, CRCA, GHOW, HRLH, HRSH, NOGO, NOHA, RLHA, RTHA, SPOW, STKI, SWHA, WTHA, ZTHA	16" x 27" x 22"	6' x 8' x 8'	10' x 50' x 12'
BAEA, BLVU, FEHA, GGOW, GOEA, GYFA, OSPR, PEFA, PRFA, **SEEA, SNOW, TUVU **WTEA	3' x 3' x 3'	8' x 10' x 8'	20' x 100' x 16'

(WxLxH) = Listed in order: Width x Length x Height

*Most species are listed using the four letter AOU code (American Ornithologists' Union) defined on page 39

**Indicates that the codes used for these species are not official AOU codes

Codes for Table 5, Raptors

Accipiters
COHA - Cooper's Hawk
NOGO - Northern Goshawk
SSHA - Sharp-shinned hawk

Medium Buteos
BWHA - Broad-winged Hawk
GRHA - Gray Hawk
ROHA - Roadside Hawk
STHA - Short-tailed Hawk

Large Buteos
CBHA - Common Black Hawk
FEHA - Ferruginous Hawk
HRLH - Harlan's Hawk
HRSH - Harris' Hawk
HWHA - Hawaiian Hawk
RSHA - Red-shouldered Hawk
RTHA - Red-tailed Hawk
RLHA - Rough-legged Hawk
SWHA - Swainson's Hawk
WTHA - White-tailed Hawk
ZTHA - Zone-tailed Hawk

Eagles
BAEA - Bald Eagle
GOEA - Golden Eagle
***WTEA - White-tailed Eagle*
***SSEA - Steller's Sea Eagle*

Small Falcons
AMKE - American Kestrel
EUKE - Eurasian Kestrel
***NOHO - Northern Hobby*
MERL - Merlin

Medium Falcons
APFA - Aplomado Falcon
PEFA - Peregrine Falcon
PRFA - Prairie Falcon

Large Falcons
CRCA - Crested Caracara
GYFA - Gyrfalcon

Harriers
NOHA - Northern Harrier

Kites
HBKI - Hook-billed Kite
MIKI - Mississippi Kite
SNKI - Snail Kite
STKI - Swallow-tailed Kite
WTKI - White-tailed/Black-shouldered Kite

Osprey
OSPR - Osprey

Vultures
BLVU - Black Vulture
TUVU - Turkey Vulture

Small Owls
BOOW - Boreal Owl
BUOW - Burrowing Owl
EASO - Eastern Screech Owl
ELOW - Elf Owl
FEPO - Ferruginous Pygmy Owl
FLOW - Flammulated Owl
NOPO - Northern Pygmy Owl
NSWO - Northern Saw-whet Owl
PRSO - Puerto Rican Screech Owl
WESO - Western Screech Owl
WHSO - Whiskered Screech Owl

Medium Owls
BNOW - Barn Owl
LEOW - Long-eared Owl
NHOW - Northern Hawk Owl
SEOW - Short-eared Owl

Large Owls
BDOW - Barred Owl
GGOW - Great Gray Owl
GHOW - Great Horned owl
SNOW - Snowy Owl
SPOW - Spotted Owl

Chapter 5 - MAMMAL HOUSING REQUIREMENTS

5.1 Overview

General guides for mammal housing are difficult to define due to the variation in size, temperament, and life history in mammals. Obviously, a “one-size- or style-fits-all” approach fails when you are housing mammals from bats to bears. Some principles do apply to all mammal housing, however. For example, double door or similar construction is effective in preventing escapes. Wooden cage framing material should be placed on the outside of the enclosure with suitable wall material such as wire, wood, or netting on the inside surface. Visual barriers between cages and between humans and cages provide stress relief to all animal patients. Pre-release cages should be isolated and placed in an area similar to release habitat, if possible.

Most small mammals under four weeks of age can be housed in incubators or aquaria. Screen lids with a heavy object placed on top prevent escapes. Heating pads or hot water bottles, suitably insulated, should be used to provide heat. A source of humidity and cloth or other suitable materials for nesting areas should be provided. A rolled sock or toy stuffed animal of appropriate size, with all movable parts removed, can provide security for infants, especially single animals. Juveniles of the same species can usually be housed together if they are no more than one week apart in age, with appropriate increases in housing size.

5.2 Special Considerations for Selected Mammals

Since most small mammal young can be housed in the same general manner described above, this section addresses the special housing needs for juvenile and adult mammals (except where noted otherwise). Please refer to Table 6 for specifics regarding cage size.

The order in which the groups of mammals appear below and in Table 6 is based on the standard scientific “evolutionary order” as presented in *A Field Guide to the Mammals of America North of Mexico* (see Appendix B, Burt/Grossenheider).

Marsupialia (Opossums):
Hammocks made of one-inch square wire mesh or from burlap sacks, attached to wall or roof (and removable for cleaning); tree limbs and logs at various heights to promote climbing. Plastic barrels for hiding or other things to hide in (logs, boxes, etc.). Large (ferret-sized) exercise wheels may be used to keep young opossums active.

Chiroptera (Bats):
For bats under rehabilitation, many different considerations are important to proper enclosure construction. Security is of top concern regardless of cage size. For example, most bats can easily escape through a 1/2" x 1" crack. Two different types of caging are necessary to accommodate the differences in the roosting behavior of crevice-dwelling and foliage-roosting bats. Crevice-dwelling bats (free-tailed bats, pallid bats, big browns, Myotis bats, evening bats, big-eared bats and pipistrelles) roost in rock crevices, hollow trees, under bridges, beneath bark and in caves and buildings. Foliage-roosting bats (red bats, Seminole bats, yellow bats and hoary bats) roost in the open in trees and other vegetation.

Appropriate temperatures for adult bats receiving rehabilitation and infant bats being hand-raised are very important considerations. These temperatures are generally between 90°F - 100°F. A heating pad, set to low, can be attached to one side of the cage to create a temperature gradient. Do not place heating pads on the floor of the container. A bird brooder or a 25-watt red light bulb may be used instead of a heating pad. Place the brooder or light at the top of the cage on the outside. Incubators are inappropriate for bats, as a temperature gradient is needed rather than a constant temperature. Humidity should be provided by use of a humidifier or by keeping a small, damp sponge inside the cage. Padding should be placed on the floor of the cage to protect injured adults and/or infant bats. Soft fabric allows the bat(s) to climb and hide. Terrycloth is inappropriate due to risk of entanglement.

Caging for crevice-dwelling bats (restricted/limited activity):

All walls and floor of an aquarium or plastic cage should be lined with a soft, snag-resistant fabric such as t-shirt or flannel material. Environmental enrichment can include items made from fabric such as roosting pouches, or ramps and bridges made from plastic mesh craft sheets.

Caging for foliage-roosting bats (restricted/limited activity):

Foliage-roosting bats should be housed in a frame cage. The cage should be covered with soft, lightweight 1/6" plastic mesh to avoid toe and foot injuries. Environmental enrichment should be provided by securely attaching small branches with silk leaves against the ceiling of the cage.

Unlimited activity/mobility flight cages:

Outdoor flight cages should be double enclosed or have a double entry system similar to aviaries. An 8'x8'x10' screened tent with an extra door flap works well for outdoor housing if the area is secure from predators. If a double enclosure is used, the inside cage should be constructed of a frame covered with soft, lightweight 1/6" plastic mesh, netting or nylon screening. One side can be covered with 1/4" plastic mesh to allow insects to enter the enclosure. The outside of the enclosure should be covered with sturdy 1/4"-1/2" metal screening (hardware cloth or hail wire) to protect from predators.

Roosting pouches or boxes should be placed inside flight cages along the ceiling for crevice-dwelling bats. Small branches with silk leaves should be secured along the ceiling for foliage-roosting bats. Hanging plants also work well for shelter and resting areas. A tarp should be placed over a section of the cage to shade the roosting area and to provide shelter against inclement weather.

Water dishes should be small and can be made from baby food jar lids that are placed on the cage floor or film canisters that are cut to one inch high and hung on cage walls (Velcro™ works well to attach these canisters). Small cups can be hung from the sides of the cage for foliage roosting bats; however, marbles or small stones should be placed inside the cup to prevent the bat from falling in and drowning. Food dishes should be placed against cage walls and should be shallow enough to allow bats that self-feed to easily climb in and out, but deep enough to prevent mealworms from escaping. For certain species, such as western pallid bats, food and water should be provided on the ground. Internal light sources used to attract insects should have covered bulbs (plastic, not metal) to prevent bats from having contact with hot light fixtures.

Environmental enrichment should be included in all caging to provide mental stimulation. Items that are placed into cages to provide diversity should be free of sharp surfaces, easily cleaned and appropriate for the species.

Transport cages for bats:

Transport carriers should be ventilated, well padded and covered so they protect and provide a sense of security for the bat inside. They should also be constructed so that they can be secured inside a vehicle with a seat belt. For example, a screen window can be sewn or glued into a cloth compact-disk carrier (with the plastic insert removed). A seat belt can then be slipped through the handle to secure the carrier during transport.

Ursids (Bears):
Den should be made of solid wood, concrete blocks or bricks, 8'x8'x6'. This will house one adult or two juveniles. Flooring substrate should be natural (dirt and grass) in order to avoid damage to the foot pads. Heavy logs and a large indestructible tub for bathing are also necessary.

Procyonids (Raccoons):
Special cage furnishings for this group include hammocks made of one-inch square wire mesh or from burlap sacks, attached to walls or the roof that are removable for cleaning, and plastic barrels or other things in which to hide (e.g., logs). Additionally, tree limbs and logs at various heights to promote climbing should be in enclosures. A wading pool or container applicable to the animal's size should be provided to allow bathing and food handling. Outdoor enclosures should allow 30 square feet per animal when raccoons are group housed. An enclosure which is 12'x18' (216 square feet) could house seven raccoons, and an enclosure which is 40'x20' (800 square feet) could house 26 raccoons. Cages used for raccoons should not be used for other species due to possible parasitic infection.

Mustelids (Badgers, Weasels, Skunks, etc.):
This group contains ambitious diggers. The bottom of the cage must be secured so that the animal cannot dig out. A metal garbage can turned on its side and lined with tree trimmings or shavings can be used as a den. A large wooden box with at least a three-foot depth of pesticide-free soil should be provided for digging.

Felids (Cats):
Large branches and logs (some hollow) should be provided for climbing, along with high platforms for resting above the cage floor. Other furnishings are plastic barrels or other things to hide in (logs, boxes, etc.).

Marine Mammals:
Shall be housed in accordance with Animal and Plant Health Inspection Service (APHIS) Standards. (see Appendix B)

Rodentia (Mice, Rats, Squirrels, etc.):
Generalizations are difficult to make for such a large and diverse group, so refer to the natural history of the species undergoing rehabilitation for a better understanding of appropriate habitat requirements. Placing a heavy object on top of the lid of indoor caging prevents escapes. Paper towel rolls can be used as hiding places. Many small rodents require sand for burrowing and some species may utilize dirt for burying food, dust baths, or other

behavioral activities. Burrowing can be a very important behavior in this group. Plant material and soil are important habitat requirements for many small mammals.

Outdoor caging should be made of material such as hardware cloth to prevent escape. Dirt or sand floors should have hardware cloth or plywood buried along the interior sides of the cage, approximately 12" below the surface to prevent escape. Roofing may be constructed of hardware cloth stapled to wood slats using heavy staples. Branches for gnawing should be included for juveniles five weeks of age and older. Gnawing curbs tooth growth and is essential; bark on any branches or logs must be edible. Tree squirrels and other climbers require vertical height more than horizontal space. Branches, nestboxes, and/or platforms should be provided for climbing enhancements.

Semi-aquatic Mammals (Muskrats, River Otters, Nutria, Beavers):
This group has obvious special needs. Animals must have water containers that are large enough to swim in and are at least two feet deep. Examples include bathtubs, metal troughs, metal or concrete pools (plastic kiddie pools are not deep enough and will be destroyed by the animal). Deep, heavy rubber pans work well for water containers in inside housing. Containers of soil at least one foot deep should be provided for digging, with plastic barrels or other things to hide in (logs, boxes, etc.) that are attached to the wall of the cage.

Lagomorpha (Rabbits, Hares, Pikas):
Special construction materials are needed for this group. Avoid using wood in cage construction as these animals will chew through the wood. Avoid using chain link, wire mesh, or hardware cloth as the sole materials in construction of cage walls; these animals do not have good depth perception and will not “see” the fencing. “Sight barriers” at the height of the adult animal’s ears (12"-24") made of shade cloth or mesh screening may be used to line the exterior. Do not place cloth or screening on the interior as animals will chew this material. Indoor housing must also be covered to provide visual barriers as a means of reducing stress. If raised, above-ground enclosures are used, the bottom should be constructed of 1/4-inch mesh for drainage, and covered with hay to prevent foot trauma. No protruding objects should be present along the interior surface of cage walls as these animals will usually run the perimeter of their enclosure.

All enclosures should contain a freestanding shelter, facing away from the entrance. Branches or logs with edible bark for gnawing to curb tooth growth should be readily available. Rabbits will need soft earth or mounds of hay to burrow into. Natural desert shrubs or bales of hay can be used to provide shade and shelter for jackrabbits as they do not burrow. Jackrabbits grow rapidly in size and strength, requiring large caging by six weeks of age, although they do not wean until 8-12 weeks of age.

Artiodactyla (Hoofed Animals):
Outdoor enclosures are most appropriate when constructed of wood; however, if chain link is used for the walls, drapes must be hung over the inside of the chain link to avoid injury to the animal and to keep it from climbing out (i.e., blankets or tarps tied securely). Circular enclosures work well as animals will be encouraged to run along walls rather than run into a corner and injure themselves. General practice is to take deer and pronghorn directly from injured adult caging to release in an effort to prevent cage trauma. Bighorn sheep jump high while pronghorn will jump long distances but not as high.

Table 6: Minimum Housing Guidelines for Selected Mammals

Note: This table is not intended to be used independently; it should be used only in conjunction with the information in Chapter 5, Sections 5.1 and 5.2

Order/ Family	Infant Care (WxLxH)	Nursing/ Pre-weaned (WxLxH)	Juvenile or Adult Outside (WxLxH)	Initial Injured Adult Inside (WxLxH)
Marsupialia				
Opossum	(L) 10GAL.	(L) 3x3x3	(1) 4x4x8	(1) 2x2x2
Insectivora				
Shrews & Moles	10 GAL / 1 adult or 1 litter			
Chiroptera (Bats)	18"x12"x12"	18"x12"x12"		18"x12"x12"
Little Browns & Pipistrelles			6x8x8	
Evening, Red, Myotis			8x12x8	
Big Browns, Free-tails, Hoary, Pallid & Yellow			10x20x8	
Carnivora				
Bears				
Black Bear	(L) 20GAL.	(L) 3x6x3	(L) 20x36x16*	(1) 8x12x8
Raccoons, Coatis & Ringtails	(L) 10-20GAL.	(3) 3x3x3	(4) 6x8x6*	(1) 2x3x3
Mustelids				
Marten	(L) 10GAL.	(1) 3x3x3	(1) 4x8X6	(1) 2x2x2
Fisher	(L) 10GAL.	(1) 3x3x3	(1) 6x8x6	(1) 4x3x3
Weasel	(1) 10GAL.	(1) 10GAL.	(1) 3x3x3	(1) 3x3x3
River Otter	(L) 20GAL.	(L) 6x12x6	(1) 6x12x6*	(1) 6x12x6*
Sea Otter	(L) 20GAL.	(L) 6x12x6	(1) 6x10x6	(1) 6x8x6
Wolverine	(1) 10GAL.	(1) 3x3x3	(1) 8x12x6	(1) 4x3x3
Badger	(L) 20GAL.	(L) 3x3x3	(1) 8x8x6*	(1) 3x3x3
Skunk	(L) 20GAL.	(L) 2x4x3	(1) 6x8x6	(1) 3x3x3
Canids				
Coyote	(L) 30GAL.	(1) 3x3x3	(1) 8x8x6	(1) 3x3x3
Wolf	(L) 30GAL.	(1) 3x3x3	(1) 8x8x6	(1) 4x3x3
Fox	(L) 30GAL.	(L) 3x3x3	(1) 4x4x8	(1) 3x3x3
Felids				
Mountain Lion	(L) 10GAL.	(L) 3x6x3	(L) 6x24x8*	(1) 4x3x3
Bobcat	(L) 10GAL.	(2) 3x3x3	(1) 8x8x6*	(1) 3x3x3
Rodentia				
Aplodontia	(L) 10GAL.	(1) 3x3x3	(1) 8x8x6	(2) 2x2x2

Order/ Family	Infant Care (WxLxH)	Nursing/ Pre-weaned (WxLxH)	Juvenile or Adult Outside (WxLxH)	Initial Injured Adult Inside (WxLxH)
Rodentia (cont'd.)				
Squirrels				
Woodchuck & Marmots	(L) 20GAL.	(L) 2x4x3	(1) 6x8x6	(1) 3x3x3
Prairie Dogs	(L) 20GAL.	(L) 2x4x3	(1) 6x8x6	(1) 3x3x3
Ground Squirrel & Rock Squirrel	(L) 10GAL.	(L) 4x6x2	(1) 4x6x6	(1) 2x2x2
Mojave Ground Sq.	(L) 15GAL.	(L) 15GAL.	(L) 2x2x2	(1) 2x2x2
Golden-mantled Sq. & Chipmunk	(L) 10GAL.	(L) 10GAL.	(L) 2x2x2	(1) 2x2x2
Tree Squirrel	(L) 10-20GAL.	(L) 20GAL.	(L) 4x4x8	(1) 4x6x4
Pocket Gophers	(L) 15GAL.	(L) 15GAL.	(L) 15GAL.	(1) 15GAL.
Kangaroo Rats & Mice & Pocket Mice	(L) 15GAL.	(1) 15GAL.	(L) 4x6x2	(1) 4x6x2
Beaver	(L) 10GAL.	(1) 3x3x3	(L) 8x12x6	(1) 4x3x3
Mice, Rats, Voles				
Mice	10 GAL / 1 adult or 1 litter			
Wood Rat	(L) 15GAL.	(L) 15GAL.	(1) 4x6x2	(1) 4x6x2
Muskrat	(L) 15GAL.	(L) 20GAL.	(2) 4x6x2*	(1) 4x6x2
Porcupine	(L) 15GAL.	(L) 3x3x3	(1) 6x8x6	(1) 3x3x3
Nutria	(L) 20GAL.	(L) 2x4x3	(1) 6x8x6	(1) 3x3x3
Lagomorpha				
Jackrabbit	(1) 10GAL.		(1) 20x20X8	(1) 18"x36"x12"
(2-6wks)		18"x18"x12"		
(6-12wks)		10'x10'x4'		
Cottontail Rabbit	(1) 10GAL.	(1) 10GAL.	(1) 6x6x4	(1) 12"x18"x12"
Artiodactyla				
Wild Pig	(L) 2x2x2	(L) 10x15x8	(L) 10x15x8	(1) 6x8x8
Elk	(1-2) 6x6x2	(4) 12x20x6	(6) 30x50x6 (+)	(1) 8x8x8
Deer	(1-2) 4x4x2	(4) 10x15x6	(6) 30x50x6 (+)	(1) 8x8x8
Pronghorn	(1-2) 4x4x2	(4) 10x15x6	(+)	(1) 8x8x8
Bighorn Sheep	(1-2) 4x4x2	(4) 10x15x6	(6) 30x50x6 (+)	(1) 8x8x8
Xenarthra				
Armadillo	(L) 15GAL.	(L) 3x3x3	(1) 6x8x4	(1) 3x3x3

(WxLxH) = Listed in order: Width x Length x Height, in feet (unless otherwise indicated)
* = See specific species requirements
(+) = See specific species requirements for hoofed stock
GAL. = Gallons (e.g., aquarium or hard plastic pet kennels)
(#) = Number of animals
(L) = Litter - Note: occasional large litters (8-10 animals) may require larger housing

Chapter 6 - REPTILE HOUSING REQUIREMENTS

6.1 General Reptile Housing Considerations

These guidelines have been developed by zookeepers and breeders as minimums to keep an animal healthy and reasonably content in captive surroundings and are suitable for animals undergoing rehabilitation.

The cage sizes listed in Table 7 are minimum sizes that are acceptable for most circumstances. Some animals may have special keeping requirements that these recommendations will not cover adequately. Learning the habits of a particular species and applying that knowledge to the housing, both in terms of size and substrate, is essential for proper care. For example, a snake species that ambushes prey would require less space than one that pursues prey. In addition, a four-foot iguana can be suitably housed in a six-foot high cage, not the 8-12 feet suggested in the table. The minimum standard is to provide adequate space for the animal to move and hunt (if necessary), and to provide an appropriate area to hide and/or bask, depending on the needs of that species.

Fresh water needs to be regularly available. Water dishes should be kept clean and disinfected. Some animals require misting to drink - they will not drink from standing water.

The animals should be kept in environmental conditions (heat and humidity) similar to the ones in which they are found. If air conditioning is used to keep temperatures down during hot summers, cages may require misting or other measures to raise the humidity to a level similar to that found outdoors. If forced-air heat is used in the winter, similar measures will be necessary to provide adequate humidity. Checking humidity once per day prevents possible problems. The natural history of each species will help to determine their preferences for microhabitat, thereby influencing housing practices.

6.2 Construction Materials

Aquaria/terraria work well for housing most reptile species, depending on the size of the animal. Security of the caging, in order to prevent injury to the animal or to other animals in the facility, is a minimal requirement. The cage must be free of rough surfaces on the interior walls and roof, and must be furnished appropriately for the species.

6.2.1 Substrates

Selection of an appropriate substrate is extremely important to the long-term health of any reptile. Some reptiles must be able to burrow successfully in their substrate.

Aspen - recommended. The shredded type is absorbent and nonabrasive. It also lacks the volatiles that make so many tree-chip products unsuitable.

Astroturf™ - acceptable for snakes. Several pieces, cut to fit the enclosure should be kept at all times. Since it is not absorbent, it should be changed when soiled. Lizards and turtles may catch and tear their claws in the fabric.

Carefresh™ - while not aesthetic, it is absorbent, allows tunneling, and does not swell up with the addition of liquids, making it reasonably safe to ingest. Terrestrial snakes do well on it.

Cedar - **not** recommended. It contains volatile oils that will kill many invertebrates and cause respiratory problems (if not worse) with most reptiles.

Clay - often used for "kitty litter", it should **never** be used as a substrate. It is extremely dehydrating and can cause respiratory problems, skin problems, and prevent snakes from shedding properly.

Corncob - **not** recommended. It is easily ingested and may cause intestinal impaction.

Gravel - **small gravel should not** be used. It is easily ingested by reptiles and may cause serious impactions. Large gravel is safer, but should be smooth, such as the quartz types. It can be washed, disinfected with bleach, rinsed well, sun-dried and reused.

Kitty Litter - see Clay

Mulch - may be used to hold moisture if the bark is not made from cedar. Fir is relatively low in volatiles. Check the bark before buying - if it smells 'piney' it contains potentially harmful volatiles.

Newspaper - recommended. Safe, hygienic, easy to clean, absorbent.

Paper Toweling - recommended. Safe, hygienic, easy to clean, absorbent.

Peat - **not recommended**, as it is dusty, dries easily and may irritate reptile mucosa; can also cause respiratory ailments.

Pine - **chips not generally recommended**, due to volatile chemicals present in the wood. Bark mulch may be used if required to hold moisture and it is not 'piney' smelling.

Sand - should be **limited** to those animals that habitually live in sand dunes or as a floor for aquarium dwellers such as soft-shelled turtles. Generally, sand is abrasive, and may be ingested, causing impactions.

Soil - should be sterilized before use.

Sphagnum Moss - can be used for specific applications with certain fossorial or burrowing animals. The material should be turned several times per week, unless it is placed over a gravel bed, to spread moisture that gathers underneath the moss. Replace completely every three months.

6.3 Furnishing

If an animal must be kept for a lengthy period, cage accessories may contribute to the animal's mental health. The most useful additions to most cages are a branch for climbing and a basking rock. Some snakes, such as the green snakes, are primarily arboreal and require a branch to feel secure.

All reptiles must be allowed to hide and bask as needed. Placing a suitably sized hide box at either end of their cage is usually adequate to support their need for a sense of safety. For snakes, the hide must be large enough for the snake to coil up inside. A basking spot may be provided by placing a flat rock under the basking light - the rock will absorb heat during the day and allow the snake a preferred area to digest or warm itself. Supplemental under-tank heating is a good idea if the animal is from the southern United States or a similar hot area.

Table 7: Minimum Housing Guidelines for Reptiles

Note: This table is not intended to be used independently; it should be used only in conjunction with the information in Chapter 6, Sections 6.1 through 6.3

Type	Length	Width	Height
Snakes			
Burrowing	3/4 animal's length	1/3 animal's length	1/2 animal's length, add 6" to 12" for substrate
Terrestrial and Semi-Aquatic	3/4 animal's length	1/3 animal's length	1/2 animal's length, not less than 12"
Arboreal types	3/4 animal's length	1/3 animal's length	animal's length, not less than 12"
Lizards			
Burrowing	3 x animal's length	1/3 animal's length	1/2 animal's length add 6" to 12" for substrate
Terrestrial	3 x animal's length	2 x animal's length	animal's length with cover, or high enough to prevent escape
Semi-Aquatic	3 x animal's length	2 x animal's length	animal's length with cover, or high enough to prevent escape, plus 12" - 24" for water depth
Arboreal types	3 x animal's length	2 x animal's length	2 - 3 x animal's length with cover
Crocodilians	5 x animal's length	2 x animal's length	high enough to prevent escape
Turtles			
Terrestrial	5 x animal's length	5 x animal's length	high enough to prevent escape
Aquatic and Semi-Aquatic	5 x animal's length	3 x animal's length	high enough to prevent escape, plus water to a depth 3 x animal's width

Chapter 7 - FINAL DISPOSITION

7.1 Overview

Once an animal comes into rehabilitation, it is faced with one of four fates; death from its injuries, permanent confinement as an education or placed animal due to factors preventing release, successful rehabilitation and release, or euthanasia. This chapter addresses the last two outcomes - release and euthanasia. Both are complex tasks for the rehabilitator. Successful release of a rehabilitated animal is predicated on an understanding of biological and non-biological factors. These include medical and physical readiness of the animal, life stage, release strategy, and release habitat.

Euthanasia is the hardest task a rehabilitator has to perform. Animals should not be considered for release that have vision impaired in both eyes, have amputated wings or legs, are imprinted, have a high likelihood of infecting wild animals with disease, or are rabies vector species from an area in which rabies is endemic (unless dictated otherwise by a local RVS rehabilitation program). Other reasons exist that animals should not be released, as well. These animals may find freedom through euthanasia.

7.2 Minimum Standards for Release of Wildlife Following Rehabilitation

Establishing and following set guidelines for release condition will aid in initial decisions for treatment, husbandry care protocols, and evaluation of readiness for release. For all wild animals undergoing rehabilitation, the following criteria must be met prior to release.

A brief physical exam should be performed to ensure that the patient is healthy and ready for release. In general, candidates for release must:

- Exhibit full recovery from the original injury or from injuries incurred while in care.
- Be no longer in need of medical care.
- Exhibit no signs of active disease.
- Have normal laboratory values, if tested (PCV, TS, BUN, etc.).
- Possess pelage or plumage that is adequate for that species to survive.
- Possess adequate vision to find/catch food and maneuver in a normal manner.
- Exhibit locomotive skills necessary for that species to survive.
- Demonstrate the fight or flight behavioral response.
- Demonstrate proper foraging behavior (self-feeding if raised in captivity).
- Demonstrate proper species behavior (not improperly imprinted).
- Be of correct age for independent survival.
- Be of correct weight for that sex, species, age and season.
- Exhibit waterproof pelage/plumage sufficient for that species.

In addition to the above parameters for the condition of the animal, many other considerations must be made. Suitable habitat with an adequate food supply, appropriate weather, season, and time of day are necessary for a successful release. Releases must occur within the parameters of local, state, and federal regulations or laws. The proximity of busy roadways, the presence of natural or introduced predators (e.g., domestic cats), human developments, existing populations of that species, and long term food sources should always be factored into determining the suitability of a release site.

7.3 Acceptable Euthanasia Methods

Definition

Euthanasia is defined as the induction of death with minimal pain, stress or anxiety. Wildlife rehabilitators who direct the operation of a facility must make these decisions, as well as supervise the euthanasia procedures. They must also exhibit understanding and compassion for those who have been involved with the terminal case.

Criteria

While no ideal euthanasia agent exists, the procedure of choice should approach as closely as possible the following criteria:

- Produces rapid loss of consciousness and death
- Exhibits consistent and predictable action
- Is easily and safely administered by properly trained personnel
- Causes minimal psychological stress to the animal
- Causes minimal emotional effects to observers and participants
- Is not subject to abuse by humans
- Interrupts consciousness and reflexes simultaneously
- Is not a sanitation or environmental problem
- Results in no tissue changes that would affect a postmortem diagnosis
- Is economical and readily available

The method of euthanasia is only as humane as the knowledge and skill of the operator performing it. The safety of the operator shall be given as much consideration as humaneness of the method.

7.3.1 Acceptable Euthanasia Methods

Below is a brief description of some methods of euthanasia recommended for use in wildlife. None of these methods should be used without proper training and, in the case of some of the regulated substances, without proper licensing. The *1993 Report of the AVMA Panel on Euthanasia* provides additional information on methods of euthanasia for wildlife. Please note: The IWRC and the NWRA do not condone all of the methods in the *2000 Report of the AVMA Panel on Euthanasia* as being appropriate for use in wildlife. Each wildlife rehabilitator is urged to seek and learn to use those methods which s/he feels are humane and within their legal and practical limits.

Physical Methods:

Cervical luxation/dislocation:
Causes death by severing the spinal cord and destroying ascending sensory (pain) pathways, resulting in depression of central nervous system (CNS), respiratory and cardiac functions. Grasping the body of the animal and the base of the skull, the neck of the animal is hyper-extended. The neck is rotated in a down-and-away motion relative to the body position using the thumb and forefingers, separating the first cervical vertebra from the base of the skull and severing the spinal cord.
Advantages: Clean; safe to perform; moderately rapid; special equipment not required.
Disadvantages: Must be performed by skilled personnel. May be aesthetically objectionable to staff/volunteers/public. Should only be performed on small birds and mammals; animal may remain conscious for a brief period following dislocation (may convulse prior to death).

Decapitation:
Causes death by severing the spinal cord and destroying ascending sensory (pain) pathways, resulting in depression of CNS, respiratory and cardiac functions.
Advantages: Moderately rapid; effective in reptiles, though movement may continue following decapitation; therefore, the brain of reptiles must also be pithed or otherwise destroyed to ensure that there is no residual brain activity.
Disadvantages: Must be performed by skilled personnel. May be aesthetically objectionable to staff/volunteers/public. Should only be performed on small animals; animal may remain conscious for a brief period following decapitation (may convulse prior to death).

Exsanguination:
Laceration of a major vessel (usually the jugular vein) results in rapid blood loss and decrease in blood pressure.
Advantages: Moderately rapid death; better if done on sedated, stunned or anesthetized animals.
Disadvantages: May cause anxiety and pain in a conscious animal; requires skill and training; may be aesthetically unappealing.

Gunshot
Causes immediate unconsciousness by direct and rapid destruction of brain tissue when positioned properly.
Advantages: Rapid; can be used on most species.
Disadvantages: Must be performed by skilled personnel. Requires special equipment and may require firearm permit. May be aesthetically objectionable to staff/volunteers/public. Potential for human injury. Cannot be used for animals suspect of rabies unless a portion of the brain is left intact for lab testing, and care should be taken if using in rabies vector species to avoid accidental exposure to rabies-infected brain tissues via aerosolized particles.

Penetrating captive bolt:
Causes immediate unconsciousness by direct and rapid destruction of brain tissue when positioned properly. Bolt is positioned properly against the skull and fired. This is one of the few options for euthanizing large ruminants or carnivores; has also been used on small ruminants.

Advantages: Rapid.
Disadvantages: Must be performed by skilled personnel. Requires special equipment and may require permit. May be aesthetically objectionable to staff/volunteers/public. Must be done at close range (nearly direct contact to the animal's skull) and the animal must be properly restrained or sedated to insure accuracy.

Adjunct Physical Methods (should not be used as sole method):

Pithing:
Causes direct destruction of brain and spinal cord as a needle or probe is inserted into the base of the skull.
Advantages: Rapid; one of the few methods effective in many reptiles.
Disadvantages: Must be done on an unconscious animal; requires skill and training; may be aesthetically unappealing.

Stunning (blunt force trauma):
Striking of the skull, resulting in unconsciousness of the animal.
Advantages: Rapid unconsciousness.
Disadvantages: Not a sole method of euthanasia - usually followed by exsanguination; requires skill to be done properly; may be aesthetically unappealing; should not be used if the brain must be examined (as with suspect rabies cases).

Inhalation Agents:

Care should be taken when using chambers to contain animals for euthanasia because overcrowding or mixing of species can cause severe apprehension and psychological stress prior to death.

Halothane, isoflurane, enflurane, sevoflurane and methoxyflurane:
Cause direct depression of CNS; should be done in a chamber in a well-ventilated area to reduce human exposure.
Advantages: Useful when venipuncture is difficult as with small animals such as birds, bats, rodents, and small carnivores; some of these agents are nonflammable and nonexplosive under ordinary conditions; generally aesthetic; causes very little change that interferes with necropsy results.
Disadvantages: Some agents can be injurious to personnel and must be used in well-ventilated areas or with gas-scavenging devices; very young, old and/or respiratory impaired animals may be resistant to the effects and struggle for a period of time; diving birds and mammals may require a considerable length of time to reach respiratory arrest.

Carbon dioxide (CO_2):
Useful for small animals in chambers. The animal is placed into the chamber prior to the addition of the carbon dioxide; once the animal is in the chamber, CO_2 is added to the chamber, sinks to the bottom and displaces the ambient air. Death is caused by direct depression of CNS, respiratory and cardiac functions. Concentrated CO_2 gas is noxious and irritating, and can cause a conscious animal to become distressed if placed into a chamber already filled with CO_2. Dilute CO_2 (mixed with oxygen) is not recommended either, as this mixture has been shown to actually prolong the time of death as the ambient air is displaced at a much

slower rate. If dry ice is used as a source of carbon dioxide, it should not come in contact with the animal.
Advantages: It is easily available in compressed cylinders or as “dry ice”; it is inexpensive and safe.
Disadvantages: Because it is heavier than air, incomplete filling of the chamber can permit a climbing animal to avoid a lethal dose. This method should not be used for animals with severely depressed respiratory rates (e.g., animals in hibernation). May not be effective with bats and newborn animals, as they have a very high tolerance for carbon dioxide. Beaver and other diving mammals and birds may hold their breath for extended periods of time therefore requiring longer time for the carbon dioxide to take effect.

Carbon monoxide:
Useful for small animals in chambers. Causes death by irreversibly binding with hemoglobin in the red blood cells.
Advantages: It is easily available in compressed cylinders; is rapid.
Disadvantages: Very hazardous to human health; this odorless, tasteless gas may be lethal in humans at as little as 0.4% concentration.

Ether and Chloroform:
Cause direct depression of CNS. Usually administered in a closed chamber within a well-ventilated room.
Advantages: Moderately rapid; inexpensive; most effective when used on small animals.
Disadvantages: Ether is explosive and can be irritating to the animal; chloroform is a known liver toxin and carcinogen; potential human health hazard if used in poorly ventilated area.

Adjunct Inhalant Agents (should not be used as sole method):

Nitrous oxide:
Nitrous oxide alone is inadequate, but when used as a carrier gas, it speeds up the uptake of other volatile gases (halothane, isoflurane, enflurane, and methoxyflurane).

Non-inhalant pharmacologic agents:

Barbiturates:
(Pentobarbital) Intravenous or intra-cardiac injection results in direct depression of CNS, respiratory and cardiac functions. Intra-abdominal injection may be acceptable in mammals when a vein is not accessible. Intramuscular injection will result in extensive tissue necrosis and pain.
Advantages: Rapid and smooth induction of unconsciousness; usually aesthetically acceptable to staff/volunteers/public.
Disadvantages: Intravenous administration is necessary for best results; requires Drug Enforcement Administration registration, record-keeping, and special storage conditions. These drugs are subject to abuse by humans. They do not cause analgesia, and low doses may actually produce a hyperesthetic effect (i.e., the animal may actually become more sensitive to stimuli).

Preanesthetics:
(Ketamine, Xylazine and others) can be given by intramuscular injection to both mammals and birds to facilitate euthanasia by another method. These drugs should not be used as sole euthanasia agents.

Methods considered inhumane and/or unacceptable for euthanasia of wildlife

Many techniques have been used to provide death to wild animals, but many of these are also considered inhumane (therefore not true euthanasia) or extremely dangerous, and are not condoned under these *Minimum Standards for Wildlife Rehabilitation*. Methods which are not approved for use in wildlife are:

- Acetone
- Air embolism
- Cyanide
- Drowning
- Electrocution
- Freezing
- Kill traps
- Neuromuscular blocking agents used alone (succinylcholine, potassium chloride, magnesium sulfate); may be acceptable if used in combination with a sedative
- Nitrogen or argon gas
- Nitrous oxide used alone
- Strychnine
- Thoracic compression

7.3.2 Disposal of Carcasses and Animal Waste Products

Proper methods for disposal of animal carcasses and waste products should be followed as described in section 2.3.5.

Appendix A - Form 1: Facility Review

INTRODUCTION

The information and questions contained in this form are a means for rehabilitation facilities and individual rehabilitators to do a self-evaluation or self-review. The purpose is to provide wildlife care-givers suggestions to save time (for example, keeping reference materials at the phone), to ensure wildlife receives appropriate housing and medical treatment (exam area, caging, veterinary and diagnostic), and to protect both wildlife and humans from disease and contamination (food preparation, disinfecting, housekeeping). Not all items contained in the form will apply to everyone - an individual rehabilitator probably does not require a grievance committee or Worker's Compensation Insurance - but this form does provide an easy reference to be sure important considerations are not overlooked when changes, such as facility growth, do occur.

Facility Review

I. RECEIVING AREA

A. Public Information

1. Are there written policies or procedures for staff and volunteers dealing with wildlife problems?
2. Does the organization have information available to the public on the services it provides for wildlife?

B. Procedures: Does the organization have operational policies available to staff members and volunteers (e.g., operations manual, rules derived from Board decisions, or training materials)?

C. Records

1. Is there a medical record for each animal that has a medical problem?
2. Do animals without medical problems have records (e.g., orphans)?
3. Are the records legible?
4. Are records adequately completed (i.e., can the progress of the animal be followed by reviewing the record)?
5. Is there a system to identify each animal to its record?

D. Facilities

1. Is the reception area neat and presentable?
2. Is it organized so that resident patients are not subject to stress during the intake of new animals?

E. Telephone Services: For those providing help, assistance ,and directions to the public, are protocols established to provide assistance in the following areas:

1. Humanely preventing or reducing wildlife problems, conflict situations, and injury?
2. Determining if animals in fact need to be rescued?
3. Providing strategies and techniques to give opportunities for mother animals to retrieve temporarily displaced young or to re-nest?
4. Suggesting safe capture, restraint and transport techniques to minimize risk of injury to animals and to humans?

II. INTAKE/EXAM AREA

A. Is the area clean?

B. Is the area set up so that animals can be examined safely?

C. Are first-aid supplies available?

D. Are there scales available to weigh animals as part of intake and assessment?

E. Are animals awaiting exam/treatment provided a warm, quiet and dark place?

F. Are facilities arranged and/or constructed to minimize stress on the animals?

G. Are the sound and activity levels minimized to reduce stress on the animal?

H. Are capture and handling equipment easily accessible and in good working order? Are they used safely?

I. Are capture, handling, and restraint procedures safe for animals and humans?

J. Are the people handling wildlife trained in safe handling techniques?

III. FACILITIES FOR INTENSIVE NURSING CARE

☐ Available at a veterinary facility ☐ Available on-site

A. Are the following available for use when necessary?

☐ Incubators ☐ Heat sources (lamps, pads)

B. Is the area clean?

C. Is it a low-use area?

IV. SURGERY

☐ Available at veterinary clinic/hospital ☐ Available on-site

A. Is the area aseptic?

B. Is there resuscitative equipment available?

C. Is there a pre-surgical prep area?

D. Is the surgical equipment in good working order?

E. Is an anesthetic maintained?

V. RADIOLOGY SERVICES

☐ Available at veterinary clinic/hospital ☐ Available on-site

Vl. INITIAL CARE FACILITIES

A. Do the cages meet caging standards for the species handled?

B. Are they constructed so that they can be cleaned and disinfected (e.g., stainless steel, fiberglass, sealed wood, coated port-a-pets)?

C. Are the cages cleaned regularly (as appropriate for the species and cage type)?

D. Is the area adequately ventilated in an appropriate manner?

E. Is there adequate lighting (full-spectrum light at the appropriate hours)?

F. Are isolation facilities available (on-site, at a veterinary clinic, elsewhere)?

G. Is the area away from the main flow of human activity?

H. Is there access to the area by domestic pets?

Vll. PRIMARY EXERCISE CAGING

A. Do they meet caging standards for the species being handled?

B. Are they cleanable?

C. Is there a regular cleaning schedule?

D. Are they safe to the handlers and animals being held (e.g., no loose or sharp wires or nails, double doors, etc.)?

E. Are they secure (e.g., locking, sturdy, safe from predators)?

VIII. PHARMACY

A. Is the area clean and organized?

B. Are needed medications on hand? Are other medications available by prescription or through sponsoring organizations?

C. Are controlled drugs (schedules II, III, IV) kept in locked, secure location?

D. Is there a log for controlled drugs?

E. Are antibiotics, parasiticides, vaccines, etc., available either in the pharmacy or on a prescription basis?

F. Are emergency medications available?

IX. DISINFECTING

A. Is there a standard procedure and schedule for cleaning and disinfecting cages, feeding utensils, syringes, food storage containers, and food, water, and bathing bowls?

B. Are cleaning and disinfecting supplies available and stored properly?

1. Is human protective gear (gloves, masks, goggles) available?

2. Are instructions on the proper use of disinfectants displayed?

C. Is there a designated area for storage, cleaning and disinfecting of dirty items?

D. Is there a designated area for storage of clean and disinfected items?

X. PATHOLOGY SERVICES

☐ Available on-site ☐ Available through veterinarian ☐ Commercial account

Can the following services be provided to wildlife when necessary?

A. Hematology (PCV, Diff., Hb, WBC, Clot Time, ESR, Serum Chemistries)?

B. Parasitology?

C. Microbiology?

D. Necropsy Services?

If done in shelter:

1. Are separate instruments used for tissue gathering and necropsy?

2. Are dead animals disposed of in accordance with applicable ordinances or regulations?

XI. FOOD PREPARATION & STORAGE

A. Is the area clean, orderly?

B. Are adequate foodstuffs and supplies available?

C. Are foodstuffs (chicks, rats, fish) stored separately from dead (rehabilitation) animals?

D. Are perishable foodstuffs dated (open formula)?

XII. HOUSEKEEPING & MAINTENANCE

A. Is there a reasonable schedule for:

1. Daily cleaning?

2. Weekly cleaning?

3. Seasonal cleaning?

B. Is there a continuing program for repair and upkeep of the facility?

XIII. LIBRARY

A. Is there a continuing program for acquisition of pertinent publications on wildlife rehabilitation?

B. Are manuals/books available on providing humane solutions to human/wildlife conflicts?

C. Are publications available which describe each species and its natural history?

XIV. SAFETY

A. Is there a fire alarm?

B. Is there a fire extinguisher(s)?

C. Are eating, drinking, smoking, etc., restricted to designated areas?

D. Is there a first-aid kit available for staff/volunteers?

E. Are material data safety sheets (MSDSs) readily available/easily accessible for those chemicals used at the facility (disinfectants, cleansers, certain drugs, etc.)?

XV. ORGANIZATIONAL STANDARDS

A. Does the individual or organization comply with local ordinances and have current state/provincial/federal permits for the work being done?

B. Is there a grievance policy for staff/volunteers?

C. Is there a training policy for staff/volunteers?

D. Are there continuing training opportunities for staff (paid and volunteer) who have completed basic skills training (staff training sessions, IWRC and NWRA programs, etc.)?

E. Is there a liability insurance policy for volunteers to protect the facility and/or organization?

F. Is there a workers compensation policy for employees?

G. What after-hours services are available for emergency cases (on-call person, emergency veterinary clinic services, etc.)?

H. Are there written policies to instruct the volunteers regarding rules of the organization as they relate to animal care, reporting procedures, rules on conduct?

XVI. CONTINUING EDUCATION

A. Is pertinent information collected on wildlife rehabilitation?

B. Does the permittee's organization collect such information and share it with other members?

C. Does the permittee and/or others in the organization attend continuing education classes or conferences on wildlife rehabilitation?

Appendix A - Form 2: Sample Patient Admission Form

DATE: ____/____/____ **SPECIES:** _____ **CASE #:** ____ - _____

Age/Sex: _____ Incoming band #: _____ - _____ Tag #: _____

Time: _____ Transported by: _____ Hours Donated: _____

TO BE FILLED OUT BY PERSON PRESENTING BIRD:

Name: _____ Phone #: _____

Address: _____ City: _____ State: ____ Zip: _____

When bird was first seen: _____ When bird was captured: _____
Date/Time Date/Time

Where bird was found: city_____county_____state_____

Specific location where bird was found (in yard, etc.): _____

Please circle any information pertaining to the bird:

			easy to catch	**hard to catch**
fell from nest	cat attack	**in road**	near window	**can't stand**
nest destroyed	dog attack	**hit by car**	hit window	**limping**
found on ground	bird attack	**bleeding**	can't fly	**panting**
cold	wet	**staggering**	shot	**in a trap**
abused	oiled	**exposed to chemicals (lawn or other)**		

Additional remarks: _____

Did you feed the bird? _____ ***If yes, what & how?*** _____

What else did you do to help it? _____

Your *tax deductible* donation of $ _____ supports the care of the birds.

↓ ↓ ↓ ↓ ***FOR OFFICE USE ONLY*** ↓ ↓ ↓ ↓

Cause of Injury: abuse by humans botulism cat attack dog attack finch conjunctivitis electrocution/burns entrapment fell from nest gunshot hit by car impact nest destroyed no appt injury oiled orphaned toxicity – lead toxicity – other toxicity – pesticide undetermined

Other: _____

Type of Injury: Primary: angel wing contaminant general debilitation neurologic no appt injury orthopedic soft tissue Other: _____

Secondary: angel wing contaminant general debilitation neurologic no appt injury orthopedic soft tissue Other: _____

Disposition: Date: _____ Init: _____
EOA Euth Died Placed Transf Released
Location: _____
Band #: _____ - _____

Tests: PCV Fecal Rads Ophtho Surgery Post Toxicology Asper Micro CBC Chem
Other: _____
_____

☐ US F&WS Notification (illegal activity, E/Th species, B/G eagle) Date notified_____ Initials____

Appendix A - Form 3: Sample Patient Examination Form

PHYSICAL EXAM

DATE: ____/____/____ SPECIES: _____ CASE #: _____ - _____

TIME: _____ INITIALS: _____ WEIGHT: _____ TAG #: _____

BODY CONDITN: emaciated underweight normal overweight AGE/SEX: _____

HYDRATION: good fair poor TEMP: _____

ATTITUDE: BAR Remarks: _____

NARES: Clear Remarks: _____

BEAK/MOUTH: WNL Remarks: _____

RESPIRATION: WNL Remarks: _____

CROP: full empty Remarks: _____

GI TRACT/ABDM: WNL Remarks: _____

DROPPINGS: WNL none Remarks: _____

EYES: WNL Remarks: _____

EARS: WNL Remarks: _____

FEATHERS: WNL Remarks: _____

ECTO-PARASITES: none Remarks: _____

SKIN: WNL Remarks: _____

FEET: WNL Remarks: _____

NERVOUS SYSTEM: WNL Remarks: _____

_____

MUSCULOSKELETAL: WNL Remarks: _____

_____

INJURIES/PROBLEMS (wounds, etc.): _____

_____

_____

_____

Note: BAR = Bright, Alert, Responsive
WNL = Within Normal Limits

On Entry:	**Other:**	PCV: _____%
Dexamethasone _____		BC: _____%
D2.5LRS (SQ/IV/IO) _____		TS: _____g/dL
Antibiotics _____		**Initial Location**
PO _____		
Fecal Exam Results _____		

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Heinemann, J. 1995. Housing Guidelines for Songbirds. *Wildlife Rehabilitation,* 13:45-66.

Kyle, P. and G. Kyle, 1995. Hand Rearing Chimney Swifts (*Chaetura pelagica*): A 12-Year Retrospective. *Wildlife Rehabilitation,* 13:95-121.

McKeever, K. 1987. *Care and Rehabilitation of Injured Owls, 4th edition*. The Owl Rehabilitation Research Foundation.

Chapter 5: Mammal Caging Requirements

Barnard, S. 1995. *Bats in Captivity.* Wild Ones Animal Books, Springfield, CA.

Burt, W.H. and R.P. Grossenheider. 1976. *A Field Guide to the Mammals of America North of Mexico, 3rd edition.* Houghton Mifflin Company, Boston, MA.

9 CFR Ch. 1 (1-1-95 Edition), Part 3, Subpart E, "Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals", USDA-APHIS.

Forness, M. 1984. Raising White-tailed Fawns "Wild". *Journal of Wildlife Rehabilitation*, 7 (4):5+.

Lollar, A., B. Schmidt-French, and P. Winters. 1998. *Captive Care and Medical Reference for Rehabilitation of Insectivorous Bats*. Bat Conservation International.

Chapter 7: Final Disposition

Report of the AVMA Panel on Euthanasia. 1993. *Journal of the American Veterinary Association,* 202(2):229-249.

Appendix C - Suggested Reading

Avian Caging

Arent, L. 2000. *Reconditioning Raptors: A Training Manual for the Creance Technique.* The Raptor Center at the University of Minnesota.

Arent, L. and M. Martell. 1996. *Care and Management of Captive Raptors.* The Raptor Center at the University of Minnesota.

Chaplin, S.B. 1990. Guidelines for Exercise in Rehabilitated Raptors. *Wildlife Journal,* 12(2):17-20.

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McKeever, K. 1987. *Care and Rehabilitation of Injured Owls, 4th ed*. The Owl Rehabilitation Research Foundation.

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Pittel, H. 1994. Care of Adult Songbirds. *Wildlife Rehabilitation,*12:83-94.

Professional Standards for the Use of Live Animals in Environmental Education. 1994. Iowa Association of Naturalists.

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Definitions/Terminology

Patton, S. 1998. *Wild Words: A Glossary for the Wildlife Rehabilitator, 2nd ed.*

Pierce, G. and L. Wolf (eds.) 1993. *NWRA Quick Reference.* National Wildlife Rehabilitators Association, Minnesota.

Disease Control

Calman & Murray. 1965. *Antibacterial Properties of Chlorhexadine*. ICI.

Carter, G.R. 1982. *Essentials of Veterinary Bacteriology and Mycology*. Michigan State University Press.

Clipsham, R. 1990. Environmental Preventive Medicine: Food and Water Management for Reinfection Control. *1990 Proceedings Association of Avian Veterinarians*, 87-105.

Davis, L. 1998. Do You Know How to Disinfect? *The NWRA Quarterly Journal,* 16(3):10-12.

Gaunt, A.S. and L.W. Oring (eds). 1999. *Guidelines to the Use of Wild Birds in Research. The Ornithological Council,* Washington, D.C. http://www.nmnh.si.edu/BIRDNET

Lawrence, C.A. 1960. Antimicrobial Activity, *In Vitro*, of Chlorhexadine, *Journal of American Pharmaceutical Association,* 49(11).

Lemarje, R.J. and G. Hosgood. 1995. Antiseptics and Disinfectants in Small Animal Practice. *Compendium on Continuing Education,* 17(11):1339-1351.

Over 8,000 Material Safety Data Sheets (MSDS), explaining product toxicity, antidotes and disposal are listed at http://siri.uvm.edu/msds/.

Final Disposition

Report of the AVMA Panel on Euthanasia. *1993. Journal of the American Veterinary Association*, 202(2):229-249.

Martell, M. 1994. Analyzing Habitat for Release of Rehabilitated Animals. *Wildlife Rehabilitation*, 12:191-197.

General Housing Requirements for Wildlife

Education and Training in the Care and Use of Laboratory Animals: A Guide for Developing Institutional Programs. 1991. Committee on Educational Programs in Laboratory Animal Science, Institute of Laboratory Animal Resources Commission on Life Sciences.

Guide for the Care and Use of Laboratory Animals. 1996. Institute of Laboratory Animal Resources Commission on Life Sciences National Research Council. National Academy Press, Washington, D.C.

Heyn, S. 2000. Behavioral Enrichment for Mammals. *Wildlife Rehabilitation*, 17:105-112.

Mammal Caging

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Taylor, P. 1995. *Opossum Care Training Manual*. Huntington Beach, CA.

Reptiles

Barnard, S. 1996. *Reptile Keeper’s Handbook*. Krieger Publishing.

Care in Captivity: Husbandry Techniques for Amphibians and Reptiles. 1989. Chicago Herpetological Society. 2001 N. Clark St., Chicago, IL 60614.

Mader, D.R. (ed.) 1996. *Reptile Medicine and Surgery*. W.B. Saunders, Philadelphia, PA.

Mattison, C. 1982. *The Care of Reptiles and Amphibians in Captivity.* Poole: Blandford Press.

Rossi, J.V., and Rossi, R. 1992. *Snakes of the United States and Canada.* Krieger. (2 Vols.)

Vosjoli, P., Klingenberg, R. 1995. *The Box Turtle Manual*. Advanced Vivarium Systems.

Appendix D - Unit Conversion Table

To change	To	Multiply by
centimeters	inches	.3937
centimeters	feet	.03281
feet	meters	.3048
gallons (U.S.)	liters	3.7853
grams	ounces	.0353
grams	pounds	.002205
inches	millimeters	25.4000
inches	centimeters	2.5400
kilograms	pounds	2.2046
liters	gallons (U.S.)	.2642
liters	pints	2.1134
liters	quarts	1.0567
meters	feet	3.2808
meters	yards	1.0936
milliliters	tablespoons	.0667
millimeters	inches	.0394
ounces	grams	28.3495
ounces	milliliters	30
ounces	pounds	.0625
pints	liters	.4732
pounds	kilograms	.4536
pounds	ounces	16
quarts	liters	.9463
square feet	square meters	.0929
square meters	square feet	10.7639
square meters	square yards	1.1960
square yards	square meters	.8361
tablespoon	milliliters	15
yards	meters	.9144

To change	To	
Celsius	Fahrenheit	multiply by 1.8 and add 32
Fahrenheit	Celsius	subtract 32 and multiply by 0.55

Wildlife Rehabilitation

Wildlife Rehabilitation Permit Application/Renewal form

☐ **New Applicant** ☐ **Renewal**

Check above appropriate box. Renewal applicants need only to fill out question 1-11,13, 17, and 28. New applicants must fill out the application in full. Both new applicants and renewal applicants need to sign and date on page 4.

1. Name: _____
   First Middle Last
2. Home Address (physical):_____
3. Mailing address (if different from physical address):_____
4. Daytime phone Number:_____ Evening phone number:_____
5. Email address:_____
6. Proposed facility/Organization name:_____
7. Proposed facility address:_____
8. Proposed facility phone number (if available):_____
9. Veterinary consultant name:_____
   (All applicants must have a licensed veterinarian who has agreed to serve as your medical consultant)
10. Veterinarian address: _____
11. Veterinarian phone number: _____
12. What California-permitted wildlife rehabilitation organization have you been a volunteer at for a minimum of two years (400 hours)?_____ Please list a contact name and number that can verify that you have volunteered at the facility _____.
13. Do you currently have a valid U.S. Fish and Wildlife Service (federal) migratory bird rehabilitation permit? Yes☐ No☐ if yes what is the permit number?_____
14. Have you ever had a wildlife rehabilitation permit from another state? Yes☐ No☐ If yes, what state?_____ During what years?_____
15. Have you ever attended training seminars specifically intended for wildlife rehabilitators? Yes☐ No☐_ If yes, please list the sponsoring organization(s), dates, and general topic areas._____
    _____
    _____
16. What type of animals have you rehabilitated in the past? _____
    _____

Approximate numbers of the various species of orphaned and injured wild animals rehabilitated during an average year._____

17. List species or species groups that you plan to rehabilitate and indicate the number of animals you can handle at one time:
_____
_____
_____

18. List the number, type and size of holding/exercise cages or pens you plan to use at your facility:_____
_____
_____
_____.

19. Do you have a room, area in your home, or a separate building that can be used exclusively for rehabilitating wild animals? Yes☐ No☐ If yes, please describe:_____
_____

Regarding such a room , area in your home, or separate building:

a) Is it away from the main family living and activity areas and secure from family pets and family members other than the rehabilitator and helpers? Yes☐ No☐
b) Describe the ventilation and lighting:_____
_____
_____
c) Describe how you would isolate sick from healthy animals: _____
_____

20. Do you have outdoor holding facilities dedicated to pre-release conditioning of animals? Yes☐ No☐ If yes, please describe:_____
_____
_____

Regarding outdoor holding facilities:

(a) Is the inside completely safe for animals (nothing sharp, no small openings for limbs to get stuck in, etc?) Yes☐ No☐
(b) Is the facility isolated from family pets? Yes☐ No☐
(c) Is the facility predator proof? Yes☐ No☐ if yes, describe how the facility is protected from predators:_____
_____
_____
(d) Can the animals be seen from outside your property by your neighbors or the public? Yes☐ No☐
(e) Describe how the animals are protected from the weather: _____
_____
_____
(f) If you do not have outdoor holding facilities, how do you plan to acclimate animals to the outdoors?
_____

21. Do cages meet or exceed the National Wildlife Rehabilitators Association (NWRA)/ International Wildlife Rehabilitation Council (IWRC) minimum size and construction standards? Yes☐ No☐.

22. Describe your plans and procedures to avoid the dangers of zoonotic diseases._____
_____
_____

23. Have you had a rabies pre-exposure vaccine series? Yes☐ Date_____No☐

24. If you plan to euthanize animals at your facility what method of euthanasia will you use?_____
_____
_____
_____

25. How do you propose to dispose of the animals which may die or that are euthanized?_____
_____

26. Describe any other experience you have had with animals (e.g. working with a practicing veterinarian, at a publicly owned or operated zoo, university animal clinic, or animal shelter)_____
_____
_____
_____
_____

27. Do you have any formal training in biology, zoology, veterinary or medical sciences? Yes☐ No☐ If yes, please describe:_____
_____
_____
_____

28. Are you willing to take phone calls from the public seeking advice or to place animals they have found (the DFG would provide your phone number to callers)? Yes ☐ No☐
29. Do you own your own home/ property/facility? Yes☐No☐ If no, please explain_____

Please also include with your application the following documents:

1. A sponsorship letter from a veterinarian that states that they will assume responsibility to approve all medications, medical treatments, diagnostics and prognostic procedures. Anesthesia and surgery will be conducted only by veterinarians or under direct veterinary supervision. No veterinary medical activities shall be in conflict with the California Veterinary Practice Act.
2. Pictures and/or diagrams of proposed caging facilities for wildlife. Pictures and/or diagrams shall include cage dimensions and materials that caging will be built from, and where caging will be located in regards to separation from domestic animals and human contact. Please refer to the Minimum standards manual for the minimum caging standards.
3. A letter presenting factual information on why a new wildlife care facility is needed in the area where the proposed facility will be located. Also, documentation from other nearby permitted facilities stating that they agree a new facility is needed.
4. Provide documentation of protocols for the following: disease control and quarantine, disinfecting and sanitation protocol, intake procedures, record keeping system (provide example forms), euthanasia procedures, carcass disposal, feces disposal, volunteer training protocol, and public phone call procedures.
5. Documentation from local city or county zoning department stating that possession of wildlife at your facility/ home does not violate any city or county regulations or ordinances.

Please indicate if you have ever been charged with any infraction, misdemeanor, or felony violations regarding domestic or wild animals: If yes, please explain:
_____
_____
_____
_____
_____
_____
_____
_____

I hereby certify that this application for a wildlife rehabilitation permit is true and the information completed on this application is correct to the best of my ability. I understand that if any information regarding my application packet is found to be untrue I will automatically be disqualified as a potential applicant for a wildlife rehabilitation permit.

Signature:	Date:

Send Application to :
California Department of Fish and Game
Wildlife Rehabilitation Coordinator
Att: Nicole Carion
CADFG
601 Locust Street
Redding, CA 96001
Please be advised that the Department is only issuing permits when a new facility is "**needed"**. Permits are issued at the Department's discretion. If a new facility is not needed at the time of application processing the application will be kept up to three years.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
MEMORANDUM OF UNDERSTANDING
FOR
THE PURPOSE OF WILDLIFE REHABILITATION

This Memorandum of Understanding (MOU) is made and entered into this DAY of MONTH, YEAR, by and between the California Department of Fish and Wildlife (Department) and

PERMIT HOLDER NAME
FACILITY NAME
ADDRESS
CITY, STATE, ZIP CODE

(Hereinafter referred to as the Permittee) and expires on DAY of MONTH, YEAR.

Pursuant to Fish and Game Code Section 3005.5 and Section 679 of Title 14 of the California Code of Regulations ("Section 679"), the Department and the Permittee (collectively, the Department and Permittee shall hereinafter be referred to as "Parties") agree to the terms and conditions of this Wildlife Rehabilitation Permit/Memorandum of Understanding issued to the Permittee.

RECITALS:

A. WHEREAS, the Permittee has expressed interest in rehabilitating native sick, injured, or orphaned game birds, protected nongame birds, resident small game mammals, furbearing, and nongame mammals, reptiles, and amphibians; and,
B. WHEREAS, the Department would like rehabilitation work to be done on some species of wildlife; and,
C. WHEREAS, the Department frequently takes possession of sick, injured, or orphaned wildlife and lacks facilities for their care; and,
D. WHEREAS, the parties hereto desire to coordinate a program of wildlife rehabilitation by means of this MOU,
E. NOW, THEREFORE, it is mutually agreed and understood as follows:

Unless otherwise authorized in this MOU, the Permittee may possess and provide care for sick, injured, or orphaned game birds, protected nongame birds, resident small game mammals, nongame mammals furbearing mammals, reptiles, and amphibians pursuant to Section 679; the Third Edition 2000 National Wildlife Rehabilitation Association/ International Wildlife Rehabilitation Council Minimum Standards for Wildlife Rehabilitation; and the conditions listed below.

The Permittee may not rehabilitate any mountain lions or big game mammals listed in Title 14, section 350, which include adult deer, elk, pronghorn antelope, wild pig (feral pigs, European wild pigs, their hybrids), black bear, and Nelson bighorn sheep.

CONDITIONS:

Wildlife caging shall comply with the 2000 Wildlife Rehabilitation and Care Standards. Copies of Section 679 and lists of fully protected, threatened, and endangered wildlife species are attached.

POSSESSION AND NOTIFICATION REQUIREMENTS

1. This MOU does not authorize the Permittee or any representative of the Permittee to possess or capture for rehabilitation purposes, any healthy wildlife from the wilds of this State, or any animals that are deemed nuisance wildlife that are trapped by pest control agencies or operators. Orphans of nuisance animals may be rehabilitated and released in accordance with the provisions of this MOU, the Fish and Game Code, and other laws, but not the nuisance parent animal.

2. The Permittee shall construct, and at all times maintain, visual barriers between different species and along frequently traveled paths and walkways used by the Permittee and volunteers to avoid habituation and minimize stress on wildlife undergoing rehabilitation.

3. The Permittee shall not allow domestic animals to intermingle or come into contact with wildlife undergoing rehabilitation. This prohibition includes, but is not limited to, keeping chickens outside of wildlife cages and allowing domestic dogs or cats to live or intermingle with wildlife being rehabilitated inside residences, garages, or other structures.

4. Chemical Immobilization of free ranging wildlife is strictly prohibited.

5. Exotic (non-native) restricted species listed in section 671, Title 14 may not be possessed pursuant to this MOU.

6. The Permittee shall not initiate any rescue efforts for any mountain lion or big game mammals, including deer (EXCEPT fawns), elk, pronghorn antelope, wild pig, black bear, and Nelson bighorn sheep. If the Permittee receives any calls regarding mountain lions or big game mammals (EXCEPT fawns), the Permittee shall direct the caller to contact the Department directly. The Permittee shall notify the Department immediately, or on the next working day, if the Permittee receives any endangered, threatened, fully protected, big game mammal, mountain lion, or exotic (non-native) restricted species listed in section 671, Title 14, CCR. The Permittee shall notify the Department by calling: the Wildlife Investigations Lab (WIL) at telephone (916) 358- 2790; or the nearest Department Regional office, between 8:00 A.M. and 5:00 P.M. Monday through Friday. If reporting is on the weekend or after hours, leave a message so contact can be made the next business day and contact enforcement 1-888-DFG CALTIP (1-888-334-2258).

7. All wildlife, carcasses, or parts of wildlife possessed under the provisions of this MOU shall remain the property of the people of the State of California through the Department. The Permittee is granted only temporary custody of such wildlife and must exhibit/surrender such wildlife or part upon demand made by any employee of the Department.

8. The Permittee shall report any suspected incident of wildlife poisoning or any increase in mortality of housed wildlife suspected to be caused by an infectious, contagious disease to the WIL [(916) 358-2378 (nongame mammals), (916)-358-1194 (game mammals), or the (916) 358-1662 (birds)], as soon as practical. The Permittee shall obtain Department approval before submitting any carcass to a diagnostic lab, other than the WIL, for necropsy. The Permittee shall forward copies of any lab results to the WIL once they are received by the rehabilitation facility.

RELEASE OF WILDLIFE

9. Upon the recovery of a sick or injured wildlife specimen, or determination that an orphaned specimen is ready for release, the Permittee shall release the animal in a suitable habitat near where the animal originated (as close as possible to original location and within a ten-mile radius). The release of any wildlife on private property requires permission of the landowner. The release of wildlife on local, state, or federal land requires permission from the agency that manages that property.

10. Opossums, Eastern Gray Squirrels, Eastern Fox Squirrels, Rock Pigeons, Eurasian Collared Doves, House Sparrows, and European Starlings, although not native to California, may be rehabilitated and released pursuant to the conditions listed in this MOU. However, these animals adversely compete with native California wildlife to their detriment. Thus, the Department recommends euthanasia rather than release.

11. The Permittee shall not display or exhibit any orphaned, injured or diseased wild animal that is possessed for care or treatment under the authority of this MOU, nor shall the Permittee allow any other person to do so. Upon approval from the Wildlife Rehabilitation Coordinator, animals undergoing rehabilitation may be photographed or filmed briefly for press releases or educational films that promote wildlife conservation. Permittees and volunteers shall follow the media contact conditions in Appendix A. Wildlife Rehabilitators should always wear appropriate gloves when handling any wild animal.

NON-RELEASABLE

12. If the Permittee wishes to exhibit non-releasable injured or orphaned wildlife,

he or she shall obtain a Native Species Exhibiting Permit pursuant to section 671.1, Title 14. Non-releasable birds require additional permission/permit from the USFWS.

a. Only wildlife determined by the Department (contact the Wildlife Investigations Laboratory by email or telephone at (916) 358- 2790; or the nearest Department Regional office) to be permanently injured or non- releasable due to imprinting or habituation and suitable for public exhibition will be eligible for non-releasable status. A veterinarian shall prepare a written document describing the permanent injury that qualifies the animal as non-releasable. A copy of the veterinarian's document shall be forwarded to the Department within 7 days of the veterinarian's classification.

b. In the unusual event that an animal is brought into a center imprinted or severely habituated, the Permittee shall notify the Department within 72 hours after the determination has been made. If an animal becomes imprinted or severely habituated during the rehabilitation process, the Permittee shall either, transfer the animal to another rehabilitation center (other than the responsible rehabilitator), euthanize the animal, or transfer it to a Department-approved Native Species Exhibiting Permittee.

EDUCATIONAL WILDLIFE APPROVED BY THE DEPARTMENT PRIOR TO 2012 AND POSSESSED UNDER A WILDLIFE REHABILIATION MOU

13. This section only applies to non-releasable educational wildlife approved for possession by the Department prior to January 1, 2012.

a. The Permittee shall maintain all non-releasable educational wildlife in accordance with the caging and care provisions listed in sections 671.2 and 671.3, Title 14, unless otherwise authorized by the Department.

b. Exhibitors, including the Permittee, wishing to use wildlife for educational purposes must be either licensed or registered as an exhibitor by the U. S. Department of Agriculture (a "licensed" exhibitor is one receiving compensation; a "registered" exhibitor receives no compensation).

c. Educators shall display animals a reasonable distance between the audience and the animal (a minimum of four feet is recommended). The educator shall maintain control of the animal at all times during exhibition.

d. Educators shall wear gloves when displaying any wild animal.

e. The Permittee shall not allow the public to contact live animals.

f. In a continuing effort to maintain dignity to wildlife, and discourage the public from viewing wildlife as pets, educators shall not use techniques that promote a "pet" type of relationship between the handler and the animal (i.e., refer to the animals using endearing terms like "cute", or allow animals to crawl or climb on the handler or in the clothing or pockets of the handler). All exhibitions shall focus on wildlife conservation and natural history.

g. Any photographs of educational wildlife on brochures or websites, etc. shall not portray the animals as "pet-like": i.e., inside homes, playing with toys, displayed with domestic animals, eating unnatural foods, etc.

ANNUAL REPORTS

14. The Permittee shall provide the Department with an annual report by January 31st of each year, even if the Permittee had no activity at any time during the year. The use of the Department's Annual Year End Report Form (FG540 Rev 11/06), while recommended, is not mandatory. However, the Permittee must include, at a minimum, all information described below in every annual report, and submit the completed report by email or mail to: ATTN: Wildlife Rehabilitation Program, 1701 Nimbus Road, Rancho Cordova CA 95670; RehabWildlife@wildlife.ca.gov) . The Department will send a copy of the form to the Permittee prior to January 31st of each year. If the Permittee fails to submit an annual report by January 31st of each year, even if the Permittee had no activity at any time during the year, the Department may immediately suspend or revoke this MOU. The annual report shall contain the following information listed below:

    a. A complete list of all wildlife received by the Permittee during the reporting period. The report shall include a statistical summary of all the required information as stated in the minimum standards for Wildlife Rehabilitators, Third Edition, 2000, Section 1.4, pages 16-17.

    b. A complete inventory of all non-releasable wildlife approved prior to January 1, 2012 (Any non-releasable animals acquired after 2012 shall be reported on a Native Species Exhibiting Permit Inventory) including:

        1. A description of each animal's impairment that makes it non-releasable.
        2. The date the animal was classified as non-releasable.
        3. The location where the animal is being held.
        4. The total number of non-releasable animals possessed by the Permittee.

    c. A description of all die-offs or mortality events, significant disease events, unusual injuries, and unusual occurrences involving sick or injured wildlife.

d. A dated signature at the end of the annual report, and immediately below a statement that says the following: “I certify that the above information is true and correct to the best of my knowledge. I understand that any false statements herein may result in the loss of my Wildlife Rehabilitation Memorandum of Understanding.”

e. The Permittee shall provide a current and accurate record of all paid staff and volunteers. For each satellite, the Annual Report shall contain the name of the person maintaining the satellite, address and phone number. A satellite is a location where rehabilitation is performed other than at the address listed on this MOU.

GENERAL CONDITIONS

15. The Permittee may transfer raptors to a licensed California falconer for rehabilitation purposes. Such raptors shall be maintained by the falconer and used in accordance with all California and federal falconry laws and regulations.

16. The Permittee shall keep wildlife rehabilitation records available for inspection for five years following the end of the calendar year covered by the records. These records include complete and accurate records of all wildlife received, including the date received, type of injury or illness, disposition, and date of disposition. After five years, the Permittee may dispose of wildlife rehabilitation records.

17. The Permittee may not retain any animal rehabilitated pursuant to this MOU for more than 180 days without additional authorization from the Department’s Wildlife Rehabilitation Coordinator.

18. If the Permittee rehabilitates migratory birds, the Permittee must have a valid Federal Migratory Bird Rehabilitation Permit issued by the United States Fish and Wildlife Service.

19. Every paid staff member or unpaid volunteer of a wildlife rehabilitation organization who physically handles wildlife shall read this MOU and sign a document affirming he or she understands and shall abide by the terms and conditions of the MOU. The Permittee shall maintain the affirmation documents where wildlife is possessed and make such documents available to the Department upon request.

20. This MOU does not authorize the Permittee to use traps to capture wildlife. If trapping is required to capture an animal, the Permittee shall first obtain permission of local Department personnel to trap wildlife for rehabilitation

purposes on a case-by-case basis.

21. The Permittee shall not transfer or donate any wildlife or carcasses or parts of wildlife possessed under the privilege of this MOU without first receiving approval from the Department. Wildlife carcasses shall be disposed of by burial or incineration, used as food for other wildlife, or disposed using other means approved by the Department. Disposal of wildlife carcasses shall be in accordance with local, city and county codes.

22. The Department may conduct unannounced visits to inspect the rehabilitation facility and any wildlife possessed by the Permittee during a reasonable time of the day and on any day of the week. The Department may also inspect, audit, or copy any permit, license, book, or other record required to be kept by the Permittee pursuant to this MOU, the Fish and Game Code, or any regulation adopted pursuant thereto.

SATELLITES

25. Each volunteer maintaining a satellite facility shall keep a copy of the signed MOU.

26. To qualify as a satellite facility, the proposed facility shall pass an inspection, following the same standards as the main rehabilitation facility. The inspection shall be completed by the Permittee or a representative of the Permittee prior to approving the volunteer to possess animals at the satellite facility, unless otherwise authorized by the Department. If a satellite violates any term of this MOU, the Fish and Game Code, or any regulation adopted pursuant to the Fish and Game Code, the Permittee's MOU may be suspended or revoked by the Department. A New Volunteer Form (FG541 Rev 11/17) has been created by the Department for satellite facilities. Contact the Wildlife Rehabilitation Coordinator for a copy of the form.

27. Satellites must be located within a reasonable distance of the Permittee with whom they are affiliated. It is recommended that satellites stay within the same region or county of the Permittee. A person maintaining a satellite facility shall contact the Wildlife Rehabilitation Coordinator for permission to rehabilitate animals for an additional permittee other than the local /nearest permittee.

28. The Department may conduct unannounced visits to inspect a satellite facility, rehabilitation records and any wildlife possessed at the satellite facility during a reasonable time of the day and on any day of the week. The Department may immediately terminate a volunteer's privileges to operate a satellite facility if the volunteer refuses to be available to participate in an inspection or refuses to allow an inspection. Upon termination of a volunteer's privileges to operate a satellite facility, the volunteer shall immediately surrender all animals housed at the satellite facility to the Department or the Department's designee.

This MOU is valid through 3 YEARS FROM ISSUANCE (add DATE), but it may be terminated upon the mutual agreement of the Department and the Permittee. The Department may immediately suspend or revoke this MOU if the Department determines that the Permittee (including any representative, staff, volunteer, or satellite of the Permittee) has not complied with a term or condition of this MOU, any provision of the Fish and Game Code, or any regulation adopted pursuant to the Fish and Game Code. The Permittee may appeal suspension or revocation of this MOU by filing a written request for an appeal with the Fish and Game Commission (Commission) no later than thirty days after receipt of the Department's notice of suspension or revocation. Upon the termination, suspension, or revocation of this MOU, and regardless of whether the Permittee has timely appealed to the Commission, all animals possessed under the privileges of this MOU shall be immediately transferred, surrendered, or humanely euthanized as directed by the Department.

The Permittee agrees to indemnify, defend and save harmless the State, its officers, agents, and employees from any and all claims and losses accruing or resulting to any person or property in connection with the performance of this MOU.

This MOU has been executed by and on behalf of the parties hereto as to the day and year first written. The Permittee shall notify the Department in writing within ten days of a change in the address of the facility, or if there is a change in the facility's director or president. The notification shall include the name of the person who will be replacing the original signer of this MOU, and such notification shall become part of the original MOU.

By signing this signature page, the Permittee agrees to comply with all of the conditions of this MOU, section 679, Title 14, CCR, and the Fish and Game Code.

_____

Heather Perry Date
Wildlife Rehabilitation Coordinator
Wildlife Health Laboratory
CA Department of Fish and Wildlife

_____

Permittee Signature Date

_____

Print Name

_____

Organization Name

Appendix A

Media Contact Conditions

1. Ask the media entity to use videos or photographs you have previously taken, instead of allowing them to visit the facility and take new photos or videos. If the media entity/representative would like to take their own pictures or footage, ask them to be brief and not touch or talk to the wildlife.

2. Make an effort to stay out of any pictures and videos. If the rehabilitator or other human is in contact with the wild animal, it may promote "pet-like" images.

3. Always ask the media to photograph the animal in a manner that portrays it as a wild animal and not as a pet.

4. If you have to be in the photo or video, **do not** handle the animals in a pet like manner. For example, during the shoot, do not allow animals to crawl on you, suckle your fingers, drink out of a bottle while being coddled, sit in your pocket, etc.

5. Please clear any media events with the Department's Wildlife Rehabilitation Coordinator (and you may want to notify the USFWS if you are using a federally permitted bird(s)) in advance.

6. Do not allow the media or other members of the public to handle wildlife!

7. Keep the focus of the story about wildlife, their natural history, conservation, and how to live with wildlife.

8. Do not present wildlife in unnatural settings, e.g., having human toys or people food in the picture or presenting animals wandering around your house or on top of desks or computers.

NOTE: Many wildlife rehabilitation centers have non-releasable education animals and these conditions for media contacts should also be followed when doing an educational presentation.

ADDENDUM TO WILDLIFE REHABILITATION PERMIT/MEMORANDUM OF UNDERSTANDING BETWEEN
THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
and
insert Facility name ALL CAPS

REHABILITATION AND CARE OF ORPHANED BLACK BEAR CUBS

Pursuant to Fish and Game Code Section 3005.5 and Section 679 of Title 14 of the California Code of Regulations ("Section 679"), the California Department of Fish and Wildlife ("Department") and *insert Facility name* (" *insert abbrev.* "; collectively, the Department and *insert abbrev.* shall hereinafter be referred to as "Parties") agree to the terms and conditions of this Addendum to the Wildlife Rehabilitation Permit/Memorandum of Understanding issued to *insert Facility name* ("Addendum").

RECITALS:

A. *insert abbrev.* is a California wildlife rehabilitation facility permitted pursuant to Section 679. *insert abbrev.* currently possesses a Wildlife Rehabilitation Permit/Memorandum of Understanding ("Permit/MOU"). The Permit/MOU became effective *insert Date of Permit issuance* and expires on *insert Date of Permit expiration* .

B. Black bears are native to California, and black bear cubs are occasionally orphaned; therefore, it is desirable to rehabilitate orphaned black bear cubs and release them back into the wild when this goal can be achieved.

1. An orphaned bear is a cub that is under 50 pounds, unable to survive in the wild without intervention, and is not associated with a sow upon admission to the facility.
2. Age, body condition, level of illness or injury, and disposition (e.g., level of habituation or food conditioning) affect the candidacy of a bear cub for rehabilitation.

CONDITIONS:

A. This Addendum is fully incorporated into *insert abbrev.*'s existing Permit/MOU. Except as provided in this Addendum, *insert abbrev.* shall follow all terms and conditions provided in the Permit/MOU.

B. Notwithstanding the Permit/MOU's prohibition on the possession of black bears, *insert abbrev.* may possess black bears as follows:

a. *insert abbrev.* shall develop and institute standard procedures for the temporary care and rehabilitation of black bear cubs. These procedures shall:

(1.) Be approved by the Department's Wildlife Health Laboratory (WHL) prior to distribution to staff and volunteers working with bears, and prior to renewal of the Permit/MOU.

(2.) Limit bear cub care to staff or volunteers with 40 hours of supervised training specific to black bears by an experienced staff or veterinarian with prior large mammal or carnivore handling and care experience.

(3.) Minimize the number of caretakers to 2-4 people to lessen the risk of habituation. Limit the feeding and care interactions with any bears to create and maintain the bears' avoidance behavior for people other than their caretaker.

(4.) Incorporate check sheets allowing staff and volunteers to ensure that *insert abbrev.* is providing routine bear care, facility safety and maintenance; and

(5.) Be read and signed by all staff and volunteers working with bears.

b. *insert abbrev.* shall comply with applicable provisions in the Third Edition 2000 National Wildlife Rehabilitation Association/International Wildlife Rehabilitation Council Minimum Standards for Wildlife Rehabilitation including, but not limited to, special housing provisions specific to ursids (bears).

(1.) Bear enclosures shall be approved by the Department prior to entering in this agreement, and prior to renewal of the Permit/MOU.

c. At all times, *insert abbrev.* shall do the following:

(1.) Upon the Department's request, and as *insert abbrev.* is able, receive and transport black bear cubs to the *insert abbrev.* facility in *insert City of facility* ; *insert abbrev.* is not permitted to capture cubs from the wild.

(2.) Make any cub in its possession available to the Department on the date the Department determines a cub will be returned to the wild.

(3.) Notify the Department's wildlife rehabilitation coordinator of any media inquiries related to any bear cub in its care within 2 hours or the next business day, if after hours, either by email or phone.

(4.) Not make any public statement indicating it can take an orphaned or injured cub, or have the available capacity for any such cub, until after it is notified by the Department that it may possess the cub.

(5.) *insert abbrev.* shall not direct any member of the public to capture or detain a bear of any age.

(6.) If a black bear cub is received outside of regular business hours, on the weekend, or by Department personnel from a Regional Office prior to evaluation by the Department WHL, *insert abbrev.* shall:

i. Contact the Department's wildlife rehabilitation coordinator immediately to coordinate evaluation of the cub as a rehabilitation candidate: 916-358-2790
ii. Only administer emergency veterinary care until the cub is deemed a rehabilitation candidate by the WHL.

(7.) Any sick or injured cub can be first evaluated by a *insert abbrev.* veterinarian, but final disposition shall be made in consultation with the WHL before invasive procedures, such as surgical intervention, are initiated.

(8.) Allow the Department to inspect the facility for compliance with the conditions described in this paragraph prior to possessing cubs.

(9.) Maintain a continuing program for scheduled repairs and upkeep of the black bear enclosures.

C. This Addendum will expire on *insert Date of Permit expiration* and may be renewed along with the renewal of the Permit/MOU.

By signing below, the permittee agrees to comply with all conditions listed in this Addendum.

_____	_____
Garry Kelley	*insert Name of Permitee*
Environmental Program Manager	*insert Title of Permitee*
Department of Fish and Wildlife	*insert Facility name*
_____	_____
Date	Date

State of California – Department of Fish and Wildlife
WILDLIFE REHABILATATION PERMIT
DFW 698 (REV. 01/12/21)

SAVE PRINT CLEAR

TYPE OF PERMIT: **Wildlife Rehabilitation**
ISSUE DATE: EXPIRATION DATE:

PERMITTEE	
FACILITY NAME:	
PRIMARY CONTACT:	
ADDRESS:	
PHONE NUMBER:	EMAIL:

AUTHORIZATION(S): THE PERMITTEE MAY POSSESS AND REHABILITATE WILD ANIMALS INDIGINOUS TO CALIFORNIA (NO EXOTICS) PUSUANT TO SECTION 679, TITLE 14, CALIFORNIA CODE OF REGULATIONS WITH CONDITIONS LISTED IN THE WILDLIFE REHABILIATION MEMORANDUM OF UNDERSTANDING EXCEPT FOR BLACK BEARS, ELK, ANTELOPE, MOUNTAIN LIONS,BIG HORN SHEEP, WILD PIGS, AND DEER UNLESS SPECIAL AUTHORIZATION IS GRANTED BY THE DEPARTMENT.

SPECIFIED CONDITIONS:

1. SECTION 679 OF TITLE 14 OF CALIFORNIA CODE Of REGULATIONS (CCR-T14),FISH AND GAME CODE 3005.5. ALL OTHER APPLICABLE SECTIONS OF CCR T-14 AND THE CALIFORNIA FISH AND GAME CODE APPLY.

2. ADHERENCE TO ALL OTHER DEPARTMENT PERMITS, LICENSES AND MEMORANDUMS OF UNDERSTANDING.

3. THE DEPARTMENT MAY CONDUCT INSPECTIONS AT ANY RESONABLE HOUR.

4. WILD ANIMALS POSSESSED UNDER THE PROVISIONS OF THIS PERMIT SHALL REMAIN THE PROPERTY OF THE STATE OF CALIFORNIA. THE PERMITTEE IS GRANTED ONLY TEMPORARY CUSTODY OF SUCH ANIMALS. ANY ANIMAL POSSESSED UNDER THIS PERMIT WILL BE SURRENDERED TO THE DEPARTMENT UPON REQUEST.

5. A PERMIT MAY BE REVOKED BY THE DEPARTMENT IF IT DETERMINES ANY TERMS OF THIS PERMIT HAVE BEEN VIOLATED OR FOR REASONABLE CAUSE OR IF SUCH REVOCATION IS IN THE BEST INTERESTS OF ANIMALS BEING HELD UNDER THIS PERMIT.

6. ADHERENCE TO THE WILDLIFE REHABILITATION MEMORANDUM OF UNDERSTANDING AND ANY ADDENDUMS TO THE MEMORANDUM OF UNDERSTANDING.

Issued By: Heather Perry, PhD, Wildlife Rehabilitation Program Coordinator

TYPE OF PERMIT:
Wildlife Rehabilitation

ISSUE DATE:

EXPIRATION DATE:

STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
DEPT. OF FISH AND WILDLIFE

PERMITTEE (NAME, ADDRESS, PHONE NUMBER):

AUTHORIZATION(S): THE PERMITTEE MAY POSSESS AND REHABILITATE WILD ANIMALS INDIGENOUS TO CALIFORNIA (NO EXOTICS) PURSUANT TO SECTION 679, TITLE 14, CALIFORNIA CODE OF REGULATIONS WITH CONDITIONS LISTED IN THE WILDLIFE REHABILITATION MEMORANDUM OF UNDERSTANDING EXCEPT FOR BLACK BEAR, ELK, ANTELOPE, MOUNTAIN LION, BIGHORN SHEEP, WILD PIG, AND DEER. DEER FAWNS CAN BE REHABILITATED AT FACILITIES THAT HAVE APPROPRIATE CAGING AND TRAINING, AND ONLY WITH FAWNS FROM THE SAME DEER HERD.

SPECIFIED CONDITIONS:

1. SECTION 679 OF TITLE 14 OF CALIFORNIA CODE OF REGULATIONS (CCR-T14),FISH AND GAME CODE 3005.5. ALL OTHER APPLICABLE SECTIONS OF CCR T-14 AND THE CALIFORNIA FISH AND GAME CODE APPLY.

2. ADHERENCE TO ALL OTHER DEPARTMENT PERMITS, LICENSES AND MEMORANDUMS OF UNDERSTANDING.

3. THE DEPARTMENT MAY CONDUCT INSPECTIONS AT ANY REASONABLE HOUR.

4. ALL WILD ANIMALS POSSESSED UNDER THE PROVISIONS OF THIS PERMIT SHALL REMAIN THE PROPERTY OF THE STATE OF CALIFORNIA. THE PERMITTEE IS GRANTED ONLY TEMPORARY CUSTODY OF SUCH WILDLIFE. ANY ANIMAL POSSESSED UNDER THIS PERMIT WILL BE SURRENDERED TO THE DEPARTMENT UPON REQUEST.

5. ANIMALS UNDERGOING REHABILITATION PURSUANT TO THIS PERMIT SHALL NOT BE DISPLAYED TO THE PUBLIC.

6. A PERMIT MAY BE REVOKED BY THE DEPARTMENT IF IT DETERMINES ANY TERMS OF THIS PERMIT HAVE BEEN VIOLATED OR FOR REASONABLE CAUSE OR IF SUCH REVOCATION IS IN THE BEST INTERESTS OF ANIMALS BEING HELD UNDER THIS PERMIT.

7. ADHERENCE TO THE WILDLIFE REHABILITATION MEMORANDUM OF UNDERSTANDING.

Issued By:

State of California - Department of Fish and Wildlife
SATELLITE FACILITY AUTHORIZATION
DFW 541 (REV. 01/25/22)

SAVE PRINT CLEAR

Per the California Department of Fish and Wildlife (CDFW) Memorandum of Understanding (MOU), a Satellite facility is defined as any location where rehabilitation and temporary care of wildlife is performed other than the address listed on the MOU.

The operator of the Satellite facility agrees to the following conditions:

1. Satellite facility must be located within the same Department Region as the Permittee's primary facility. A list of Department Regions is found here: https://wildlife.ca.gov/Regions

2. Satellite facility shall comply with conditions stated in the MOU, California Code of Regulations, Title 14, section 679 (Section 679), the Third Edition 2000 National Wildlife Rehabilitation Association/International Wildlife Rehabilitation Council Minimum Standards for Wildlife Rehabilitation (Minimum Standards), the Fish and Game Code, and other applicable laws, including all local, state, and federal laws.

3. Satellite facility shall retain a copy of the permittee's signed Permit/MOU.

4. Unless otherwise authorized by the Department, the Satellite facility shall pass an inspection completed by the Permittee or a representative to verify that it meets standards pursuant to Section 679, the Minimum Standards, and all Permit/MOU conditions before possessing any animal. Permittee shall conduct a new inspection if the Satellite facility moves to a new location.

5. The Department or Permittee may immediately suspend or revoke this Authorization at any time and for any other reason. Upon the termination, suspension, or revocation of a Satellite facility, all animals possessed pursuant to this Authorization shall be immediately transferred, surrendered, released, or humanely euthanized as directed by the Department.

6. All wildlife, carcasses, or parts of wildlife possessed pursuant to the MOU shall remain the property of the people of the State of California through the Department. The Satellite facility is granted only temporary custody of such wildlife and must exhibit/surrender such wildlife or part upon demand made by the Department.

7. The operator of the Satellite Facility consents to an inspection of the Satellite facility, wildlife rehabilitation records, and any wildlife in their possession by the Department or the Permittee during a reasonable time of the day on any day of the week.

8. Satellite facility shall retain a copy of this Authorization.

Name of Permittee (primary facility): _____

Location of Permittee (primary facility): _____

Name of Satellite Facility (sub-permittee): _____

State of California - Department of Fish and Wildlife
SATELLITE FACILITY AUTHORIZATION
DFW 541 (REV. 01/25/22)

Location of Satellite Facility: _____

Primary Phone Number: _____ Secondary Phone Number: _____

Primary Email Address: _____

Veterinarian of Record: _____

Species or Animal Type(s) to be in Possession: _____

Caging (Type/Size, Number) at Satellite Facility: _____

IMPORTANT! A Satellite facility may not obtain animals prior to authorization.

ACKNOWLEDGEMENT OF AUTHORIZATION

I hereby certify that I, _____, have inspected the proposed Satellite facility, that all animal caging is adequate, and the Satellite facility meets the standards described in Condition 4 of this form.

This Satellite facility approval is valid through_____(Permit Expiration Date), but it may be terminated at any time for any reason by the Department or the Permittee. On the date of permit/MOU renewal, this Satellite facility may be re-authorized to perform rehabilitation and temporary care of wildlife per the conditions stipulated. Re-inspection of this Satellite facility will occur every 3-years in accordance with the Permittee's renewal application.

_____ _____
Permittee or Authorized Representative Signature Date

I have read all of the conditions in the Memorandum of Understanding (MOU) between the Permittee and the Department.

By signing this signature page, I agree to comply with all of the conditions in this Authorization and the permit/MOU.

_____ _____ _____
Name of Satellite Facility Operator Signature Date

Email (preferred) or mail completed form to: RehabWildlife@wildlife.ca.gov

Wildlife Rehabilitation Program Coordinator
ATTN: CDFW Wildlife Rehabilitation Program
1701 Nimbus Road, Suite D
Rancho Cordova, CA 95670

Wildlife Rehabilitation

Annual End of Year Report

Due January 31

Report for year of

Organization Name:

Address:

Phone: Email:

Instructions: Provide information for all mammals and reptiles held under your permit during the report year. For birds held under your permit, provide a copy of the Federal Annual Report. Reports must be submitted even if you had no activity during the year. Annual reporting is a condition of the permit. Failure to report violates conditions of the CDFW memorandum of understanding and may result in suspension or loss of permit.

Submit report electronically or by mail:

ATTN: Wildlife Rehabilitation Program

heather.perry@wildlife.ca.gov

CDFW Wildlife Investigations Laboratory, 1701 Nimbus Road, Rancho Cordova, CA 95670

Non-Releasable Wildlife

List any wildlife in possession that are non-releasable and being used as surrogates or educational animals.

Common Name	Date Acquired	Nature of Injury	Location of Animal

Non-Releasable Wildlife

Common Name	Date Acquired	Nature of Injury	Location of Animal

Total amount of Non- Releasable_____

FG540 (Rev 1/21)

New Acquisitions. Please provide a summary of all mammals and reptiles (migratory birds reporting can be done by providing a copy of the U.S Fish & Wildlife annual report) categorized by species. The quantity in the received column should equal the sum of the quantities in the Disposition column.

Common Name	Total Number Received	Disposition (enter quantity)					
		Released	Transferred	Pending	Euthanized	Died	RE-United

FG540 (Rev 1/21

New Acquisitions Continued

Common Name	Total Number Received	Disposition (enter quantity)					
		Released	Transferred	Pending	Euthanized	Died	RE-United

Total number of Mammals Received _____ Total Reptiles_____

FG540 (Rev 1/21)

Report any of the following events your facility encountered: widespread mortality events, significant disease events, unusual injuries, unusual occurrences involving sick or injured wildlife.

Report Prepared by:

Name (Print) Title Date

Certification

I certify that the above information is true and correct to the best of my knowledge. I understand that any false statements herein may result in the loss of my Wildlife Rehabilitation Memorandum of Understanding.

Signature: **Date:**

Wildlife Rehabilitation

New Volunteer Form

To be completed and sent in to the Department when a new volunteer or new staff member is planning to rehabilitate animals other than the location (i.e. their home) that is listed on a permitees Memorandum of Understanding (MOU). The permitee or representative of permitee must inspect the new satellite facility to verify that "minimum standards" are met. Send Completed Form to : Nicole Carion, Wildlife Rehabilitation Coordinator, 601 Locust Street, Redding, CA 96001.

Name of organization: _____

Location of organization: _____

New volunteer/ staff Name (full):_____

New volunteer's address (physical):_____

Address where animals will be kept if different from above: _____

Day time phone number _____ Evening phone number _____

List the type of animals that new volunteer or staff will be taking home or offsite._____

Caging available:

_____

I herby certify that I, (s) have inspected the satellite location for wildlife
Permitees name or representatives
rehabilitation and the satellite facility caging is adequate and meets the "minimum standards for wildlife rehabilitation".

Signature of MOU permitee or representative Date of inspection

I have read and understand the Department of Fish and Game Regulations (California Code of Regulations section 679.) regarding the wildlife rehabilitation and the Memorandum of Understanding between the permitee and the Department of Fish and Game.

New volunteer/ staff member Date

FG541(Rev 11/06)

Wildlife Rehabilitation

Wildlife Rehabilitation Training Proposal

Name of Organization:_____

Training Subject:_____

Instructor Name _____

Phone Number _____

Credentials:_____

Training Date and Location:_____

Training Outline

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Training Proposal Submitted by: _____

Fax Number _____

Date Submitted: _____(all training proposals to be submitted 60 days before training)

DFG Personnel Approving Training:_____Date:_____

SAVE PRINT CLEAR

State of California – Department of Fish and Wildlife

WILDLIFE REHABILITATION CONTINUING EDUCATION TRAINING PROPOSAL APPLICATION

DFW 697 (NEW 01/12/22)

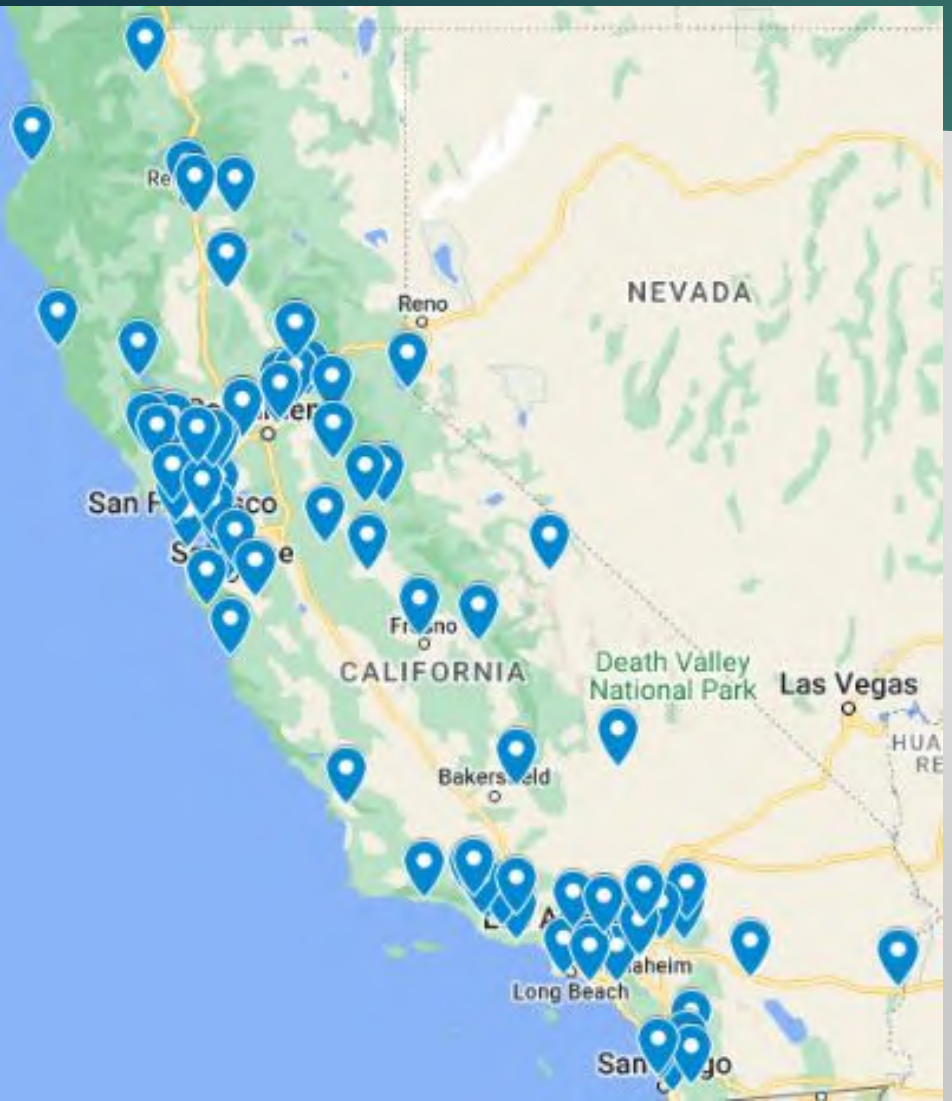
INCOMPLETE APPLICATIONS WILL BE RETURNED. TYPE OR PRINT. PROPOSALS SHOULD BE SUMITTED 60 DAYS PRIOR TO TRAINING

NAME OF PERMITTED FACILITY	PHONE NUMBER
LOCATION OF PERMITTED FACILITY	EMAIL
NAME OF TRAINER	TRAINING TITLE
TRAINER CREDENTIALS	TRAINING LOCATION
TRAINING DATE(S)	TRAINING FORMAT ☐ VIRTUAL ☐ OUTLINE ☐ LIVE ☐ OTHER_____
FORM SUBMITTED BY NAME TITLE DATE	
☐ APPROVED ☐ DENIED DFW SIGNATURE DATE	
TRAINING DESCRIPTION – OR – ATTACH AGENDA	

Title 14 CCR §679.

Possession of Wildlife and Wildlife Rehabilitation

T14 CCR §679.
Possession of Wildlife and Wildlife Rehabilitation



Wildlife Rehabilitation in California

- **84** Primary Facilities
  - 40% = main facility / staff & volunteers
  - 32% = One-person homecare site
  - 28% = Volunteer group (homecare sites)
- **~357** Satellite Facilities
- **~2,948** Volunteers
- **~100,346** animal intakes (CY 2021)

  Birds ~ 68,134 // Mammals ~ 31,494 // Herps ~718

T14 CCR §679.
Possession of Wildlife and Wildlife Rehabilitation

Wildlife Rehabilitation in California

- Paucity of existing regulatory framework…
- More robust regulations will allow the State to better serve our diverse publics, rehab facilities, community partners - and native wildlife in need

Wildlife Rehab in Other States

- Extensive literature review of all 50 States
- **44 of 50 States** have a robust regulatory framework authorizing wildlife rehab activities

T14 CCR §679.
Possession of Wildlife and Wildlife Rehabilitation

Potential Future Rulemaking

- Regulatory updates needed in the following areas:
  - Minimum care standards
  - Permit/MOU conditions
  - Specialty rehab types
  - Permit application / renewal process
  - Permit revocation & denial standards
  - Disease surveillance & mortality reporting

T14 CCR §679.
Possession of Wildlife and Wildlife Rehabilitation

Potential Future Rulemaking

- Specifically, improvements proposed for the following sub-sections:

  (b) Temporary Confinement of Wildlife.

  (d) Prohibition on Picking up Disabled Wildlife in Designated Oil/Toxic Spill Area.

  (e) Wildlife Rehabilitation Facilities.

    (1) Wildlife Rehabilitation Facility Defined.

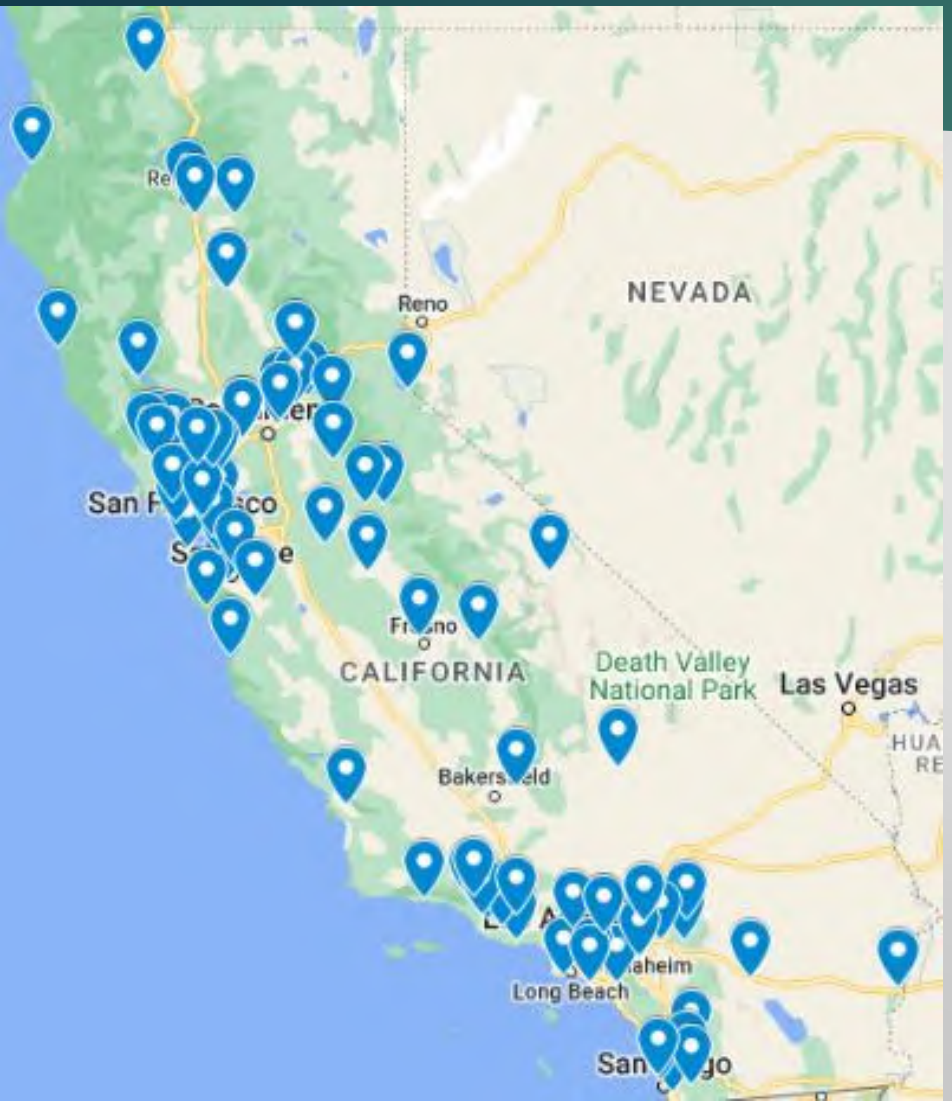
    (2) Approval of Wildlife Rehabilitation Facility.

  (f) Provisions Related to the Operation of a Wildlife Rehabilitation Facility.

Title 14 CCR §679.

Possession of Wildlife and Wildlife Rehabilitation

T14 CCR §679.
Possession of Wildlife and Wildlife Rehabilitation



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Preliminary Results from the *Conservation Standards* Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process

January 7, 2022

Since 2018, California Fish and Game Commission (Commission) staff has led a stakeholder engagement process with three stakeholder groups to identify potential regulatory and statutory changes, funding mechanisms, and strategies for existing wild populations of American bullfrogs and non-native turtles to reduce their impacts on California's native wildlife.

In Dec 2018, the Commission referred to its Wildlife Resources Committee a stakeholder engagement plan, to track progress in implementation. The plan involves three independent groups developing situation analyses and strategies for addressing the threats, challenges, and opportunities posed by bullfrogs and non-native turtles and their impacts on native wildlife. The fourth group identified in the plan is the California State Legislature, which will be engaged in the process upon completion of the situation analyses and strategies.

For the situation analyses and strategies work, independent groups were formed, composed of representatives from three different spheres of California society that have a vested interest in bullfrog and non-native turtle concerns. The first group was composed of representatives from local, state, and federal government agencies, the second from environmental and animal welfare groups, and the third from various commercial sector and industry groups. The groups met separately and worked on the same task (in parallel) to analyze: (1) threats to California's environment posed by bullfrogs and non-native turtles, (2) benefits and cultural values of bullfrogs and turtles in California's communities and other intersections with human well-being values, (3) knowledge gaps in our understanding of the relevant systems and operative biological processes, and (4) opportunities for progress in addressing the issues posed by invasive bullfrogs and non-native turtles in California's environment. After completing their individual analyses, each group had an initial opportunity for cross-dialogue, to clarify and discuss the approaches taken by the other groups.

Group Analyses

The three groups used a flexible, comprehensive process called *Open Standards for the Practice of Conservation* (see https://conservationstandards.org/about/ for more information) to guide their analyses. This document presents a preliminary compilation of the results of that process for all three groups, embodied in:

- a conceptual diagram which lays out conservation targets that experience some level of risk, the extant threats to those targets, and various strategies that may be implemented to address those threats;
- a ranking of proximate threats performed by the agencies group, with grids that outline how those assessments were developed;
- "results chains" for all strategies that enumerate the stepwise, logical process by which those strategies may be expected to work; and
- notes that expand, clarify, and/or qualify certain elements of each assessment.

The main diagrams map the connections between various strategies, the threats they address, and conservation and human well-being targets they could be expected to affect. The results chains

illustrate the explicit mechanisms by which each strategy may be expected to influence the conservation threats and other factors, and to help confirm that strategies realistically can be implemented.

Important Remarks

- The terms “environmental” and “animal welfare” are intended to connote broad types of certain stakeholder organizations, not attitudes or philosophies inherent to any organization. It should be recognized that governmental agencies and industry groups are also concerned with the welfare of animals and with protecting California’s environment.

- Inclusion of a particular strategy in a group’s analysis is not intended to indicate that the group favors or recommends it. Sometimes a particular strategy is intended as an alternative action, or perhaps simply to analyze the consequences of non-recommended strategies that may ultimately be implemented in the future. Indeed, certain strategies within a single analysis are mutually exclusive.

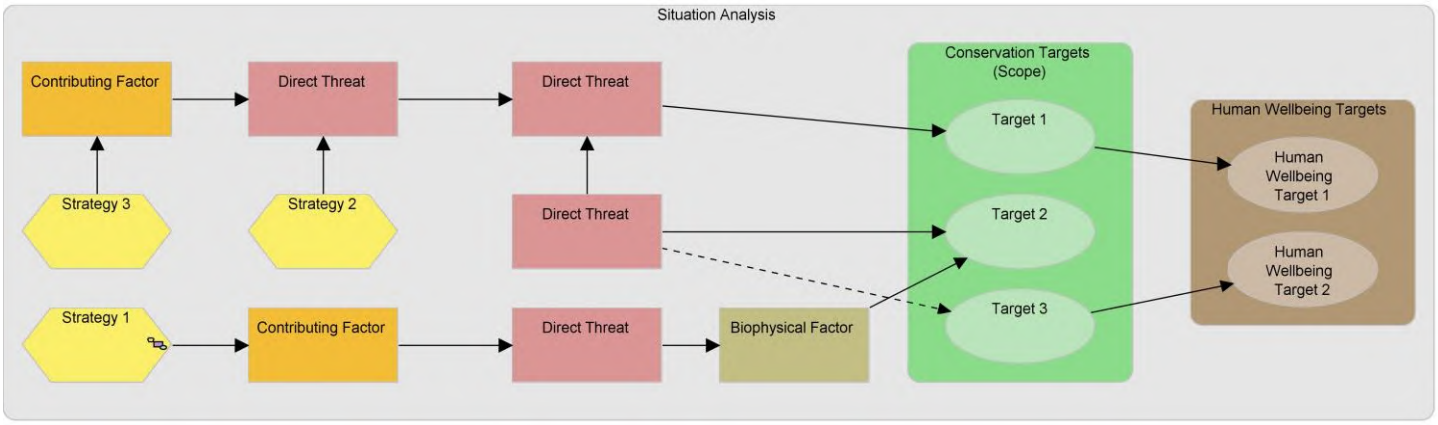
- While strategies that each group deemed generally infeasible were typically eliminated during the process of developing results chains, it should be recognized that some strategies may be more or less likely to succeed, and the actual efficacy of a particular strategy may be low or unclear.

- The diagrams are not intended to depict every single factor at play, nor every relationship between those factors; rather, they are intended to highlight the most significant and meaningful associations that are relevant to understanding and achieving the vision enumerated by each group.

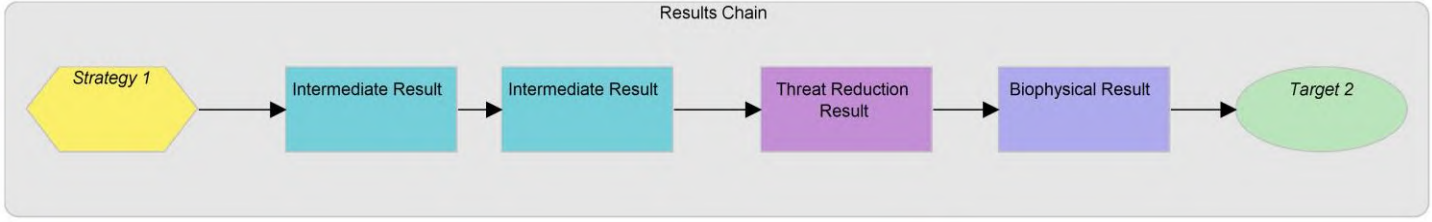
Guide to Symbols and Diagrams

Results Chain
Target
Human Wellbeing Target
Direct Threat
Contributing Factor
Intermediate Result
Threat Reduction Result
Strategy
Text Box
Group Box
Causal Linkage
Uncertain Link

Situation Analysis Diagram



Results Chain Diagram



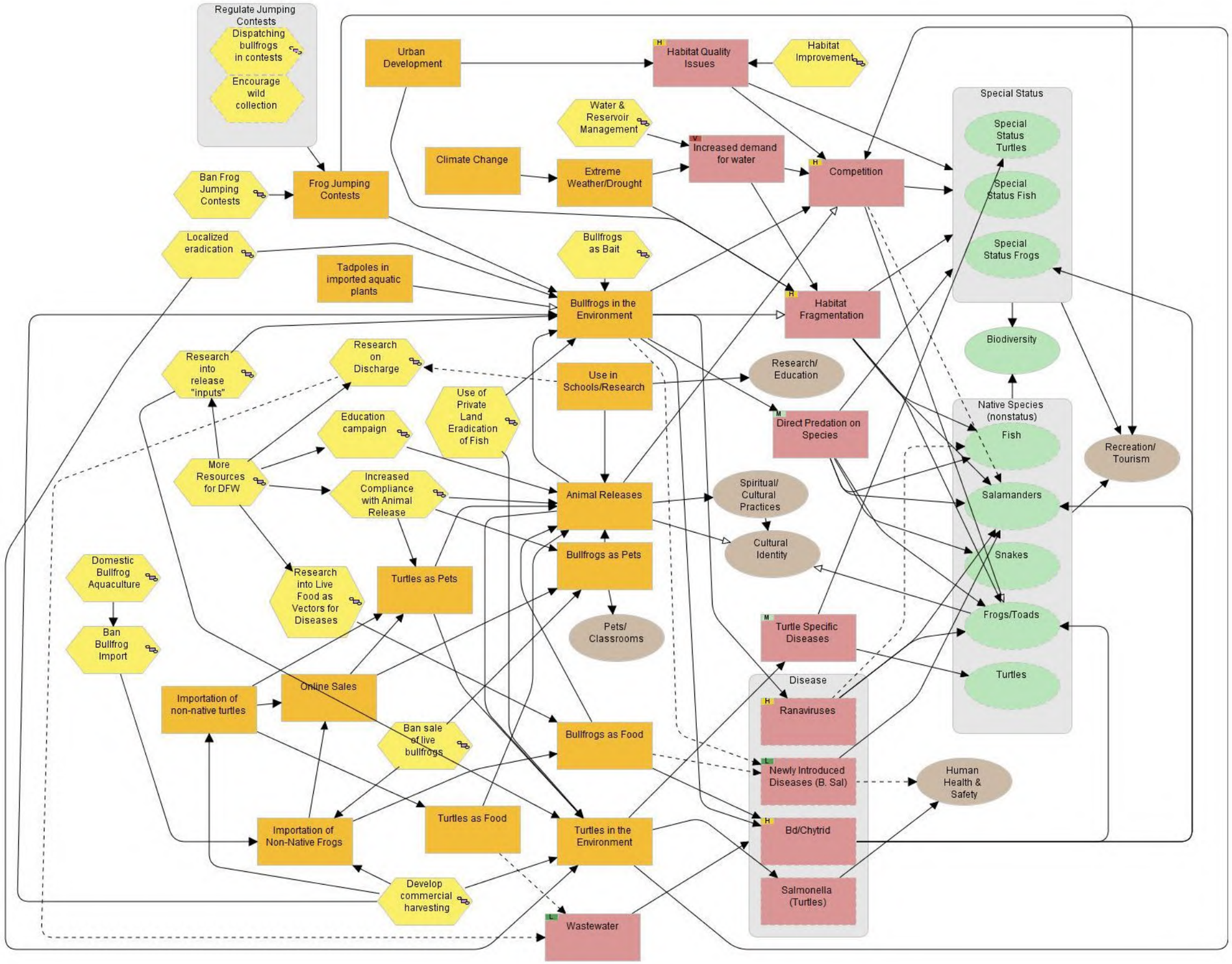
Note: During their assessments, the groups did not elect to use "biophysical factors" in the situation analysis diagrams or "biophysical results" in the results chain diagrams.

Agency Group Analysis

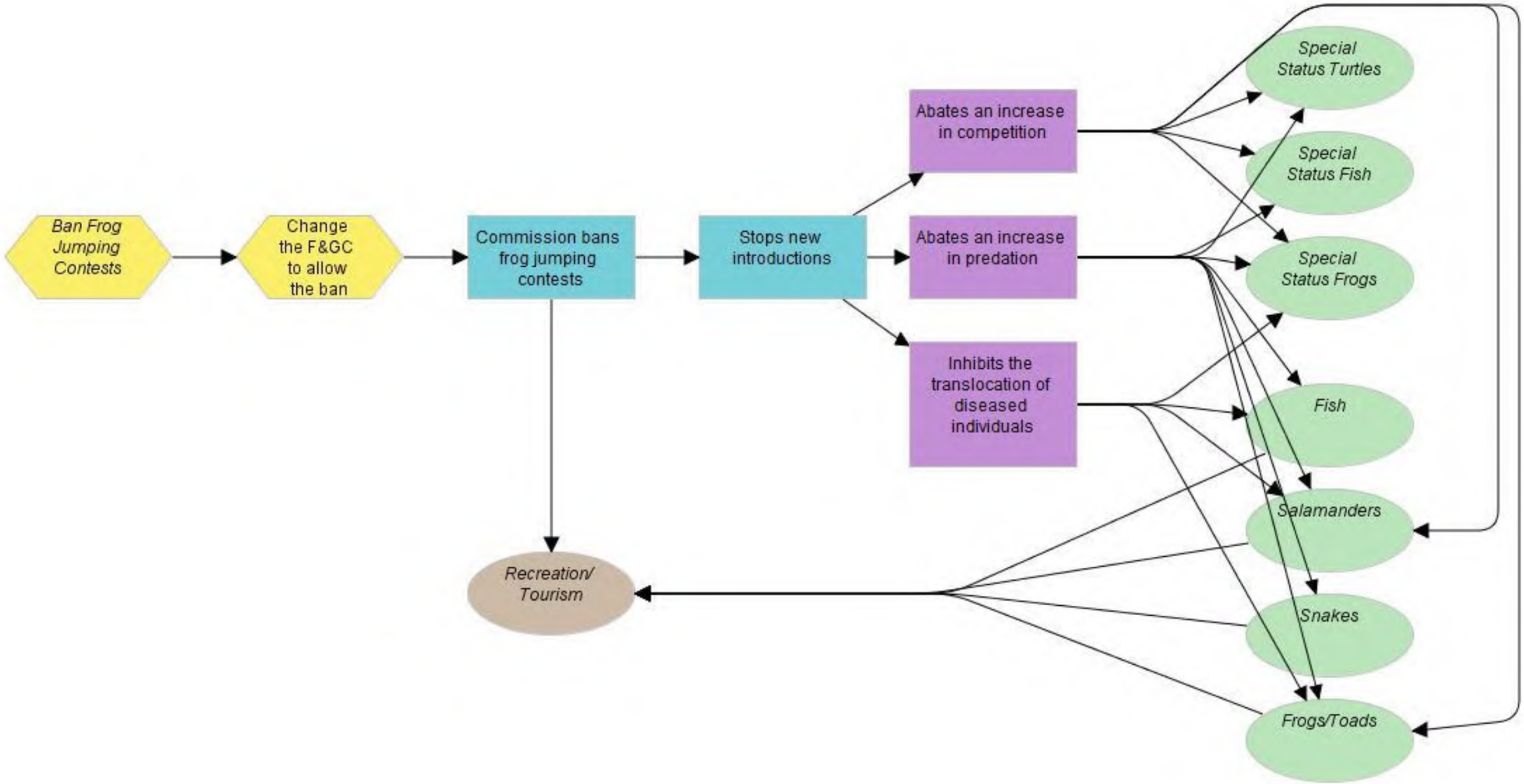
Scope and Vision

Scope/Site Name	Bullfrogs and non-native turtles in California
Vision Statement Text	To minimize the impacts to native species from bullfrog presence in California by managing, reducing, containing, controlling, regulating, and eventually eradicating them. Organizations should be provided the tools to limit populations and introductions.
Comments	There is a question as to whether or not eradication is feasible.

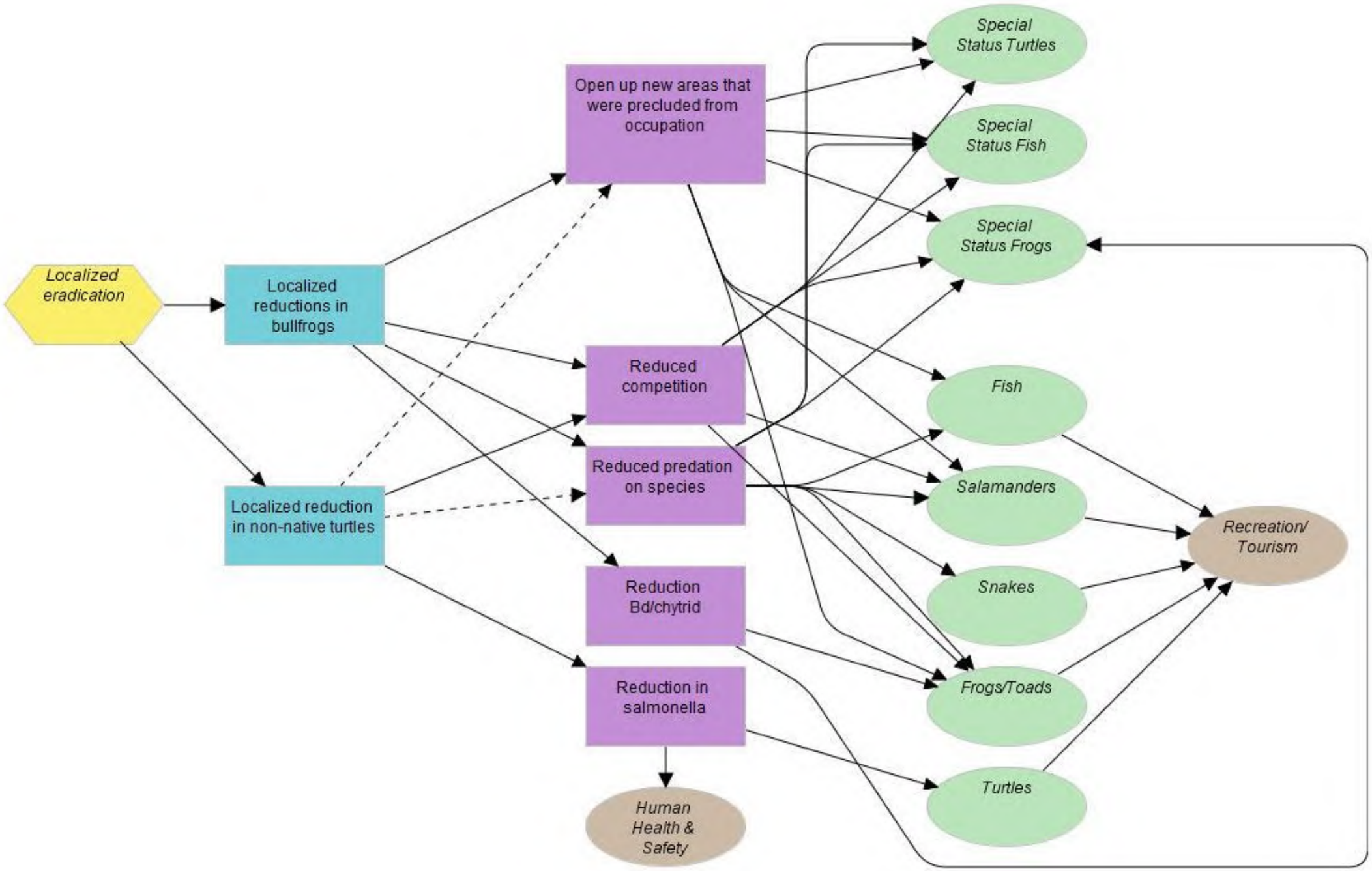
Main Diagram



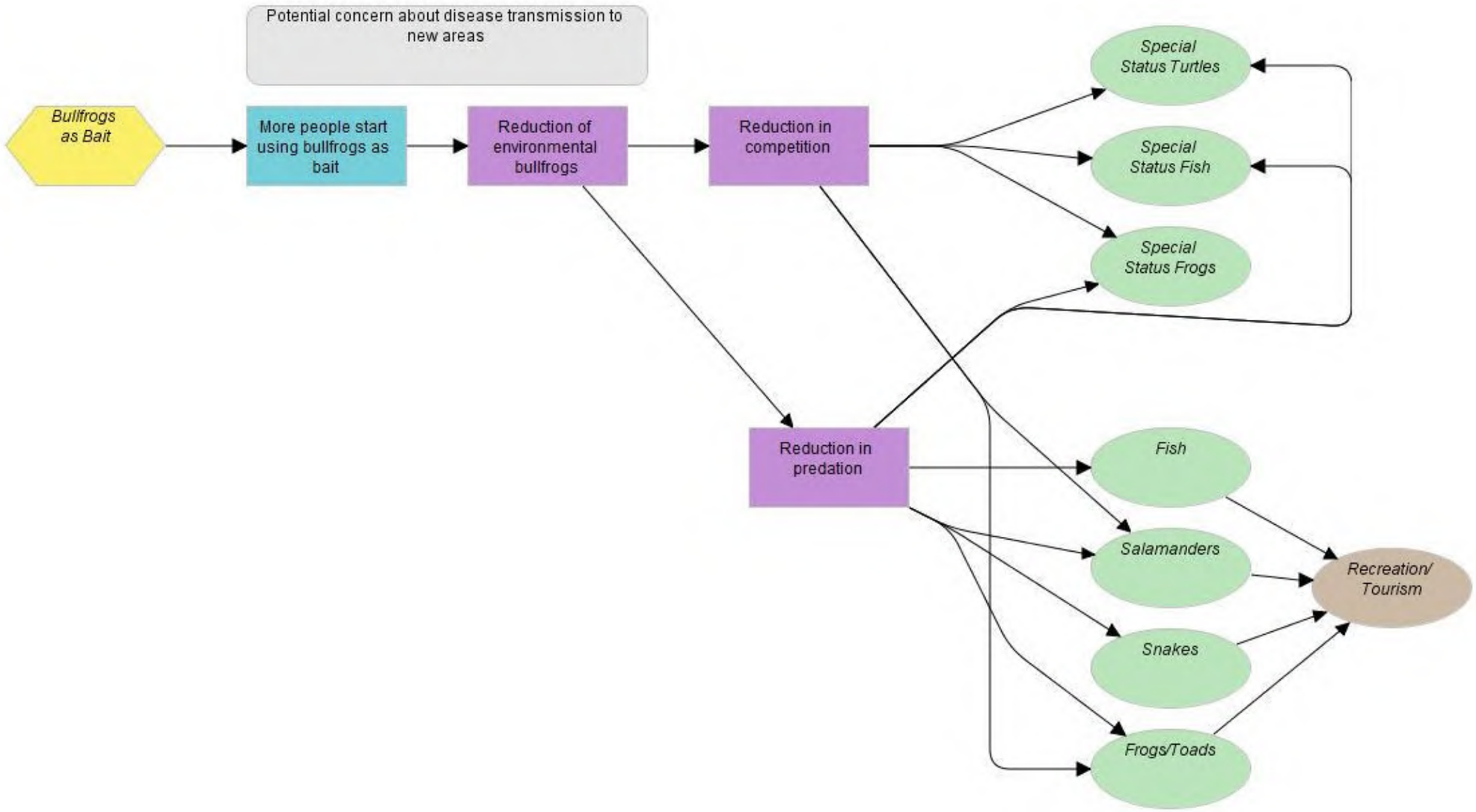
Results Chain: Ban frog jumping contests



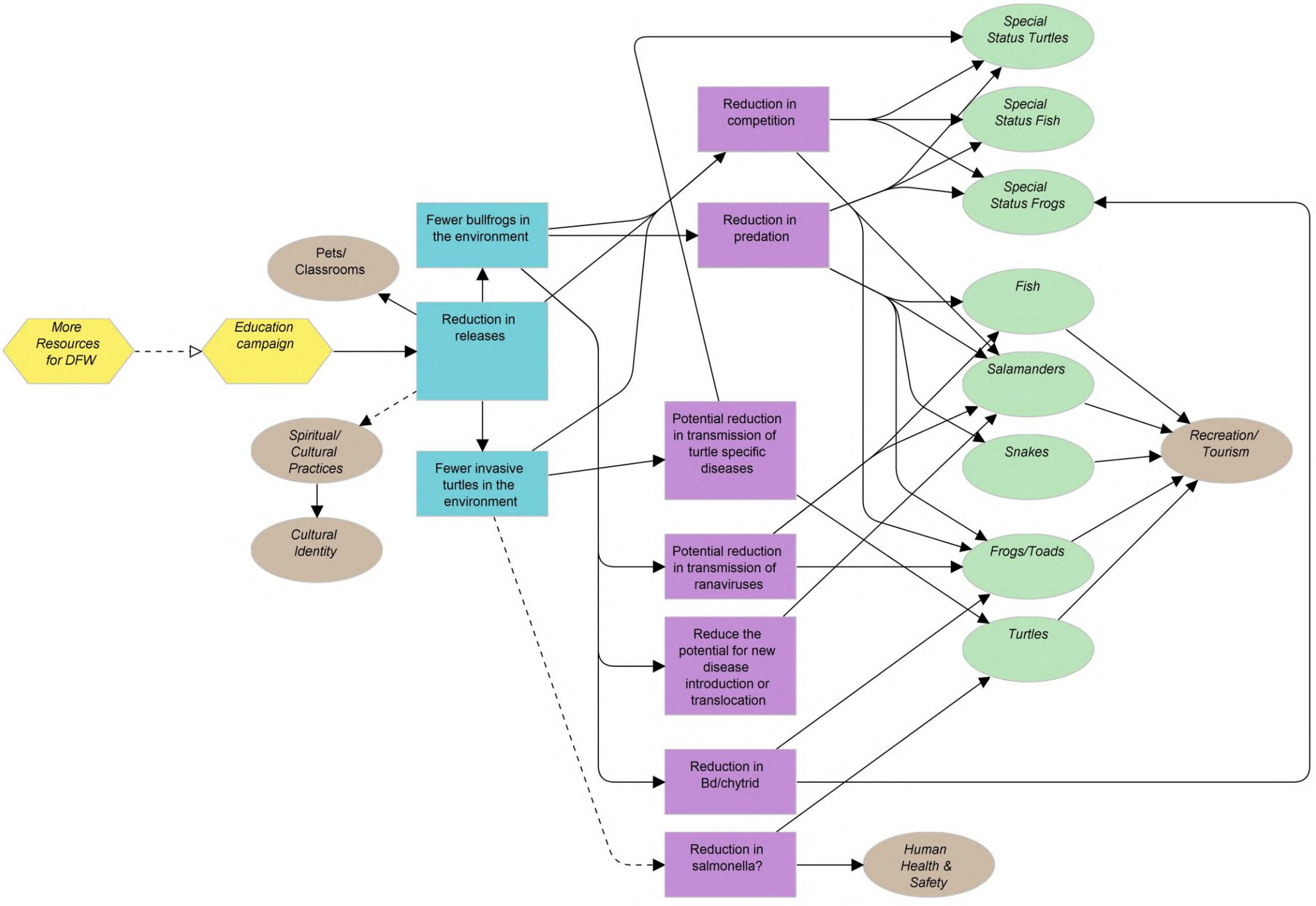
Results Chain: Localized eradication



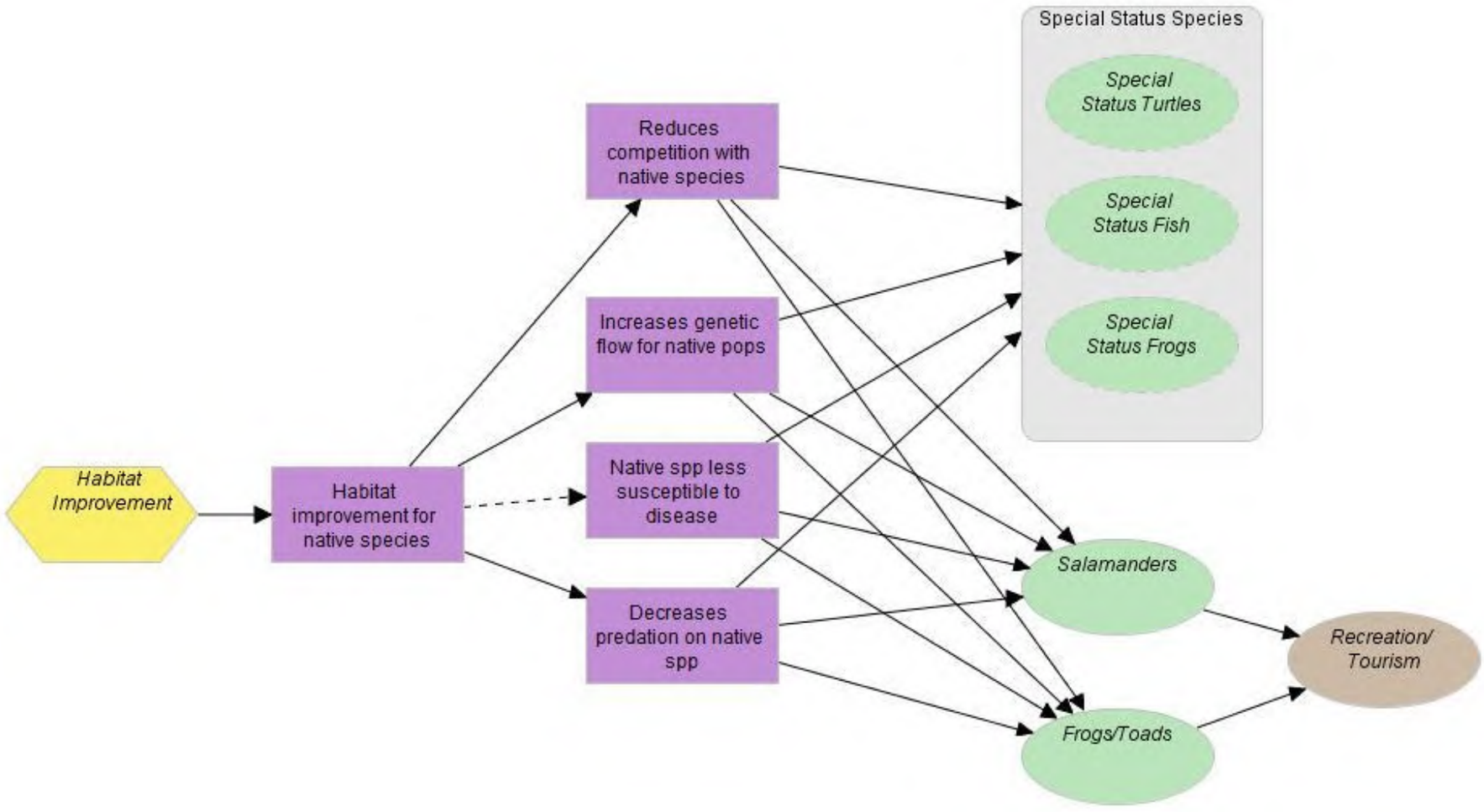
Results Chain: Bullfrogs as bait



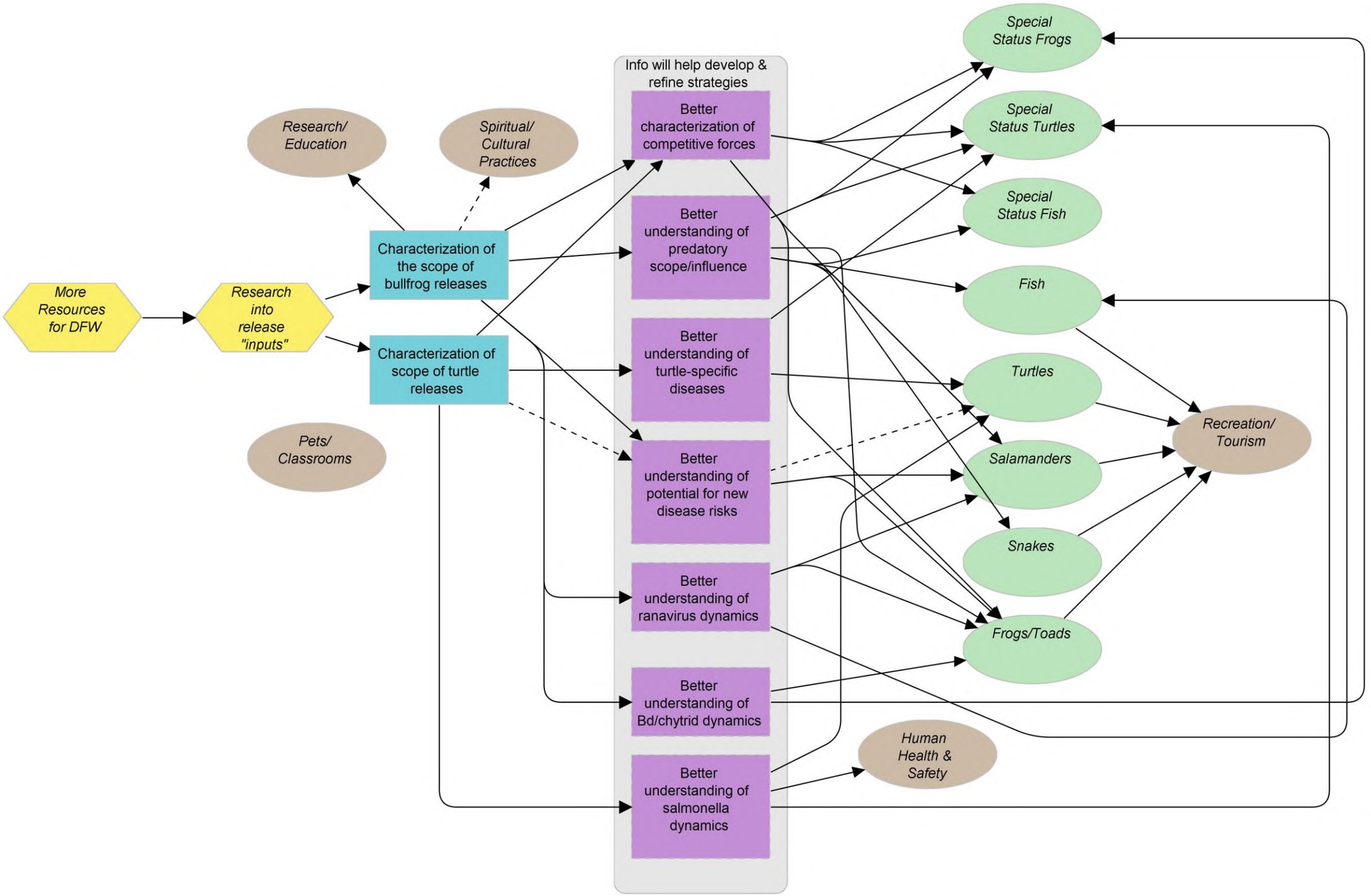
Results Chain: Education campaign



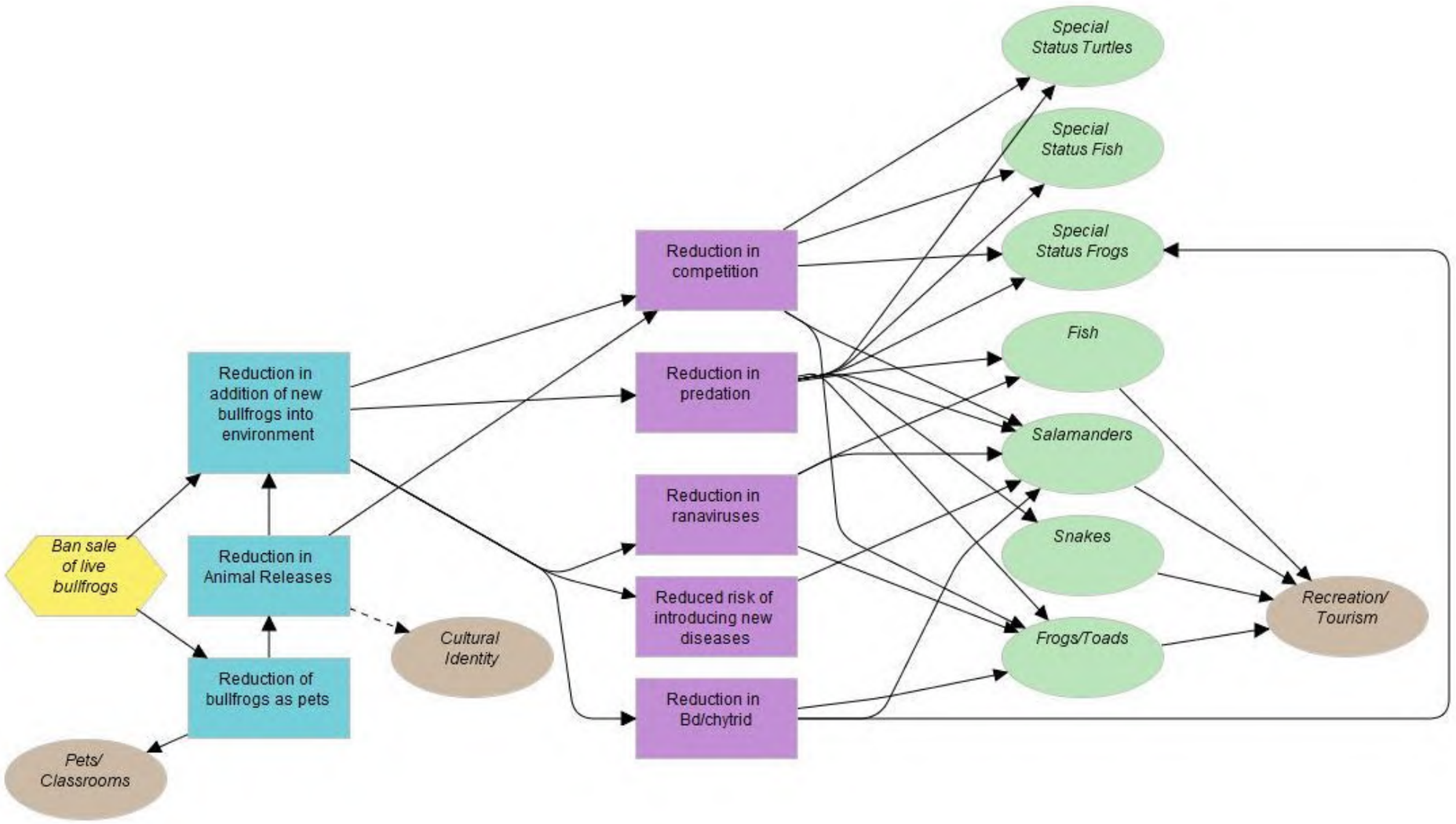
Results Chain: Habitat improvement



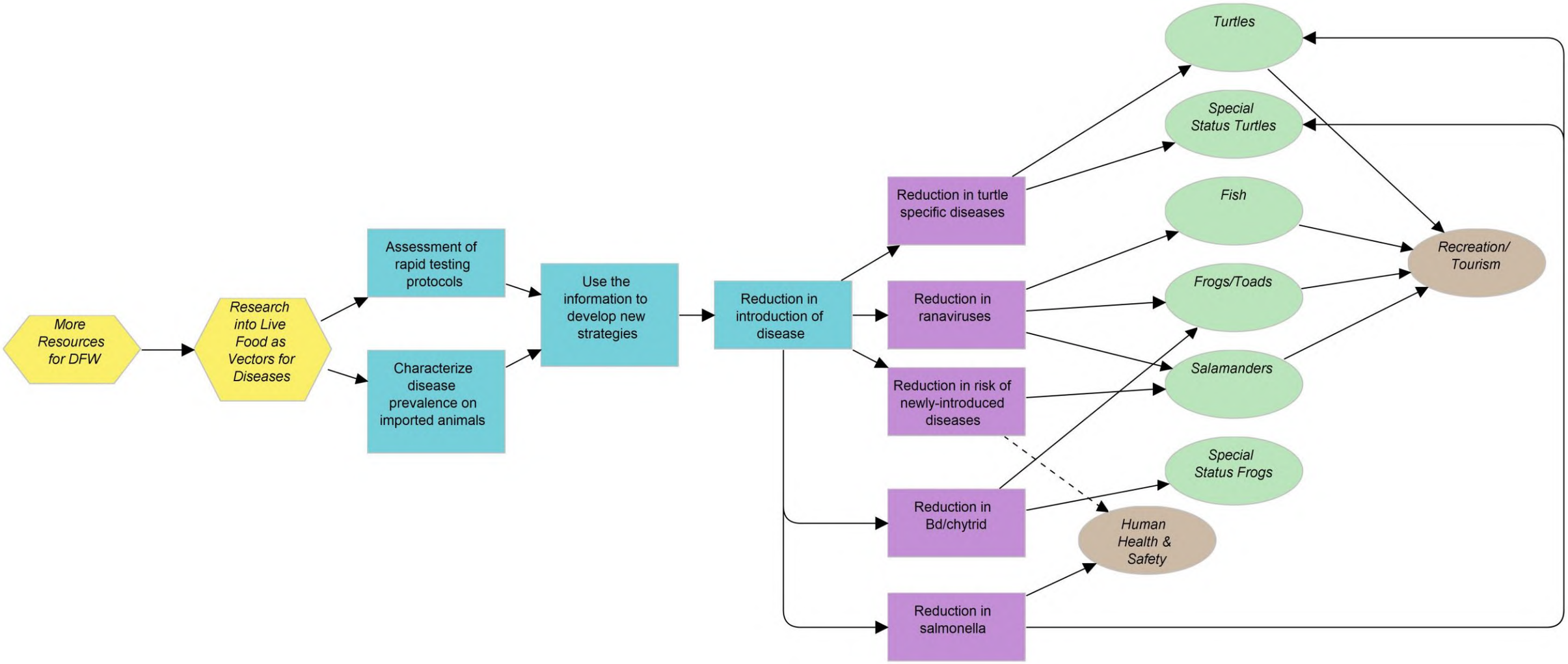
Results Chain: Research into release "inputs"



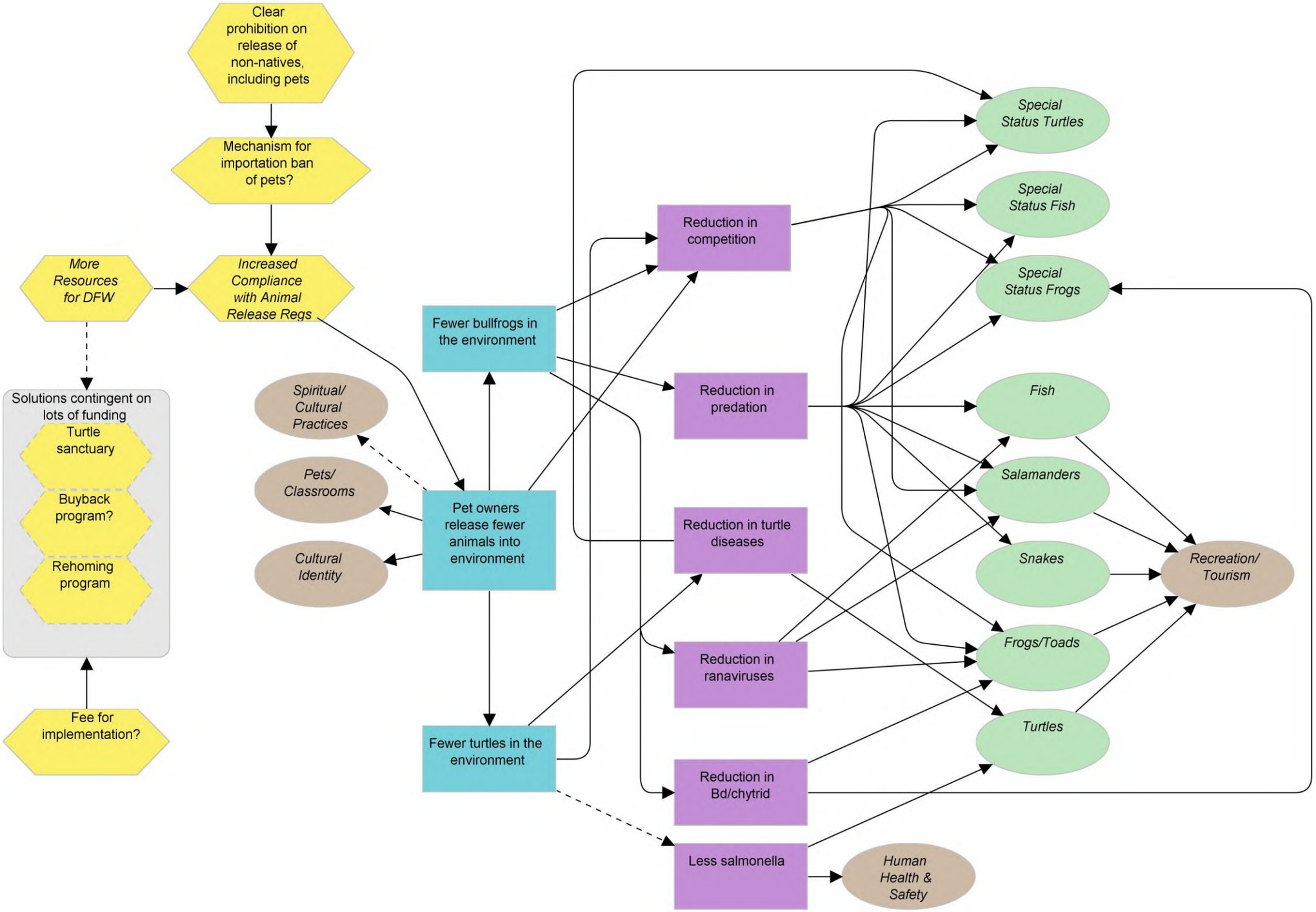
Results Chain: Ban sale of live bullfrogs



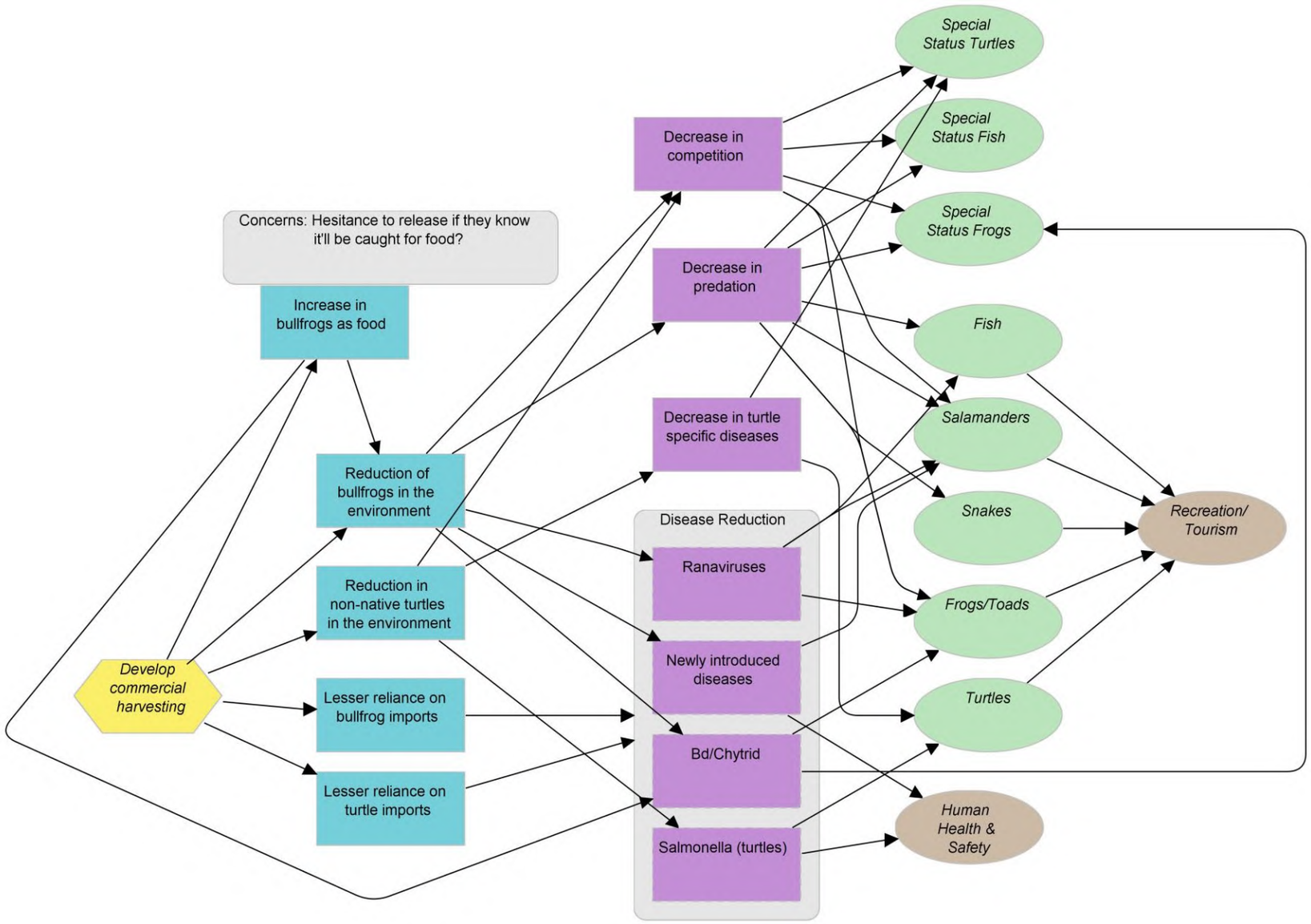
Results Chain: Research into live food as vectors for diseases



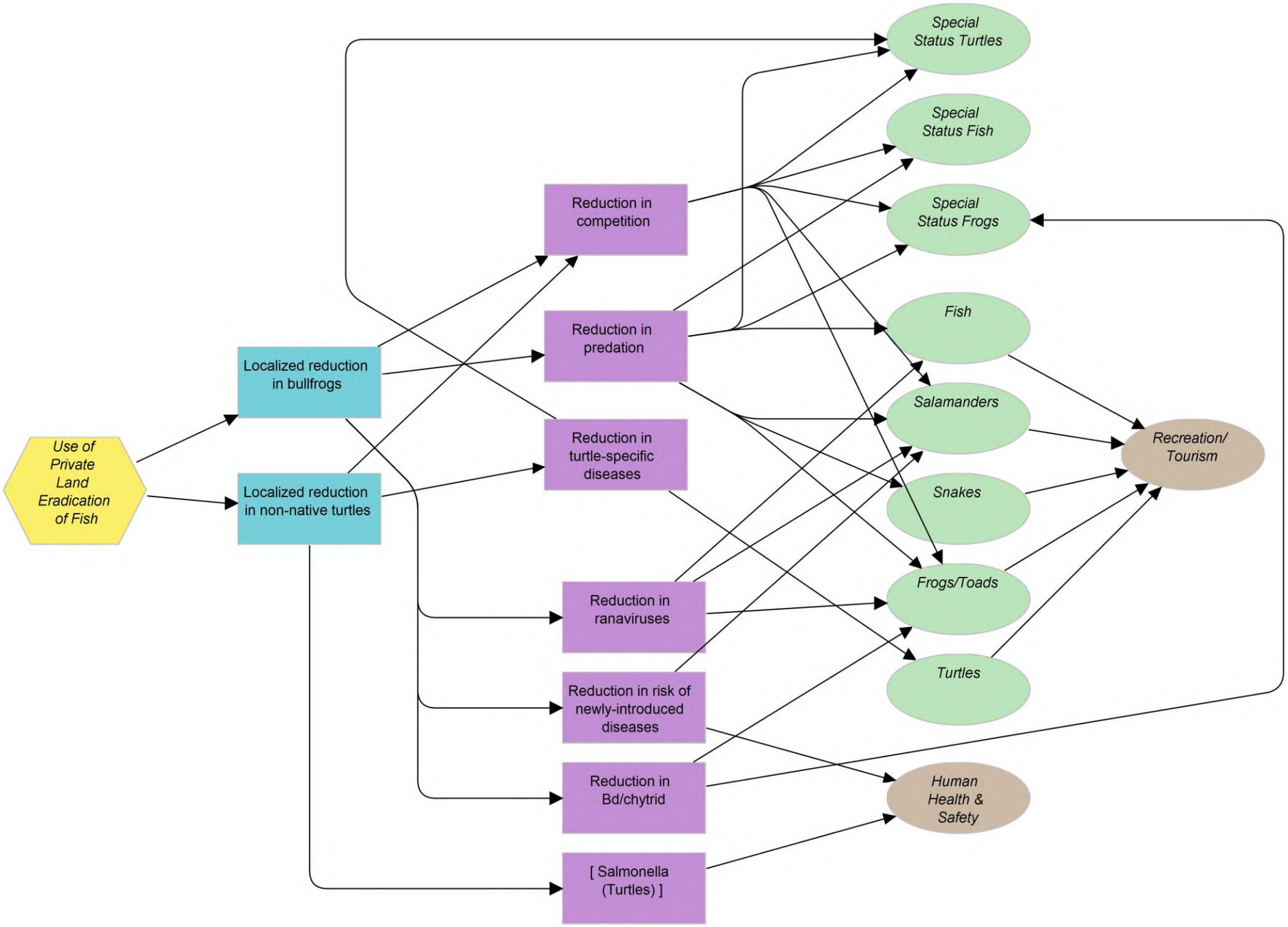
Results Chain: Increased compliance with animal release regulations



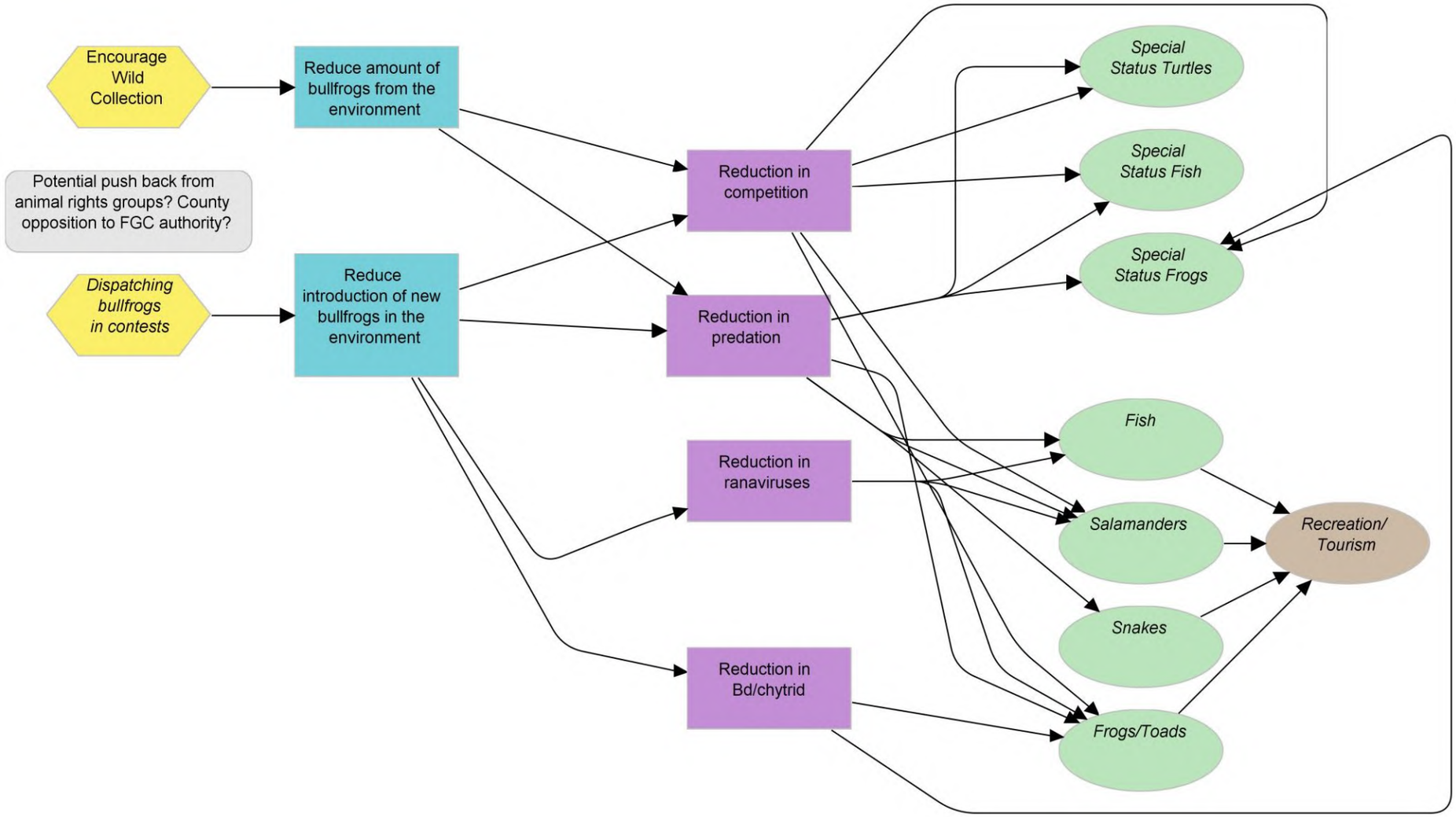
Results Chain: Develop commercial harvesting



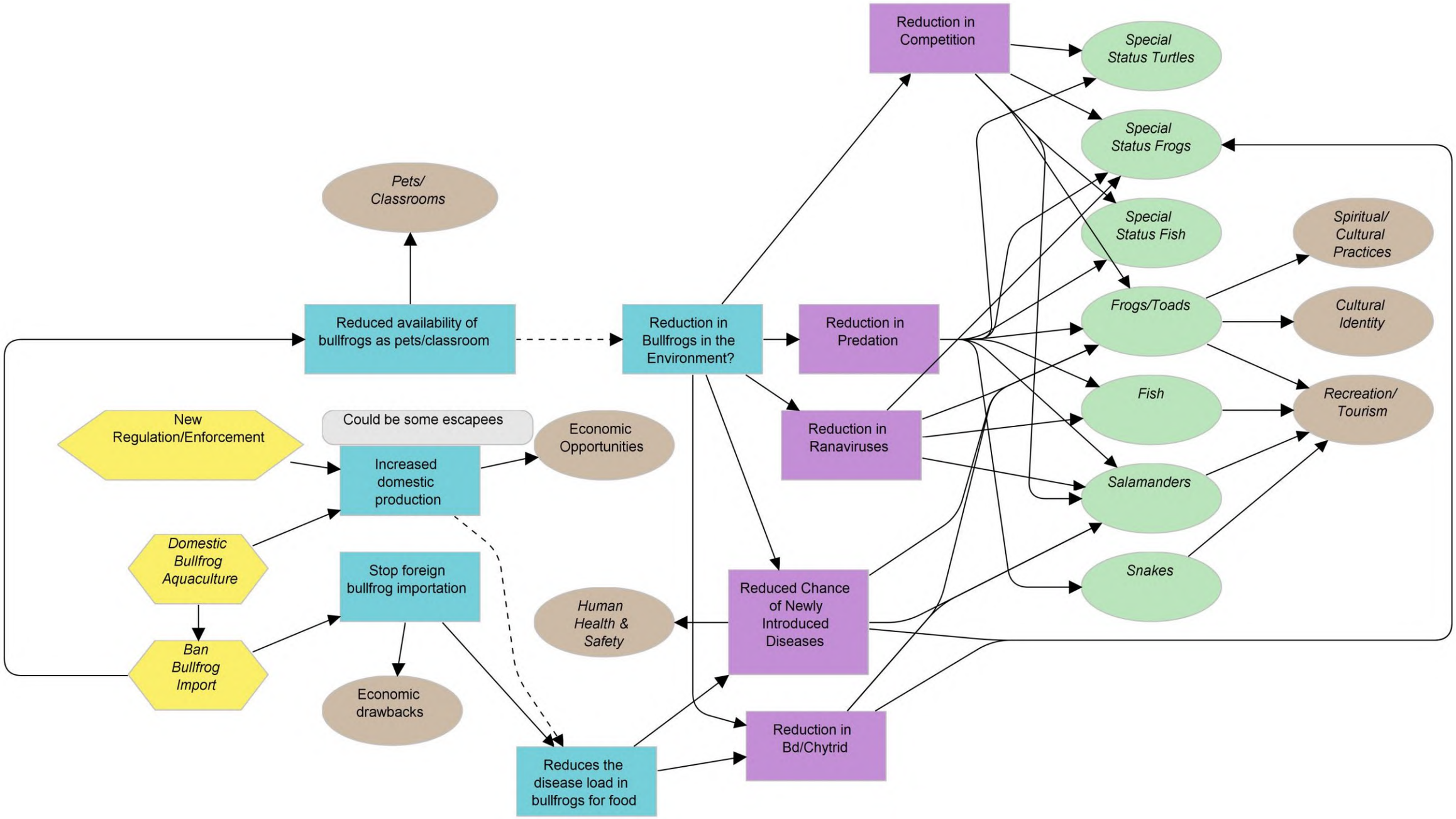
Results Chain: Use of private land eradication of fish



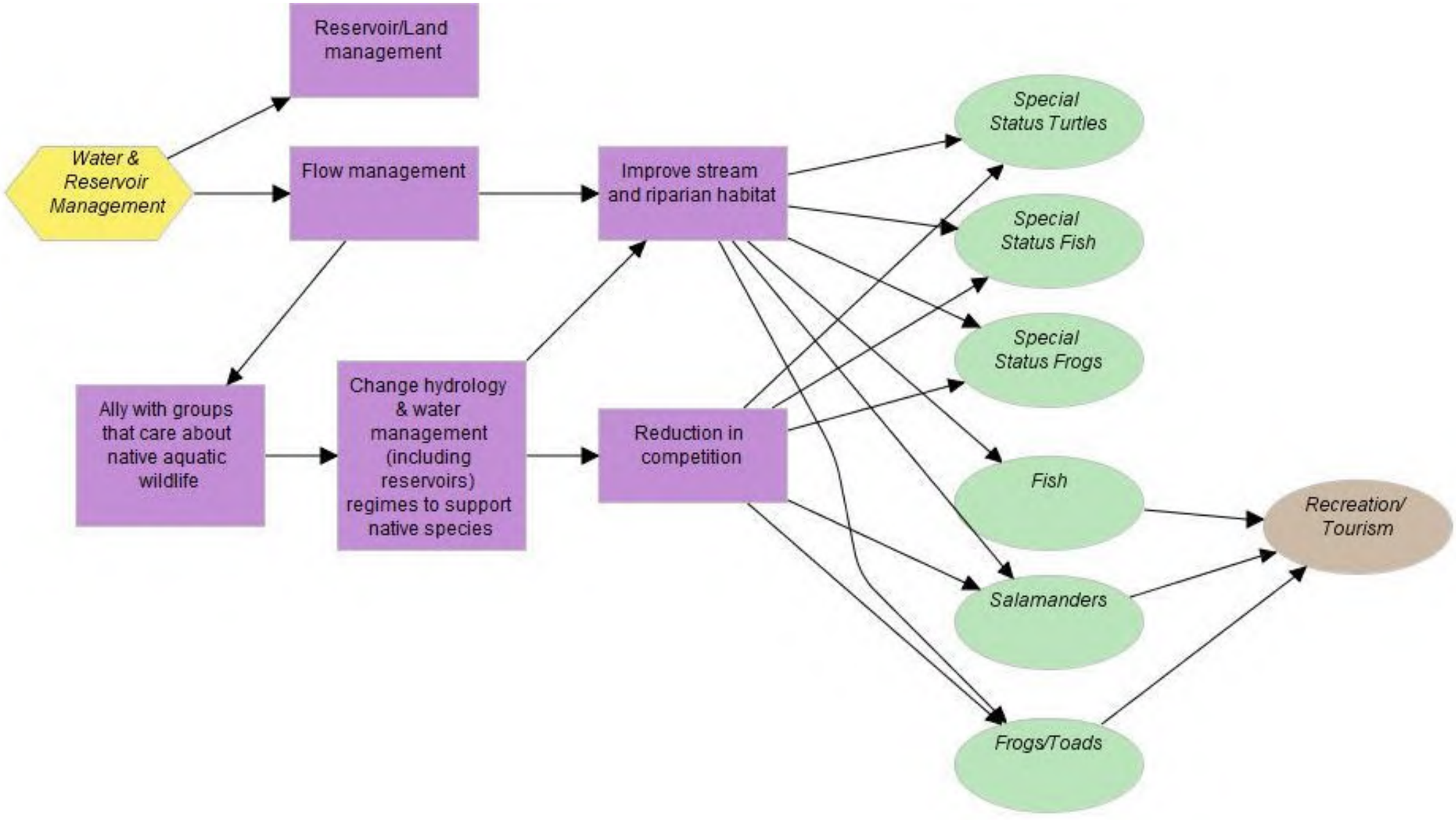
Results Chain: Jumping contest reforms



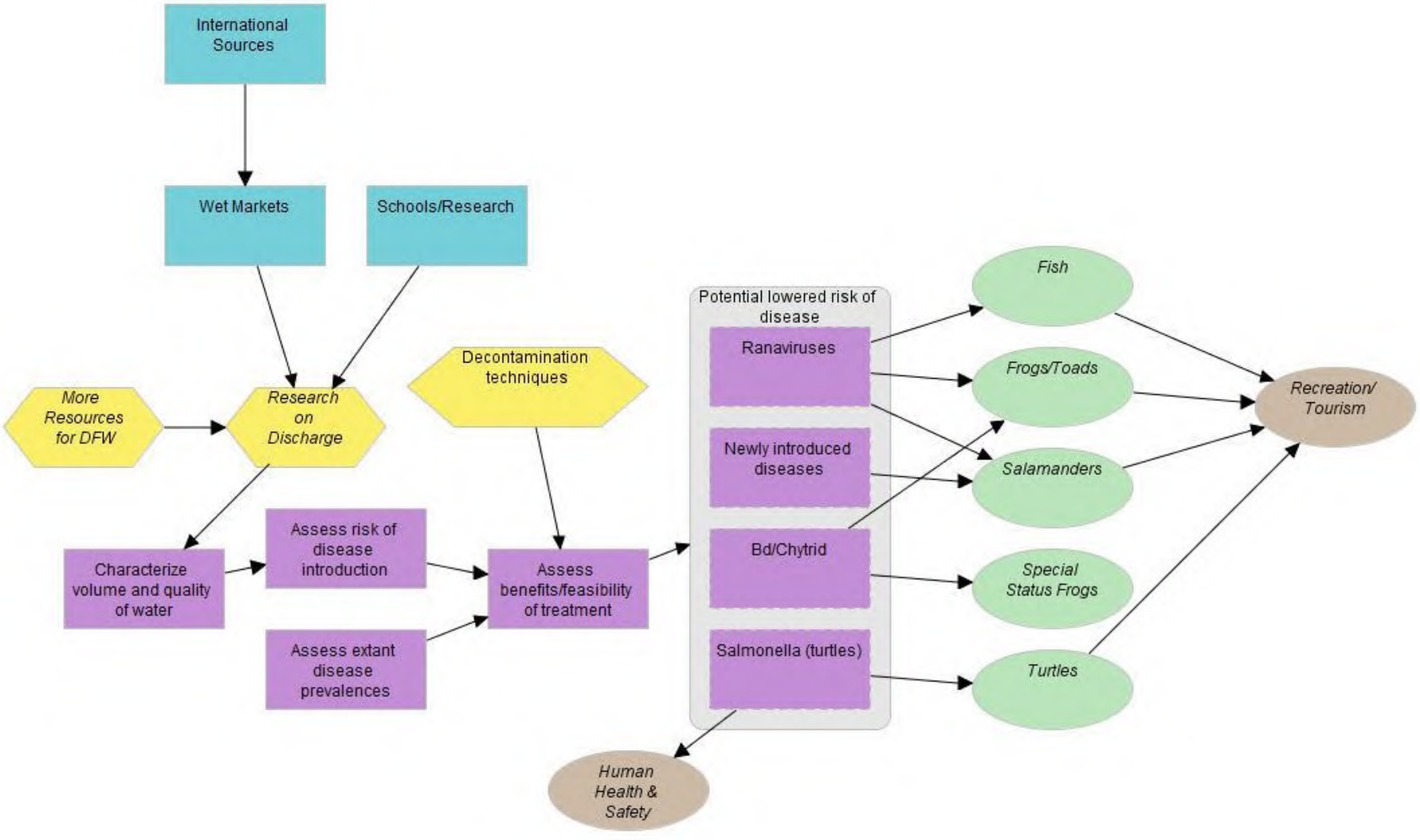
Results Chain: Ban bullfrog import



Results Chain: Water and reservoir management



Results Chain: Research on wastewater discharge



Agencies Notes

Ban bullfrog import	• Ban from anywhere outside California • Novel pathogens may not be detectable, even from other states • Other states may receive international imports
Domestic bullfrog aquaculture	• Probably unlikely to catch on unless an import ban is implemented • Growers aren't pushing for import ban
Ban sale of live bullfrogs	• Possession would still be allowed • Potentially ban of tadpoles and other avenues, not just live market • Goal: Reduce the introduction of new bullfrogs in the environment • Dead individuals/parts would be allowed • Potential conflict with commercial harvest? • Would likely need a specific carve out for frog jumping contests • Potential switching to other species in the live markets • Potential impacts to markets?
Bullfrogs as bait	• Encourage wild catch of bullfrogs and use them as bait • Don't encourage a market of importation for bait • Potentially ban sale of bullfrogs for bait but allow personal use
Develop commercial harvesting	• Economics & business model have to work out as a prerequisite • Access to property also necessary • Nexus with aquaculture? Creation of a permitting structure? Size limits to ensure accurate identification? Geographic or take limitations? • See Title 14 226.7 -- bullfrogs would need to be added. T14 651, 658, 41.7; Also see Fish & Game Code 6850-6855CDFA regs -- ok to give pets to commercial harvesters for food? Possible way to reduce releases • Permitting of harvesters? • VERY CONTEXTUAL -- HIGHLY DEPENDENT ON OVERALL STRATEGIES DEPLOYED
Education campaign	• Audience: live markets, pet owners, educational facilities, religious purposes, aquaculture facilities • Don't release animals into the environment • Collection event -- "Free 2 hour boat rental to whoever collects the most" • Educate people about the availability of bullfrog harvest? R3?
Habitat improvement	• Creating base habitat conditions that favor native species and disfavor bullfrogs • Water temperature (ex. colder water), running water, reestablish food webs, elimination of barriers
Increased compliance with animal release regs	• Illegal importation • Should leave the market dead • Release of wildlife • Important role for local ordinances • Probably mostly an education/outreach initiative, less an enforcement issue • Signage, employee training at pet store
Mechanism for importation ban of pets?	• Require pet industry to PIT tag?
Turtle sanctuary	• For pet owners that don't want their pets anymore
Dispatching bullfrogs in contests	• Kill any bullfrogs that contestants don't want to keep (driven by animal rights groups) • See F&GC Sec 6855 -- permit needed?
Encourage wild collection	• Turn the bullfrog competition into an amphibian conservation event
Commission authority to regulate contests	• Fish and Game Code addition
Jumping contests	• Dispatching of frogs • Encouraging wild collection • Working with permit holders? Outreach to event holders?
Research into release "inputs"	• What is the release rate of animals from live markets?

	• How many pets are released into the wild? • Are new influxes of diseased individuals additive to those already in the population?
Decontamination techniques	• Treatment with bleach/antifungal agent
Research on discharge	• Discharge: Any water that comes into contact with animals
Use of private land eradication of fish	• Turtles are not fish -- would need to be updated to include them • Take methods might need to be reexamined: Add gigging • Form: Fish & Game 5501 (T14 226.5, 226.7), form Fish & Game 793 • Also see Fish & Game Code 6850-6855; use 6855 as a general authority • Doesn't necessarily have to be limited to private lands
Frog jumping contests	• Sourcing bullfrogs from biological supply houses?
Bullfrogs as pets	• Probably a negligible issue
Online sales	• Education loophole?
Importation of non-native frogs	• *Xenopus sp.* (African clawed frog), cane toads
Turtles in the environment	• Red-eared sliders, painted turtles, map turtles, snapping turtles (common and alligator), softshell turtles
Turtle specific diseases	• Western pond turtle, among others Turtle shell diseases Upper respiratory diseases
→ Bullfrogs in the environment to habitat fragmentation	• Aquatic footprint contracts increases contact between bullfrogs & native spp.
→ Animal releases to competition	• Religious releases are uncertain
→ Competition to frogs/toads	• Foothill yellow-legged frog, mountain yellow-legged frog, etc.
→ Animal releases to cultural identity	• Religious animal releases
Reduced availability of bullfrogs as pets/classroom	• This is minor
Stops new introductions	• Minimizes relocation of bullfrogs, preventing redistribution
Recreation/ Tourism	• Banning contests could have negative economic effects
Reduction of bullfrogs as pets	• Reduction of bullfrogs as pets -- self-collection from the wild is the only pathway (same as OR) • Scientific collecting permit would be needed for classroom use: Title 14 Section 658. Commercial Take of Bullfrogs for sale to scientific or education institutions • New permit for classrooms would likely take Code modification
Reduction in Animal Releases	• Live market escapees • Classroom releases
Reduced risk of introducing new diseases	• High impact to this threat
More people start using bullfrogs as bait	• Effectiveness is dependent on the level of implementation/adoption • Potential side benefit of awareness
Reduction in releases	• from live markets, pet owners, educational facilities, religious purposes, aquaculture facilities
Assessment of rapid testing protocols	• APHIS?
Reservoir/Land management	• Muni code prohibiting sale • No bait, cooler inspections, signage
Flow management	• Interrupt the larval phase • More natural hydrography downstream, create sedimentation and hydrology/hydrography conducive to native species • Large scouring flow can recreate gravel bars, remove riparian vegetation,

	push bullfrog tadpoles away, increase complexity and decrease channelization, flow dehomogenization

Threat Rating Details

Participants rated each threat-target pair as high, medium, or low in scope, severity, and irreversibility.

Scope - Most commonly defined spatially as the proportion of the target that can reasonably be expected to be affected by the threat within ten years given the continuation of current circumstances and trends. For ecosystems and ecological communities, measured as the proportion of the target's occurrence. For species, measured as the proportion of the target's population.

- **Very High:** The threat is likely to be pervasive in its scope, affecting the target across all or most (71-100%) of its occurrence/population.
- **High:** The threat is likely to be widespread in its scope, affecting the target across much (31-70%) of its occurrence/population.
- **Medium:** The threat is likely to be restricted in its scope, affecting the target across some (11-30%) of its occurrence/population.
- **Low:** The threat is likely to be very narrow in its scope, affecting the target across a small proportion (1-10%) of its occurrence/population.

Severity - Within the scope, the level of damage to the target from the threat that can reasonably be expected given the continuation of current circumstances and trends. For ecosystems and ecological communities, typically measured as the degree of destruction or degradation of the target within the scope. For species, usually measured as the degree of reduction of the target population within the scope.

- **Very High:** Within the scope, the threat is likely to destroy or eliminate the target, or reduce its population by 71-100% within ten years or three generations.
- **High:** Within the scope, the threat is likely to seriously degrade/reduce the target or reduce its population by 31-70% within ten years or three generations.
- **Medium:** Within the scope, the threat is likely to moderately degrade/reduce the target or reduce its population by 11-30% within ten years or three generations.
- **Low:** Within the scope, the threat is likely to only slightly degrade/reduce the target or reduce its population by 1-10% within ten years or three generations.

Irreversibility (Permanence) - The degree to which the effects of a threat can be reversed and the target affected by the threat restored.

- **Very High:** The effects of the threat cannot be reversed and it is very unlikely the target can be restored, and/or it would take more than 100 years to achieve this (e.g., wetlands converted to a shopping center).
- **High:** The effects of the threat can technically be reversed and the target restored, but it is not practically affordable and/or it would take 21-100 years to achieve this (e.g., wetland converted to agriculture).
- **Medium:** The effects of the threat can be reversed and the target restored with a reasonable commitment of resources and/or within 6-20 years (e.g., ditching and draining of wetland).
- **Low:** The effects of the threat are easily reversible and the target can be easily restored at a relatively low cost and/or within 0-5 years (e.g., off-road vehicles trespassing in wetland).

Permanence applies to the *effects of the threat* on the target, not the threat itself. In other words, it is not a measure of how difficult it is to stop the threat, but rather to undo the stress caused by the threat on the target. It is important to note that the use of the permanence rating as specified is largely in respect to prioritizing potential threats. If a threat is looming that will cause irreversible damage, then it makes sense to try to address that threat. However, if the threat has already occurred and the irreversible damage has already taken place, then it may not make sense to prioritize that threat for action.

Threat Ratings

	Threats \ Targets	Special Status Frogs	Turtles	Fish	Salamanders	Biodiversity	Snakes	Frogs/Toads	Special Status Turtles	Special Status Fish	Summary Threat Rating
	Bd/Chytrid	High			Low	Not Specified		High			High
	Competition	High			Medium	Not Specified		High	Very High	Medium	High
	Direct Predation on Species	High		Low	Medium	Not Specified	Low	Medium	Low	Low	Medium
	Habitat Fragmentation	High		Low	Low	Not Specified		Low	High	Medium	High
	Habitat Quality Issues	High			N/A	Not Specified		Low	High	Very High	High
	Increased demand for water	Very High		High	Low	Not Specified		High	Very High	Very High	Very High
	Newly Introduced Diseases (B. Sal)				Medium	Not Specified					Low
	Ranaviruses			Medium	Not Specified	Not Specified		Very High			High
	Salmonella (Turtles)										Not Specified
	Turtle Specific Diseases		Medium			Not Specified			Medium		Medium
	Wastewater	Not Specified		Not Specified	Low	Not Specified		Low			Low
Summary Target Ratings:		Very High	Low	Medium	Medium	Not Specified	Low	Very High	Very High	Very High	Very High

Special Status Frogs

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	High	High	High	High	
Direct Predation on Species	High	Very High	High	High	
Habitat Quality Issues	High	High	High	High	
Competition	High	Very High	High	High	• Good habitat may help alleviate the severity
Bd/Chytrid	Very High	High	High	High	
Wastewater	Not Specified	Not Specified	Not Specified	Not Specified	
Increased demand for water	Very High	Very High	Very High	Very High	• Low flows & slower waters allow bullfrogs to flourish

Turtles

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Turtle Specific Diseases	Low	High	Very High	Medium	

Fish

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	Low	Medium	High	Low	• Could be some negative aspects to habitat connection, such as bullfrog expansion
Direct Predation on Species	Medium	Low	High	Low	• Questions about density, life stages, particular spp that bullfrogs are eating • Sticklebacks
Wastewater	Not Specified	Not Specified	Not Specified	Not Specified	
Increased demand for water	High	High	High	High	
Ranaviruses	Low	Medium	Very High	Medium	• Particularly bullfrogs as a vector

Salamanders

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	Low	Low	High	Low	
Direct Predation on Species	Medium	Medium	High	Medium	• Mostly predation on larvae
Habitat Quality Issues	Not Specified	Not Specified	Not Specified	Not Specified	
Competition	Medium	Medium	High	Medium	• Primarily aquatic

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
					• Baseline is already degraded severely, so incremental damages may be underestimated
Bd/Chytrid	Low	Medium	High	Low	
Newly Introduced Diseases (B. Sal)	Low	Low	Very High	Medium	• No documented cases in CA. US? High risk if introduced
Wastewater	Low	Low	Medium	Low	• Wastewater to environment - unknown, could be concentrated in some areas • Main concern is dumping untreated water down direct to water • Unknown effectiveness of water treatment on diseases
Increased demand for water	Low	Very High	High	Low	• Full years of incomplete breeding due to desiccation -- how much is due to water demand?
Ranaviruses	Low	Not Specified	Not Specified	Not Specified	

Snakes

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Direct Predation on Species	Low	Low	High	Low	

Frogs/Toads

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	Low	Medium	High	Low	
Direct Predation on Species	High	Medium	High	Medium	
Habitat Quality Issues	Low	Medium	High	Low	
Competition	High	Very High	High	High	
Bd/Chytrid	High	High	High	High	• Scope: Some pockets that may not have seen chytrid • Severity: Depends on new introduction vs. old, some populations may not exist without intervention, treatable
Wastewater	Low	Low	Medium	Low	• Wastewater to environment - unknown, could be concentrated in some areas • Main concern is dumping untreated water down direct to water • Unknown effectiveness of water treatment on diseases
Increased demand for water	High	High	High	High	
Ranaviruses	High	High	Very High	Very High	• Unknown scope

Special Status Turtles

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	High	High	High	High	
Direct Predation on Species	Low	Low	Low	Low	• Bullfrogs only • Questions about snapping turtles eating special status turtles
Habitat Quality Issues	High	High	High	High	
Competition	Very High	Very High	Medium	Very High	• Turtle-turtle competition is key
Turtle Specific Diseases	Low	High	Very High	Medium	
Increased demand for water	Very High	Very High	High	Very High	

Special Status Fish

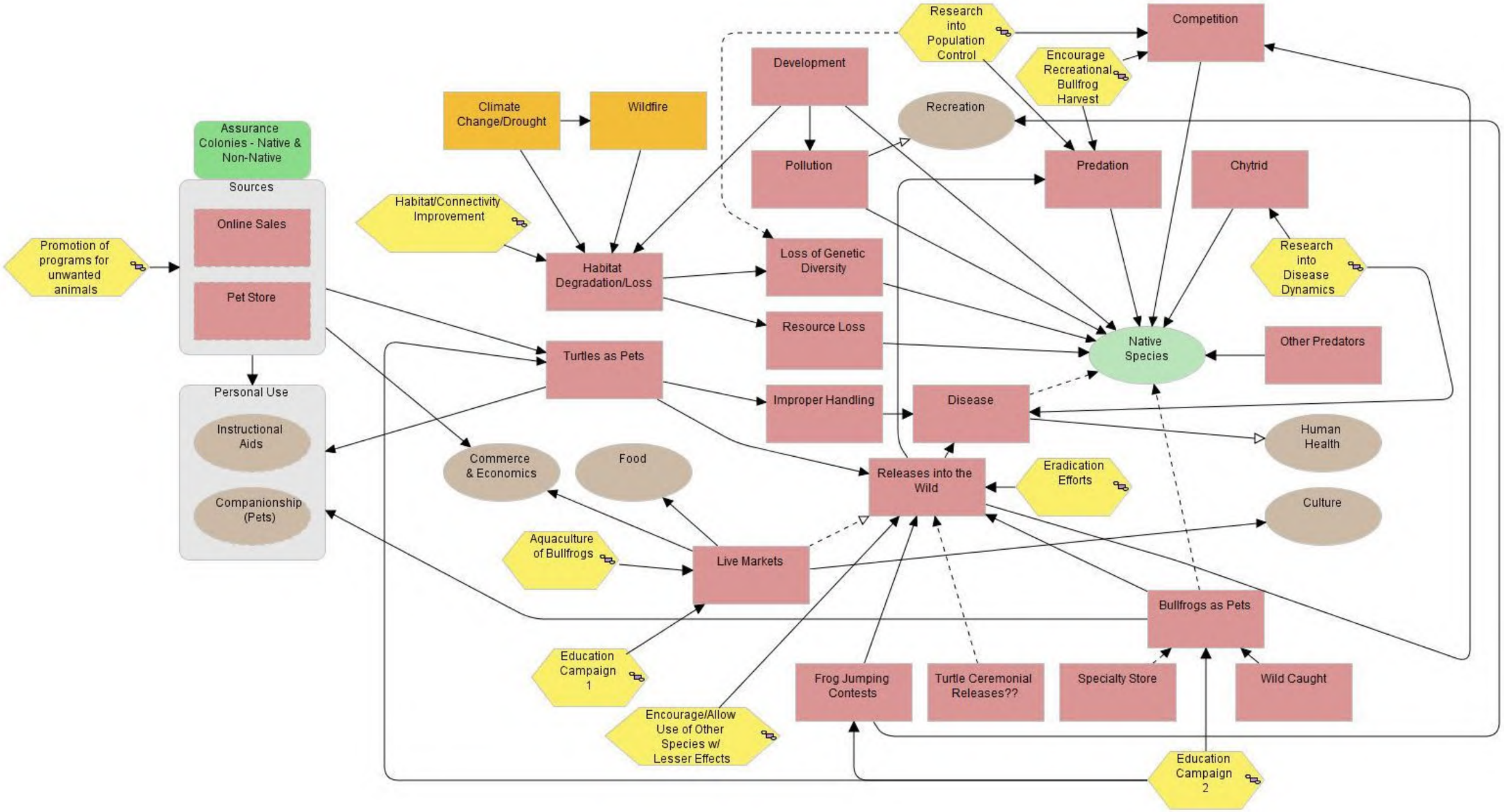
Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	Medium	High	High	Medium	
Direct Predation on Species	Low	Medium	High	Low	
Habitat Quality Issues	Very High	Very High	High	Very High	
Competition	Medium	Medium	High	Medium	
Increased demand for water	Very High	Very High	Very High	Very High	

Industry Group Analysis

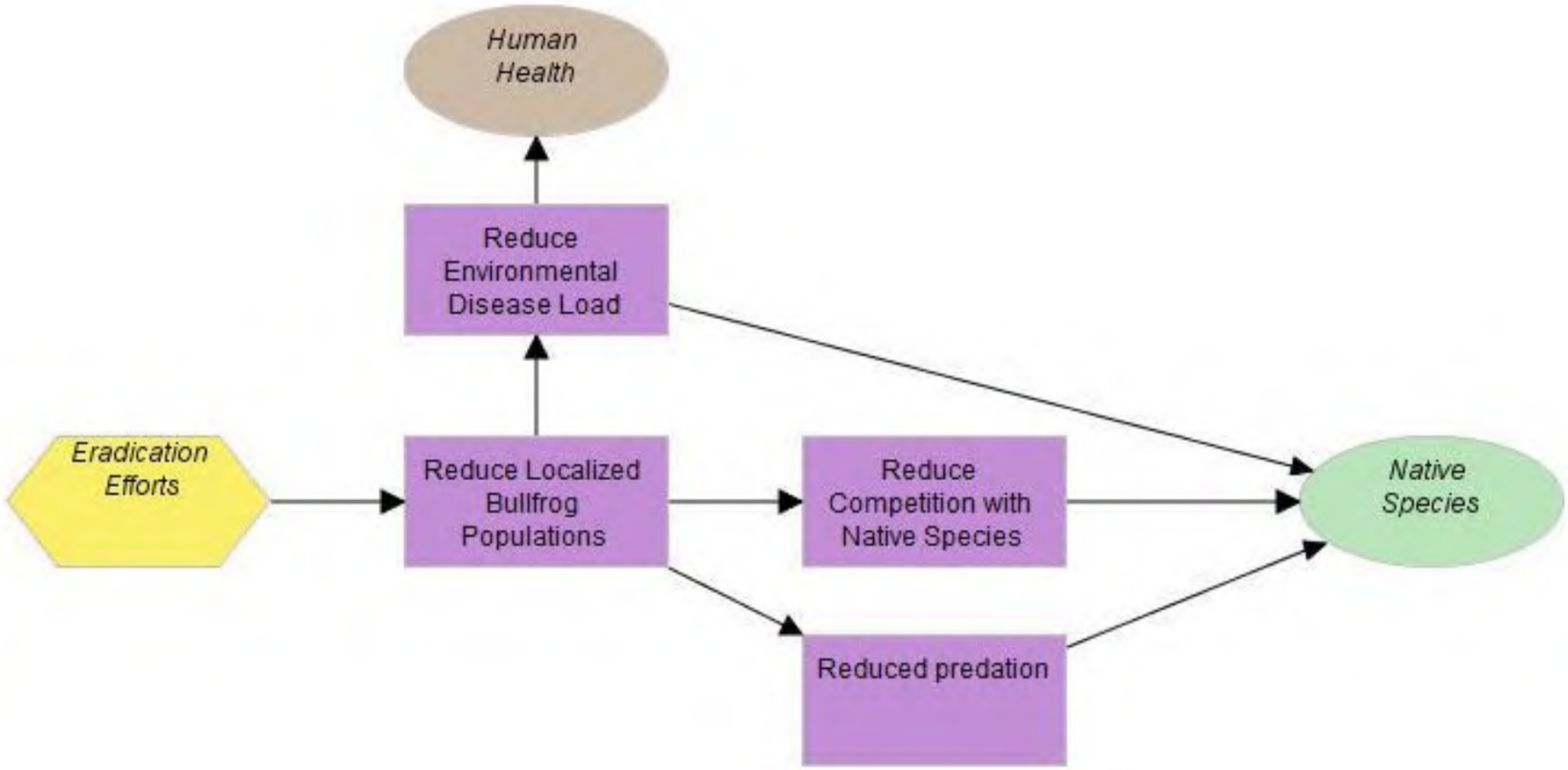
Scope and Vision

Scope/Site Name	California
Vision Statement Text	Our vision of California is one where conservation of native species coexists with access to culturally valuable animals for traditional foods, educational research, and companions, while promoting economic opportunity, recreation, consumer education, feasible management, and effective enforcement concerning harm to other species.
Comments	

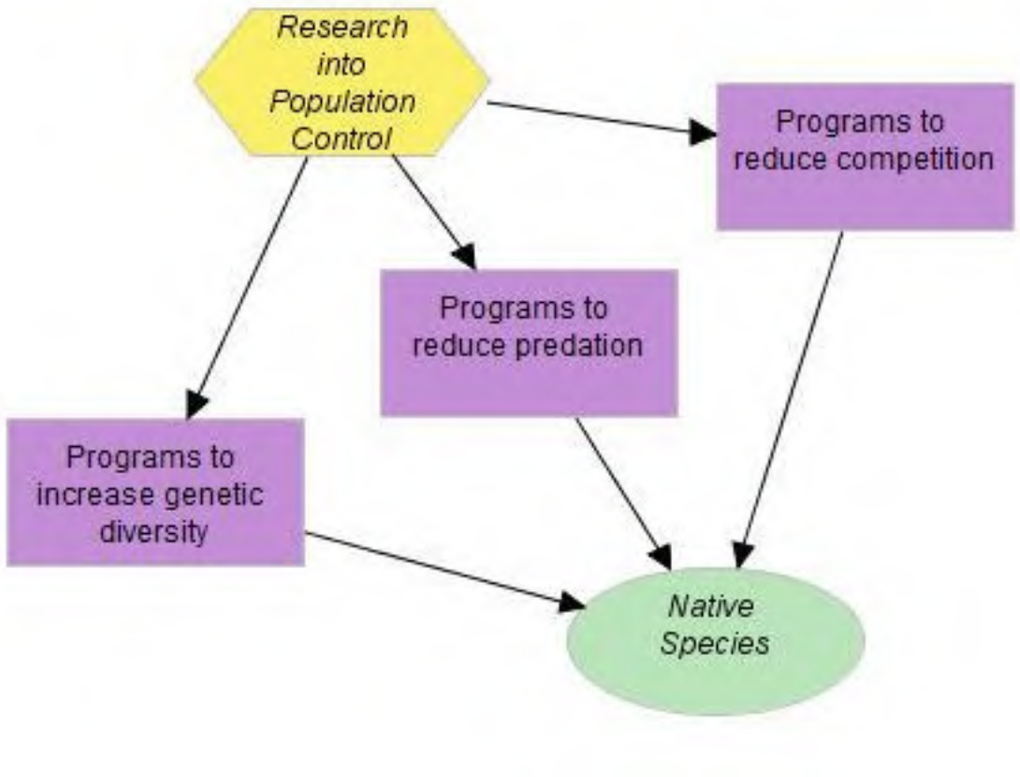
Main Diagram



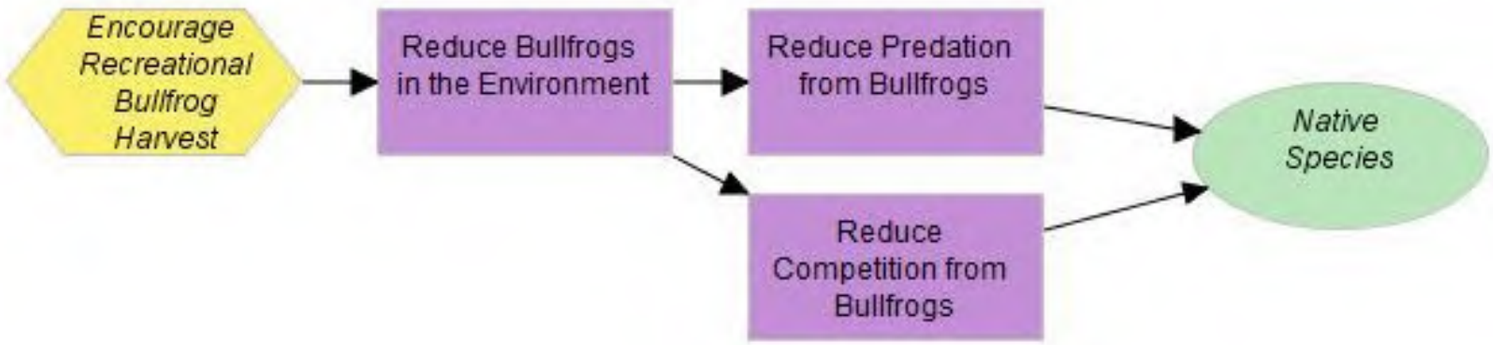
Results Chain: Eradication efforts



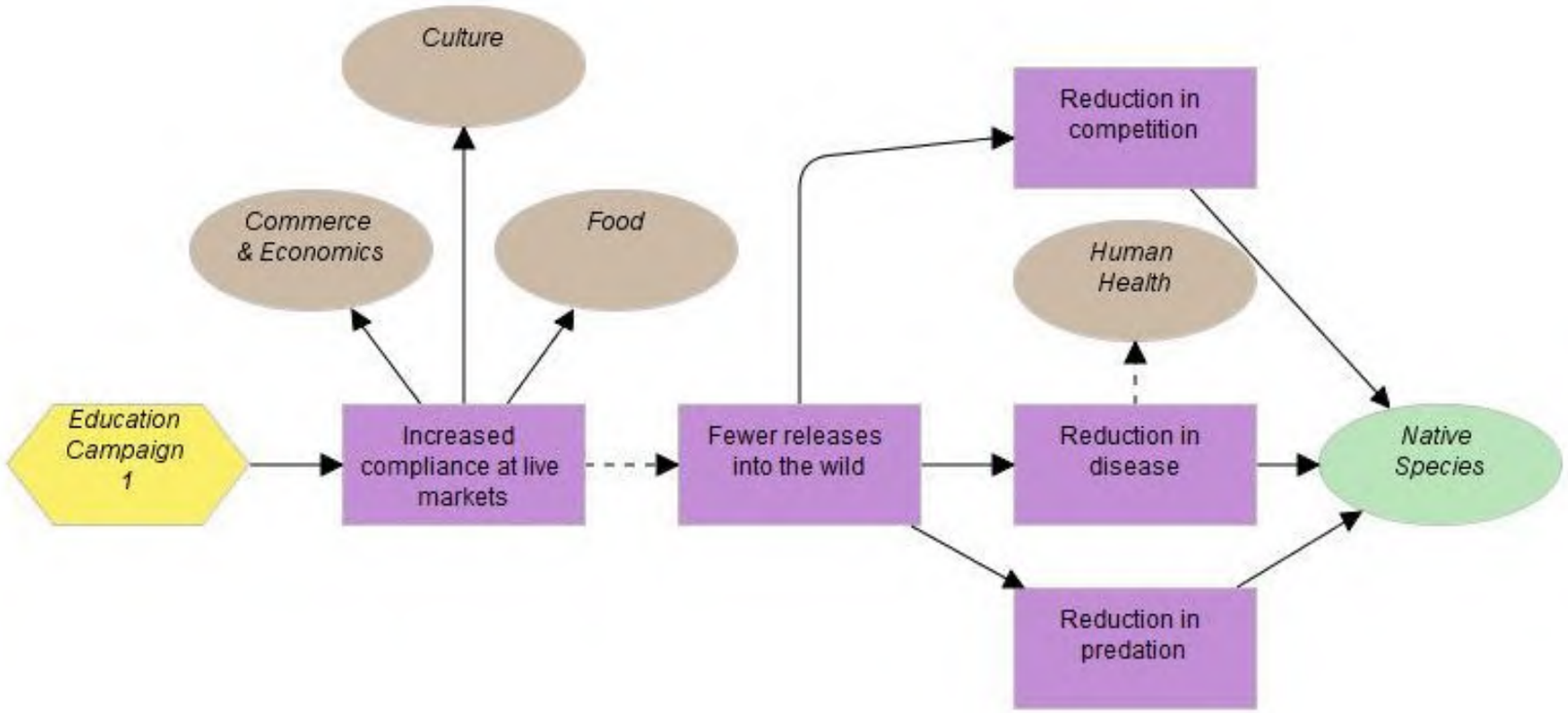
Results Chain: Research into population control techniques



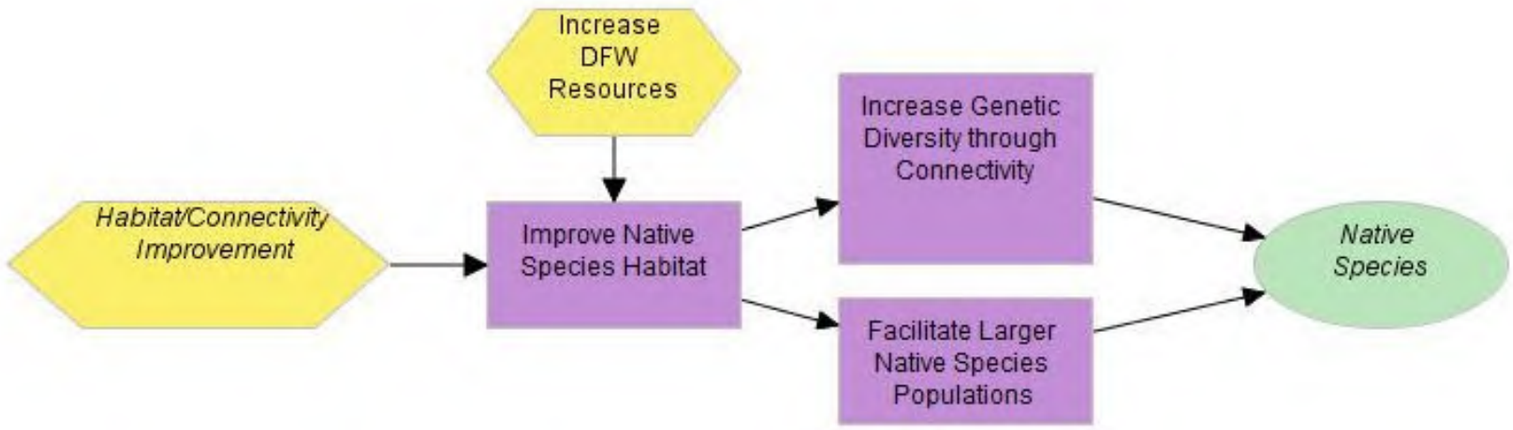
Results Chain: Encourage recreational bullfrog harvest



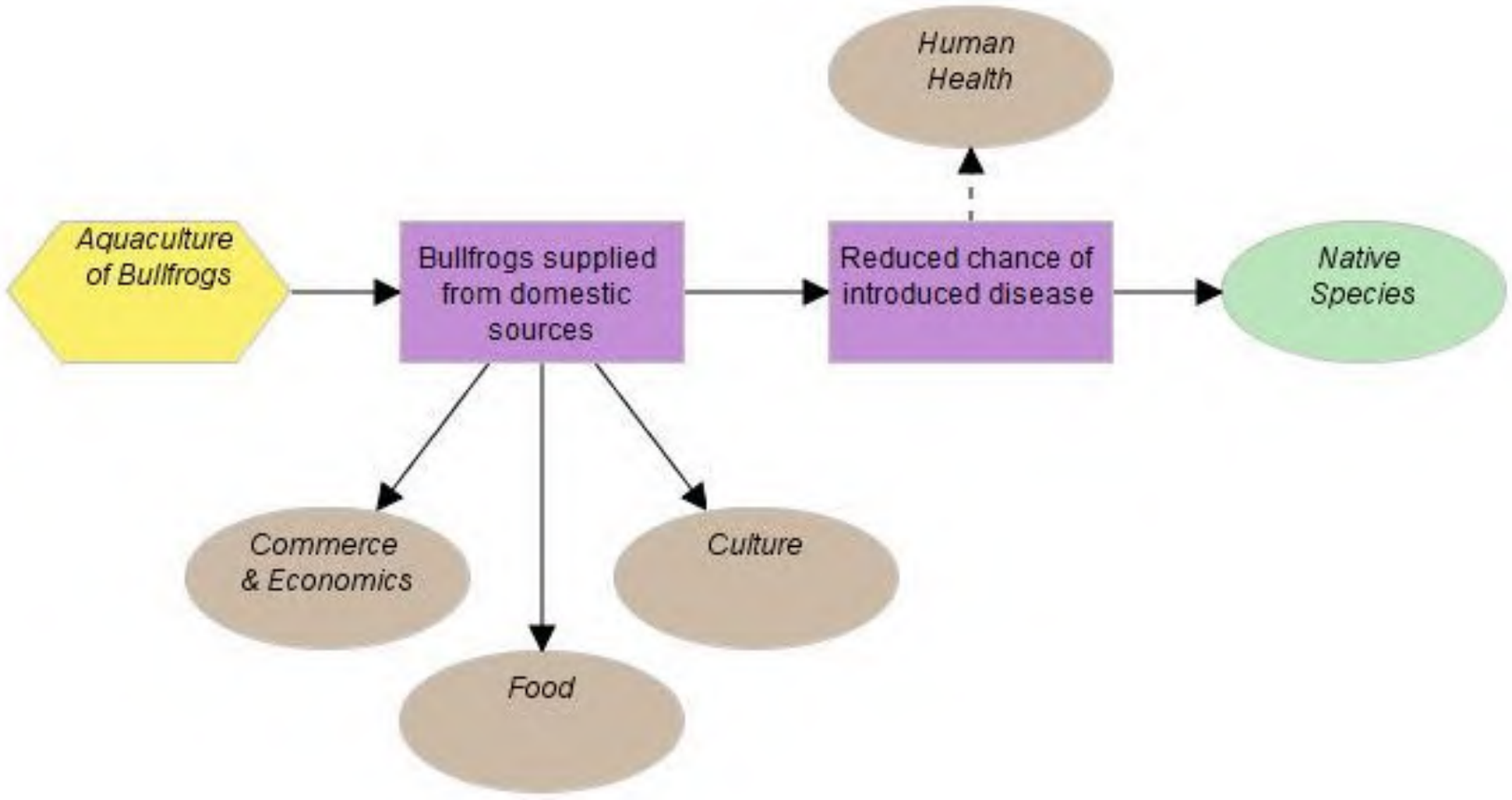
Results Chain: Education campaign 1



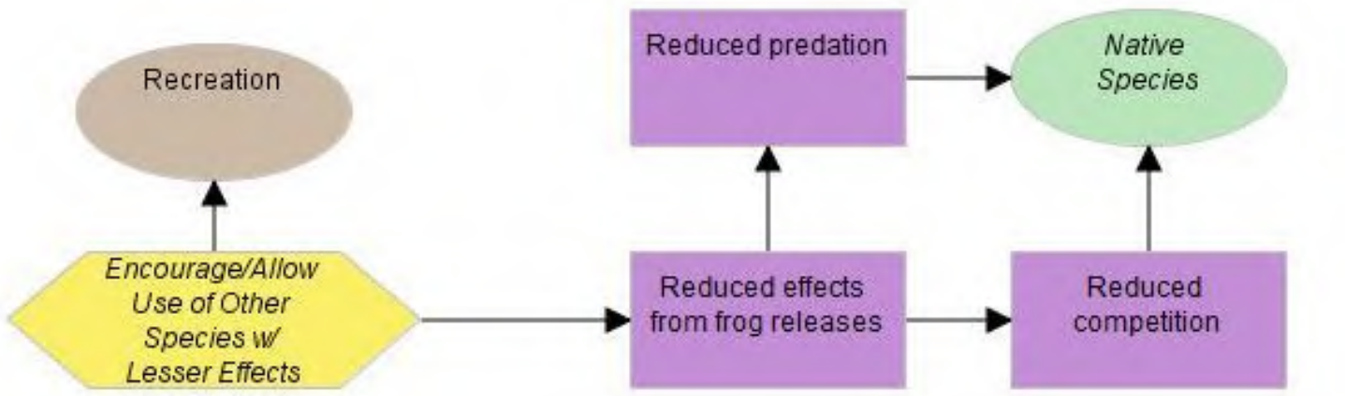
Results Chain: Habitat/connectivity improvement



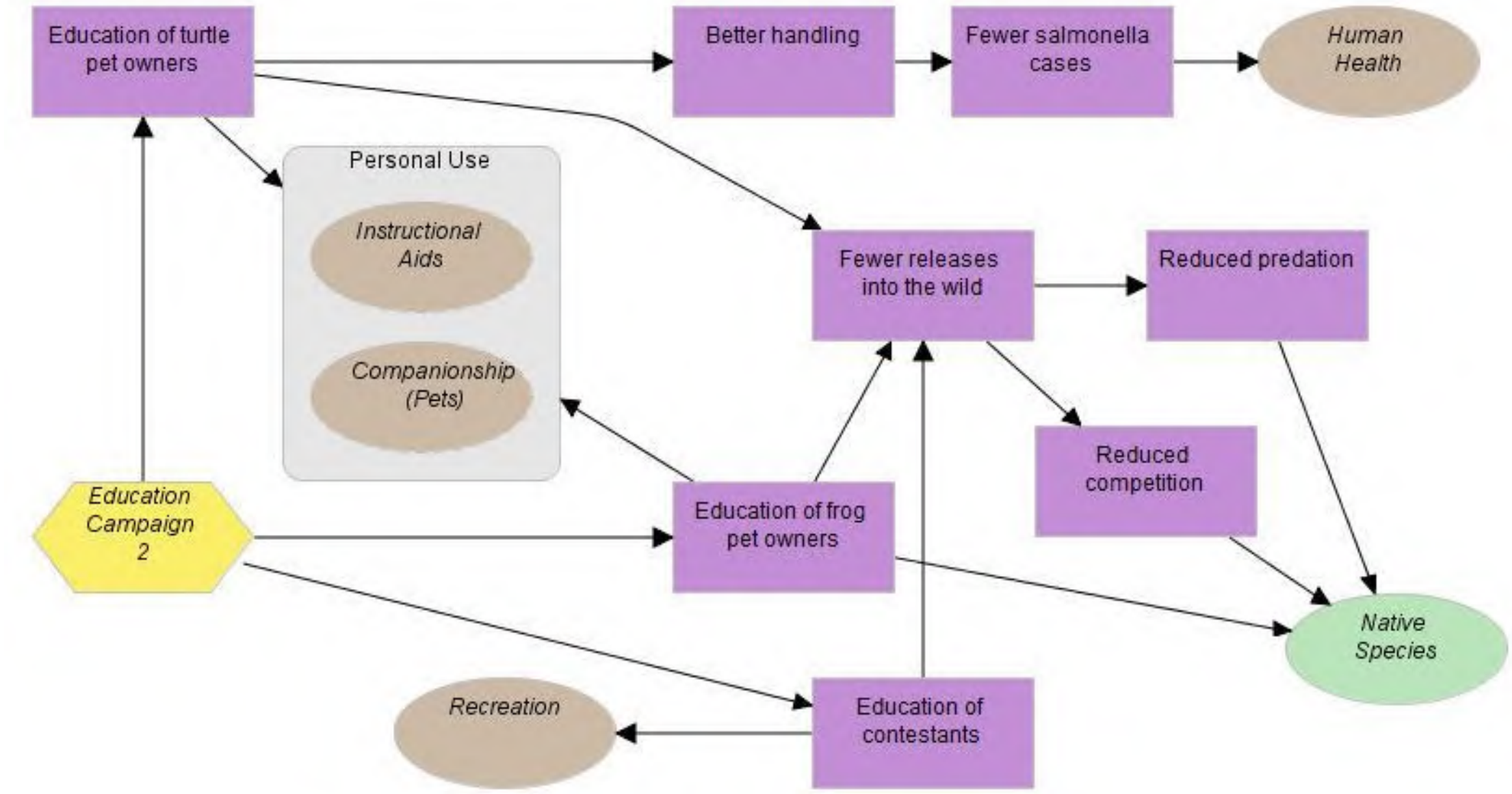
Results Chain: Aquaculture of bullfrogs



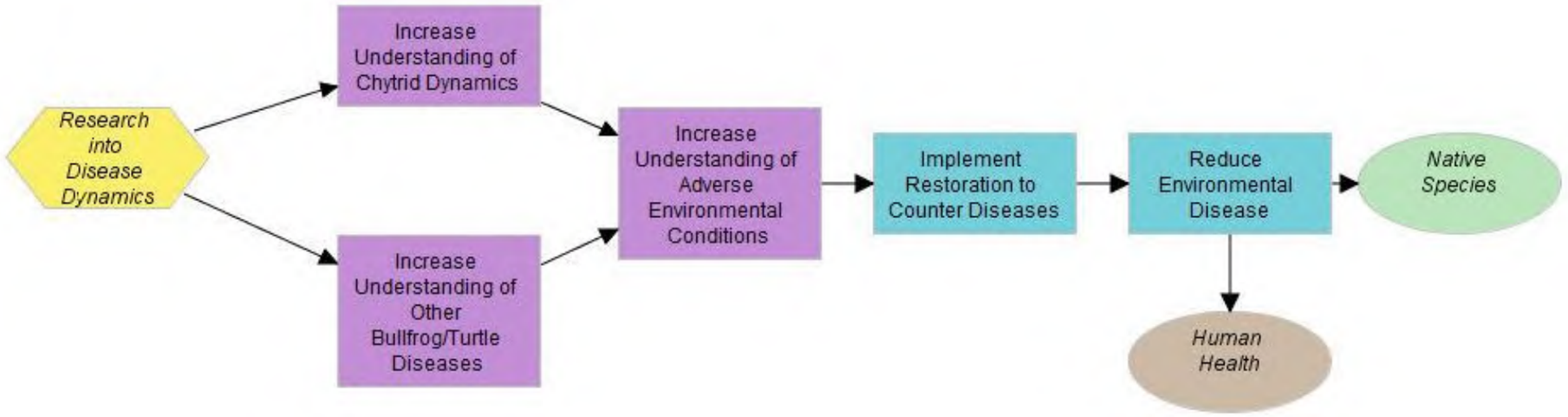
Results Chain: Encourage/allow use of other species w/ lesser effects



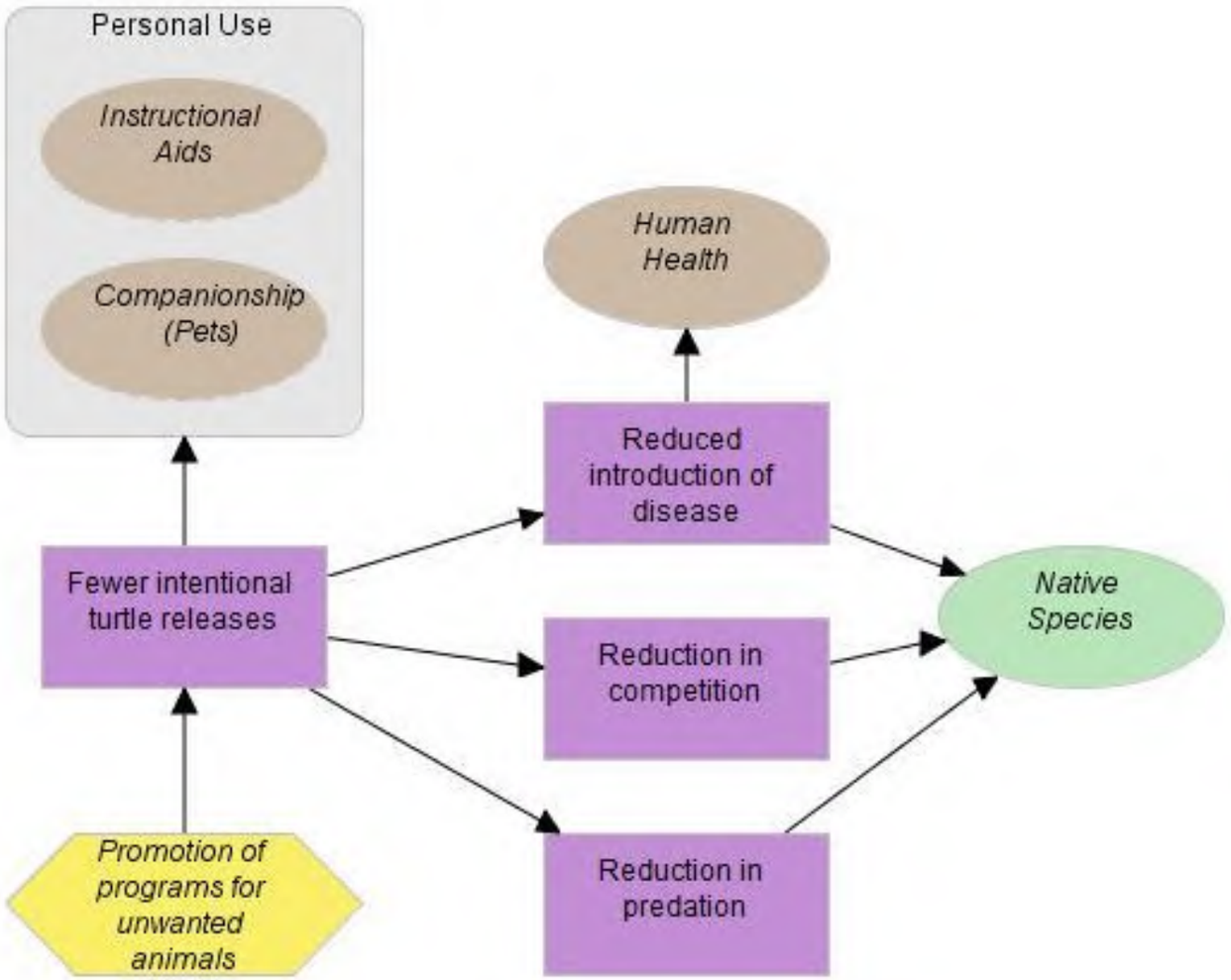
Results Chain: Education campaign 2



Results Chain: Research into disease dynamics



Results Chain: Promotion of programs for unwanted animals



Industry Notes

Item	Details
Aquaculture of bullfrogs	• Likely only viable in the case of an import ban
Education campaign 1	• Content: Handling, Releases, Food Safety • Venue: Live Markets • Audience: retailers
Education campaign 2	• Content: Handling, Releases • Retail Stores • Aimed at prospective pet owners and current pet owners
Encourage/allow use of other species with lesser effects	• Jumping frog contest education
Promotion of programs for unwanted animals	• CA turtle & tortoise club has people that will take in unwanted turtles and give them for adoption Pet stores also have programs to take back unwanted animals "Don't let it loose" program • POS, or when supplies are bought
Research into population control techniques	• Triploids
Online sales	• Exotic species or special individuals
Habitat degradation/loss	• Fragmentation
Turtles as pets	• Red-eared sliders
Loss of genetic diversity	• Fragmentation in turtles
Resource loss	• Food, space, water, plants, breeding sites
Live markets	• Consumers don't touch the animals; all are slaughtered before leaving the market • Held in regular fish tanks • Water goes into drains that lead to sewers, generally combined with cleaners
Specialty store	• Farm & feed stores? • Water garden stores
Bullfrogs as pets	• Does not include tropical species • Prevalence is probably low
Human health	• USDA 4-inch rule
Commerce and economics	• Positive for growers, negative for importers
Companionship (pets)	• Pets

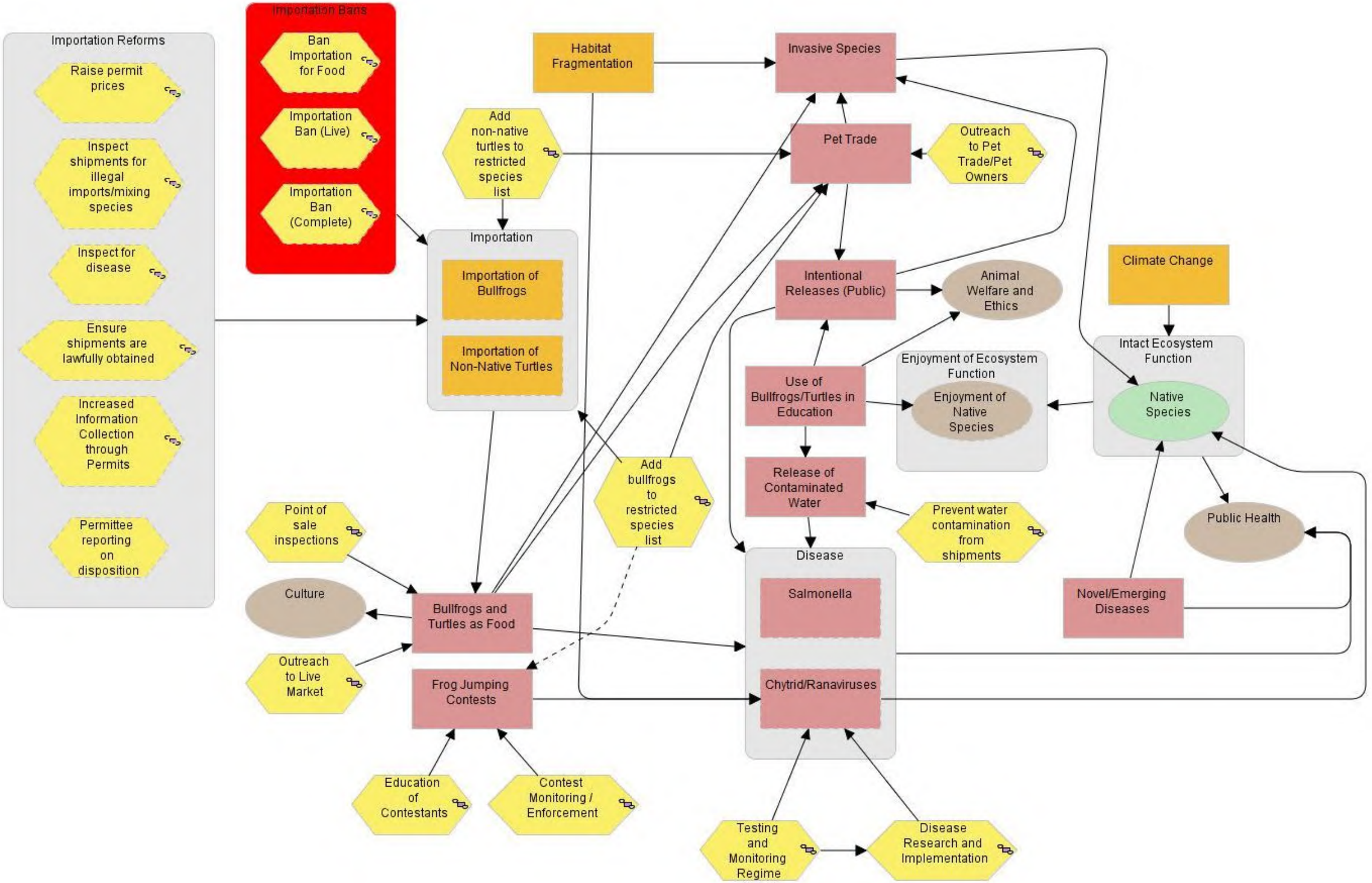
Item	Details
Recreation	• Frog jumping contests, picture taking of turtles, gigging/fishing for bullfrogs
Assurance colonies – Native and non-native species	• Not really any licensing, but Captive Bred Wildlife Permit (FWS) allows possession of turtles • When transferring, both parties need a CBW permit • No colonies for red-eared sliders or soft-shelled turtles
Live markets to releases in the wild	• This link is disputed
Increase Understanding of Adverse Environmental Conditions	• Ecological factors that promote or facilitate disease

Environmental/Animal Welfare Group Analysis

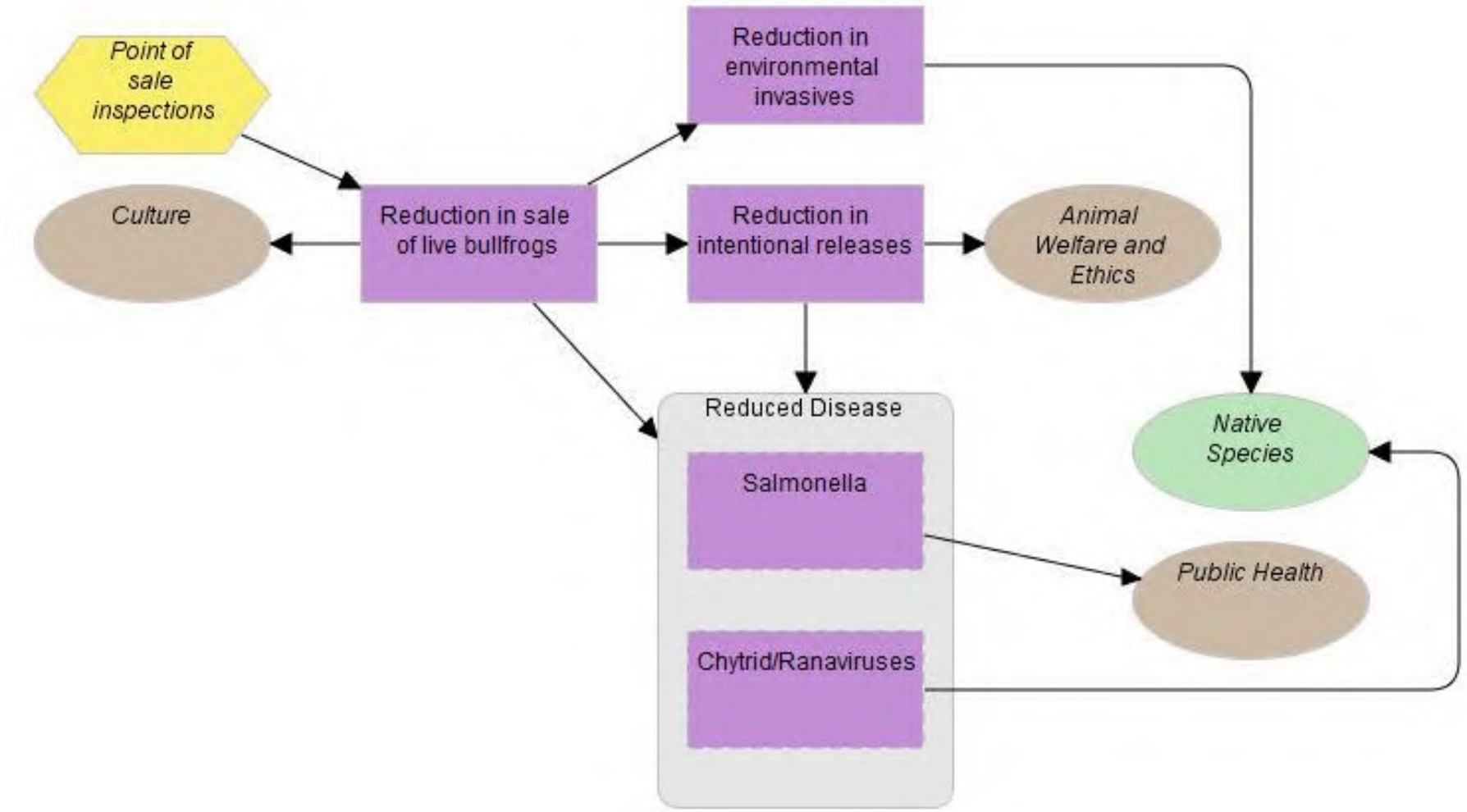
Scope and Vision

Vision Statement Text	A California with an enforced ban on the importation of bullfrogs and non-native turtles. A Department that lives up to its mission and stated purpose and upholds the public trust.
Comments	

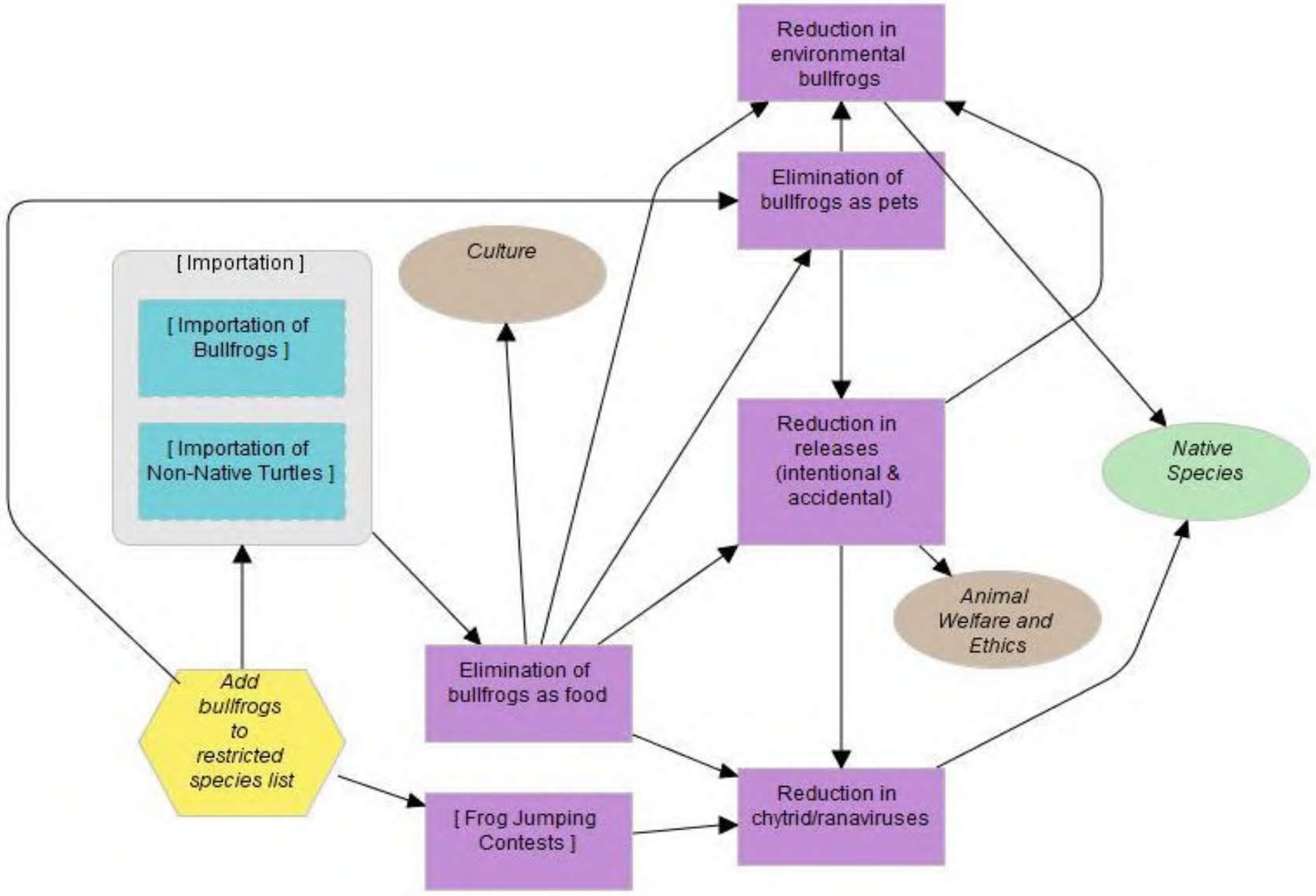
Main Diagram



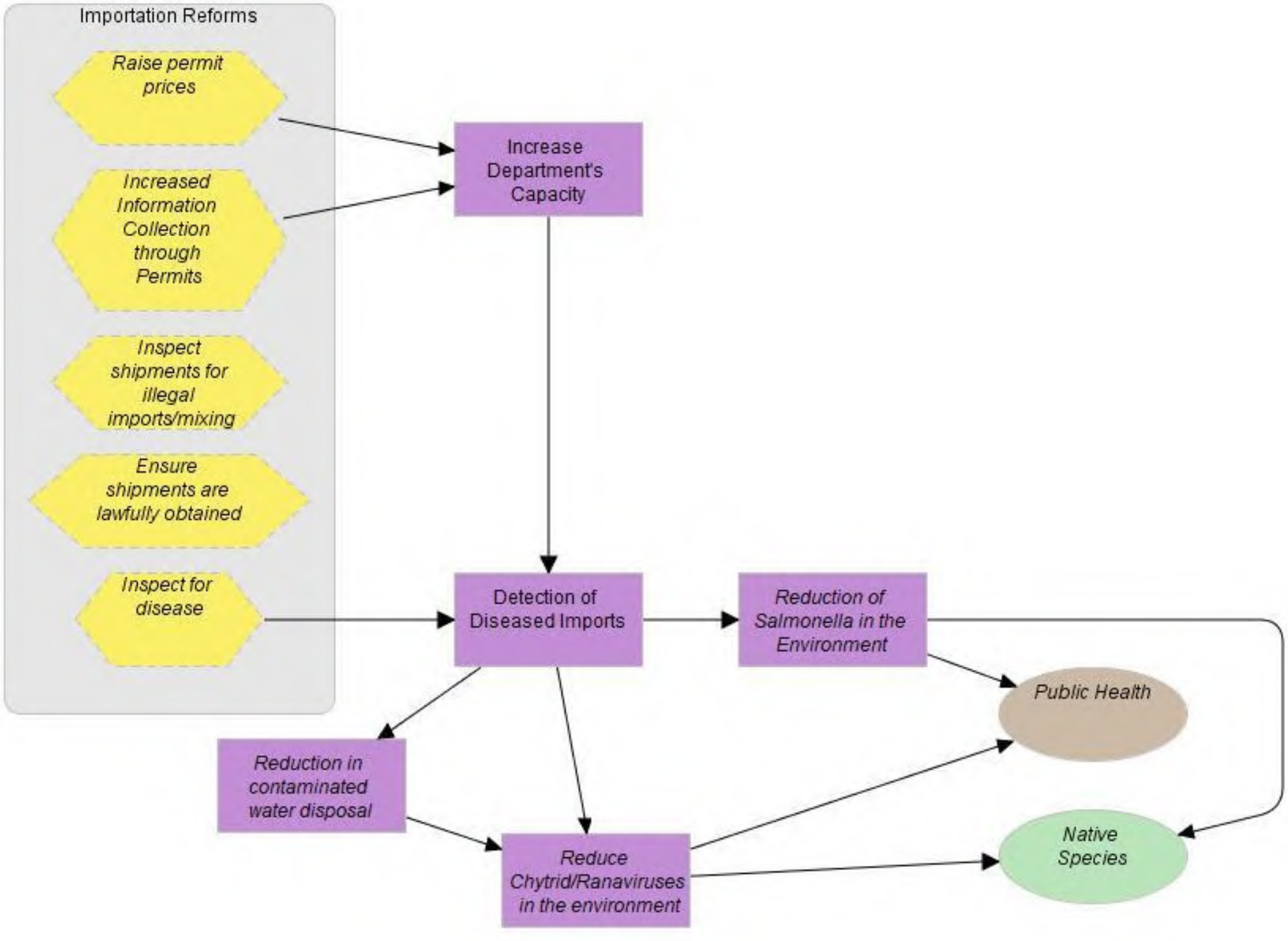
Results Chain: Point of sale inspections



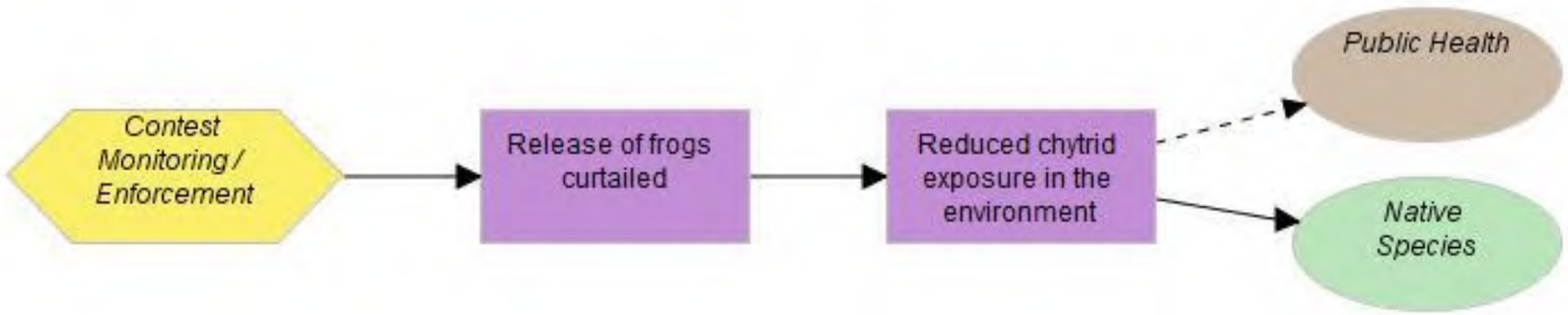
Results Chain: Add bullfrogs to restricted species list



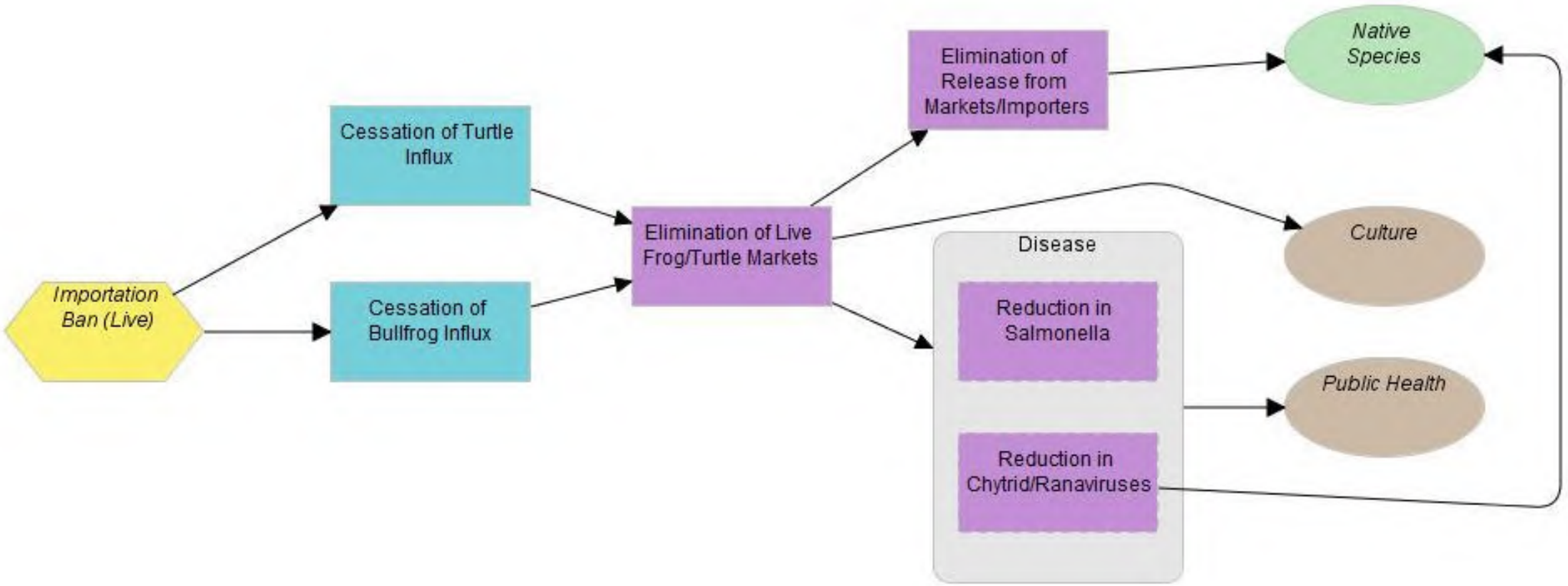
Results Chain: Importation reforms



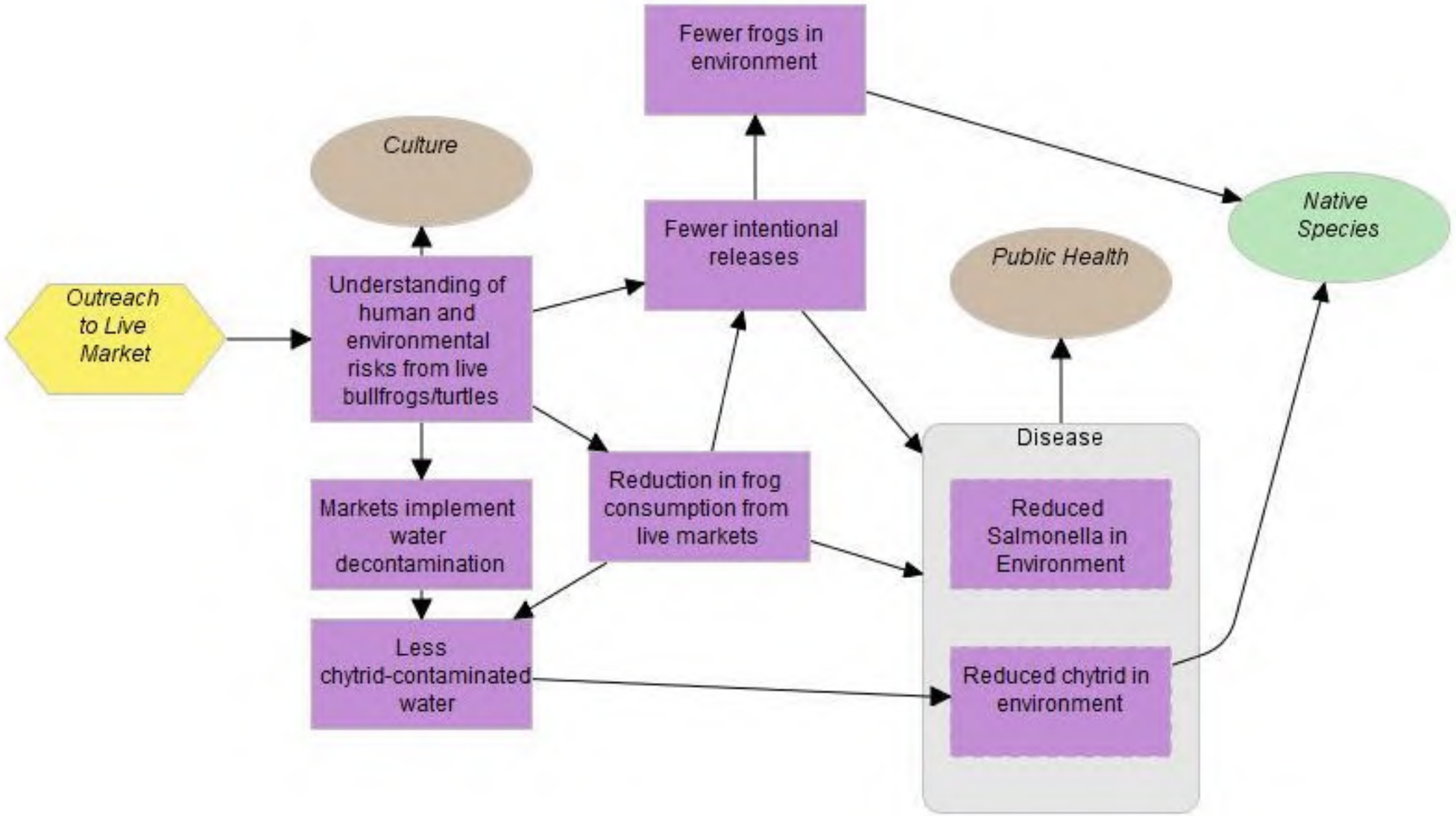
Results Chain: Contest monitoring / enforcement



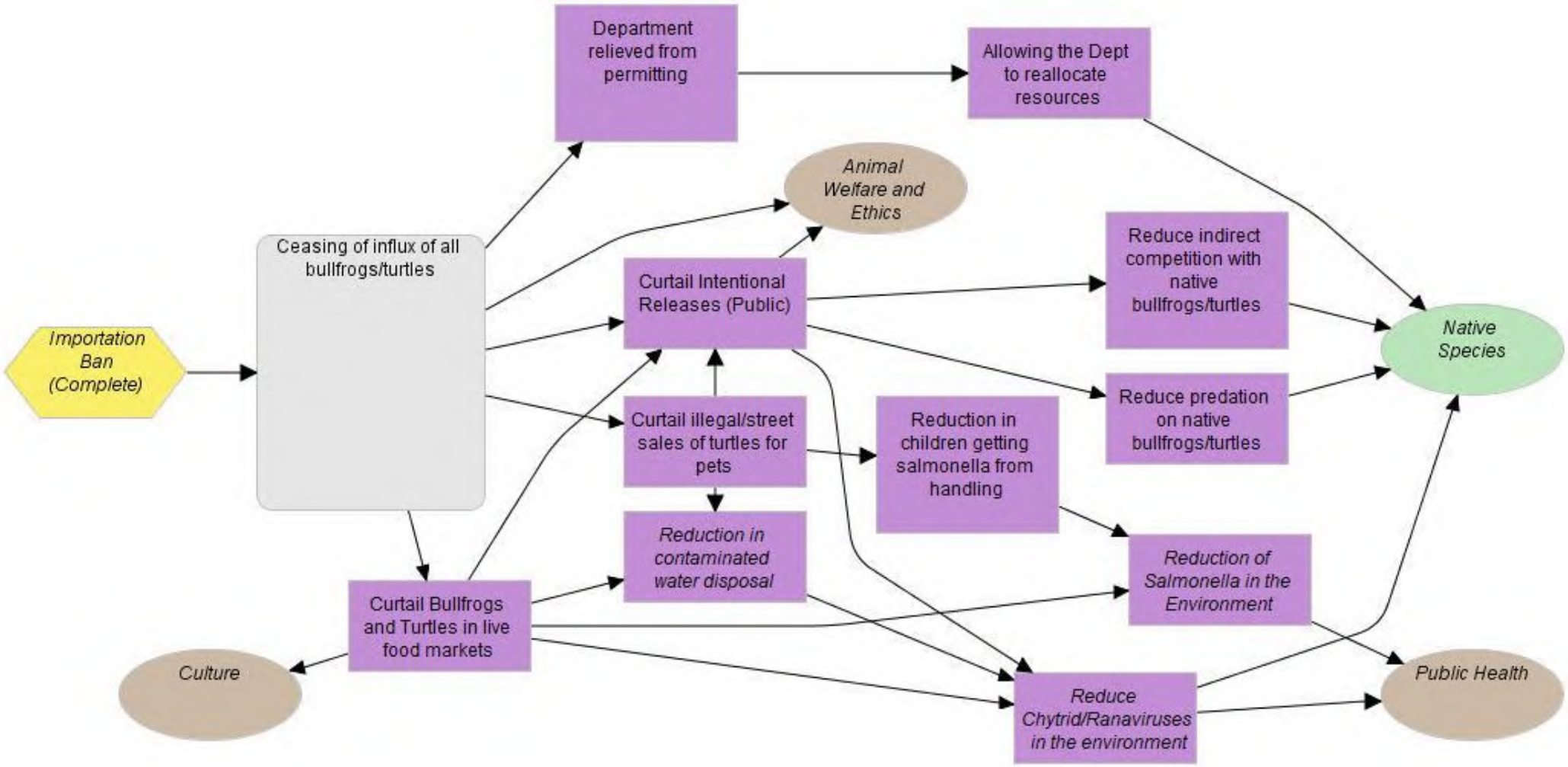
Results Chain: Importation ban (live)



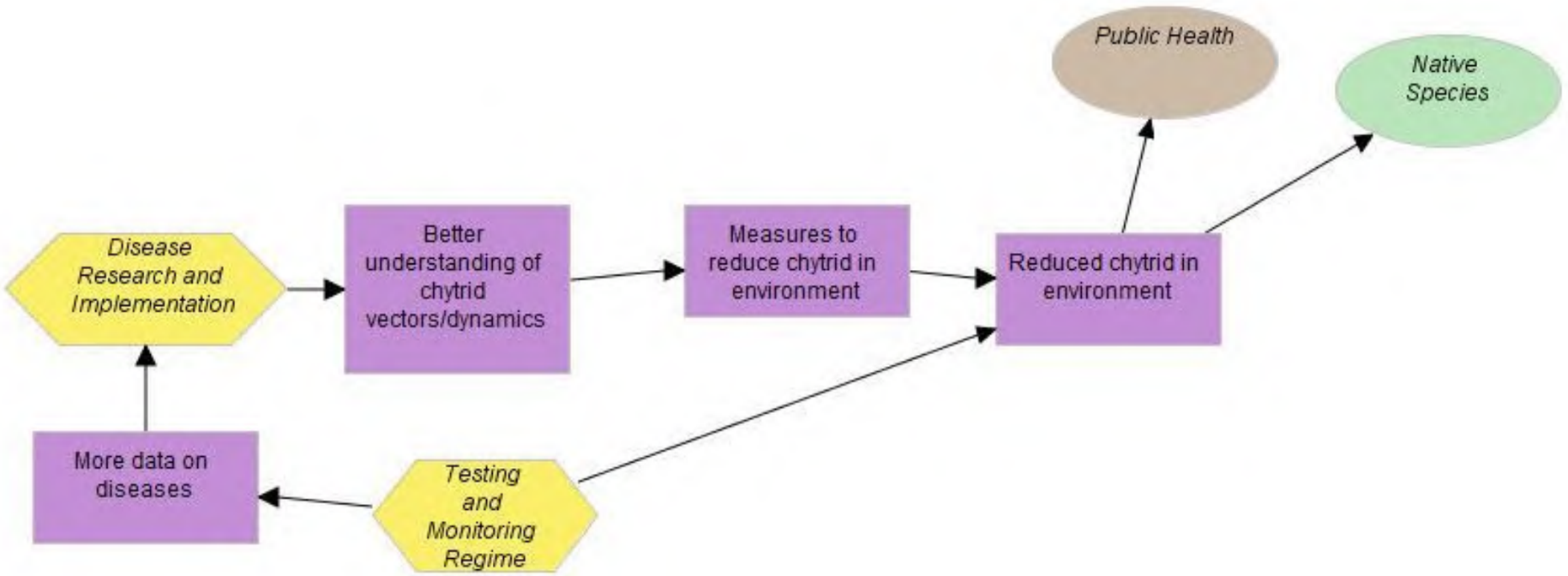
Results Chain: Outreach to live market



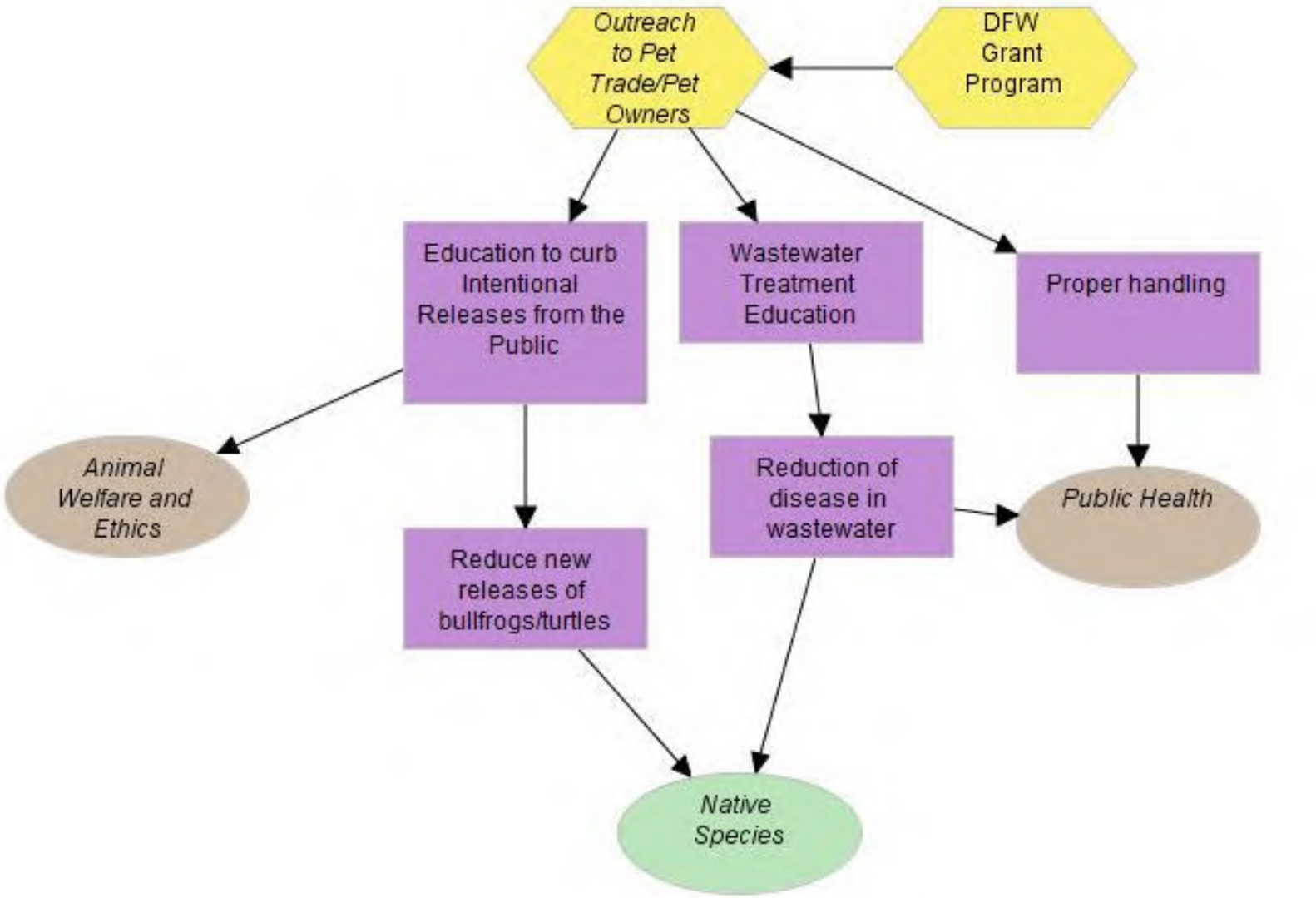
Results Chain: Importation ban (complete)



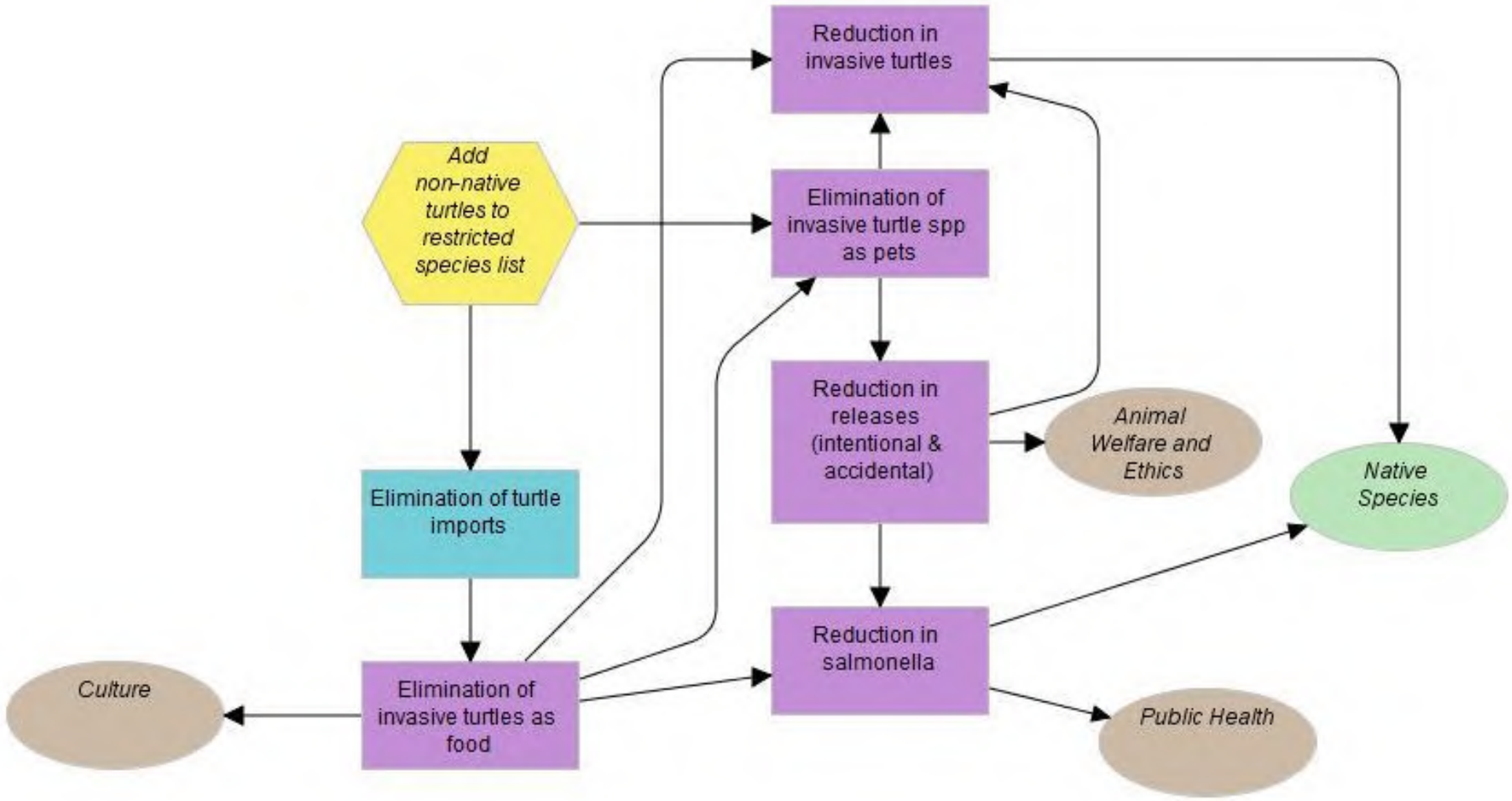
Results Chain: Disease research and implementation



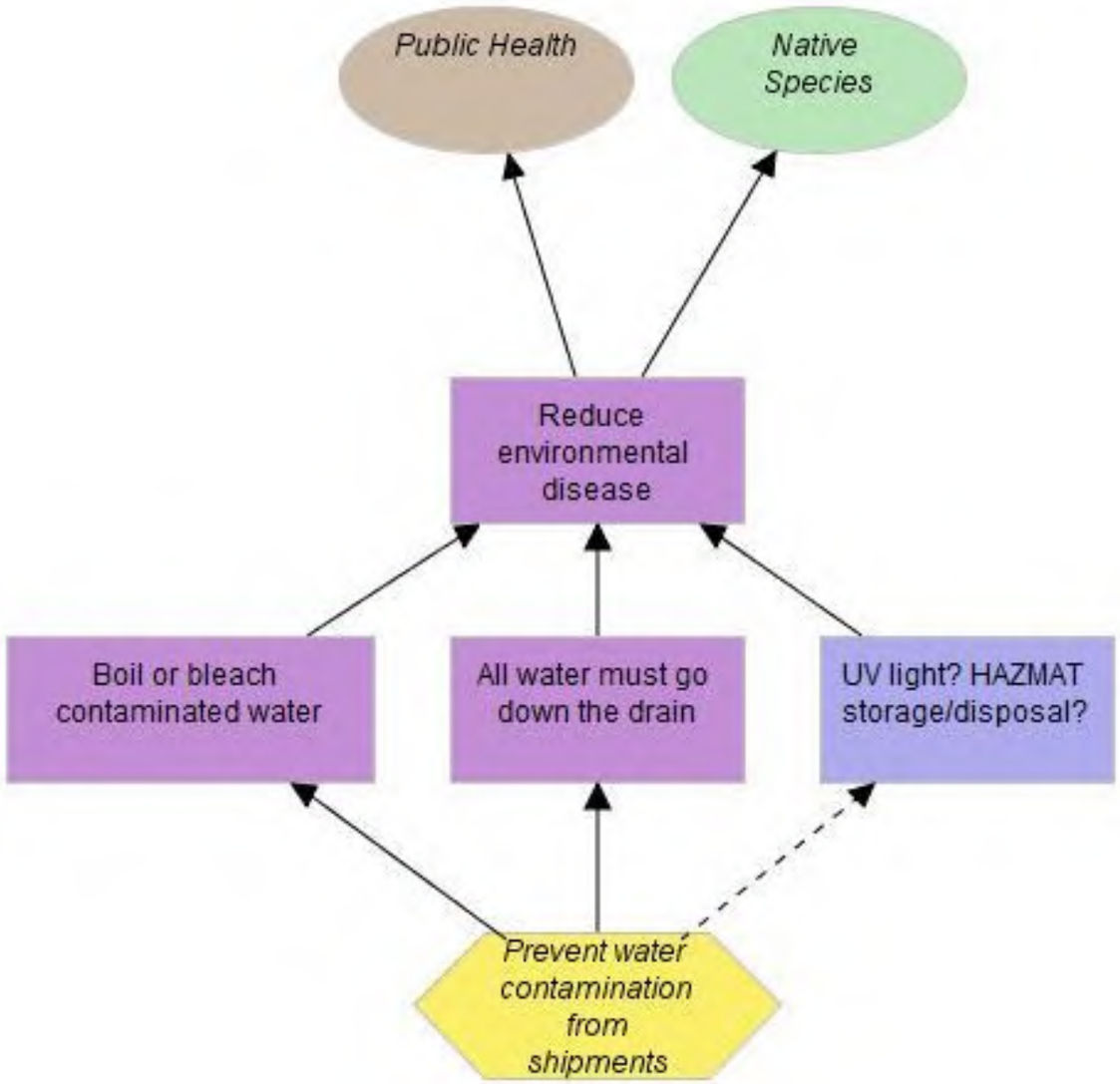
Results Chain: Outreach to pet trade/pet owners



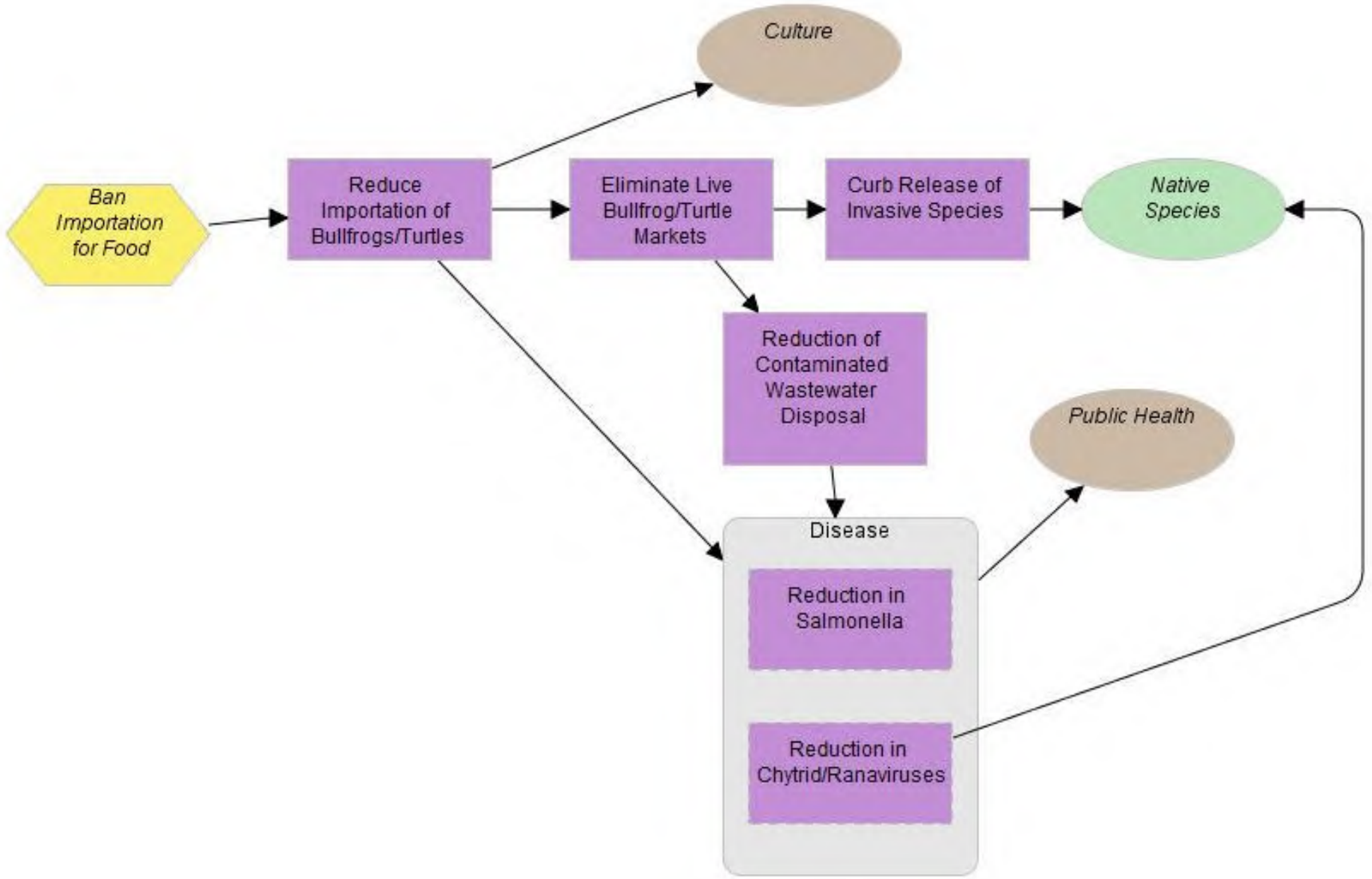
Results Chain: Add non-native turtles to restricted species list



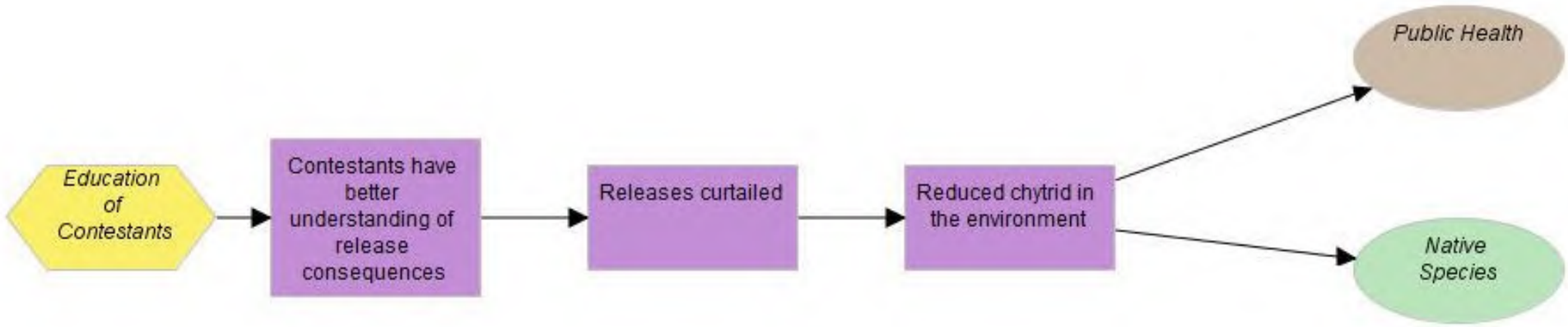
Results Chain: Prevent water contamination from shipments



Results Chain: Ban Importation for food



Results Chain: Education of contestants



Environmental/Animal Welfare Notes

Item	Details
Add bullfrogs to restricted species list	• Could be qualified with certain exceptions
Add non-native turtles to restricted species list	• Could be qualified with certain exceptions
Testing and Monitoring Regime	• Onus could be on the vendor to initiate testing. List of approved testers.
Ensure shipments are lawfully obtained	• See T14, section 236(C)(8) • Pertains to the origin of the shipment. • Perhaps more important for turtles?
Increased Information Collection through Permits	• Where are shipments coming from? How many are you bringing in? Do you have permission from the source?
Inspect shipments for illegal imports/mixing species	• Randomized sample
Raise permit prices	• Price proportional to number of individuals imported? • Permit prices must cover the cost of the DFW bullfrog and turtle program, including inspections and enforcement
Contest Monitoring / Enforcement	• Ensure no use of protected species, information gathering, animal welfare enforcement
Outreach to Live Market	• Shark fin soup – generational • DFW implements, cooperating with SF Library • Could be a comprehensive initiative, should include a contextual component that explains the entire strategy • Importers, retailers • Asian language materials • Benefits of frozen vs. Live animals
DFW Grant Program	• Grant program for organizations to develop education campaigns
Outreach to Pet Trade/Pet Owners	• Responsible wastewater treatment
Point of sale inspections	• Notice posted? • Health and safety codes followed?https://codes.findlaw.com/ca/penal-code/pen-sect-597-3.html
Prevent water contamination from shipments	• Distributor to Retailer - Imported water/disposal • Transfer water/disposal • Market water/disposal
Novel/emerging diseases	• Threats to animals or people *Batrachochytrium salamandrivorans*, plus others that may not be known
Reduce new releases of bullfrogs/turtles	• Complications from returned animals? • Nominal "rehoming fee"? • Education about the reality of keeping/caring for animals before purchase
Reduction of disease in wastewater	• Salmonella? • Cholera
Boil or bleach contaminated water	• Water or ice that has come into contact with frogs/turtles must be boiled or bleached (?%) • Boiling is preferred • Virkon is an alternative (more expensive)
Reduce environmental disease	• Chytrid • Some ranaviruses

California Fish and Game Commission

Draft Staff Analysis of the Conservation Standards Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process

Updated 5/12/2022

The draft analyses in this document have been prepared by California Fish and Game Commission (Commission) staff using the materials from *Preliminary Results from the Conservation Standards Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process* (dated January 7, 2022), which was provided to the Wildlife Resources Committee (WRC) at its January 2022 meeting. This document therefore relies on, and is intended to pair with, that January document.

The draft analyses are based on the work of three, separate, stakeholder process groups to date, public input, and the most recent stakeholder meetings that have included all process participants from all three groups together. Three analyses are included herein: A literature review, the Oregon situation and regulatory framework, and an assessment of strategy effectiveness.

Literature Review

Campbell, T., B. Shaw, E. Hammond, L. Bao, S. Yang, P. Jurich, and S. Fox. 2021. Qualitative interviews of practitioners of Buddhist life release rituals residing in the United States: implications for reducing invasion risk. Management of Biological Invasions 12:178–192.

Details the practice of releasing live animals into the environment as a spiritual practice. California is among the locations studied. Turtles are mentioned as a possible animal to be released, though fish are the only species specifically mentioned as being released in California. Participants emphasized saving the lives of animals versus simply releasing animals. Sources included pet stores, bait shops, markets, commercial anglers, and wildlife rehabilitation centers. Many interviewees were aware of invasive species issues.

Claytor, S. C., K. Subramaniam, N. Landrau-Giovannetti, V. G. Chinchar, M. J. Gray, D. L. Miller, C. Mavian, M. Salemi, S. Wisely, and T. B. Waltzek. 2017. Ranavirus phylogenomics: Signatures of recombination and inversions among bullfrog ranaculture isolates. Virology 511:330–343.

Genetically characterizes different bullfrog ranavirus strains. Underscores the bullfrog as a vector for ranaviruses.

Cook, D. G., and A. F. Currylow. 2013. Seasonal spatial patterns of two sympatric frogs: California red-legged frog and American bullfrog. Western Wildlife 1:1–7.

Explores the spatial dynamics by which bullfrogs outcompete California red-legged frogs.

Crowley, S. L., S. Hinchliffe, and R. A. McDonald. 2017. Invasive species management will benefit from social impact assessment. Journal of Applied Ecology 54:351–357.

Urges deliberative, participatory approaches to invasive species management by identifying, evaluating and addressing social costs and benefits.

Garwood, J. M., S. J. Ricker, and C. W. Anderson. 2010. Bullfrog Predation on a Juvenile Coho Salmon in Humboldt County, California. Northwestern Naturalist 91:99–101.

Details an occurrence of a bullfrog having eaten a juvenile coho salmon.

Gray, I. A. 2009. Breeding pond dispersal of interacting California red-legged frogs (Rana draytonii) and American bullfrogs (Lithobates catesbeianus) of California: a mathematical model with management strategies. M.S. Thesis, Humboldt State University, Arcata, CA. <http://humboldt-dspace.calstate.edu/handle/2148/560>. Accessed 10 Feb 2014.

Models the dynamics of California red-legged frogs and bullfrogs. Explores cases where co-occurrence could occur, and provides recommendations to enhance California red-legged frog persistence.

Hartmann, A. M., M. L. Maddox, R. J. Ossiboff, and A. V. Longo. 2022. Sustained ranavirus outbreak causes mass mortality and morbidity of imperiled amphibians in Florida. EcoHealth 19:8–14.

In some circumstances ranaviruses can lead to large-scale amphibian dieoffs. Various species can exhibit differential susceptibility and some hosts may serve as reservoirs for pathogenesis. The authors recommend that disease surveillance and pathogen mitigation strategies be developed.

Implications of importing American bullfrog (Lithobates catesbeianus = Rana catesbeiana) into California. 2014. California Department of Fish and Wildlife.

A comprehensive analysis of bullfrog biology and ecology in California, as well as an analysis of bullfrog importation and the threats it poses to California's wildlife populations.

Johnson, M. L., and R. Speare. 2003. Survival of Batrachochytrium dendrobatidis in water: quarantine and disease control implications. Emerging Infectious Diseases 9:915–921.

Chytrid fungus (*Batrachochytrium dendrobatidis*, or Bd) has inhibited growth in tap, lake, and distilled water over ideal laboratory conditions. Bd did not release zoospores in tap and deionized water. Zoospores may persist in the environment in a state of arrested development for long time periods (3-4 weeks).

Johnson, M., L. Berger, L. Philips, and R. Speare. 2003. Fungicidal effects of chemical disinfectants, UV light, desiccation and heat on the amphibian chytrid Batrachochytrium dendrobatidis. Diseases of Aquatic Organisms 57:255–260.

Chemical disinfectants including sodium chloride, household bleach (active ingredient: sodium hypochlorite), potassium permanganate, formaldehyde solution, Path-XTM agricultural disinfectant (active ingredient: didecyl dimethyl ammonium chloride, DDAC), quaternary ammonium compound 128 (DDAC), Dithane, Virkon, ethanol and benzalkonium chloride were tested, as well as sterilizing ultraviolet (UV) light, and heat and desiccation, to test the efficacy of water sterilization of *Batrachochytrium dendrobatidis*. All compounds had some degree of effectiveness, but those containing DDAC were most effective and can be deployed at low concentrations. Heating and drying met with some success but UV was ineffective.

Johnson, M., and R. Speare. 2005. Possible modes of dissemination of the amphibian chytrid Batrachochytrium dendrobatidis in the environment. Diseases of Aquatic Organisms 65:181–186.

Demonstrates *Batrachochytrium dendrobatidis* survival and potential ability for translocation in moist river sand and in bird feathers.

Kamoroff, C., N. Daniele, R. L. Grasso, R. Rising, T. Espinoza, and C. S. Goldberg. 2019. Effective removal of the American bullfrog (Lithobates catesbeianus) on a landscape level: long term monitoring and removal efforts in Yosemite Valley, Yosemite National Park. Biological Invasions. <https://doi.org/10.1007/s10530-019-02116-4>. Accessed 30 Oct 2019.

Documents successful eradication of bullfrogs on a landscape level at Yosemite National Park.

Kim, R., B. J. Halstead, E. J. Routman, and J. Andersen. 2021. When introduced prey violates trophic hierarchy: Conservation of an endangered predator. Biological Conservation 256:109019.

Explores the dynamics between bullfrogs and the imperiled San Francisco garter snake. Notes that localized bullfrog control efforts can be critical in the conservation of many such species.

Lambert, M. R., J. M. McKenzie, R. M. Screen, A. G. Clause, B. B. Johnson, G. G. Mount, H. B. Shaffer, and G. B. Pauly. 2019. Experimental removal of introduced slider turtles offers new insight into competition with a native, threatened turtle. PeerJ 7:e7444.

Recounts a field experiment of the limited removal of red-eared sliders, and measured the responses of western pond turtles. Demonstrates intense competition for basking and potentially other resources such as food.

Nicholson, E. G., S. Manzo, Z. Devereux, T. P. Morgan, R. N. Fisher, C. Brown, R. Dagit, P. A. Scott, and H. B. Shaffer. 2020. Historical museum collections and contemporary population studies implicate roads and introduced predatory bullfrogs in the decline of western pond turtles. PeerJ 8:e9248.

Examination of historical museum specimens indicates negative effects of roads and bullfrogs in the decline of western pond turtle species. Male-biased sex ratios indicate a strong negative effect from roads, while long-term changes in body size implicate competition and predation from non-native invasive species.

Open Standards for the Practice of Conservation. 2020. Conservation Measures Partnership. < https://conservationstandards.org/download-cs/>.

A manual explaining the *Open Standards for the Practice of Conservation*, the process used to examine the issues surrounding bullfrogs and non-native turtles.

Ribeiro, L. P., T. Carvalho, C. G. Becker, T. S. Jenkinson, D. da S. Leite, T. Y. James, S. E. Greenspan, and L. F. Toledo. 2019. Bullfrog farms release virulent zoospores of the frog-killing fungus into the natural environment. Scientific Reports 9:1–10.

Bullfrog farms can harbor *Batrachochytrium dendrobatidis* (Bd) and release it into the environment, and can have high prevalence and pathogen loads. High densities may play a role in increasing frog susceptibility, and tadpoles may serve as a reservoir for Bd. They posit

that controlling chytrid in farms may increase profits. They advocate for treating both frogs and water.

Salafsky, N., R. Margoluis, K. H. Redford, and J. G. Robinson. 2002. Improving the practice of conservation: a conceptual framework and research agenda for conservation science. Conservation biology 16:1469–1479.

Provides the conceptual underpinnings of the *Open Standards for the Practice of Conservation* and how to use the framework to effect positive conservation action.

Salafsky, N., and E. Wollenberg. 2000. Linking livelihoods and conservation: a conceptual framework and scale for assessing the integration of human needs and biodiversity. World development 28:1421–1438.

Discusses the integration of human well-being targets into the *Open Standards for the Practice of Conservation*.

Schloegel, L. M., A. M. Picco, A. M. Kilpatrick, A. J. Davies, A. D. Hyatt, and P. Daszak. 2009. Magnitude of the US trade in amphibians and presence of Batrachochytrium dendrobatidis and ranavirus infection in imported North American bullfrogs (Rana catesbeiana). Biological Conservation 142:1420–1426.

An examination of bullfrogs obtained from live markets in Los Angeles, San Francisco, and New York found a 62% prevalence of *Batrachochytrium dendrobatidis* (Bd) and an 8.5% prevalence of ranaviruses. California markets had a lower probability of Bd infection than New York, but LA frogs had a higher chance of ranavirus than elsewhere. The study found significant seasonal differences in probability of infection (winter > summer > spring). There was no correlation between prevalence of the two diseases.

Schwartz, M. W., K. Deiner, T. Forrester, P. Grof-Tisza, M. J. Muir, M. J. Santos, L. E. Souza, M. L. Wilkerson, and M. Zylberberg. 2012. Perspectives on the open standards for the practice of conservation. Biological Conservation 155:169–177.

Setting free the fish. n.d. Global Times.

A review of the *Open Standards for the Practice of Conservation*, including an examination of its strengths and suitability for approaching a wide variety of conservation planning tasks.

Stromberg, J. 2013. The science of winning leaps at the Calaveras County frog jumping competition. Smithsonian. <https://www.smithsonianmag.com/science-nature/the-science-of-winning-leaps-at-the-calaveras-county-frog-jumping-competition-2277694/>. Accessed 17 Jun 2019.

Expounds on how bullfrogs are able to perform well in jumping frog contests and why bullfrogs are a preferred species.

Wang, H., C. Yang, Z. Sun, W. Zheng, W. Zhang, H. Yu, Y. Wu, X. Didelot, R. Yang, J. Pan, and Y. Cui. 2020. Genomic epidemiology of Vibrio cholerae reveals the regional and global spread of two epidemic non-toxigenic lineages. PLOS Neglected Tropical Diseases 14:e0008046.

Examines the genetics and epidemiology of an outbreak of *Vibrio cholerae* bacteria in humans, linked to soft-shelled turtles and bullfrogs.

West, D. 1997. Buddhists release animals, dismaying wildlife experts. The New York Times, 11 January 1997; section New York. <https://www.nytimes.com/1997/01/11/nyregion/buddhists-release-animals-dismaying-wildlife-experts.html>. Accessed 27 Aug 2021.

Describes the practice of releasing animals in New York, including turtles, for cultural and spiritual ceremonies, and the environmental damage it can cause. Details the purposes for the practices, such as the motivation to show respect for life and do good acts.

Wilgen, N. J. van, M. S. Gillespie, D. M. Richardson, and J. Measey. 2018. A taxonomically and geographically constrained information base limits non-native reptile and amphibian risk assessment: a systematic review. PeerJ 6:e5850.

A review of research papers on herpetological invasive species, highlighting several taxonomic, geographic and subject patterns and biases of publications.

Woodburn, D. B., A. N. Miller, M. C. Allender, C. W. Maddox, and K. A. Terio. 2019. Emydomyces testavorans, a new genus and species of Onygenalean fungus isolated from shell lesions of freshwater aquatic turtles. Journal of Clinical Microbiology 57. <https://jcm.asm.org/content/57/2/e00628-18>. Accessed 3 Aug 2020.

Describes a fungus previously found only in reptiles but recently found in various aquatic turtle species, including some that can be found in California.

Yang, Y., X. Zhu, H. Zhang, Y. Chen, Y. Liu, Y. Song, and X. Ai. 2022. Vibrio cholerae was found in cultured bullfrog. Epidemiology and Infection 150:e30.

A study of “anorectal disease” which isolates and identifies *V. cholerae* bacteria in bullfrogs. Examines the pathogenicity and potential treatments.

Yap, T. A., M. S. Koo, R. F. Ambrose, and V. T. Vredenburg. 2018. Introduced bullfrog facilitates pathogen invasion in the western United States. M. C. Fisher, editor. PLOS ONE 13:e0188384.

Uses museum specimens to examine the invasion history and disease dynamics of *Batrachochytrium dendrobatidis* (Bd). Creates a suitability model to glean the historical spread of Bd across the US and link it to the proliferation of bullfrogs.

Oregon Situation and Regulatory Framework

In Oregon, non-native bullfrog and turtle populations are reproducing naturally. Oregon currently does not have an active eradication program because the populations are already well-established.

Bullfrogs are a “controlled” species, so importing or exporting them is prohibited. Most water turtles from North America, Europe and Asia are not allowed to be sold, but selected non-native species that are thought to be unable to survive in the wild are allowed to be sold. Sometimes they are surrendered by owners or are found moving to nesting grounds and are turned over to the Oregon Department of Fish and Wildlife (ODFW) and humanely euthanized. Importing through online sellers, particularly from Florida, continues to be a problem.

Schools can apply for a permit and may be allowed to import bullfrogs, so long as they are kept contained and eventually are euthanized. Bullfrogs often come into Oregon as tadpoles inadvertently included in shipments of aquatic plants.

Enforcement depends on the field district. There is no inspection system for commercial trade; enforcement actions typically manifest through complaints or through Craigslist, or when ODFW personnel personally check stores. Volunteers often watch Craigslist and report suspected violations. ODFW has sole jurisdiction over these matters.

Assessment of Strategy Effectiveness

Commission staff assessed the effectiveness of all strategies that were proposed by the three stakeholder groups. After eliminating duplicate strategies, staff used the many discussions and understandings from stakeholder groups to evaluate how successful a strategy would be at achieving a particular goal. A strategy's goal(s) were identified through analysis of its "results chain," as either the primary means by which threats would be abated, or as "research" in the case of strategies designed to fill informational gaps.

Strategies are rated on two criteria, potential impact and feasibility.

Potential Impact - If implemented, will the strategy lead to desired changes in the situation at your project site?

- *Very High* - The strategy is very likely to completely mitigate a threat or restore a target.
- *High* - The strategy is likely to help mitigate a threat or restore a target.
- *Medium* - The strategy could possibly help mitigate a threat or restore a target.
- *Low* - The strategy will probably not contribute to meaningful threat mitigation or target restoration.

Note that at least two dimensions are combined into this rating: probability of positive impact and magnitude of change. The potential impact rating takes into account both of these factors, which were assessed in terms of the overall scope of the strategy. For example, a strategy which contemplates a localized biological effect would be evaluated in terms of the likelihood and magnitude of impact to a local area, and not penalized because it did not have a statewide scope.

Feasibility - Would implementation of the strategy be likely within biological, regulatory, time, financial, staffing, ethical, and other constraints?

- *Very High* - The strategy is ethically, technically, AND financially feasible.
- *High* - The strategy is ethically and technically feasible, but may require some additional financial resources.
- *Medium* - The strategy is ethically feasible, but either technically OR financially difficult without substantial additional resources.
- *Low* -The strategy is not ethically, technically, OR financially feasible.

Potential impact and feasibility are combined to give an overall summary effectiveness rating for the strategy, as illustrated in the table below.

		Potential Impact			
		Very High	High	Medium	Low
Feasibility	Very High	Very High	High	Medium	Low
	High	High	High	Medium	Low
	Medium	Medium	Medium	Medium	Low
	Low	Low	Low	Low	Low

Strategies are then classified as Very Effective (very high result), Effective (high result), Potentially Effective (medium result), or Low Efficacy (low result).

Note that it is critical to understand that effectiveness is an attempt to rate strategies with respect to whether they will be successful, ***not whether they are desirable****.* Even a strategy with low efficacy may be desirable for particular reasons (for example, if it requires minimal investment to implement or fills a needed gap in strategy diversification). Effectiveness is an attempt to rate the ability of a strategy to accomplish specific goals in addressing extant threats to natural and human well-being targets. Desirability — the decision whether or not to implement a given strategy — is usually informed by effectiveness, but it is ultimately a value judgement whether or not to move forward with a particular solution.

Strategy Analysis

The grouping of various strategies in this analysis are simply for convenience; while they characterize the primary domain of a strategy, the proposed solutions should not be seen as exclusive to that category as strategies can have considerable overlap among groupings.

Resources

All strategies will require some level of resources to implement – financial, temporal, staffing, and so on. The amount and type necessary to achieve a given strategy will depend on a number of factors, including the specific portfolio of projects to be implemented within a strategy, the ability to capitalize on already available resources, and the formation of strategic partnerships, to name but a few. Assessing the resources necessary to implement particular strategies is an important consideration, but is beyond the scope of the stakeholder inquiry; while the expertise of stakeholders is extensive, even as a group they do not possess an overview of available resources within various partner organizations that may be involved in implementation: state governments, local governments, non-governmental organizations, trade and industry groups, businesses, research institutions, etc.

However, in this analysis Commission staff has attempted to identify strategies that would likely require a great deal of additional resources to implement. The strategies below have a primary goal of obtaining more resources to implement other strategies.

Strategy: More Resources for the Department. Procure more budgetary resources for the California Department of Fish and Wildlife (Department), either directly from the state legislature or through a special program, such as voluntary income tax contributions.

Primary Goals: Increase resources for implementation

Potential Impact: Very High Feasibility: High

Effectiveness: Effective

Reasoning: This strategy is a critical prerequisite for many other strategies and could muster significant resources for the Department to implement strategies.

Primary Mode of Action: Resources Controversy: Low

Strategy: Raise Permit Prices. Raise the cost of importation permits and apply the funds to other strategies.

Primary Goals: Increase resources for implementation

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: Would produce more resources for the Department, but raising importation permit prices substantially while keeping imports economical may not be possible.

Primary Mode of Action: Resources Controversy: Medium

Strategy: Department Grant Program. Establish a new grant program for the Department to disburse funds for various bullfrog and non-native turtle projects.

Primary Goals: Increase resources for implementation

Potential Impact: High Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Could convey resources for innovative and critical projects, but would likely require dedicated funding from the Legislature.

Primary Mode of Action: Resources Controversy: Low

Research

The stakeholder engagement process identified several important knowledge gaps. Many of the informational needs are critical to properly assess the scope of particular issues, the biological dynamics at play and relative risk caused by various ecological threats, and the overall effectiveness of strategies.

Strategy: Research into Release "Inputs." Gain more information about escapees and intentional releases from live markets and pets.

Primary Goals: Research

Potential Impact: Very High Feasibility: Very High

Effectiveness: Very Effective

Reasoning: These are critical knowledge gaps. This research would help resolve many uncertainties about the dynamics at play and the effectiveness of other strategies.

Primary Mode of Action: Informational Controversy: Low

Strategy: Research on Discharge. Gain more information about water used for transport and storage, including disease pathogens, invasive aquatic organisms, and water treatment methods.

Primary Goals: Research

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: The research would fill in knowledge gaps with respect to contaminated runoff water, but contaminated water may not be a very significant threat.

Primary Mode of Action: Informational Controversy: Low

Strategy: Research into Live Food as Vectors for Diseases. Gain more information about the prevalence, epidemiology, and treatment of frog- and turtle-borne diseases in the live markets.

Primary Goals: Research

Potential Impact: Very High Feasibility: Very High

Effectiveness: Very Effective

Reasoning: There has been some research on this topic, but many open questions remain. Answers may help lower the risks of new diseases entering California.

Primary Mode of Action: Informational Controversy: Low

Notes: Chytrid fungus is nearly ubiquitious in California. Ranaviruses have a relatively low prevalence.

Strategy: Research into Population Control Techniques. Gain more information on eradication and control techniques, habitat enhancements to combat bullfrogs and non-native turtles, and other similar environmental interventions.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: High Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Could provide valuable results but would require substantial new resources.

Primary Mode of Action: Informational Controversy: Low

Education and Outreach

All stakeholder groups identified educational campaigns as an important initiative. Potential audiences identified included live market retailers, pet owners and retailers, teachers, aquaculture facilities, and importers; key themes and messages would vary according to the particular audience.

Stakeholders identified several existing educational programs that could be adopted or serve as partners to achieve educational goals. Alternatively, one or more of the programs could serve as models from which to develop proprietary education initiatives.

Other Stakeholder Insights

Stakeholders identified certain religious ceremonies where live animals are released as a potential source of non-native introduction. FGC staff were able to corroborate the practice of releasing fish and potentially invertebrates in California, but not of reptiles or amphibians. Outreach to these communities may help facilitate understanding.

Strategy: Encourage Wild Collection. Promote collection of bullfrogs for personal food usage as an alternative to purchase in live markets.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Medium Feasibility: Very High

Effectiveness: Potentially Effective

Reasoning: Will likely have minimal effect but readily accomplishable.

Primary Mode of Action: Biological Controversy: Low

Strategy: Bullfrogs as Bait. Promote the use of bullfrogs as bait for fishing.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Low Feasibility: Very High

Effectiveness: Low Efficacy

Reasoning: Easy to implement, but likely to have very limited impact.

Primary Mode of Action: Social Controversy: Low

Strategy*: Education Campaign 1 (Live Markets).* Establish a focused, periodic education initiative at live market vendors to instill best practices and reinforce existing regulation.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Curtail risks from diseases and/or introduction of new diseases

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: Focused education campaign could lessen escapees and contaminated water, but effectiveness depends on the actual level of the threat which is currently unknown.

Primary Mode of Action: Educational Controversy: Low

Strategy: Education Campaign 2 (Pets). Establish a sustained education campaign aimed at pet owners, retailers, and other relevant audiences to instill the importance of not releasing animals into the wild. Teach good animal care techniques to lessen the impetus to abandon pets.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: High Feasibility: High

Effectiveness: Effective

Reasoning: Focused education campaign could lessen escapees. Existing good models of this type of campaign exist to build on.

Primary Mode of Action: Educational Controversy: Low

Notes: While it is unclear the extent to which it happens, people do bring wild frogs and turtles home to keep as pets.

Strategy: Education Campaign 3 (All-Encompassing). Establish a comprehensive education campaign, or a series of campaigns, to address many different audiences and issues.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Decrease introduction of new frogs/turtles into environment.

Potential Impact: Very High Feasibility: Very High

Effectiveness: Very Effective

Reasoning: Broad-scale education campaign that would encompass many threat vectors and could significantly affect releases into the wild.

Primary Mode of Action: Educational Controversy: Low

Notes: Clean Drain Dry and Stop AIS (aquatic invasive species) are potential models for good education campaigns. They have had positive impacts.

Habitattitude is a PIJAC partnership with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration with a wide audience including water gardners, students, and teachers. Key messages include: don't release pets into the wild, move things up the consumer timeline, be aware of all that comes into play when owning a pet. It is composed of partnerships with organizations that share the message. It is mostly on the web.

Strategy: Increased Compliance with Animal Release Regulations. Education initiative aimed primarily at reducing intentional releases, including live market, unwanted pets, and other wildlife releases. One potential audience is local and county officials, to encourage the development of local ordinances which may play a role in reinforcing state regulations agaist releases as well.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: These solutions may have significant effects but would be very dependent on the specifics of the educational material and on local interest and cooperation in the case of municipal or county ordinances.

Primary Mode of Action: Educational Controversy: Low

Ecological Restoration

Direct action in the environment will be an important component of any comprehensive solution. Direct action could include strategies such as habitat improvement for native species threatened by non-native turtles and bullfrogs, or localized eradication initiatives; these strategies are typically resource intensive, requiring a great deal of time, planning, and funding to execute properly. However, they have been shown to be successful in many cases.

Strategy: Habitat Improvement. Implement restoration projects to improve conditions for various native species to allow them to deal with the threats posed by bullfrogs and non-native turtles.

Primary Goals: Improve conditions for native species

Potential Impact: High Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: The Department has extensive experience in this activity, but it requires substantial resources to implement.

Primary Mode of Action: Biological Controversy: Low

Notes: Bullfrogs and non-native turtles are prolific in fragmented habitats. Habitat improvements could include creating base habitat conditions that favor native species and disfavor bullfrogs, promoting favorable water temperatures (e.g., colder water), promoting running water, reestablishing food webs, and/or eliminating barriers between native populations.

Strategy: Localized Eradication. In selected circumstances, eradication of bullfrogs has been shown to be achievable (it is unclear whether the same is true for non-native turtles). Other strategies short of eradication, such as invasive population reductions or limited control efforts, have also been shown to be effective at reducing competition and increasing the fitness of native populations.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Very High Feasibility: High

Effectiveness: Effective

Reasoning: The Department has extensive experience in this activity, but it requires substantial resources to implement.

Primary Mode of Action: Biological Controversy: Low

Strategy: Use of Private Land Eradication of Fish. Existing authorities allow the Department to cooperate with private landowners to eradicate invasive and harmful fish, which includes bullfrogs.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: High Feasibility: High

Effectiveness: Effective

Reasoning: Provides flexibility for bullfrog control but regulatory updates may be necessary to include turtles.

Primary Mode of Action: Biological Controversy: Low

Live Markets

Live markets have been identified as an important vector for disease. However, bullfrogs and turtles used for food are a culturally important tradition.

Other Stakeholder Insights

- The practice of eating bullfrogs and certain turtles was identified as an important cultural tradition – particularly for first-generation immigrants. When immigrants attend the markets, they feel comfortable and welcomed.
- Some stakeholders claimed that market leftovers are sometimes sold to the pet trade, where a middleman/broker transfers unsold turtles and/or frogs to pet stores.

Strategy: Ban Sale of Live Bullfrogs. Sale of live bullfrogs would be illegal, but dead bullfrogs could still be sold.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Decrease introduction of new frogs/turtles into environment

Potential Impact: High Feasibility: High

Effectiveness: Effective

Reasoning: Would lower risks of introductions and disease from live markets, but scope of risks are unknown and has cultural implications.

Primary Mode of Action: Social Controversy: High

Notes: Disease risk from frozen bullfrogs is considerably less, and there is less water volume. However, live frogs are preferable from a cultural standpoint. There was concern raised that frozen frogs may be considered inedible or unsafe.

Strategy: Point of Sale Inspections. Department personnel would perform inspections on live markets to ensure compliance with state regulations.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Curtail risks from invasive aquatic species and/or introduction of new invasive aquatic species. Decrease introduction of new frogs/turtles into environment

Potential Impact: Medium Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Could be valuable to detect escapees or poor conditions, but actual frequency of escapees is unknown. Strategy would require substantial new resources for the Department.

Primary Mode of Action: Social Controversy: Medium

Notes: Posters are passed out in and hung in live markets, explaining in native languages that "Releasing live turtles or frogs is prohibited" and listing the CALTIP line for reporting violations. The Department has informed merchants that they must post the signs where live animals are sold for food.

Strategy: Domestic Bullfrog Aquaculture. In the event of a loss of extra-state bullfrog importation (presumably through regulation), domestic aquaculture facilities could establish a market supply.

Primary Goals: Maintain market sales

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: Could allow a domestic supply of frogs that may be better monitored, but would likely be dependent on implementation of an import ban to make it financially feasible.

Primary Mode of Action: Social Controversy: Low

Notes: Bullfrogs are ubiquitous in agriculture currently; they are always caught in on-site nets and are a typical byproduct. Turtles are a very rare occurrence.

Bullfrogs are a minute business consideration. Price per frog would be an important factor in making California bullfrog aquaculture a viable business. But there do not appear to be any regulatory barriers to aquaculture -- bullfrogs can be recognized as a legitimate aquaculture product now.

With respect to disease, initially, bullfrog farms may have the same disease prevalence as the environment, but that may change depending on the culture practices, treatments, etc.

Strategy: Testing and Monitoring Regime. Develop and implement a protocol for sampling animals for sale at live markets for various diseases and/or invasive aquatic organisms.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Curtail risks from invasive aquatic species and/or introduction of new invasive aquatic species

Potential Impact: Medium Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Would be valuable to monitor disease better, but practical potential to stop disease entry is unknown. Strategy would require substantial new resources for the Department.

Primary Mode of Action: Social Controversy: High

Notes: The Taiwan Health Department provides health certifications based on testing a sample of the water where bullfrogs are produced for diseases. There are five primary frog farms that obtain a Taiwanese license to export, mainly to the United States, Southest Asia, and Singapore.
There is generally no intermediate storage. Frogs are shipped directly to markets.

Strategy: Increased Information Collection through Permits. Revise importation permits to gather more information that may be useful, such as: Where are shipments coming from? How many shipments/individuals are you bringing in under this permit? Do you have permission from the source?

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Potential Impact: Low Feasibility: High

Effectiveness: Low Efficacy

Reasoning: Some additional information may be minimally helpful in the case of problems or for general data collection, but it will likely be of limited use.

Primary Mode of Action: Social Controversy: Low

Pets and Bullfrog Contests

Bullfrogs and turtles being kept as pets, in homes and classrooms, can pose several threats to California's environment, including release of unwanted animals. However, pets also provide companionship and can help people to appreciate wildlife.

Strategy: Promotion of Programs for Unwanted Animals. Implement and support places, such as sanctuaries, for unwanted pets to be taken and kept when they are unwanted. Also includes "rehoming" organizations.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: Low Feasibility: Medium

Effectiveness: Low Efficacy

Reasoning: Similar programs exist but have limited capacity and effectiveness.

Primary Mode of Action: Social Controversy: Low

Strategy: Dispatching Bullfrogs in Contests. In jumping frog contests, terminate all bullfrogs that are not being kept by contestants.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: High Feasibility: Very High

Effectiveness: Effective

Reasoning: Bullfrogs being let loose or escaping from contests could be a significant source of bullfrogs entering the environment. Would likely raise significant controversy.

Primary Mode of Action: Social Controversy: High

Strategy: Ban Frog Jumping Contests. Frog jumping contests would be outlawed through regulation.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: High Feasibility: Low

Effectiveness: Low Efficacy

Reasoning: May stop a significant source of bullfrog introductions into the environment. Would be controversial, as contests provide significant enjoyment and economic benefits, and would require changes to the California Fish and Game Code.

Primary Mode of Action: Social Controversy: High

Strategy: Contest Monitoring/Enforcement. Deploy monitors to jumping frog contests to help guard against escapees and ensure compliance with state regulations.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: Medium Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Would require increased resources for implementation. Magnitude of impact is unclear but could be significant.

Primary Mode of Action: Social Controversy: Medium

Notes: Frogs can be bought from authorized sellers, caught in the wild, or rented. Rented frogs are likely collected and then released (staff has not yet confirmed this statement). Events have a minimum size limit to avoid other non-native frogs.

Strategy: Encourage/Allow Use of Other Species with Lesser Effects. Disallow or discourage the use of bullfrogs in jumping contests, in favor of utilizing other species.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Medium Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: May curtail a significant source of bullfrog releases, but also may encourage the use of native species which may cause problems for those species. Bullfrogs are generally seen as the leading animal for jumping contests.

Primary Mode of Action: Social Controversy: High

Regulatory Actions

The Commission promulgates regulations concerning wildlife in the State of California, consistent with the California Fish and Game Code. Stakeholders offered many strategies that would require legislative and/or regulatory changes to implement. Evaluating the effectiveness of these strategies necessarily involved the likelihood of rule changes actually being implemented; particularly in the case of legislative changes, this involved a value judgement.

Other Stakeholder Insights

- There is some risk in implementing strategies to combat use of a particular species, because users may switch to using another species. Some stakeholders emphasized a broad-brush approach which would instantiate a precautionary principle, while others favored a narrowly-tailored tactic which considers the environmental risk that could be anticipated by each species.
- Stakeholders raised the prospect of a bullfrog bounty, but raised concerns about creating a market; it could lead to cultivation and widespread non-target collection. Bounties were ultimately rejected as a viable strategy.

- Local municipalities can play an important role in non-native species control. The city of Santa Cruz enacted a ban on the sale and collection of bullfrogs in Santa Cruz. There is no specific mechanism for enforcement; enforcement is largely complaint driven. Santa Cruz has conducted outreach to pet stores. While the impacts on local frog populations may not be readily apparent, success is difficult to appraise in the absence of a concerted monitoring effort. Effectiveness may be greatly increased if a cluster of geographically proximate localities were to enact similar restrictions.

Strategy: Water & Reservoir Management. Encourage municipalities to enact ordinances to protect against bullfrogs and non-native turtles, and to manage their water features to enhance suitability for native species.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: Effective implementation will depend on local government ability and willingness to implement measures to control bullfrogs/turtles.

Primary Mode of Action: Biological Controversy: Medium

Notes: Potential impact could be high in some cases, where ponds/reservoirs are a primary source for many of the bullfrogs an area.

Strategy: Ban Bullfrog Imports. Enaction of a complete ban on any bullfrogs or bullfrog parts, living or dead, shipped from any source outside of California.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Potential Impact: High Feasibility: High

Effectiveness: Effective

Reasoning: Would lower risks of new disease establishment. Would stop sales of bullfrogs unless domestic sources were established.

Primary Mode of Action: Social Controversy: High

Notes: Long-term importation permits stopped around 2005. Only standard importation permits are issued currently (i.e., container by container).

There are few small importers left in the state – they would be hurt by a ban. Suppliers may not be able to switch to in-state sources, even if those sources were established. Turtle prices may increase, leading to a black market. A ban may encourage importation of unregulated animals.

Strategy: Develop Commercial Harvesting. Allow and develop a market for the commercial harvest of bullfrogs and/or non-native turtles, to supplement (or supply, in the case of some type of import ban) animals for the live markets.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: May significantly reduce the number of bullfrogs in the environment, but also may establish desires for a non-native species, including illicit raising of frogs for sale.

Primary Mode of Action: Social Controversy: Medium

Notes**:** Will encouraging commercial harvest promote or create an incentive to maintain bullfrogs in the environment?

Strategy: Add Non-Native Turtles to Restricted Species List. Promulgate a regulation to make it unlawful to import, transport, possess, or release alive selected non-native turtle species under normal circumstances.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Decrease introduction of new frogs/turtles into environment.

Potential Impact: High Feasibility: Low

Effectiveness: Low Efficacy

Reasoning: Effectively eliminates use of non-native turtles completely. Posession restrictions could cause complications.

Primary Mode of Action: Social Controversy: High

Strategy: Add Bullfrogs to Restricted Species List. Promulgate a regulation to make it unlawful to import, transport, possess, or release alive bullfrogs under normal circumstances.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Decrease introduction of new frogs/turtles into environment

Potential Impact: High Feasibility: Low

Effectiveness: Low Efficacy

Reasoning: Effectively eliminates use of bullfrogs completely. Posession restrictions could cause complications.

Primary Mode of Action: Social Controversy: High

Strategy: Prevent Water Contamination. Implement water treatment to prevent disease and/or invasive aquatic organisms from entering the environment. Could be required for any or all of import shipments, pet stores, market facilities, water from frogs or turtles in homes, and classrooms.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Curtail risks from invasive aquatic species and/or introduction of new invasive aquatic species.

Potential Impact: Medium Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Most water likely goes down a municipal drain and receives standard water treatment, but that may or may not be completely effective. A regulation may prevent the introduction of new diseases or new strains of extant diseases. There are readily available, inexpensive, effective treatments that are easy to use.

Primary Mode of Action: Social Controversy: Low

Enforcement Actions

Stakeholders generally agree that bullfrog- and turtle-related enforcement actions are not predominant in California. There are differing opinions on whether increased enforcement is necessary, where those actions should focus, how to accomplish obtaining more resources for the Department's enforcement efforts, and how effective increased enforcement actions would be in alleviating some of the threats to California's native wildlife.

Strategy: Ensure Shipments are Lawfully Obtained. Perform inspections to ensure that shipments have a valid chain-of-custody, valid health certificates when necessary, and other documentation as needed.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Potential Impact: Medium Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Current law, would require more resources for implementation and uncertain impact.

Primary Mode of Action: Social Controversy: Low

Notes: Importers obtain two primary certifications; one from the Taiwanese Health Department indicating the bullfrogs are free from diseases, and another from the Taiwanese Department of Commerce attesting to the legitimacy of the company.
Most imported turtles are originally collected from the wild. Shipments get documentation that the exporter is legal, but there are no health or safety documents.

Strategy: Inspect Shipments for Illegal Imports/Mixing Species. Imported shipments would be subject to spot testing and/or inspections for diseases and invasive aquatic organisms.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Curtail risks from invasive aquatic species and/or introduction of new invasive aquatic species.

Potential Impact: Medium Feasibility: Medium

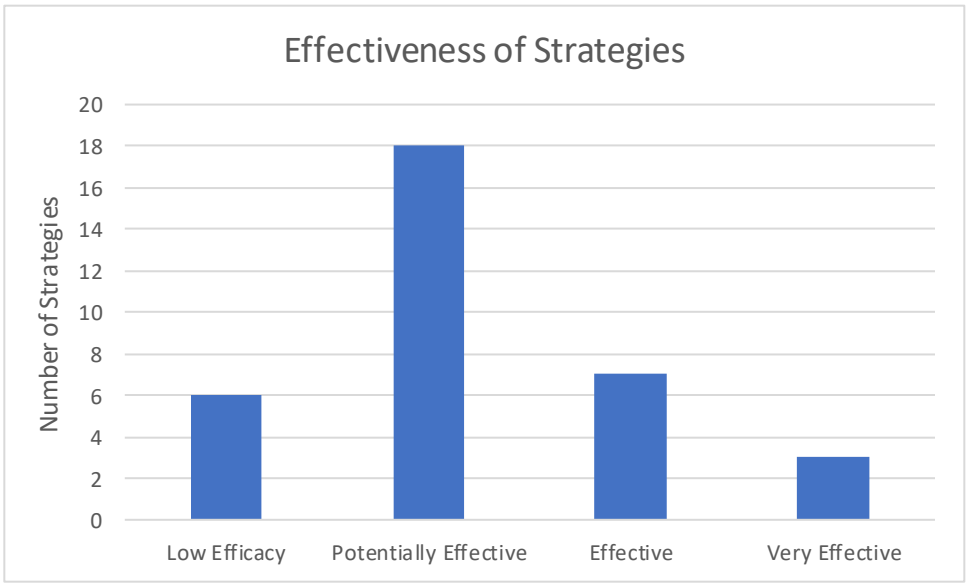
Effectiveness: Potentially Effective

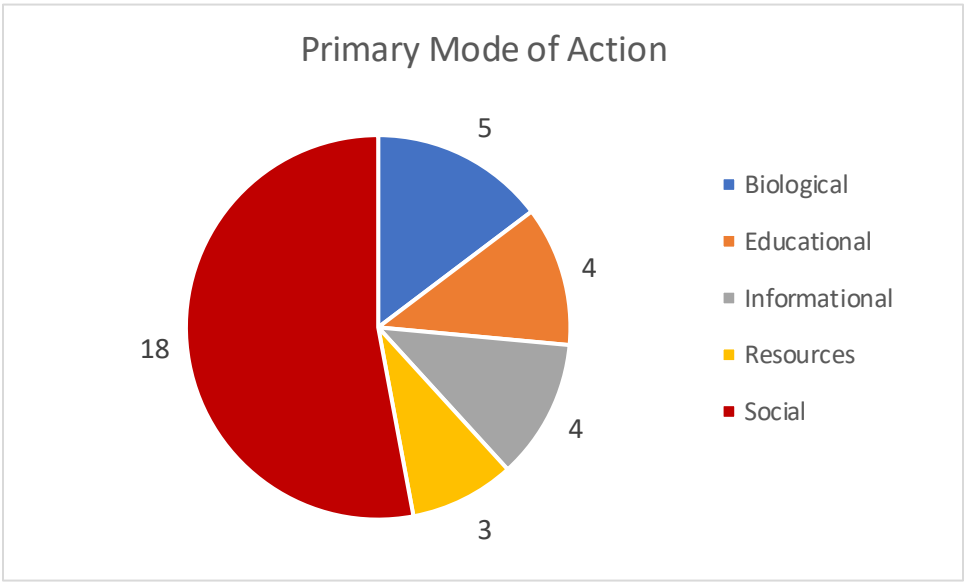
Reasoning: Would be valuable to detect problems in shipments, but actual prevalence of such import issues is unknown. Strategy would require substantial new resources for the Department.

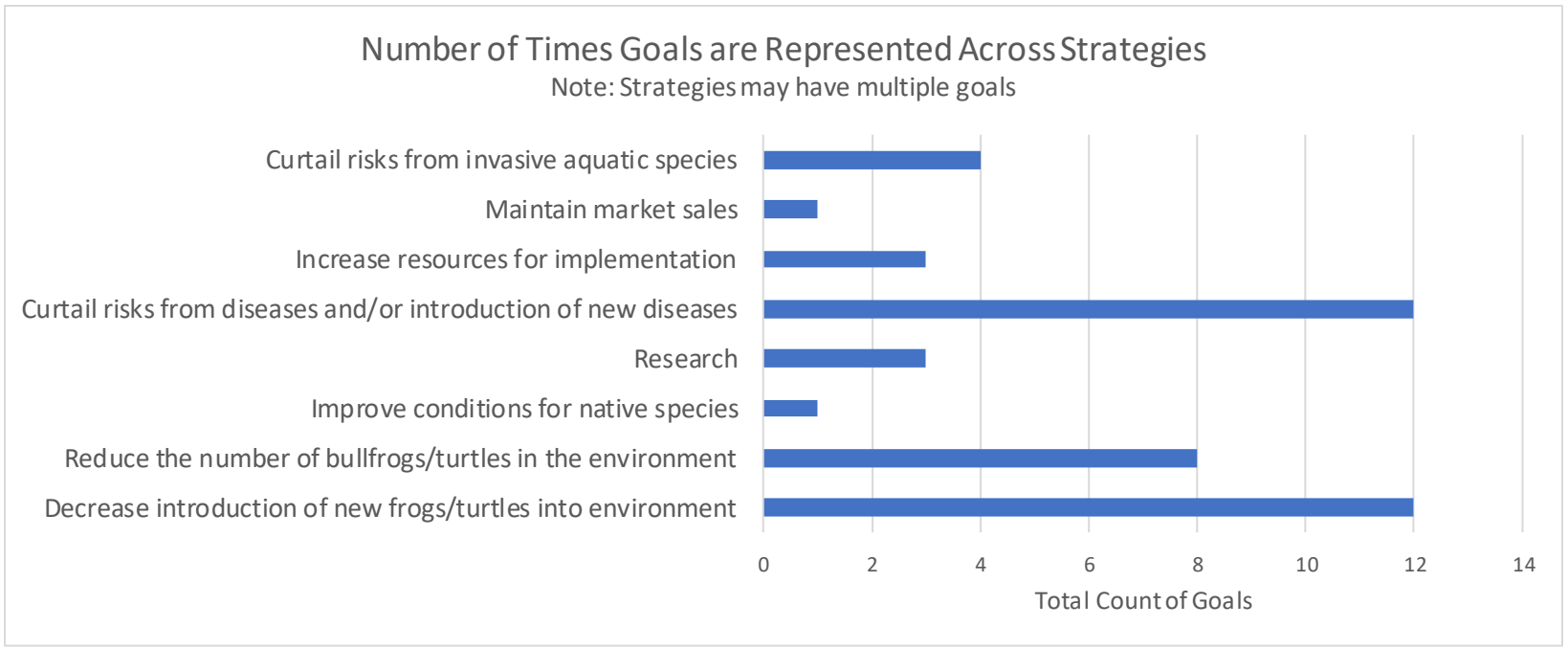
Primary Mode of Action: Social Controversy: Low

Notes: Turtles are imported from a number of small and large sources, but most are from commercial facilities in Louisiana or Arkansas. The health standards for imports rest largely on the reguations (and thoroughness of regulatory enforcement) from the originating state.

Selected Summary Analyses of Strategies







Tracking Number: (2021-017)

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: Dan Ryan
Address:
Telephone number:
Email address:

2. Rulemaking Authority (Required) - Reference to the statutory or constitutional authority of the Commission to take the action requested: Sections 200, 203, 265, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code. Also see attached for more details

3. Overview (Required) - Summarize the proposed changes to regulations: See Attached. I was a part of an R# subcommittee with the department where we looked at creative ways to change the licensing system. Adding change to the big Game structure was one topic discussed but not finalized. I have been working with Department staff on new ideas for solving problems with the Big Game draw as well as providing additional opportunity for hunters. The Department needs to be adaptable and flexible. In the attachment I have provided a number of Big Game changes including new hunts and seasons. I am not asking that we try and implement all in 2022 however I would like to start the discussion and have a phased approach.

4. Rationale (Required) - Describe the problem and the reason for the proposed change:
Though the department has seen a decline in hunting license sales it has seen a substantial increase in hunter participation/demand in big game tags. To better serve the outdoor enthusiast in the state as well as provide additional opportunity with no incremental increase in harvest the department must adapt and make changes.

Why is this important?

- Millions of dollars are generated through the Big Game application and tag system. This system should evolve to meet demands and increase opportunity, or it will be at risk of losing participation. From 2014 to 2020 there has

been over 17,500 additional applications, this is a substantial amount of money and interest generated. It would not make sense to not try and adapt to the increase.

- CDFW needs to manage Big Game herds and hunters in a flexible manner. Not making adjustments on an annual or bi-annual basis is not effective, nor is that method of active management in responding to changing resource conditions/hunter preferences.
- The Big Game opportunities are stagnant and have not changed or been modified (other than annual season dates and tag allocations) for years. Stagnant environments tend to lead to decreased participation and missed opportunities for improvement.
- Other states such as Idaho, Nevada, Arizona and Wyoming are constantly adding opportunities based on biological resources and hunter demand and have been successful. The results speak for themselves and this approach has been proven to work.
- Big Game hunters as a whole are incredibly frustrated with the preference point system and the number of years it takes to draw a "premium hunt".
- Simply changing dates or adding a few premium hunts in general zones can increase draw odds and spread the point pool of applicants.
- Builds rapport with hunters and CDFW. Adds to the benefit of active management and responsiveness of the department to hunters.
- By spreading the already allocated tags to new hunts, this method should result in little change to overall harvest.

SECTION II: Optional Information

5. Date of Petition: 8/30/2021

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): Sections 200, 203, 265, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code. Also see attached for more details
X Add New Title 14 Section(s): Sections 200, 203, 265, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code. Also see attached for more details
☐ 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: The 2022 changes should be voted on in December in order for implementation to occur.

10. Supporting documentation: Identify and attach to the petition any information supporting the proposal including data, reports and other documents: Attached proposal showing justification and work with CDFW, partners and members of the public.

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: All of these changes have direct and indirect impacts with communities, individuals, businesses, jobs and the department. They would generate additional revenue for the department as well as increase customer satisfaction.

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: [9/02/21]

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: [10/14/21 receive, 12/15-16/21 action]

FGC action:

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

Petition for Big Game Hunt changes

Submitted By: Dan Ryan

Coordination with:
CDFW:
Brian Ehler
Nathan Graveline
Mark Abrahm
Lassen Fish and Game Commission

NGO:
Dale McDougal- California Deer Association
Kevin Vella- National Wild Turkey Federation

Public:
Over 15 members of the public have been apart of review and compilation of ideas going into this proposal.

Background:

I was a subcommittee leader for the 2019 R3 effort focusing on the Licensing restructuring. During this process our subcommittee generated creative ideas to simplify the licensing system and restructure some of the Big Game opportunities that have not been modified for decades.

Big Game opportunities are regulated through tag issuance. These tags are broken down throughout the state by locality, species, sex, time of year, method of take and whether its available for adults or apprentice (youth under 16). These tags/opportunities are allocated through the CDFW's online system where a user can purchase a hunting and fishing license as well as apply for tags.

Though the department has seen a decline in hunting license sales it has seen a substantial increase in hunter participation/demand in big game tags. To better serve the outdoor enthusiast in the state as well as provide additional opportunity with no incremental increase in harvest the department must adapt and make changes.

State	2014 Total Deer Applications	2019 Total Deer Applications	2020 Total Deer Applications
CA	71,810	81,513	89,403
*Estimates based on CDFW available data.			

What other states are doing:

This increase in demand is not unique to CA. All of the western states have seen substantial increases in the number of applicants entering the tag draws or purchasing tags. Nevada, Idaho and California are some that have seen the most substantial increases. Nevada and Idaho are looking of creative ways to provide additional opportunities without increasing harvest or negatively impacting big game populations long term. Changes are needed to reduce the increased frustration with the system as well

as ultimately not losing hunters/applicants in the future; the same hunters that will fund and advocate for conservation of our wildlife resources in the future.

Idaho adds, modifies, and removes big game tags/opportunities every season setting period (two years) based on local biologist recommendations and public input. This has allowed new hunts, season dates and opportunities to be provided and has in turn spread applications out based on hunter interest and changes in populations. Applicants are allowed one deer tag with an option to purchase second tags when available at a certain date or if tags are turned back by hunters that cannot participate in the hunt.

Nevada recently has seen a substantial increase in applicants in the past 5 years, they in turn have been implementing creative solutions for providing additional opportunity. Example: Starting in 2021, they are re-issuing tags that are turned back 30 days and less to hunters willing to go. This means if a tag is turned back the day before the season, they will work to reissue those, even if it happens during the season. It provides increased opportunity for hunters.

Why is this important?

- Millions of dollars are generated through the Big Game application and tag system. This system should evolve to meet demands and increase opportunity, or it will be at risk of losing participation. From 2014 to 2020 there has been over 17,500 additional applications, this is a substantial amount of money and interest generated. It would not make sense to not try and adapt to the increase.
- CDFW needs to manage Big Game herds and hunters in a flexible manner. Not making adjustments on an annual or bi-annual basis is not effective, nor is that method of active management in responding to changing resource conditions/hunter preferences.
- The Big Game opportunities are stagnant and have not changed or been modified (other than annual season dates and tag allocations) for years. Stagnant environments tend to lead to decreased participation and missed opportunities for improvement.
- Other states such as Idaho, Nevada, Arizona and Wyoming are constantly adding opportunities based on biological resources and hunter demand and have been successful. The results speak for themselves and this approach has been proven to work.
- Big Game hunters as a whole are incredibly frustrated with the preference point system and the number of years it takes to draw a "premium hunt".
- Simply changing dates or adding a few premium hunts in general zones can increase draw odds and spread the point pool of applicants.
- Builds rapport with hunters and CDFW. Adds to the benefit of active management and responsiveness of the department to hunters.
- By spreading the already allocated tags to new hunts, this method should result in little change to overall harvest.

Increased harvest from "late" hunts

- There would be higher success in some of the proposed hunts below which occur during the "rut" breeding season. If tags and harvest is modeled and tag allocations are spread between hunts there would not likely be an increase in take in the zones.
- Reducing general tags to accommodate increase in higher success hunts would be easily done and allow for not net increase harvest.

Proposals

While there are many potential proposals, we would like to move the following forward some of the following for consideration for the 2022 Big Game hunting season**. A table is also provided of a proposed roll out in order to alleviate large workload of implementing multiple changes in one season.**

General

Party Applications Return Tags Rule

Current rule:

To return an elk, pronghorn, or bighorn sheep tag, you must mail the tag along with a written request for your preference points to be reinstated. The tag and request must be postmarked before the earliest date that the tag is valid for hunting. If approved, tag will be refunded (minus the 2021 nonrefundable processing fee of $31.93) and your preference points will be reinstated, plus one preference point for the species for the current license year (CCR T14-708.14(k)). To return a premium deer hunt tag, you must mail the tag along with a written request for your preference points to be reinstated. The tag must be postmarked before the earliest date the tag is valid for hunting. If the request is approved, your preference points will be reinstated, plus one preference point for deer for the current license year (CCR T14-708.14(j)). Premium deer hunt tags cannot be exchanged and are nonrefundable.

Proposed Change: Add Language

A person surrendering a tag awarded through a group application is eligible for the following:
(a) if all group members surrender their permits more than XX days before the start of the season for which the permit is valid, all group members may:
(i) have previously acquired preference points reinstated plus one for that years application period;
(ii) applicants may be eligible for a refund consistent with Section XXXX;
Notwithstanding the limitations in this section, a person who obtains a permit through a group application may surrender that permit after the opening date of the applicable hunting season and have previously acquired bonus points or preference points for the permit species restored, provided the person:
(a) is a member of United States Armed Forces or public health or public safety organization and is deployed or mobilized in the interest of national defense or national emergency;
(b) surrenders the permit to the department, with the tag attached and intact, or signs an affidavit verifying the permit is no longer in their possession within one year of the end of hunting season authorized by the permit; and
(c) satisfies the requirements for receiving a refund in Subsections R657-42-5(3)(c) and (d).

What does this prevent? Many in the hunting community refer to this as the "Grandma Rule" and it is utilized to circumvent the draw system. Example: John Doe has 0 points and his grandma has 12 points. They apply as a party for deer and have an average of 6 points (0+12/2). They are successful drawing X4. John Doe plans on hunting while Grandma returns tag and request for points to be reinstated. CDFW reinstates points she now has 13 points and John Doe has zero and goes on the hunt. John Doe can then apply with Grandma next year and split 13 points….This can be done over and over again allowing John to get tags year after year using grandmas points.

Party hunt members in a group application are able to return their party tag to the Department but will not receive a refund or Preference points unless all members of that party also return their tags to the Department.

Pro: Prevents the draw system from being circumvented, increases draw odds, creates fairness.
Con: Additional programming and workload to track.

Who else Does this? Nevada Department of Wildlife implemented this in 2020, Utah implemented in early 2000's.

Returned Tag Reissuance

Current Rule:

Hunters who have been issued a premium deer, elk, antelope, or a Bighorn sheep tag and cannot hunt may return their unused tag to the license and revenue branch by mail before opening day of the hunt. To return one of these tags, you must mail the unused tag along with a written request for your preference points to be reinstated postmarked before the earliest date that the tag is valid. If approved, the tag will be refunded, minus a processing fee, and your points reinstated, plus one for the current year. These tags are then issued to alternates. If tag is not accepted by the alternative the tag goes unused.

Proposed Change:

Elk, Sheep, Premium deer, and antelope tags returned by successful tagholders would be issued to alternates. If the tag is not accepted by the alternates then the tag would be made available and can be purchased online on a first-come first-serve basis. Tags that have seasons that have already started would still be available for those willing to accept the shorter timeframe and planning. Those who receive tags in this manner would forfeit preference points.

Pro: Tags have a less likely chance of going unused. Additional opportunity for unsuccessful hunters. Additional sales.

Cons: Additional work, online programming, and overhead cost.

Second Bear Tag Option

Current Rule:
Qualified individuals may purchase one bear tag per year. Tag quota, must cease hunting if bear harvest reaches quota.

Proposed Change:
Successful bear hunters upon completion of harvest report and CDFW validation may purchase a second Bear tag at $XX.XX. ***Potential addition: If bear harvest reaches 80% of quota no second tags would be issued.

Pro: Increases opportunity, sales, revenue, bear harvest.

Con: Additional work, could reach quota faster, preventing people with one bear tag to lose opportunity- Low probability since bear harvest have not reach quota since 2012.

General Deer Tag Archery/Rifle Separation

Background:

General A, B, D zones tags allow hunters to hunt during the general archery and general rifle seasons. There are three sets of hunters that utilize these tags:

1. Archery only hunters- Hunters that only participate in the archery season
2. Rifle only hunters- Hunters that only participate in the rifle season.
3. Combo Hunters- Hunters that participate in both archery and general seasons.

Problem:

- Wildland fires have closed public lands during the months of July through October. This has created a hardship for many of the hunters listed above as well as additional work for CDFW on returned tags.
- Many rifle hunters (#2) have been extremely upset since they cannot turn tags since the closures have happened after the archery season has already started.
- Archery hunters (#1) are upset that they are missing hunting opportunity with the early season being impacted.

Proposed Change

1. General A, B, D zones tags are only valid for the General rifle seasons.
2. Propose adding an additional date(s) to the Current AO (Archery Only) tag for each zone.

Example:

Hunters who purchase and Archery Only (AO) tag may hunt an additional 9* days starting the following day after the rifle season in that zone closes. *Days can be shorter

Zone D6 Example:

- General Rifle Tag Season- September 18 through October 31, 2021
- General AO Tag Season for D6- August 21 through September 12, 2021 & November 1-7
- Tag allocation: TBD

Pro

- Additional opportunity for Archery hunters.
- Additional opportunity for Archery hunters whose season was closed due to wildfire
- Allows general rifle only hunters to turn tags bag later since the season has not started.

Cons

- Combo hunters lose opportunity.
- Difficult to track/Confusing initial release to public.

***Propose doing this as a test in all zones or just some zones.

General Premium Zones

Proposed Change

Split rifle C Zones

Currently the C zones are lumped into one zone (C1-4). The zones currently have separate seasons established. While hunting occurs in all zones, C4 has the highest concentrations of hunters.

Current Tags

- C1-4- 8,150 tags

Proposed Tags- *Would be based on CDFW data.

- C1-1,766
- C2-1,766
- C3-1,766
- C4-2,852

Pros- C Zone tags are becoming harder to draw and if they were split it would allow hunters who want easier draw odds to look at the less popular zones such as C1-3. Spread applicants across zones, reduces hunter congestion and gives biologists better harvest data.

Cons- Reduces hunter flexibility by having to choose zone up front.

Split Zones X3b

This zone is highly sought after and very large. There are high concentrations of use in specific portions of this zone leaving many portions of the unit not hunted or with low use. The zone has main roads that travers West to East through the Zone and could be used to split the zone into two. This would not result in a tag allocation increase but splits them based on population estimates.

Current Tag Allocations

- X3B-499

X3B North- Keep existing Northern, West and East Boundaries, however, change the southern boundary to Hwy 299**.** 220 tags

X3b South- Keep existing Southern, West and East Boundaries, however, change the Northern boundary to Hwy 299. 279 tags

Pros- Spreads draw applications. Adds two additional options for hunters to apply for therefore spreading the applications and cumulatively reducing preference point needed to draw other hunts.

Cons- Reduces tags in size and tag allocation in main unit. Reduces hunter's flexibility.

General Methods

Proposed Changes

1. **G40- A Zone North Late Rifle Tag**- 15-35 tags, Starts the following Saturday after A zone rifle and runs for 9 consecutive days. Tag is good for all public and private lands within the A North Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone.
2. **G41- A Zone South Late Rifle Tag** - 15-35 tags, Starts the following Saturday after A zone rifle and run for 9 consecutive days. Tag is good for all public and private lands within the A South Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone.
3. **G42- Snow Mountain Wilderness Early Rifle**- 5-15 tags, Starts the last Wednesday in July and runs for 5 consecutive days. Tag is good for all public and private lands within the B1 & B3 zone within the Snow Mountain Wilderness. This tag allocation can be removed from the general 35,000 tags that are allocated for B zone. Adds a unique opportunity for backcountry rifle hunters. Other states like Wyoming and Colorado have these same hunts.
4. **G43- Late Season Buck Hunt in d6**- 20-50 tags, Starts the first Saturday in November and runs for 5 consecutive days. Tag is good for all public and private lands within the D6 Zone. This tag allocation can be removed from the general 10,000 tags that are allocated for D6 zone.
5. **G44- Late Season Buck Hunt in d7**-20-50 tags, Starts the first Saturday in November and runs for 5 consecutive days. Tag is good for all public and private lands within the D7 Zone. This tag allocation can be removed from the general 9,000 tags that are allocated for D7 zone.

Muzzleloader

Proposed Changes

1. **M8- Bass Hill Boundary Change**- Allow hunters access to all of the X6a zone. Current M8 zone boundary is the Lassen County portion of X6A. There was no management reasoning for this. Originally the boundary was set for weather access and location of majority of the deer.
2. **M13- D3 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
3. **M14- D4 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
4. **M15- D5 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
5. **M16- Jackson State Forest Muzzleloader Buck Hunt**- 10-20 tags- Start the third Saturday in October and run for 9 consecutive days. Falls within the boundaries of the Jackson State forest in A Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone. Oregon has numerous late season blacktail hunts in dense forested zones. This could be similar.

Archery

Proposed Changes

Split Archery C Zones

Currently the C zones are lumped into one zone (C1-4). The zones currently have separate seasons established. While hunting occurs in all zones, C4 has the highest concentrations of hunters.

Current Tags

- C1-4- 1,945 tags,

Proposed Tags- Would be based on CDFW data.

- C1-400
- C2-400
- C3-400
- C4-745

Pros- C Zone tags are becoming harder to draw and if they were split it would allow hunters who want easier draw odds to look at the less popular zones such as C1-3. Spread applicants across zones. Give biologist better harvest data.

Cons- Reduces hunter flexibility by having to choose zone up front.

New Hunts

1. **A26- Bass Hill Late Archery Boundary Change**- Allow hunters access to all of the X6a zone. Current A26 zone boundary is the Lassen County portion of X6A. There was no management reasoning for this. Originally the boundary was set for weather access and location of majority of the deer.
2. **A34- King Range Late Archery Buck**- 10-20 tags. Runs the last Saturday in October and runs for 9 consecutive days. Hunt falls within B4 zone. Can hunt private and public lands within the B4 zone. This tag allocation can be removed from the general 35,000 tags that are allocated for B zone. Oregon has numerous late season blacktail hunts in dense forested zones. This could be similar.
3. **A36- Late Archery buck in C1-C3**- 15-35 tags, Starts the following Saturday after C3 rifle (latest date) and runs for 14 consecutive days. Tag is good for all public and private lands within the C1-C3 Zones. This tag allocation can be removed from the 12,870 tags that are allocated for C1-4 zones (includes rifle, general, archery and apprentice).

Apprentice

Proposed Changes

New Hunts

- **J23-Honey Lake Wildlife Area Early buck Rifle Hunt**- 5-10 tags. Apprentice can hunt on CDFW lands (Dakin & Fleming) wildlife areas. Starting the First Saturday in August and runs for 9 consecutive days. This tag allocation can be removed from the tags that are allocated for X6a.
- **J24- Late Season X4 hunt-** 10-20 tags. Start the First Saturday in November and runs for 9 consecutive days. This tag allocation can be removed from the 599 tags that are allocated for X4 zone.

Elk

Proposed Changes

Change Antlerless hunts in Marble Mountains and Siskiyou units. Increases hunter pressure during Bull hunts creates many hunter conflicts during the hunts and a poor hunt experience. Cow Elk opportunity is generally better in the late fall. Northeastern Elk Zone made this exact change a few years ago. Hunting cows during the breeding seasons could affect breeding patterns.

- Hunt Code 301- Marble Mountain Antlerless- ~~September 8-19~~ October 2-10 or later.
- Hunt Code 401- Siskiyou Antlerless- ~~September 8-19~~ October 2-10 or later.

Archery Opportunity- Provide an additional Archery opportunity for Tule Elk

- Grizzly Island Period 1 Either Sex- August 7-9

Non-resident opportunity

- Many non-residents do not participate in the Big Game Draw due to the fact that there is only One tag available for Elk and Antelope and 10% allocated for Sheep. The 10% rule should be for all three species. This would drive more non-resident applications while not impacting resident odds dramatically.

Alternate Back-up Dates or longer seasons

- If Public lands are closed due to wildfire tagholders would be allowed to utilize their tags during the current season or during another date later in the year
- Example1- Marble Mountains Elk Tags- September 8-19- USFS is closed, tagholders can turn their tag back or hunt for 2-3 weeks in October or November***TBD by CDFW staff
- Example 2- Siskiyou Elk Tag Dates- September 8 through November 30. Longer season allows for more opportunity as well as better success to meet Elk population objectives.

Bighorn Sheep

Add 2-4 tags allocated for Archery and Muzzleloader hunts Zone wide (Zones 1, 3, 10). These could also be conducted outside of the general season to reduce congestion.

- Currently the state has ranges with excess sheep. Once Sheep herds reach a certain population, they become more susceptible to disease. Removing excess sheep in higher population units would assist in reducing likelihood of disease.
- The 2019 ED that was completed by the department allowed for the cdfw to allocate additional tags for specific units. Some of these units are at the max of their allocations however other are not.
- Archery and muzzleloader is a more difficult method of take and offering up to 4 more tags could result in 100% take however it is unlikely.
- As shown in the below table, many of the units have 100's of sheep and would justify additional harvest.

Appendix 5: Desert Bighorn Sheep Surveys

Zone	Year	Survey Type	Number of Lambs	Number of Ewes	Number of Rams	Number of Unclassified	Total Counted
Marble Mountains & Clipper Mountains	2007	Helicopter	12	84	46	0	142
	2009	Helicopter	34	88	65	0	187
	2015	Helicopter	8	48	23	5	84
	2016	Ground	42	73	35	2	152
	2018	Ground	18	78	35	1	132
	2007	Helicopter	0	8	11	0	19
	2009	Helicopter	4	13	16	0	33
	2015	Helicopter	4	20	22	0	46
Clark Mountain Kingston Range	2007	Helicopter	0	31	18	0	49
	2009	Helicopter	0	12	8	0	20
	2015	Helicopter	0	1	3	0	4
	2016	Helicopter	1	31	13	5	50
	2007	Helicopter	3	27	21	0	51
	2009	Helicopter	6	33	20	0	59
	2015	Helicopter	9	25	14	0	48
	2016	Helicopter	3	31	19	2	55
	2018	Helicopter	5	80	34	0	119
White Mountains	2008	Helicopter	16	59	52	0	127
	2009	Helicopter	16	60	29	2	107
	2015	Ground	46	69	82	20	217
	2016	Ground	26	43	9	22	100
	2018	Ground	36	124	62	1	223
Cady Mountains	2007	Helicopter	12	59	38	0	109
	2009	Helicopter	37	92	38	0	167
	2010	Helicopter	23	102	49	0	174
	2018	Helicopter	8	58	27	0	93
Newberry, Rodman and Ord Mountains	2016	Helicopter	49	70	52	0	171
	2018	Helicopter	35	95	72	0	202

Proposal Table

2022 Implementation

2023 Implementation

2024 Implementation

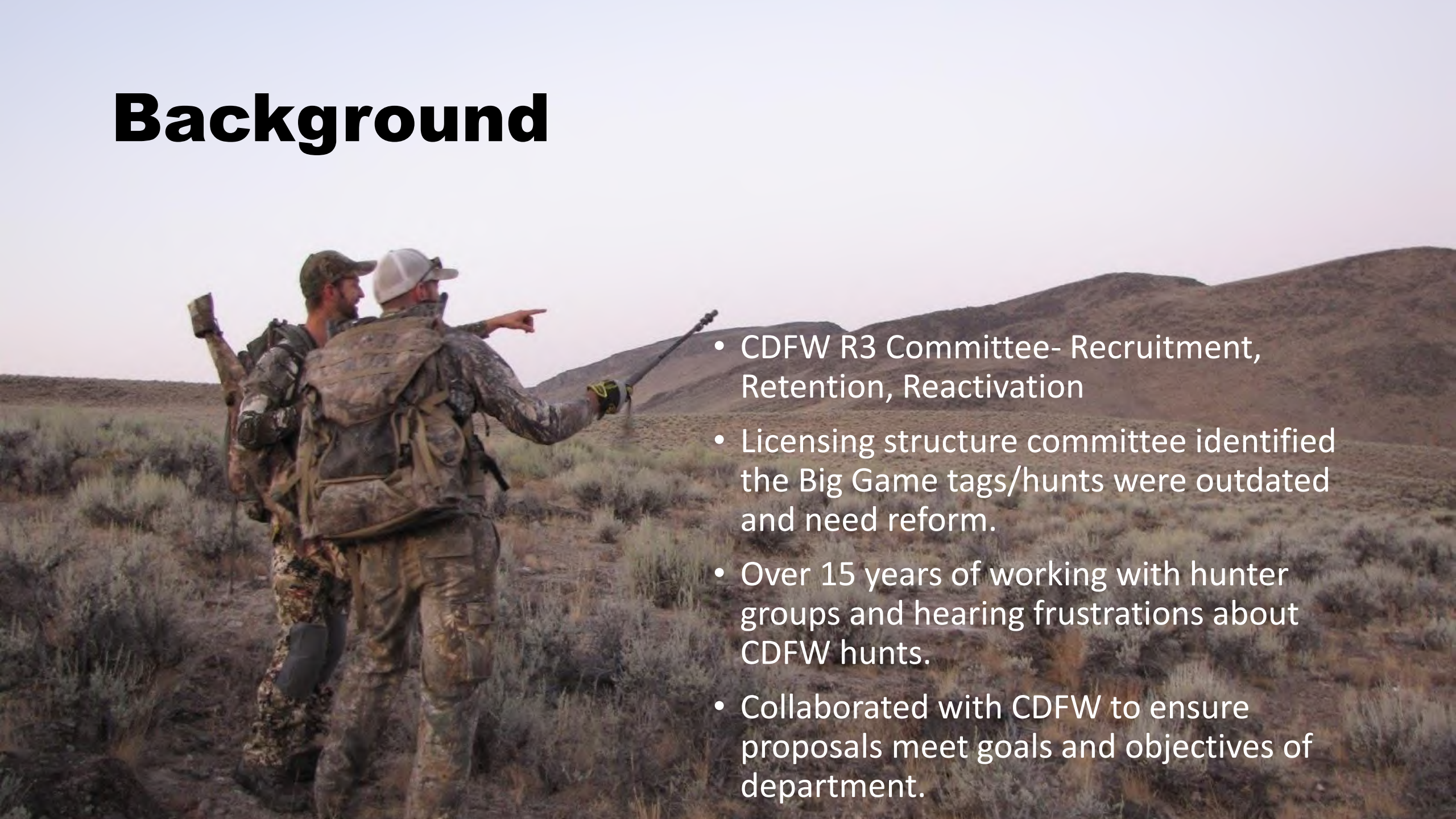
Proposal Number (not in ranking order)	Proposal Name	Page Reference	Year Implemented
1	Party Application Rule	4	2022
2	Tag reissuance	5	2023
3	2nd Bear Tag	6	2022
4	General Rifle/Archery Deer tag separation	7	2023
5	Split C Zone General	8	2022
6	Split X3b	8	2023
7	G40- A Zone North Late Rifle Tag	10	2023
8	G41- A Zone South Late Rifle Tag	10	2023
9	G42- Snow Mountain Wilderness Early Rifle	10	2024
10	G43- Late Season Buck Hunt in d6	10	2023
11	G44- Late Season Buck Hunt in d7	10	2023
12	M8- Bass Hill Muzzleloader Boundary Change	11	2022
13	M13- D3 Late Muzzleloader Hunt	11	2022
14	M14- D4 Late Muzzleloader Hunt	11	2022
15	M15- D5 Late Muzzleloader Hunt	11	2022
16	M16- Jackson State Forest Muzzleloader Buck Hunt	11	2024
17	A26- Bass Hill Late Archery Boundary Change	12	2022
18	Split Archery (A1) C Zones	12	2022
19	A34- King Range Late Archery Buck	12	2023
20	A36- Late Archery buck in C1-C3	12	2022
21	J23-Honey Lake Wildlife Area Early buck Rifle Hunt	13	2022

22	J24- Late Season X4 hunt	13	2023
23	Marble & Siskiyou Antlerless Date Change	14	2022
24	Archery Grizzly Island Bull	14	2024
25	Alternate Elk dates for potential closures	14	2022
26	Archery BHS opportunity	15	2024

2022 Big Game Proposals

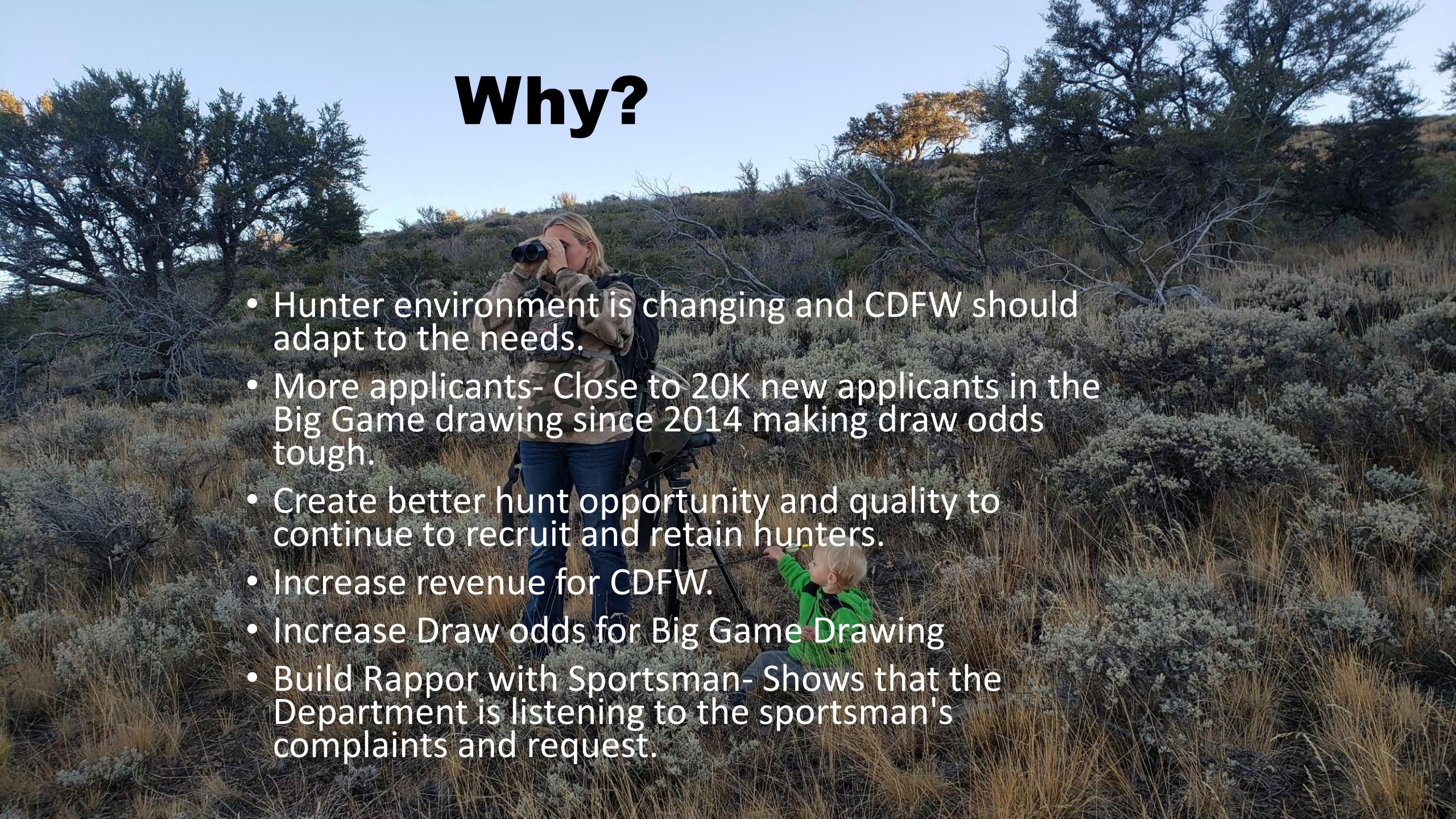
Completed by Dan Ryan in Coordination with Sportsman groups and Local CDFW Biologist.

Background



- CDFW R3 Committee- Recruitment, Retention, Reactivation
- Licensing structure committee identified the Big Game tags/hunts were outdated and need reform.
- Over 15 years of working with hunter groups and hearing frustrations about CDFW hunts.
- Collaborated with CDFW to ensure proposals meet goals and objectives of department.

Why?



- Hunter environment is changing and CDFW should adapt to the needs.
- More applicants- Close to 20K new applicants in the Big Game drawing since 2014 making draw odds tough.
- Create better hunt opportunity and quality to continue to recruit and retain hunters.
- Increase revenue for CDFW.
- Increase Draw odds for Big Game Drawing
- Build Rappor with Sportsman- Shows that the Department is listening to the sportsman's complaints and request.

General Changes

- **Party Applications Return Tags Rule**

  - **Currently allows Any members of a party application to turn back a tag and get points reinstated.**
  - **Many use this rule to their advantage by putting in party members that have no intent to hunt.**

  - **Example: John Doe has 0 points, and his grandma has 12 points. They apply as a party for deer and have an average of 6 points (0+12/2). They are successful drawing X4. John Doe plans on hunting while Grandma returns tag and request for points to be reinstated. CDFW reinstates points she now has 13 points and John Doe has zero and goes on the hunt. John Doe can then apply with Grandma next year and split 13 points….This can be done over and over again allowing John to get tags year after year using grandma's points.**

Returned Tag Reissuance

- Currently tags that are turned back are given to the alternates that were assigned through the drawing.
- It is unclear if this occurs on tags that are turned back the day prior to the season.

- Propose that CDFW make available tags turned back later, where by the time CDFW process the season has started and alternates are now available.

Example:
- John Doe drew a X4 tag. He is planning on going however has an emergency the week before the hunt that prevents him from going. John follows CDFW rules and turns the tag back the day prior to the season. CDFW takes 3-4 days to process this return and places the tag back on the open market via Aspira where sportsman can purchase first come first serve.
- Colorado, Idaho and Nevada do this process and it works nice for providing additional opportunity as well as additional revenue for the department.

Big Game Proposals

- **Second Bear Tag Option**

Qualified individuals may purchase one bear tag per year. Tag quota, must cease hunting if bear harvest reaches quota.

- **Proposed Change:**

Successful bear hunters upon completion of harvest report and CDFW validation may purchase a second Bear tag at $XX.XX. ***Potential addition: If bear harvest reaches 80% of quota no second tags would be issued.

General Premium Deer Hunts

Split rifle C Zones
Currently the C zones are lumped into one zone (C1-4). The zones currently have separate seasons established. While hunting occurs in all zones, C4 has the highest concentrations of hunters.
Current Tags
- C1-4- 8,150 tags

Proposed Tags- *Would be based on CDFW data.
- C1-1,766
- C2-1,766
- C3-1,766
- C4-2,852

- **Pros-** C Zone tags are becoming harder to draw and if they were split it would allow hunters who want easier draw odds to look at the less popular zones such as C1-3. Spread applicants across zones, reduces hunter congestion and gives biologists better harvest data.

- **Cons-** Reduces hunter flexibility by having to choose zone up front.

Split Zones X3b
- This zone is highly sought after and very large. There are high concentrations of use in specific portions of this zone leaving many portions of the unit not hunted or with low use. The zone has main roads that travers West to East through the Zone and could be used to split the zone into two. This would not result in a tag allocation increase but splits them based on population estimates.

Current Tag Allocations
- X3B-499
-

X3B North- Keep existing Northern, West and East Boundaries, however, change the southern boundary to Hwy 299**.** 220 tags

X3b South- Keep existing Southern, West and East Boundaries, however, change the Northern boundary to Hwy 299. 279 tags

Pros- Spreads draw applications. Adds two additional options for hunters to apply for therefore spreading the applications and cumulatively reducing preference point needed to draw other hunts.
Cons- Reduces tags in size and tag allocation in main unit. Reduces hunter's flexibility.

General Methods Deer Hunts

1. **G40- A Zone North Late Rifle Tag**- 15-35 tags, Starts the following Saturday after A zone rifle and runs for 9 consecutive days. Tag is good for all public and private lands within the A North Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone.
2. **G41- A Zone South Late Rifle Tag** - 15-35 tags, Starts the following Saturday after A zone rifle and run for 9 consecutive days. Tag is good for all public and private lands within the A South Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone.
3. **G42- Snow Mountain Wilderness Early Rifle**- 5-15 tags, Starts the last Wednesday in July and runs for 5 consecutive days. Tag is good for all public and private lands within the B1 & B3 zone within the Snow Mountain Wilderness. This tag allocation can be removed from the general 35,000 tags that are allocated for B zone. Adds a unique opportunity for backcountry rifle hunters. Other states like Wyoming and Colorado have these same hunts.
4. **G43- Late Season Buck Hunt in d6**- 20-50 tags, Starts the first Saturday in November and runs for 5 consecutive days. Tag is good for all public and private lands within the D6 Zone. This tag allocation can be removed from the general 10,000 tags that are allocated for D6 zone.
5. **G44- Late Season Buck Hunt in d7**-20-50 tags, Starts the first Saturday in November and runs for 5 consecutive days. Tag is good for all public and private lands within the D7 Zone. This tag allocation can be removed from the general 9,000 tags that are allocated for D7 zone.

Deer Muzzleloader Hunts

1. **M8- Bass Hill Boundary Change**- Allow hunters access to all of the X6a zone. Current M8 zone boundary is the Lassen County portion of X6A. There was no management reasoning for this. Originally the boundary was set for weather access and location of majority of the deer.
2. **M13- D3 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
3. **M14- D4 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
4. **M15- D5 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
5. **M16- Jackson State Forest Muzzleloader Buck Hunt**- 10-20 tags- Start the third Saturday in October and run for 9 consecutive days. Falls within the boundaries of the Jackson State forest in A Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone. Oregon has numerous late season blacktail hunts in dense forested zones. This could be similar.

Archery Deer Hunts

Split Archery C Zones
Currently the C zones are lumped into one zone (C1-4). The zones currently have separate seasons established. While hunting occurs in all zones, C4 has the highest concentrations of hunters.
Current Tags

- C1-4- 1,945 tags,

Proposed Tags- Would be based on CDFW data.

- C1-400
- C2-400
- C3-400
- C4-745

Pros- C Zone tags are becoming harder to draw and if they were split it would allow hunters who want easier draw odds to look at the less popular zones such as C1-3. Spread applicants across zones. Give biologist better harvest data.
Cons- Reduces hunter flexibility by having to choose zone up front.

1. **A26- Bass Hill Late Archery Boundary Change**- Allow hunters access to all of the X6a zone. Current A26 zone boundary is the Lassen County portion of X6A. There was no management reasoning for this. Originally the boundary was set for weather access and location of majority of the deer.
2. **A34- King Range Late Archery Buck**- 10-20 tags. Runs the last Saturday in October and runs for 9 consecutive days. Hunt falls within B4 zone. Can hunt private and public lands within the B4 zone. This tag allocation can be removed from the general 35,000 tags that are allocated for B zone. Oregon has numerous late season blacktail hunts in dense forested zones. This could be similar.
3. **A36- Late Archery buck in C1-C3**- 15-35 tags, Starts the following Saturday after C3 rifle (latest date) and runs for 14 consecutive days. Tag is good for all public and private lands within the C1-C3 Zones. This tag allocation can be removed from the 12,870 tags that are allocated for C1-4 zones (includes rifle, general, archery and apprentice).

Apprentice Deer Hunts

- **J23-Honey Lake Wildlife Area Early buck Rifle Hunt**- 5-10 tags. Apprentice can hunt on CDFW lands (Dakin & Fleming) wildlife areas. Starting the First Saturday in August and runs for 9 consecutive days. This tag allocation can be removed from the tags that are allocated for X6a.

- **J24- Late Season X4 hunt-** 10-20 tags. Start the First Saturday in November and runs for 9 consecutive days. This tag allocation can be removed from the 599 tags that are allocated for X4 zone.

Elk Hunts

Change Antlerless hunts in Marble Mountains and Siskiyou units. Increases hunter pressure during Bull hunts creates many hunter conflicts during the hunts and a poor hunt experience. Cow Elk opportunity is generally better in the late fall. Northeastern Elk Zone made this exact change a few years ago. Hunting cows during the breeding seasons could affect breeding patterns.

- Hunt Code 301- Marble Mountain Antlerless- ~~September 8-19~~ October 2-10 or later.
- Hunt Code 401- Siskiyou Antlerless- ~~September 8-19~~ October 2-10 or later.

Archery Opportunity- Provide an additional Archery opportunity for Tule Elk

- Grizzly Island Period 1 Either Sex- August 7-9

Non-resident opportunity

- Many non-residents do not participate in the Big Game Draw due to the fact that there is only One tag available for Elk and Antelope and 10% allocated for Sheep. The 10% rule should be for all three species. This would drive more non-resident applications while not impacting resident odds dramatically.

Alternate Back-up Dates or longer seasons

- If Public lands are closed due to wildfire tagholders would be allowed to utilize their tags during the current season or during another date later in the year
- Example1- Marble Mountains Elk Tags- September 8-19- USFS is closed, tagholders can turn their tag back or hunt for 2-3 weeks in October or November***TBD by CDFW staff
- Example 2- Siskiyou Elk Tag Dates- September 8 through November 30. Longer season allows for more opportunity as well as better success to meet Elk population objectives.

Sheep Hunts

Add 2-4 tags allocated for Archery and Muzzleloader hunts Zone wide (Zones 1, 3, 10). These could also be conducted outside of the general season to reduce congestion.

- Currently the state has ranges with excess sheep. Once Sheep herds reach a certain population, they become more susceptible to disease. Removing excess sheep in higher population units would assist in reducing likelihood of disease.
- The 2019 ED that was completed by the department allowed for the cdfw to allocate additional tags for specific units. Some of these units are at the max of their allocations however other are not.
- Archery and muzzleloader is a more difficult method of take and offering up to 4 more tags could result in 100% take however it is unlikely.
- As shown in the below table, many of the units have 100’s of sheep and would justify additional harvest.

Phased Approach

Proposal Number (not in ranking order)	Proposal Name	Page Reference	Year Implemented
1	Party Application Rule	4	2022
2	Tag reissuance	5	2023
3	2nd Bear Tag	6	2022
4	General Rifle/Archery Deer tag separation	7	2023
5	Split C Zone General	8	2022
6	Split X3b	8	2023
7	G40- A Zone North Late Rifle Tag	10	2023
8	G41- A Zone South Late Rifle Tag	10	2023
9	G42- Snow Mountain Wilderness Early Rifle	10	2024
10	G43- Late Season Buck Hunt in d6	10	2023
11	G44- Late Season Buck Hunt in d7	10	2023
12	M8- Bass Hill Muzzleloader Boundary Change	11	2022
13	M13- D3 Late Muzzleloader Hunt	11	2022
14	M14- D4 Late Muzzleloader Hunt	11	2022
15	M15- D5 Late Muzzleloader Hunt	11	2022
16	M16- Jackson State Forest Muzzleloader Buck Hunt	11	2024
17	A26- Bass Hill Late Archery Boundary Change	12	2022
18	Split Archery (A1) C Zones	12	2022
19	A34- King Range Late Archery Buck	12	2023
20	A36- Late Archery buck in C1-C3	12	2022
21	J23-Honey Lake Wildlife Area Early buck Rifle Hunt	13	2022
22	J24- Late Season X4 hunt	13	2023
23	Marble & Siskiyou Antlerless Date Change	14	2022
24	Archery Grizzly Island Bull	14	2024
25	Alternate Elk dates for potential closures	14	2022
26	Archery BHS opportunity	15	2024

Thank you!

Petition 2021-17 for Big Game Hunt Changes

Initial assessment and recommendations from CDFW to WRC_ 15 September 2022

Petition Summary

Item #	Petition Request	Current Rule	Proposed Change from Petition	Initial Assessment by CDFW staff	Initial Recommendation by CDFW Staff
1	Party Applications Return Tag Rule - AKA Grandma Rule	Individuals in a party can return tag and get points reinstated.	All or none can return tag and request points.	Initial discussion and research does not show widespread abuse. Supportive of finding a solution to adress/close the loophole.	See Exhibit 2, Item 7 (Preference Points and Refunds for Hunting Tags), this meeting, for the Department's recommendation.
2	Returned Tag Reissuance	Hunters are allowed to return tag prior to opening day for premium hunts, receive refund and points reinstated for elk, pronghorn and bighorn tags.	Establish Alternate list.	For Elk, Pronghorn, and Bighorn Sheep tags, all applicants are potential alternates and returned tags are offered to alternates by their draw rank. Very rarely a tag will go unissued due to the returned tag coming in too late to be practical to reissue. Premium deer tags are not refundable. Returns are only accepted for preference point reinstatement and with the exception of areas with fire closures, tags must be returned prior to the season opener to be eligible. Around 100 tags are returned annually. Alternate lists are not maintained as hunters applying for the hunt unsuccessfully have generally already been issued another tag after the draw. With the small volume of returns, the cost of reissuance is not economical.	Reject this proposed change.

3	Second Bear Tag Option	Only 1 bear tag per hunter	Allow 2nd bear tag to be purchased after first tag has been filled and reported.	The Black Bear Conservation and Management Plan is currently being revised with a draft expected back to the FGC by April 2023. The revised plan will include an improved method for estimating and monitoring bear populations and guidance on how this information would be used to recommend any changes to bear harvest.	CDFW can assess the feasibility of this proposal and would need six months after approval of a revised plan in order to provide recomendations to WRC. We would recommend rejection at this time.
4	General Deer Tag Archery/Rifle Separation - A, B, D Zones	Hunters are allowed to hunt both archery and general season with the same tag.	Separate Archery and General tags. Require an AO tag for Archery season in A, B, D zones. Add late archery hunt for AO tag holders.	Initial discussions among CDFW biologists noted that a separation of general and archery tags may be warranted, but effects of additional late season hunting are unclear. Anlaysis of CDFW population and harvest data is required to evalute effects of the proposal before providing a recommendation.	No recommendation at this time. CDFW staff need more time to evaluate the proposal, and will report back to the WRC with an expanded assessment by May 2023.
5	Split Rifle C Zones	Zones are lumped together.	Split out individual zones.	Allthough this proposal may be waranted, the effects of the proposal on deer populations within each zone are unclear.	No recommendation at this time. CDFW staff will priotitize an analysis of relevant population and harvest data for providing WRC an updated assessment by May
6	Split Zone X3B	Very large zone.	Split into North and South zones.	Allthough this proposal may be waranted, the effects of the proposal on deer populations within the zone are unclear.	No recommendation at this time. CDFW staff will priotitize an analysis of relevant population and harvest data for providing WRC an updated assessment by May
7	G40 - A Zone North Late Hunt	N/A	Add late seasson to A Zone North.	This proposal may be warranted and the population effects are likely to be minor, but an analysis is needed to confirm an assessment of effects.	No recommendation at this time. CDFW staff will priotitize an analysis of relevant population and harvest data for providing WRC an updated assessment by January
8	G41 - A Zone South Late Hunt	N/A	Add late seasson to A Zone South.	This proposal may be warranted and the population effects are likely to be minor, but an analysis is needed to confirm an assessment of effects.	No recommendation at this time. CDFW staff will priotitize an analysis of relevant population and harvest data for providing WRC an updated assessment by January

9	G42 - Snow Mt Early Hunt	N/A	Snow Mountain Wilderness Early Rifle.	This proposal may be warranted and the population effects are likely to be minor, but an analysis is needed to confirm an assessment of effects.	No recommendation at this time. CDFW staff will priotitize an analysis of relevant population and harvest data for providing WRC an updated assessment by January
10	G43 - Late D6 Hunt	N/A	Late Season Buck Hunt D6.	This proposal may be warranted and the population effects are likely to be minor, but an analysis is needed to confirm an assessment of effects.	No recommendation at this time. CDFW staff will priotitize an analysis of relevant population and harvest data for providing WRC an updated assessment by January
11	G44 - Late D7 Hunt	N/A	Late Season Buck Hunt D7.	This proposal may be warranted and the population effects are likely to be minor, but an analysis is needed to confirm an assessment of effects.	No recommendation at this time. CDFW staff will priotitize an analysis of relevant population and harvest data for providing WRC an updated assessment by January
12	M8 - Bass Hill Boundary Chage	Currently limited to Lassen County	Allow access to the rest of X6A zone during the M8 hunt	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
13	M13 - D3 Late Muzzleloader Hunt	N/A	Add late season muzzleloader hunt to D3	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
14	M14 - D4 Late Muzzleloader Hunt	N/A	Add late season muzzleloader hunt to D4	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
15	M15 - D5 Late Muzzleloader Hunt	N/A	Add late season muzzleloader hunt to D5	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
16	M16 - Jackson State Muzzleloader Hunt	N/A	Add muzzleloader hunt.	No assessment has been completed yet	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
17	Split Archery C Zones	Currently combined into one hunt area C1-C4	Split out individual zones.	No assessment has been completed yet	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
18	A26 - Bass Hill Late Archery	Currently hunters are limited to Lassen County portion of X6A	Add access to all of X6A.	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.

19	A34 - King Range Late Archery	N/A	Add late archery hunt for B4 Zone.	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
20	A36 - C1-C3 Late Archery	N/A	Add late archery hunt for C1, C2, C3 Zones.	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
21	J23 - Honey Lake Wildlife Area Apprentice Hunt	N/A	Add early rifle on Dakin and Fleming units of Honey Lake WA	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
22	J24 - Late Season X4 Apprentice Hunt	N/A	Add late season appentice hunt for X4.	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
23	Elk Antlerless Season Change	Marble Mountain and Skskiyou antlerless hunts run concurrently with bull hunts.	Move antlerless hunts after the bull hunt.	CDFW is in the early stages of proposing changes to elk hunting regulations. These include increasing the antlerless tag quota and adjusting the bull season dates in the Siskiyou Roosevelt Elk Hunt Zone.	CDFW is presenting information on proposed changes at the September 2022 WRC meeting.
24	Grizzly Island Wildlife Area Antlerless Archery Elk Hunt	N/A	Add Archery only antlerless hunt to GIWA	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.
25	Non-resident elk opportunity	Claims there is only one tag available for non-resident elk.	Allocate 10% of elk tags for non-resident hunters.	Fish and Game Code 332(e) limits nonresident elk tags to one, the same is true for antelope(FGC 331 (e)). This is not true of bighorn sheep and Title 14 allows for up to 10% of general lottery bighorn sheep tags to go to nonresidents.	Reject this proposed change, which is limited by statute.
26	Alternate seasons or longer seasons for elk	Current seasons.	Provide alternate hunt dates for hunts that are closed due to wildfire.	No assessment has been completed yet.	No recommendation at this time. We will provide an initial assessment to WRC by January 2023.

27	Archery and Muzzleloader Desert Bighorn Sheep Hunts	N/A	Add archery and muzzleloader tags/seasons for sheep.	Hunt opportunities are extremely limited, 27 general tags for 20,000 applicants. Archery and muzzleloader are existing methods of take for bighorn sheep. Allocating method specific tag would limit a hunt opportunity to the majority of the constituency base.	Reject this proposed change, because opportunities are already very limited.

California Fish and Game Commission
Wildlife Resources Committee (WRC) Work Plan
Scheduled Topics and Timeline for Items Referred to WRC

Updated August 5, 2022

TOPICS	CATEGORY	May 2022	Sep 2022	Jan 2023
Periodic Regulations				
Upland (Resident) Game Birds	Regulatory	X	X/R	
Mammal Hunting	Regulatory	X	X/R	
Waterfowl Hunting	Annual Regulatory	X	X/R	
Central Valley Sport Fishing	Annual Regulatory	X	X/R	
Klamath River Basin Sport Fishing	Annual Regulatory	X	X/R	
Inland Sport Fishing	Regulatory	X	X/R	
Regulations & Legislative Mandates				
Falconry	Referral for Review			
Preference Points and Refunds for Hunting Tags	Regulatory		X/R	
Restricted Species	Regulatory			X
Wildlife Rehabilitation	Regulatory		X	X/R
Upland Game Hunting Draws	Regulatory		X	X/R
Special Projects				
American Bullfrog and Non-native Turtle Stakeholder Engagement Project	Referral for Review	X	X	X
Bear Management Plan Development	Information		X	X
Regulation Change Petitions				
Petition 2021-017	Referral for Review	X	X/R	

KEY: X Discussion scheduled X/R Recommendation developed and moved to FGC

California Fish and Game Commission: Perpetual Timetable for Anticipated Regulatory Actions

September 7, 2022

Regulatory Change Category	Title 14 Section(s)	WRC Arcadia September 15, 2022	FGC Kings Beach October 12, 2022	FGC Kings Beach October 13, 2022	FGC Teleconference November 1, 2022	MRC San Diego November 17, 2022	TC San Diego December 13, 2022	FGC San Diego Dec 14, 2022	FGC San Diego Dec 15, 2022	WRC Los Angeles Area January 12, 2023	FGC Sacramento February 7, 2023	FGC Sacramento February 8, 2023	MRC Monterey / Santa Cruz Area March 16, 2023	TC Fresno / Bakersfield Area April 18, 2023	FGC Fresno / Bakersfield Area April 19, 2023	FGC Fresno / Bakersfield Area April 20, 2023	FGC Teleconference May 17, 2023	WRC Monterey / Santa Cruz Area May 17, 2023	FGC TBD 1 June 14, 2023	FGC TBD 2 June 15, 2023	MRC Sonoma / San Francisco Bay Area July 20, 2023	TC Smith River Area / North Coast August 21, 2023	FGC Smith River Area / North Coast August 22, 2023	FGC Smith River Area / North Coast August 23, 2023
Central Valley Sport Fishing (Annual)	7.40(b)(4), (43), (66), (80)										N				D		A				E 7/16			
Klamath River Basin Sport Fishing (Annual)	7.40(b)(50)										N				D		A					E 8/15		
Waterfowl (Annual)	502								N		D				A						E 7/1			
Pink Shrimp Fishery Management Plan Implementing Regulations	56.00, 56.01, 120, 120.1, 705				E 11/1																			
Harvesting of Kelp and Other Aquatic Plants, Commercial Marine Algae Management Policies	165, 165.5, 705.1		This file was withdrawn from the Office of Administrative Law on 6/1 and resubmitted on 8/4. An effective date of 9/1 was requested																					
Low Flow Fishing Restrictions Due to Drought Conditions Emergency (90-day Extension)	7.40(b)(40)(A)1., 8.00(a), 8.00(b)				EE 11/1																			
Game Fish Contests	230			EUF																				
Sport Fishing Regulation Updates	2.00, 2.25, 2.30. 5.00, 5.15, 5.20, 5.41, 5.75, 5.79, 5.85, 5.87, 5.88, 7.00, 7.40, 7.50, 8.00, 29.85									E 1/1														
Recreational Fishing Regulations for Federal Groundfish and Associated Species	1.91, 27.20, 27.25, 27.30, 27.35, 27.40, 27.45, 27.50, 27.51, 28.26, 28.27, 28.28, 28.29, 28.47, 28.48, 28.49, 28.54, 28.55, 28.56, 28.58, 28.65, 28.90		D		A					E 1/1														
Recreational Sub-Bag Limits for Vermilion, Copper and Quillback Rockfishes Emergency (First 90-Day Extension)	28.55		EE 10/5																					
Recreational Sub-Bag Limits for Vermilion, Copper and Quillback Rockfishes Emergency (Second 90-Day Extension)	28.55		E 10/5							EE 1/2														
Pre-Existing Structures in Marine Protected Areas (MPAs), Marine Managed Areas (MMAs), and Special Closures	632															N				D				
Implementation of AB 817 (Electronic Display of Licenses)	700.4			N					D		A										E 7/1			
Recreational Hoop Net Regulations Emergency	29.80		A		E 10/31												EE 4/29							
Commercial and Recreational Take of California Spiny Lobster; Recreational Hoop Net Requirements for Take of Crustaceans	29.80, 29.90, 29.91, 121, 122.1, 122.2							N				D				A					E 7/1			
Southern California Steelhead 2084 Emergency	749.13				EE 11/15																			
Southern California Steelhead 2084 Emergency (90-day extension)	749.13			A	E 11/15						EE 2/13													

Rulemaking Schedule to be Determined	Title 14 Section(s)	WRC Arcadia September 15, 2022	FGC Kings Beach October 12, 2022	FGC Kings Beach October 13, 2022	FGC Teleconference November 1, 2022	MRC San Diego November 17, 2022	TC San Diego December 13, 2022	FGC San Diego Dec 14, 2022	FGC San Diego Dec 15, 2022	WRC Los Angeles Area January 12, 2023	FGC Sacramento February 7, 2023	FGC Sacramento February 8, 2023	MRC Monterey / Santa Cruz Area March 16, 2023	TC Fresno / Bakersfield Area April 18, 2023	FGC Fresno / Bakersfield Area April 19, 2023	FGC Fresno / Bakersfield Area April 20, 2023	FGC Teleconference May 17, 2023	WRC Monterey / Santa Cruz Area May 17, 2023	FGC TBD 1 June 14, 2023	FGC TBD 2 June 15, 2023	MRC Sonoma / San Francisco Bay Area July 20, 2023	TC Smith River Area / North Coast August 21, 2023	FGC Smith River Area / North Coast August 22, 2023	FGC Smith River Area / North Coast August 23, 2023
Santa Cruz Harbor Salmon Fishing (FGC Petition 2016-018)	TBD																							
European Green Crab (FGC Petition 2017-006)	TBD																							
Wildlife Areas/Public Lands [4]	TBD																							
Possess Game / Process Into Food	TBD																							
American Zoological Association / Zoo and Aquarium Association	671.1																							
Night Hunting in Gray Wolf Range (FGC Petition #2015-010)	474																							
Shellfish Aquaculture Best Management Practices	TBD																							
Ban of Neonicotinoid Pesticides on Department Lands (FGC Petition 2017-008)	TBD																							
Ridgeback Prawn Incidental Take Allowance	120(e)																							
North Yuba River Special Fishing Regulations (FGC Petition 2021-020) [8]	TBD																							
Commercial Take of Pacific Herring: Lampara Bait Nets [7]	163, 163.1																							

KEY

FGC = California Fish and Game Commission MRC = FGC Marine Resources Committee WRC = FGC Wildlife Resources Committee TC = FGC Tribal Committee
EM = Emergency **EE = Emergency Expires** E = Anticipated Effective Date (**RED "X" = expedited OAL review**) EUF = Effective Upon Filing w/ Secretary of State
N = Notice Hearing D = Discussion Hearing A = Adoption Hearing V = Vetting R = Committee Recommendation
4 = Includes FGC Petition 2018-003 6 = Includes FGC Petition 2019-012 7 = Includes FGC Petition 2020-015 8 = To be included in a future sportfishing regulations update