DRAFT SUPPLEMENTAL ENVIRONMENTAL DOCUMENT

Section 364, 364.1, 555, and 601 Title 14, California Code of Regulations

Regarding

ELK HUNTING SCH 2018112037

CALIFORNIA Department of WILDLIFE February 14, 2019

STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF FISH AND WILDLIFE on behalf of the California Fish and Game Commission

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CHAPTER 1. SUMMARY

PROPOSED PROJECT AND ALTERNATIVES

The proposed project involves modifications to the current elk hunting regulations for the 2019-2020 elk hunting season and subsequent seasons until the Fish and Game Commission (Commission) adopts new regulations modifying tag limits. Specifically, the Commission proposes to:

- Increase the tag quota range (by 20 tags) in the Northwestern Elk Zone.
- Increase the individual quotas in the other zones, but within previously analyzed quota ranges
- Modify season dates for Fort Hunter Liggett consistent with section 3453 of the Fish and Game Code (FGC). No changes in tag quotas are proposed.

The analysis in the 2018 Draft Supplemental Environmental Document (DSED) focuses on the potential for any new significant or substantially more severe environmental impacts from the increase in tag quota range in the Northwestern Elk Zone. Impacts from any tag modifications within other zones in the state are analyzed within the 2010 Environmental Document (incorporated by reference, April, 2010 Final Environmental Document, SCH#200912083, available at 1812 9th Street, Sacramento, CA 95811). The Commission finds the analysis in the 2010 Environmental Document still contains informational value and is appropriate to use as a basis for the proposed quota changes in zones other than the Northwestern Elk Zone.

The Department of Fish and Wildlife (Department) also provides, and the Commission is considering, three alternatives to the proposed project that could feasibly attain the basic objectives of the project. Alternative 1 (no change) would maintain the existing analyzed harvest for the hunt zone without change. Alternative 2 (increased harvest) involves an increase of 60 tags (three times that of the proposed project). Alternative 3 (reduced harvest) involves a harvest increase of 10 tags (half that of the proposed project). Current and proposed harvest strategies generally allow for population growth through time. However, under the Increased Harvest alternative, population growth might be curtailed and/or decline slightly over time.

SUMMARY OF IMPACTS AND MITIGATION

Table 1 summarizes the Commission findings of no significant long-term adverse impacts associated with the proposed project or any of the project alternatives considered for the 2019-20 elk hunting regulations.

Table 1. Impact Summary

Alternative	Description	Significant Impact	Mitigation
Proposed Project	Increase the tag quota range for the Northwestern Elk Zone No by 20 tags		N/A
Alternative 1. No Project	No change from the 2018-19 hunting regulations	lo change from the 2018-19 hunting regulations	
Alternative 2. Increase Tag Quota (3 x proposed project)	Increase the tag quota range for the Northwestern Elk Zone by up to 60 tags	No	N/A
Alternative 3. Reduced Proposal (half of Proposed Project)	Increase the tag quota range for the Northwestern Elk Zone by 10 tags	he tag quota range thwestern Elk Zone No by 10 tags	

Based on success rates from previous years, the Department expects that the actual harvest will range from 80-95 percent of the elk tags allocated for 2019 (CDFW, 2018).

State role in establishing elk hunting regulations

The DSED is intended to support the actions of the Commission as it considers regulations pertinent to conservation and providing public recreational opportunities. The Commission has prepared this document to analyze the potential of any new significant or substantially more severe environmental impacts than were previously disclosed in an Environmental Document prepared in 2010. These actions are consistent with the wildlife conservation policy adopted by the Legislature as set forth in Section 1801, FGC. The State's wildlife conservation policy, among other things, specifies an objective of providing hunting opportunities consistent with maintaining healthy wildlife populations.

Elk hunting regulations adopted by the Commission are set forth in Sections 364, 364.1, and 555, Title 14, California Code of Regulations (CCR), and enforced by the Department. These regulations are authorized under the following statutes:

Section 203, FGC, authorizes the Commission to regulate game mammals in the state.

Section 203.1, FGC, requires the Commission to consider populations, habitat, food supplies, the welfare of individual animals, and other pertinent facts when adopting hunting regulations for elk.

Section 332, FGC, provides that the Commission may determine and fix the area or areas, the seasons and hours, the bag and possession limit, and the number of elk that may be taken under rules and regulations that the commission may adopt from time to time.

Sections 3950 -3952, FGC, designate elk (genus *Cervus*) as a game mammal in California; authorizes the Commission to regulate take (harvest) of elk; and requires the Department to prepare an elk management plan.

FGC Section 3952 was adopted in 2003 and requires the Department to develop a statewide approach for management of elk. FGC Section 1801 is the Department's Conservation of Wildlife Resources Policy, to encourage preservation, conservation and maintenance of wildlife resources under the jurisdiction and influence of the state. This section also provides objectives for the policy that include:

- Providing for the beneficial use and enjoyment of wildlife
- Perpetuating all species for their intrinsic value
- Providing aesthetic, educational and non-appropriative uses
- To maintain diversified recreational uses
- To provide economic contributions
- To alleviate economic losses

FGC Section 1802 gives the Department jurisdiction over the conservation, protection and management of fish, wildlife and native plants, and the habitat necessary for biologically sustainable populations of those species. FGC Section 3952 directs the Department to develop a statewide elk management plan, consistent with the Conservation of Wildlife Resources Policy, and maintain sufficient elk populations in perpetuity, while considering the following:

- Characteristics and geographic range of each elk subspecies within the state, including Roosevelt elk, Rocky Mountain elk, and tule elk
- Habitat conditions and trends within the state
- Major factors affecting elk within the state, including, but not limited to, conflicts with other land uses
- Management activities necessary to achieve the goals of the plan and to alleviate property damage
- Identification of high priority areas for elk management
- Methods for determining population viability and the minimum population level needed to sustain local herds
- Description of the necessary contents for individual herd management plans prepared for high priority areas

An Elk Conservation and Management Plan (CDFW 2018) describes historical and current geographic range, habitat conditions and trends, and major factors affecting

Roosevelt, Rocky Mountain and tule elk in California. It identifies, delimits and describes high priority areas and actions for elk management, referred to as Elk Management Units (EMUs) and establishes broad conservation and management objectives. The plan provides guidance and direction to help set priorities statewide, and establishes general policies, goals and objectives, on a statewide scale. Individual EMU documents address issues specific to the units, establish population objectives and future management direction.

The 2018 Elk Hunting DSED sets forth the findings of the Commission, based on recommendations from the Department, and the Commission's proposal for regulatory changes.

TRIBAL COORDINATION

The Department is committed to developing and maintaining an effective, positive and cooperative relationship with California federally recognized Tribes (Tribes) regarding elk management. In order to achieve the goals regarding California's elk populations, innovative management actions and collaboration will be required, and guidance from a statewide elk management plan (management plan) is necessary to help mediate competing and conflicting interests and assure the conservation, protection, restoration, enhancement and reestablishment of California's elk populations and habitat. This is critical to providing cultural, scientific, educational, recreational, aesthetic and economic benefits for present and future generations of Californians.

A letter to Tribal Representatives on November 7, 2018 provided notification of the Department's proposal to amend hunting regulations for elk pursuant to the California Environmental Quality Act (CEQA), Public Resources Code Section 21080.3.1. The letter described opportunities to provide input to the proposed regulations through consultation pursuant to Public Resources Code sections 21080.3.1 and 21030.3.2, or during the public comment period for release of this Draft Supplemental Environmental Document.

AREAS OF CONTROVERSY

A Notice of Preparation (NOP) for the proposed project was prepared and circulated on November 13, 2018. The Department presented information on potential changes to elk hunting regulations at the September 20, 2018 Wildlife Resources Committee (WRC) meeting held in Sacramento. One scoping meeting, held from 12:00 P.M. to 1:00 P.M. on Friday November 30, 2018 was also conducted at the Department's Wildlife Branch located at 1812 9th Street, Sacramento CA 95811.

The WRC meeting provided information to the Committee, public and Commission staff about potential changes being considered and evaluated. The scoping meeting solicited input from the public and interested public agencies regarding the nature and sc*ope of the environmental impacts to be addressed in the DSED. At the beginning of each meeting, staff presented an overview of the existing program, the objectives of the proposed project, the legal background leading to this DSED, and the CEQA process generally. During the scoping meeting, participants also were encouraged to submit written comments, or to submit additional comments by mail or email before close of the comment period on December 14, 2018. Three members of the public attended the meeting. No areas of controversy regarding the proposed project were identified at the meeting.

Name	Affiliation	Email
Victoria Barr	CDFW	Victoria.barr@wildlife.ca.gov
Brad Burkholder	CDFW	Brad.burkholder@wildlife.ca.gov
Nick Villa	CRPA	nvilla@CRPA.ORG
Joe Hobbs	CDFW	Joe.hobbs@wildlife.ca.gov
Rose Sanchez	CSUS	rosesanchez@csus.edu
Ari Cornman	FGC	ari.cornman@fgc.ca.gov
Jessica Whalen	None	jnw179@humboldt.edu
Jon Fischer	CDFW	Jon.fischer@wildlife.ca.gov
Regina Vu	CDFW	Regina.vu@wildlife.ca.gov
Julie Garcia	CDFW	Julie.garcia@wildlife.ca.gov
Andrew Trausch	CDFW	Andrew.trausch@wildlife.ca.gov

Attendees:

Oral Comments

Nick Villa requested more junior only elk hunts. No other comments were received during the scoping meeting.

Written Comments Received During 30-Day Comment Period

In total, three emails and three letters were received from six distinct individuals during the scoping process. Individual letters or emails often contained more than one scoping-related comment; these have been separated out and grouped accordingly.

- 1) Two emails requested completion of the statewide elk management plan before changes to the current elk hunting program were implemented.
- One email requested: to please provide to the requestor as well as the public scientific research that supports the Department's proposal to kill more elk is biologically sound.
- 3) One email stated: a majority of elk tags should be awarded through random draw instead of using preference points; lack of hunter recruitment and retention is one of many factors that will negatively impact conservation efforts in the future; a lack of opportunity is the leading cause of lack of hunter retention; and I am not sure what it would take to markedly improve the number of elk in California, but

whatever habitat work or predator control that can be done to increase elk numbers should be taken into consideration and made a top priority.

- One letter outlined the CEQA requirements the Department needs to comply with.
- 5) One email stated: Tribal hunting should be the first and highest priority for existing hunting tags; Separate the Northwestern Elk Zone into two elk zones, Del Norte County and Humboldt County; and Roosevelt elk in the Northwest, CA Hunt Zone are genetically pure or unique They also requested:
 - a) Present in detail, all elk population data collected to date and used as a basis for any proposed increase in hunting tags.
 - b) Present all data showing how many elk are actually killed each year in each program including PLM and SHARE, Tribal hunts, and including poached elk (e.g. recent 2018 poaching in Redwood National & State Parks; 2018 apprehended poachers in Gilbert Creek area) and road kill. Please show respective locations on a map, or at least break out by County and general areas within counties.
 - c) We request improved transparency throughout the process. Proposed numbers of tags and categories for all hunts: General, SHARE, PLM, Apprentice, Tribal, etc. should easily accessible such that a given agency, region or county can grasp and analyze the impacts to their region, county or neighborhood. These proposed quotas should be locally published well before the Commissioners' meeting dates so communities have a greater opportunity to voice their support or concerns.
 - d) Indicate which elk population data are based on actual field counts, surveys and other methods involving actual sighting or handling of the elk by authorized personnel -- and which population data are projected from field data by mathematical formulas and other methods in use by the Humboldt State University (HSU) /CDFW team (and/or other experts consulted by this team).
 - e) Explain clearly which of these methods for projecting elk population numbers are being used; where else and by whom these methods are in use, and to what extent these projection methods have been published and peerreviewed.
 - f) Note if any portion of the population counts/data is based directly on reports/counts from the public (or local businesses or ranches etc.).
 - g) Chart the progression or changes in estimated elk population numbers and/or databased population numbers over the last 10 years, and over the last 150 years.
 - h) Explain how proposed hunting tag increases will fulfill the existing or draft Elk Management Plan population goals for this region.
 - Discuss how elk are significantly impacted by recent fires in surrounding areas of Southern Oregon and Northern California, and how this combined with any proposed increased hunting pressure impacts the elk in the Northwestern CA Hunt Zone.

- j) We should compensate by allowing elk to increase their numbers and find refuge in nearby areas such as ours, to compensate for losses in elk or elk habitat.
- k) Explain all reason(s) including biological justification for the proposed increase in elk tags when the HSU/CDFW data gathering and studies are not complete, have not been published, released, or peer-reviewed.
- CDFW is proposing for the 2018 Elk Tag Allocation adjustments within the quota ranges allowed under the old outdated elk management plan, a plan not supported by scientific evidence.
- m) Show how the proposed increase in tags is spread over the categories of General Hunt; PLM; SHARE, and the allocation for Tribal Hunts/Tags. Please show respective locations on a map, or at least break out by County and general areas within counties.

Note: No comments were received that pertained directly to Aesthetics, Agriculture and Forestry Resources, Air Quality, Cultural Resources, Geology/Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use/Planning, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Transportation/Traffic, Tribal Resources, or Utilities/Service Systems.

RESOURCE AREAS ANALYZED IN THIS DOCUMENT

This DSED analyzes the potential for significant impacts to Biological Resources and Recreation, as well as Cumulative Impacts. After using an initial study (Appendix 1), in combination with the comments received during the scoping period, to evaluate the potential environmental impacts of the project, the other resource areas were eliminated based on the Commission's determination that there was no potential for significant impact in those areas.

ISSUES TO BE RESOLVED

As provided by existing law, the Commission is the decision-making body (lead agency) considering the proposed project, while the Department has responsibility for management activities, such as hunting, translocating elk to suitable historic range, and preparing management plans. The primary issue for the Commission to resolve is whether to change elk hunting regulations as an element of elk management. If such changes are authorized, the Commission will specify the areas, seasons, methods of take, bag and possession limit, number of elk to be taken, and other appropriate special conditions.

FUNCTIONAL EQUIVALENCY

The California Environmental Quality Act (CEQA) requires all public agencies in the State to evaluate the environmental impacts of projects they approve, including

regulations, which may have a potential to significantly affect the environment. The Department, on behalf of the Commission has prepared this DSED, which is the functional equivalent of a Supplemental Draft Environmental Impact Report (as discussed in Public Resources Code section 21166). The DSED provides the Commission, other agencies, and the general public with an objective assessment of the potential new significant or substantially more severe environmental impacts than were previously disclosed in the 2010 Environmental Document effects.

Generally, the Commission's CEQA review of proposed project adopting a regulatory change is conducted in accordance with the Commission's certified regulatory program (CRP) approved by the Secretary for the California Resources Agency pursuant to Public Resources Code section 21080.5 (See generally CCR Title 14, sections 781.5, and 15251(b)). The 2010 Environmental Document fell under the Commission's CRP. Because Public Resources Code section 21080.5, the Commission has prepared this DSED and conducted related environmental review of the proposed program in accordance with CEQA generally, also following the rulemaking process for regulations as set forth in the Commission's CRP and the Administrative Procedure Act (Government Code Section 11340 et seq.).

In addition, pursuant to Section 15087 of the CEQA Guidelines, this DSED is available for public review for 45 days. During the review period, the public is encouraged to provide written comments regarding the environmental document to the Department of Fish and Wildlife, Wildlife Branch, 1812 9th Street, Sacramento, California 95811. Comments must be received by the Department by 5:00 p.m. on April 5, 2019.

Written and oral comments received in response to the DSED will be addressed in a Response to Comments document, which, together with the DSED, will constitute the Final Supplemental Environmental Document. In addition, the Commission will consider the comments received pursuant to the Administrative Procedure Act addressing the proposed regulations. The rulemaking process under the Administrative Procedure Act to promulgate regulations is running concurrently with this environmental Pocument vill inform the Commission's exercise of discretion as lead agency under CEQA in deciding whether or how to approve the proposed project as described in this document and the proposed regulations.

CHAPTER 2. THE PROPOSED ACTION

The proposed project being considered consists of the following modification to existing elk hunting regulations.

1. Increase the Tag Range in the Northwestern Elk Zone

In order to maintain hunting quality in accordance with management goals and objectives, it is periodically necessary to adjust quotas in response to dynamic environmental and biological conditions. This proposed project adjusts the elk tag range (Appendix 2) to account for fluctuations in population numbers, increased property damage, and hunting pressure.

The increase in tags will allow the Department to distribute hunting pressure to address landowner concerns over elk damage and increase opportunity while providing a biologically appropriate harvest within the Northwestern elk zone. Bull (0-28), antlerless (0-34), and either-sex (0-3) tags would be available to the public during the Northwestern elk hunt and through the SHARE Program.

Elk Pop (Smith and Updike 1987) is a microcomputer-based model developed by the Department for the purpose of analyzing harvest alternatives. Elk Pop was used to assess effects of the proposed project (and project alternatives) on the specific Roosevelt elk herd where increased tags are proposed. The model allows the user to vary carrying capacity to reflect real-world changes in habitat. Population age and sex ratios (observed and estimated) are primary inputs to the model. Elk Pop allows analysis of multiple harvest alternatives simultaneously and is easily adapted to most herd situations.

Elk Pop utilizes data on age and sex composition of the herd, maximum calf survival, estimated population numbers, nonhunting mortality, and hunting mortality. Age and sex composition and maximum calf survival figures used in the model are based on observed and estimated rates. Population level and nonhunting mortality rates were estimated. Estimates of nonhunting mortality rates were considered valid representations of actual nonhunting mortality rates when the model predicted the observed herd composition ratios for 10 consecutive years. Effects of various harvest scenarios were then predicted on the basis of composition ratios and estimated nonhunting mortality rates. The computer model runs for various harvest scenarios (proposed project and the alternatives) for the Northwestern elk zone can be found in Appendix 3.

2. Changes in tag quotas for other hunting zones in the state

Proposed changes to tag quotas in other hunting zones in the state fall within the tag quota ranges that were analyzed within the 2010 Environmental Document. The analysis in this DSED focuses on any new significant or substantially more severe

environmental effects from increasing the tag quota ranges in the Northwestern Elk Zone. There are no anticipated significant or substantially more severe environmental effects for the other hunting zones than were previously evaluated in the 2010 document.

BACKGROUND AND EXISTING CONDITIONS

THE MANAGEMENT OF ELK IN CALIFORNIA

There are three subspecies of elk in California: Roosevelt, Rocky Mountain, and tule elk. Roosevelt elk occupied the Cascade and Coast mountain ranges as far south as San Francisco (Harper et al. 1967), and eastward at least to Mount Shasta (Murie 1951). Tule elk were distributed throughout the Central, Sacramento and San Joaquin valleys and the grasslands and woodlands of central California's Coast Range (McCullough 1969). Although there appears to be disagreement regarding their subspecific status, both Murie (1951) and McCullough (1969) included portions of Shasta, Siskiyou and Modoc counties in northeastern California within the historical range of Rocky Mountain elk. Further clarification of the historical and current subspecific status of elk in northeastern California is unlikely because of the translocation of Rocky Mountain elk to the Pit River area in the early 1900s. However, predictions of genetic flow across the landscape supported by the journal entries of early American explorers suggest that elk have been endemic to northeastern California for thousands of years. Locations where historical specimens of Rocky Mountain elk have been recovered have helped scientists map the probable routes taken by these highly mobile ungulates as they populated North America (McCullough 1969).

Because of their large body size and the availability of smaller prey, it is unlikely that Native Americans had a significant impact on elk populations in California. Early explorers also had little direct impact on elk populations. Apparently they preferred domestic livestock to elk (McCullough 1969). However, these early explorers were responsible for the introduction of exotic annual grasses and domestic livestock, both of which had long-term, deleterious impacts on California's elk populations. Livestock competed directly with elk for forage and contributed to the conversion of the native perennial grasslands to annual grasslands, which resulted in the loss of important forage plants used by elk during the summer and fall months.

Historical Perspective of Roosevelt Elk Management

Although once widely distributed throughout northern California, by the late 1800s, Roosevelt elk were extirpated throughout much of their historic California range. Barnes (1925a, 1925b) reported that by 1925, Roosevelt elk range in California was reduced to one small area in Humboldt and Del Norte counties. Mining, logging, agriculture, and market shooting were factors that contributed to the decimation of Roosevelt elk in much of California. Because of their large body size and herding behavior, elk were vulnerable to market shooting. Harper et al. (1967) discussed the historical distribution of Roosevelt elk in California and reported that by 1967 the population was increasing in size and in no danger of extinction.

Based on the current distribution of Roosevelt elk in California (Appendix 4), population growth and range expansion has continued since 1967. Through U.S. Forest Service and Bureau of Land Management district planning, habitat management efforts have resulted in significant Roosevelt elk population increases during the 20th century. Roosevelt elk herds in California are now healthy and viable. Populations of Roosevelt elk currently exist in the coastal areas of Mendocino, Humboldt, and Del Norte counties, in addition to the Cascade and Klamath mountain ranges in Siskiyou and Trinity counties. Some of these populations were established when the Department (in cooperation with other State and Federal agencies) relocated elk to suitable historic range. Other populations were established when elk moved into California from Oregon. Additionally, new populations have become established through the dispersal of elk from existing populations to adjacent suitable areas. The Department currently estimates the statewide Roosevelt elk population at approximately 5,700 individuals. This estimate is based on field observations, and professional judgment and experience obtained in studying elk throughout California. The Department has determined this estimate of total population size is reasonable.

Roosevelt elk use forested habitat types, where they are often impossible to see from a helicopter because of the dense forest canopy. For this reason, helicopter-assisted capturing of Roosevelt elk is generally not effective in California. Nevertheless, successful Roosevelt elk translocations have occurred when large groups have been captured in Redwood National Park or on winter range in Oregon. Since 1985, the Department has translocated more than 280 Roosevelt elk to reestablish populations in portions of southern Humboldt, Mendocino, Siskiyou, and Trinity counties.

Existing conditions regarding elk hunting

Regulated public hunting for Roosevelt elk has occurred annually in California since 1986, whereas annual hunting for Rocky Mountain elk began in 1987. Public tule elk hunting has been authorized by the Commission annually since 1989. Additional public hunts for Roosevelt, Rocky Mountain and tule elk have been established subsequent to 1986, and annual elk hunting began within portions of the Northwestern Unit in 1993. Appendix 5 lists the verbatim for the current elk hunting regulations in California.

PLM Hunts (Section 601, Title 14, CCR)

The PLM Program was authorized by the Legislature to protect and improve wildlife habitat by encouraging private landowners to manage their property to benefit fish and wildlife. Economic incentives are provided to landowners through biologically sound yet flexible seasons for game species, resulting in high-quality hunting opportunities which may be marketed by the landowner in the form of fee hunting and other forms of recreation. Section 601, Title 14, CCR, contains regulations adopted by the Commission pertaining to the program, and sections 3400-3409, FGC, contain the subject statutes.

Landowners have the right to charge access fees for hunting, fishing, and other recreation on their property. The Department carefully reviews each plan to ensure that required habitat improvement efforts benefit many species of wildlife and that harvest strategies comply with accepted goals and objectives for management of the game species involved. The PLM Program further allows the Commission to authorize hunting and fishing seasons and bag limits specific to licensed PLM areas pursuant to approved management plans.

The PLM Program currently is an element of the Department's elk management program. During 2018, nine landowners offered opportunities to hunt Roosevelt elk through the PLM Program in Del Norte and Humboldt counties. The proposed project does not involve increasing elk tags in the PLM Program (Appendix 6).

Cooperative Elk Hunting Area hunts (Section 555, Title 14, CCR)

To encourage protection and enhancement of elk habitat and provide eligible landowners an opportunity for limited elk hunting on their lands, the department may establish cooperative elk hunting areas and issue license tags to allow the take of elk (Appendix 7 - Section 555, Title 14, CCR). In 2018, three Cooperative Elk Hunting Area elk tags were issued in the Northwestern elk zone.

POLICY CONSIDERATIONS

The Legislature formulates laws and policies regulating the management of fish and wildlife in California. The general wildlife conservation policy of the State is to encourage the conservation and maintenance of wildlife resources under the jurisdiction and influence of the State (Section 1801, FGC). The policy includes several objectives, as follows:

- 1. To provide for the beneficial use and enjoyment of wildlife by all citizens of the State;
- 2. To perpetuate all species of wildlife for their intrinsic and ecological values, as well as for their direct benefits to man;
- 3. To provide for aesthetic, educational, and non-appropriative uses of the various wildlife species;
- 4. To maintain diversified recreational uses of wildlife, including hunting, as proper uses of certain designated species of wildlife, subject to regulations consistent with the maintenance of healthy, viable wildlife resources, the public safety, and a quality outdoor experience;
- 5. To provide for economic contributions to the citizens of the State through the recognition that wildlife is a renewable resource of the land by which

economic return can accrue to the citizens of the State, individually and collectively, through regulated management. Such management shall be consistent with the maintenance of healthy and thriving wildlife resources and the public ownership status of the wildlife resource;

- 6. To alleviate economic losses or public health and safety problems caused by wildlife; and
- 7. To maintain sufficient populations of all species of wildlife and the habitat necessary to achieve the above-stated objectives.

GLOBAL CLIMATE CHANGE

Climate changes caused by increasing atmospheric concentrations of greenhouse gases are expected to result in marked changes in climate throughout the world (deVos, and McKinney, 2007). Although many wildlife habitats in North America have become progressively warmer and drier in the last 12,000 years, the greatest rate of change has occurred during the last 150 years (Fredrickson et al. 1998). Predicted changes due to continued warming include increased frequency and severity of wildfires, increased frequency of extreme weather events, regional variation in precipitation, northward and upward shifts in vegetative communities, and replacements of biotic communities. These changes are expected to affect abundance, distribution, and structure of animal and vegetative communities.

Local and specific regional changes in climate and associated changes in vegetative communities will be the determining factors regarding the distribution and abundance of elk in California. Although research specific to elk responses to climate change is limited, what information does exist indicates that both adverse and beneficial effects - depending on a variety of local/regional factors such as latitude, elevation, topography, and aspect – can be expected to result. For example, in the Rocky Mountain National Park where snow accumulation currently limits elk winter range, computer simulations suggest a reduction in future snow accumulations of up to 25-40%. An expansion of winter range would serve to increase over-winter survival and recruitment of juveniles into the adult population, leading to an increase of the overall elk population in that area (Hobbs et al. 2006). Conversely, research in Banff National Park, Canada indicates climate change will result in colder winter temperatures, increased snowfall, and a higher frequency of winter storms (Hebblewhite 2005). These factors would result in a decrease in over-winter survival and recruitment, leading to an overall reduction of the elk population for that area.

Hunting seasons and tag quotas are proposed to the Commission who has the authority for adopting regulations on an annual basis. These seasons and quotas are based on annual population and harvest data, annual population model results, and area-specific population/harvest objectives. Although the impact of climate change on California's elk population is difficult to predict and warrants continued study, the Department and the Commission have the ability to quickly respond to population fluctuations (positive or negative) by increasing or decreasing hunter opportunity in accordance with current and

future management objectives for this species. However, reducing one mortality factor (sport hunting) will not alone mitigate for impacts associated with global climate change; the ability to manage and provide adequate amounts of required habitats is the ultimate deciding factor in wildlife populations.

POTENTIAL FOR SIGNIFICANT EFFECTS

The Commission has determined the proposed project will not have any long-term significant impact on the environment. The analysis included here and discussed below addresses the potential for significant effects on the gene pool, impacts on social structure, effects on habitat, effects on recreational opportunities, effects on other wildlife species, effects on public safety, growth inducing impacts, short-term uses and long term productivity, significant irreversible environmental changes, welfare to the individual animal, and cumulative impacts. Although not a resource category where CEQA requires analysis, for informational value the Commission has also analyzed the potential for effects on economics from the proposed project. Each of these areas are discussed in more detail below.

The proposed project allows an increase in already limited public hunting of Roosevelt elk in portions of Del Norte and Humboldt counties. In 2018, 88 elk tags were issued in Del Norte and Humboldt through the General Draw, PLM, SHARE and the Cooperative Elk Hunting Program. Table 2 shows the 2018 harvest including PLM, SHARE, and Cooperative Elk Hunting. The proposed project will result in increasing the total tags to allow removal of up to 108 Roosevelt elk.

2018 Elk Tags Issued					
	Issued			ŀ	larvested
	Bull	Antlerless	Either-sex	Bull	Antlerless
General	15	0	3	18	0
PLM	21	19	0	19	16
SHARE	5	22	0	5	19
Cooperative	3	0	0	3	0
Totals	44	41	3	45	35

Table 2. 2018 Northwestern Elk Zone Total Tags and Reported Harvest (Includes General, SHARE, Cooperative, and PLM)

Elk hunting will result in the death of individual animals. The removal of individual animals from selected herds, which are relatively large and healthy, will not significantly reduce herd size on a long-term basis. Production and survival of young animals within each herd will replace the animals removed by hunting (Fowler 1985, Racine et al. 1988). Analysis of current levels of take is contained in the 2010 Environmental Document, and found to have no significant impact for all levels of take within the analyzed quota range. Since the changes proposed in this project will only increase

public elk hunting in one of the State's elk hunt zones, removal of individuals will have little influence on the statewide elk population. Therefore, the proposed action of increasing the tag quotas by 20 removing no more than approximately 68 elk by public hunting (general, SHARE, and Cooperative hunts) and 40 elk through the PLM Program will not have a significant adverse impact on either local or statewide elk populations. The Department does not anticipate issuing up to the maximum number of tags in most hunt zones but the Commission has assumed the maximum level of take in its analysis of the potential impact under the proposed project.

As discussed in more detail below, the Commission has concluded the proposed project will not have a significant adverse effect on the environment. No mitigation measures for the proposed project or alternatives are necessary.

Methodology

A computer model which simulates herd performance (Smith and Updike 1987) was used to assess effects of the proposed action and alternatives (Appendix 3) on the elk hunt zones where a tag change is proposed.

A variety of natural and human-induced factors combine to affect the status of a wildlife population. Natural factors affecting elk populations include, but are not limited to, such things as predation, starvation, disease, and parasitism. Environmental factors (e.g., precipitation) can affect food quantity and quality, thereby affecting elk populations. Theoretically, competition among members of the same species and between different species (e.g., deer, elk) also can affect elk populations. Catastrophic events (e.g., wildfires) can affect localized populations on a short-term basis. Human-induced factors, such as urbanization and agricultural development, also affect elk populations. Hunting can affect a population in various ways, depending on the intensity and level of harvest.

Modern wildlife management uses models to analyze, understand, and predict the outcomes and complex interactions of the natural environment. Like many other technical fields that affect society, such as chemical engineering, aerospace technology, and climatology, the science of wildlife management has found that the use of models is invaluable for predicting the effects of human-induced and natural events on wildlife and their habitat.

Population models can range from simple word models (the statement "elk are born, grow up, reproduce and die" is a grossly simple word model of a population process) to highly complex and sophisticated mathematical abstractions. Some models are empirical (that is, based on observed data), and others are theoretical. Many models are useful in helping to frame conceptualizations of population processes, resulting in testable predictions about the subject at hand. Nevertheless, the goal of a model is to aid in analyzing known facts and relationships that would be too cumbersome or time consuming to analyze manually. Some of these models describe specific systems in a

very detailed way, and others deal with general questions in a relatively abstract fashion. All share the common purpose of helping to construct a broad framework within which to assemble an otherwise complex mass of field and laboratory observations. Though we often think of models in terms of equations and computers, they can be defined more generally as any physical or abstract concepts of the structure and function of "real systems" or natural occurrences.

Key in the development and use of any model is its reliability. The models used in this document have been developed based on field observation, published literature, and/or expert opinion. They have been tested against known results and are consistent.

Compensatory Response

The Stock-Recruitment model (Ricker 1954, McCullough 1984) is useful for conceptualizing compensatory mechanisms and density-dependent responses that are believed to occur in wildlife populations. This model shows population responses to changes in density in terms of net recruitment (i.e., the survival of calves). It has the advantage of not requiring assumptions about internal birth and death rates, and it can be empirical.

The fundamental assumption of the Stock-Recruitment model is that calf survival is a function of population density and decreases as density increases (the converse is also true). There is a large body of evidence indicating that this is the case among populations of elk (McCullough 1979, Clutton-Brock et al. 1982). Thus, density can be measured in either absolute or relative terms, and with net recruitment one can begin to build a model that will allow predictions of the population's response to changes in density.

At a low population size, even with a high recruitment rate, few new individuals enter the population, but their survival is higher. As population size increases, so does the number of recruits, up to a certain level. The rate of recruitment decreases as a result of reduced survival of young. The degree of elk harvest necessary to achieve maximum sustained yield (MSY) can be expected to result in low population densities. Objectives to maximize residual population size and MSY are necessarily mutually exclusive. This has important implications for harvest management, as harvesting to achieve MSY suppresses the total population below its maximum potential. Spring population size (after calves are born) is thus below the carrying capacity of the range (McCullough 1984).

At high densities, the pre-mortality population will temporarily exceed carrying capacity (if an area is at carrying capacity – few of California's elk populations are believed to be at carrying capacity), resulting in possible habitat damage. When population sizes are at or near the range carrying capacity, yield will be low (proportionately), because recruitment of calves is low relative to herds at lower density. In such cases, increases

in harvest result in increased net recruitment, and the population will stabilize at a new population size if the new harvest level remains fixed (McCullough 1984).

Elk Pop (Smith and Updike 1987) is a microcomputer-based model which was developed by the Department for the purpose of analyzing harvest alternatives. Elk Pop was used to assess effects of the proposed project (and project alternatives) on the specific Roosevelt elk herds where hunting is proposed. The model allows the user to vary carrying capacity to reflect real-world changes in habitat capability. Observed population age and sex ratios are primary input to the model. Elk Pop allows analysis of multiple harvest alternatives simultaneously and is easily adapted to most herd situations.

Elk Pop utilizes data on age and sex composition of the herd, maximum calf survival, estimated population numbers, nonhunting mortality, and hunting mortality. Age and sex composition and maximum calf survival figures used in the model are based on actual observed rates. Population level and nonhunting mortality rates were estimated. Estimates of nonhunting mortality rates were considered valid representations of actual nonhunting mortality rates when the model predicted the observed herd composition ratios for 10 consecutive years. Effects of various harvest scenarios were then predicted on the basis of observed composition ratios and estimated nonhunting mortality rates. The computer model runs for various harvest scenarios (proposed project and the alternatives) for each elk herd where hunting is proposed can be found in Appendix 3.

IMPACTS OF HUNTING ON ELK POPULATIONS

Elk hunting will result in the death of individual animals. The removal of individual animals from selected herds which are relatively large and healthy will not significantly reduce herd size on a long-term basis. Production and survival of young animals within each herd will replace the animals removed by hunting (Fowler 1985, Racine et al. 1988). Analysis of current levels of take, as well as the proposed levels of take for hunt zones statewide is contained in the 2010 Environmental Document, and found to have no significant impact for all levels of take within the analyzed quota range. Since the changes proposed in this project will only increase public elk hunting in one of the State's elk hunt zones, removal of individuals will have little influence on the statewide elk population. Therefore, the proposed action of increasing the tag quotas by 20 (removing no more than approximately 68 elk by public hunting (general, SHARE, and Cooperative hunts) and removing no more than 40 elk through the PLM Program will not have a significant adverse impact on either local or statewide elk populations.

Numbers of elk harvested by hunters in the PLM, public and Cooperative Elk Hunting programs in Del Norte and Humboldt counties during 2018 are reported in Table 2.

Northwestern Roosevelt Elk Herds (Del Norte and Humboldt)

The proposed project for the Northwestern zone could result in an increase in 20 elk being harvested (for a maximum of 108) including, General, PLM, SHARE, and Cooperative elk tags. Computer simulation runs of this harvest scenario predict population numbers would increase (Appendix 3), based on the current conservative population estimate of 1,600 elk. The bull-to-cow ratio would remain stable, while the calf-to-cow ratio would increase.

The Commission, based on information provided by the Department, does not anticipate this proposed harvest scenario will result in adverse impacts to the Northwestern Roosevelt elk herd. Since 2016, the Department has been working towards implementation of systematic elk surveys in this zone. While development and implementation of those surveys to improve population assessments are ongoing, initial counts suggest a healthy and growing population. Direct counts within a portion of the zone from 2016 to 2017 resulted in a minimum count of 990 elk in 22 distinct groups (CDFW 2018). Over the past two years, efforts looking at movements of GPS collared elk, composition counts, and calf survival suggest a ten percent increase in the total number of elk in portions of the Northwestern elk hunt zone. In addition, the calf:cow ratio has been stable at 32 and 34 calves to 100 cows, and the bull:cow ratio has increased from 21 to 31 bulls to 100 cows. Within this portion of the zone, consisting of primarily private lands where conflicts and property damage continue to increase, the Department collared 58 calves from 2017 to 2018 to investigate calf survival. Initial analysis suggests juvenile survival was high, and when combined with the increase in observed count data, and the high calf:cow ratio, it indicates a growing population.

Allocation of tags through the SHARE program to focus recreational harvest in certain areas can help alleviate landowner conflicts, and the harvest in recent years has occurred primarily in these areas of the hunt zone. Increasing population trends suggest the population can sustain the proposed level of hunting and continue to grow. Through landowner cooperation, the SHARE program results in harvest totaling up to nearly half the total general tags available. As currently designed, the SHARE program allows focused elk harvest restricted to specific ranches or farms rather than across the entire hunt zone.

To simulate effects of the proposed quota increase for Northwestern California, the Department, using the minimum count of 990 from only a portion of the entire zone, conservatively assumes the current population size is 1,600 elk and carrying capacity is estimated at 1,760 elk across the entire zone. Elk populations are growing and expanding within the unit and both current population size and biological carrying capacity are likely much larger than these respective estimates.

Other Hunting Zones Statewide

The levels of take for all other hunting zones statewide are analyzed in the 2010 Environmental Document. The Commission finds there are no new significant or substantially more severe environmental effects than were previously evaluated in that document, and were determined to be insignificant.

IMPACTS ON THE GENE POOL

The Department estimates there are a minimum of 5,700 Roosevelt elk distributed throughout several areas of northern California. The proposed project would allow an increased statewide take of 20 Roosevelt elk (for total statewide take of approximately 318 Roosevelt elk). Assuming a condition where all tagholders are successful, this would result in a short-term reduction of approximately six percent of the statewide Roosevelt elk population. This does not constitute a significant impact to the statewide gene pool and is well within the population's ability to maintain or increase size over the long term.

It is expected that not more than 255 elk (Rocky Mountain, Roosevelt, and Tule elk combined) will be taken by hunters under the PLM Program during 2019. This constitutes just over two percent of the statewide elk population and is well within the population's ability to maintain or increase size over the long term. Any population reduction from the PLM Program would be short term and would not constitute a significant impact to the gene pool.

The ability of elk populations to experience a given level of hunting mortality without a reduction in health or viability is described by Savidge and Ziesenis (1980) as sustained-yield management. Sustained-yield management is closely related to the compensatory responses in reproduction discussed previously.

Elk hunting in California currently involves herds at separate locations in the State that are at or above herd management objectives. Because the proposed project will not significantly reduce statewide population levels, the Commission concludes that there will not be an adverse impact to the gene pool, either locally or statewide.

IMPACTS ON SOCIAL STRUCTURE

Elk are gregarious and tend to form groups or aggregates. Elk do not mate for life. Males do not invest time or energy in the care of young, but generally form separate bachelor groups. Except for a short breeding period, most adult males generally remain separate from cow-calf groups during the remainder of the year. Therefore, removal of bulls by hunting will have a minimal effect on the social structure of the populations, provided that minimum herd objective bull ratios are maintained. Proposed harvest levels for each herd have been established to maintain or exceed minimum herd objective bull ratios and to provide for genetic variability, fertilization of cows, and public viewing opportunities of bull elk.

During the nonbreeding period, cow-calf groups generally contain few, if any, adult bulls. However, immature bulls are tolerated in cow-calf groups (Geist 1982). Newborn calves are initially completely dependent upon their dams but quickly adjust to the cowcalf group and form nursery groups within the larger group. Nursery groups briefly fixate and respond to a succession of adult females (Geist 1982). During the first 2.5 months of life, calves nurse extensively (Bubenik 1982). Nursing declines by August for most elk in California, when the proposed project would begin in some areas. There is no indication that calves orphaned at this time have been severely impacted; at Grizzly Island, tule elk calves orphaned in August remained within the social structure of the groups.

Generally, the proposed project has the potential to increase the ratio and number of calves in the hunted elk populations. The increase in calf survival results in a shift of age structure of the elk population from older to prime-age individuals (five to seven years). These prime-age individuals tend to provide higher recruitment rates (calf survival) for the population (Hines et al. 1985). Historical data (Fowler 1985, Botti and Koch 1988, Racine et al. 1988), computer simulation modeling (Smith and Updike 1987), and information from the literature (Taber et al. 1982) indicate that the removal of elk from the population (due to hunting, trapping for reintroduction, or high winter mortality) in one year results in a larger number of calves recruited into the population the following year.

Computer simulation modeling of the populations proposed to be hunted indicates that the removal of elk from these populations by hunting (in addition to nonhunting mortalities) will result in an increased survival of calves born the following spring for most areas (Appendix 3). As an example, in August of 1980 the observed calf ratio for the Bishop subherd was 20 calves per 100 cows. In December of 1980, the Department relocated 75 elk from the Bishop subherd. The following August (1981), the observed calf ratio was 43 calves per 100 cows. This type of increased calf survival (recruitment) is expected and has been observed numerous times in the Owens Valley (Racine et al. 1988) and at Grizzly Island (Botti and Koch 1988).

Most western states establish a goal for a post hunt ratio of at least 20 bulls per 100 cows (the proportion of bulls to cows in the population). Some states have goals as low as six bulls per 100 cows, while other states have goals of 25 bulls per 100 cows in trophy hunt areas (Mohler and Toweill 1982). The Department's management objective for most hunted populations is to maintain at least 25 bulls per 100 cows (the objective ratio for the Northwestern Unit is 15 bulls per 100 cows).

Most tag quotas provide for take of both male and female elk. Achieving and/or maintaining herd objective bull-to-cow ratios is accomplished most readily by harvest of both sexes, because harvesting only male elk can skew the sex ratio towards females;

and, conversely, harvesting only female elk can result in a population skewed towards males (Mohler and Toweill 1982).

Based on the computer simulation analysis of expected harvest rates, the post-hunt bull-to-cow ratios are expected to increase and/or remain above the Department's management objective. Additionally, computer simulation modeling indicates that the proposed take is within sustained-yield management levels. That is, under the proposed harvest levels, the population will be able to maintain itself over the long term at existing or higher population levels.

As discussed earlier, female pregnancy rates and calf survival are inversely related to the density of the elk herd in relationship to the condition of the available habitat. Management that provides for frequent reductions in female and young of the year elk in areas where elk have exceeded their herd size objective encourages age structure dominated by reproductively successful females (Hines et al. 1985).

Based on computer simulation modeling, the proposed project has the potential to increase calf survival rates for the hunted herds, resulting in improved general health of the hunted populations. Also, computer simulation modeling predicts minimal changes in bull-to-cow ratios as a result of the proposed project; such ratios for most hunted herds are predicted to increase or remain near the minimum objective ratio. Bull-to-cow ratios are predicted to remain significantly above corresponding ratios for other western states with hunting programs. Thus, it is unlikely that adverse impacts to the social structure of hunted herds will occur as a result of the proposed project. By increasing calf-to-cow ratios, the proposed project would improve herd condition and could thus have a positive effect on herd social structure.

EFFECTS ON HABITAT

The removal an additional 20 Roosevelt elk through public hunting is not expected to significantly change elk population levels on a long term basis. If no major changes occur in the elk population levels, no major changes in elk-caused effects on habitat (e.g., elk foraging pressure on plants) would be expected. Therefore, the proposed project is not expected to have an impact on habitat in the hunt areas.

The typical technique used to hunt elk within the proposed hunt areas involves spotting animals at a distance and/or quietly approaching them on foot to within a reasonable shooting range. Hunting from a motorized vehicle is illegal. Some hunters may use horses to cover greater distances searching for elk. In any case, the relatively low intensity of hunting effort (because of the low number of elk hunters in the field) within these areas is not expected to produce major effects on habitat. The increase in tags proposed by the Commission is not expected to cause any large increase in activity, or any additional significant impacts.

Both public and private lands occur within the hunt areas. On public lands, the Department provides input to the USFS regarding actions to improve the condition of elk herds and their habitat. Further, the USFS is mandated to incorporate wildlife needs, including elk, into their planning process, as required by the National Forest Management Act. In general, current timber harvest practices on public land benefit elk by creating a diverse mosaic of early successional and mature forest habitat types. Most of the public lands proposed to be open to elk hunting within Del Norte and Humboldt counties are currently open to the public on a year-round basis. These lands also are used for other outdoor recreational activities, such as fishing, photography, hiking, hunting, bird watching and general nature viewing. Due to the large size of the hunt areas (each area is several hundred square miles in size) and existing human use levels of the hunt areas, it is unlikely that the harvest of an additional 20 elk will individually or cumulatively negatively impact the habitat in the hunt areas.

EFFECTS ON RECREATIONAL OPPORTUNITIES

Hunting Opportunities

The proposed project continues to authorize public hunting of Roosevelt elk providing opportunities to harvest up to 108 elk by hunters who will participate in this unique outdoor experience. The demand for elk hunting opportunities is extremely high in California. In 2018, 39,829 individuals applied for an opportunity to hunt elk in California. In 1988, for the first time, a nonrefundable fee of \$5 was charged to apply for an elk hunt. Despite the new fee, almost 10,000 licensed hunters applied for elk license tags in 1988 with the number growing almost every year to date. The proposed project benefits the hunting public by providing hunting opportunities consistent with the State's Wildlife Conservation Policy and FGC sections 332 and 1801.

The season dates for the Northwestern elk hunts coincide, at least partially, with the B-1 and B-4 deer seasons. However, it is unlikely that deer hunters will be adversely impacted by the low number of elk hunters that may be in the field during the deer season. The Northwestern season dates will also coincide with bear season and the year round wild pig season. Due to the large areas open to hunting and the relatively short elk season, elk hunters will not affect the success or quality of experience for hunters of other species of wildlife.

Some individuals have expressed concern that the hunting regulations of other states might have adverse effects on elk hunting in California (presumably by causing an influx or exodus of hunters.) For the most part, non-resident public elk hunting opportunities on California are very limited (only up to one elk tag per year is available for non-residents to draw; non-residents may purchase one of the three fund-raising elk tags, and are eligible to purchase elk tags through the PLM Program). The Commission does not expect that the hunting regulations of other states will have an adverse effect on elk hunting in California.

Nonhunting Opportunities

Non-hunting users of the elk resource (viewing, nature study, and photography) will not be significantly impacted by the take of an additional 20 elk from the Northwestern Hunting Zone. Nor will the proposed project impair non-hunters' ability to enjoy the outdoors, the elk resource, or its habitat, due to the availability of opportunities to view elk herds in areas where hunting does not occur, such as within federal or state parks. Three of the State's 22 tule elk herds are maintained in a penned situation where no hunting is contemplated. These herds provide the public an opportunity to enjoy tule elk in their native habitat. Additionally, the proposed action does not provide hunting opportunities at Point Reyes National Seashore, which has a large population of tule elk and is accessible to the public for the enjoyment of elk and other wildlife in the area. General elk hunting seasons vary from four to 23 days. Based on hunter tag returns from 2018, elk hunters only spend, on average, four days hunting elk. This indicates that even for those hunted herds, a majority of time can be spent viewing elk without hunters in the field.

The proposed action will not impact the non-hunting public, because the number of hunters in the field at any one time (established by the quotas for each hunt), in conjunction with the areas open to hunting, will result in very low hunter density. Historically, all areas open for hunting have been open for other types of hunting (waterfowl, upland game birds, rabbit, wild pigs, black bear, etc.) during the same timeframe as the proposed elk hunts. For non-hunters concerned about being in the field during proposed elk hunts, large areas of similar habitats adjacent to or near all hunt areas may be used for non-hunting activities during the short elk hunting period.

EFFECTS ON OTHER WILDLIFE SPECIES

Although some overlap of food habits exists, competition between deer and elk has not been a documented problem in California. Nelson and Leege (1982) stated, "It would appear, therefore, that neither the elk nor the mule deer is affected seriously by the other, mainly because of differences in primary forage species and habitat choice." This also appears to be the case in California. Potential for competition between elk and deer can exist on critical winter ranges shared by the two species. However, there is no scientific evidence to indicate that removal of elk through a hunting program will adversely impact the local or statewide deer resource.

During the last few years, the potential for competition between deer and elk has received greater attention in the western states and provinces of North America. Many states and provinces have reported a decline in deer population numbers, coinciding with an increase in elk numbers. It has not been proven that elk displace deer or are a significant factor in suppressing their numbers throughout a broad geographic region. In considering the potential for competitive interaction between deer and elk, a variety of factors may be important, such as predation, climate, digestive physiology, energetics, vegetation succession, livestock, and human-related factors. Lindzey et al. (1997) discussed these and other factors in reviewing the potential for competition between deer and elk throughout the west, and compiled an extensive list of references regarding this subject. They concluded it is appropriate to question whether the growth of elk populations has contributed to apparent deer decline, but found no consistent trends in geographic areas used sympatrically to suggest a cause-and effect relationship.

Due to their large body size, adult elk experience limited predation. Cases of lion predation on adult elk have been documented (Taber et al. 1982, Booth et al. 1988, Racine et al. 1988). Results of fall surveys have documented several confirmed lion-killed elk since 1988. However, there is no scientific evidence to indicate mountain lion predation significantly affects elk statewide in California as demonstrated by increases in elk numbers.

Coyotes, black bears, wolves, and mountain lions prey on elk and/or elk calves. It is possible, as a result of removing adult elk from elk herds, calf production will increase the following spring. This could provide additional prey for predators. Historical herd performance data collected on elk herds indicate that calf recruitment will increase after an elk removal, regardless of the existence of predators in the area (Racine et al. 1988). Based on a review of available information discussed in this document, it is reasonable to assume the proposed project will not have measurable short-term or long-term effects on other local wildlife populations, including deer, mountain lions, black bears, wolves, and coyotes.

A number of endangered, threatened or locally unique animals and plants may occur within the elk hunt areas. The Department is charged with the responsibility to determine if any hunting regulations will impact threatened or endangered species. It complies with this mandate by consulting internally and with the Commission when establishing elk hunting regulations to ensure that the implementation of the proposed project and existing hunting regulations do not affect these species. It is unlikely that adverse impacts to rare, endangered, threatened, or locally unique species associated with the proposed hunt areas will occur as a result of the proposed project. Most rare, endangered, threatened, or locally unique species associated with the hunt areas either are associated with habitats where elk hunting is not likely to occur or use these areas during a time (season) different from when the proposed project will occur. The proposed project will involve a minimal number of hunters using areas, that for the most part, are open to the public for a variety of uses, including hunting. The Department has concluded that, based on conditions of the proposed project and existing hunting regulations, differences in size, coloration, distribution, and habitat use between the listed species and elk, the proposed project will not jeopardize these species.

EFFECTS ON ECONOMICS

The proposed project will not result in changes to the environment, either directly or indirectly, which would produce significant negative environmental effects. Therefore,

no CEQA review of economic effects is necessary. However, the proposed project has the potential to result in minor economic effects on the communities where elk hunting is proposed.

The effects of the Elk hunting regulations on the local economy may involve increases in economic activity near the hunt areas, as visiting hunters purchase goods and services from local merchants. This additional spending would generate additional retail sales, business spending, and income that could in turn, contribute to employment in motels, restaurants, and retail stores.

EFFECTS ON PUBLIC SAFETY

Since 1989, the Department has received no reports of elk hunting-related casualties in California. This does not diminish the fact that people have died or been wounded while hunting other big game animals. Based on the total number of licensed hunters in California and the annual number of accidents, there is roughly a 0.00425-0.005 percent chance of being killed or wounded while hunting deer. Additionally, Department records show that no non-hunting injuries or deaths have occurred as a result of elk hunting. As with any outdoor activity, there is always a risk of injury or death. However, the probability of being injured while hunting elk is extremely low, especially in comparison to other recreational activities. This good safety record is due, in part, to the requirement that all hunters must successfully pass a hunter safety education course prior to receiving a hunting license. It is unlikely that the proposed project will result in adverse impacts to public safety.

GROWTH-INDUCING IMPACTS

There are no growth-inducing impacts associated with the proposed project. As discussed in "Effects on Economics" in this chapter, minor increases in retail sales, income, and possibly employment are anticipated in the regions where the proposed hunt areas exist. However, the small number of public tags available is unlikely to create growth-inducing impacts in a State with a total human population of over 30 million.

SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

The proposed project will not affect a variety of short-term uses currently available to the public. Additionally, the proposed project will provide for public hunting opportunity without adversely affecting long-term productivity of statewide or local elk populations, based on predictions of simulation modeling.

SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

No significant irreversible environmental changes are expected to occur as a result of the proposed project. The proposed harvest levels were selected to avoid adversely

impacting hunted populations and to reach or maintain herd management objectives. The proposed project is designed to avoid significant adverse impacts to other wildlife species, their habitat, and listed or locally unique species. As discussed previously, adverse impacts to economics and public uses (including safety) are not expected.

WELFARE OF THE INDIVIDUAL ANIMAL

Analysis of welfare of the individual animal was presented on page 120 (incorporated by reference, April, 2006 Final Environmental Document, SCH#2003112075, available at 1812 9th Street, Sacramento, CA 95811). The project has been designed to limit wounding through the specification of minimum performance requirements for archery equipment and firearms. It is expected that some wounding may nevertheless occur. The methods of take are not one hundred percent lethal. Lethality is largely a function of hunter skill and accuracy. The Department has evaluated the welfare of the individual animal and has specified minimum performance requirements for archery equipment and firearms in existing regulations.

CUMULATIVE IMPACTS

The proposed project provides for a specific level of public elk hunting in specified areas during 2019, and it is reasonably foreseeable that the Commission would consider and approve hunts in these areas in the future. Because of this potential, the Department modeled population performance of hunted herds for a 10-year period. Potential effects of cumulative factors identified in this section were considered with the model runs. It must be emphasized that the model runs specify the same level of harvest (expressed as a percentage of the population) each year. The statutorily mandated regulation process involves review and appropriate regulation changes based on the condition of a population. Data collected by the Department during the year following the approval or denial of the proposed project would be examined, and appropriate, biologically sound recommendations would be presented by the Department to the Commission prior to approval of any future hunt.

Section 255, FGC, identifies the steps required for the Commission to adopt, amend or repeal regulations relating to mammal hunting. This law requires that the Commission receive recommendations regarding mammal hunting regulations from Commission members, its staff, the Department, other public agencies, and the public. The process is analogous to the Commission establishing specific harvest quotas for the deer and pronghorn antelope hunting seasons. The system has worked well over time in adjusting the hunting program to maintain healthy wildlife populations.

Effects of Private Lands Wildlife Habitat Enhancement and Management (PLM) Area Program

To become licensed in the PLM Program, landowners are required to submit an application package which includes a management plan. This plan must contain, among other things, habitat enhancement goals and objectives to be accomplished over the term of the five-year license. The habitat projects outlined in the plan are directed toward improving habitat for both game and nongame species. The ultimate goal of these habitat improvement practices is to enhance or stabilize (under adverse ecological conditions) populations of various wildlife species present on the area. Once licensed, the PLM is reviewed annually by the Commission to ensure compliance with all regulations and administrative procedures.

The PLM Program has been successful as an incentive for landowners to protect and improve wildlife habitat. Habitat improvements implemented under approved management plans on licensed areas include conducting controlled burns to improve forage conditions, reducing livestock grazing to reduce competition with wildlife, protecting wildlife fawning/nesting sites and riparian areas, developing wetland/marsh areas, constructing brush piles, improving water sources, and planting forage and cover crops for wildlife. The projects directly benefit deer, elk, bear, antelope, wild pigs, waterfowl, turkeys, quail, and a wide variety of nongame wildlife, including threatened and endangered species. Habitat improvements accomplished specifically for game species (such as riparian improvement, protection, and enhancement) directly benefit hundreds (approximately 331 species in hardwood-dominated habitats) of nongame wildlife species.

The anticipated PLM harvest was modeled as part of the overall (public and PLM) harvest simulation model run (Appendix 3). As discussed previously, no adverse impacts are expected, based on the simulation model runs. The simulation models (Appendix 3) indicate previous harvest levels have been below the maximum sustainable yield. Because the expected harvest under the PLM Program is less than the maximum sustainable yield (harvest), the Department has determined that the PLM Program, together with the proposed project, will not have a significant adverse cumulative effect on elk populations in California.

Nine licensees participated in the PLM Program for elk in the Northwestern elk zone in 2018 (Appendix 6). The Department recommends issuing no more than 40 elk tags through these nine PLM properties for 2019. Previous total elk harvests under the PLM program have been below these levels (35 elk were harvested in 2018 under the PLM program in the Northwestern elk zone). Expected harvest under the PLM program is anticipated to be below the maximum PLM quota. Thus, harvest under the PLM program, either alone, or combined with the proposed public harvest, will not have a significant adverse cumulative effect on statewide or local populations of elk.

Effects of Drought

Drought cycles are part of the ecological system in California and elk are adapted to low water years. Still, multi-year droughts can reduce elk populations on a local scale. Drought conditions can impact elk in a variety of ways including: degraded habitat quality (less vegetation growth) and reduced food production (both natural and agricultural). California has a "Mediterranean climate," meaning that over the long-term, the State receives the bulk of its precipitation during the cool fall and winter months, while warm spring and summer months are generally dry. In other words, California undergoes a "summer drought" each year. However, extreme variation in precipitation occurs in the State on an annual basis. For example, the northwest coast receives a great deal of precipitation, while southern deserts receive very little precipitation. Additionally, topographic features, such as the Sierra Nevada, influence climate by creating a rain shadow, whereby most of the precipitation falls on the west side of the range. The amount of precipitation in California is extremely variable on a geographic basis within a year and extremely variable in any one area among years.

Throughout much of the State, stream courses, natural lakes, ponds, springs, and reservoirs were affected by the recent drought. As far as terrestrial wildlife are concerned, prolonged drought in areas with scarce water, such as in the desert and south coast ranges, may affect production and survival of young for a variety of species in future years. Droughts are cyclic long-term, and all wildlife species and their habitats in California have evolved under conditions of periodic drought (Bakker 1972, Munz and Keck 1973, Oruduff 1974, Burcham 1975, Barbour and Major 1977). Since the 1800s, California has experienced several drought cycles lasting two to five consecutive years (Department of Water Resources 2015). Because of this natural variation in water availability, vegetation communities have evolved and adapted with associated changes in soil moisture (Barbour and Major 1977). Many of California's plant communities (e.g., desert, chaparral, grassland, oak-woodland, etc.) are drought tolerant. However, drought can affect plant species. Growth and vigor of forage plants may be severely reduced during drought, due to reduced germination of annual plants, and reduced growth of shrubs and trees adapted to conserve water. Consequently, the quantity and quality of forage for herbivores is reduced during periods of drought.

While drought effects on vegetation communities can be unpredictable, some studies have been conducted. One study measured acorn production (a primary food of many wildlife species) in five oak species occurring at a site in Monterey County from 1980-89 (Koenig et al. 1991). That study determined that acorn production was highly variable among oak species from year-to-year and that climatic variables generally did not correlate with annual variation in acorn production. The study also indicated that local acorn crop failures may have detrimental effects on local populations. However, total crop failures on a community-wide basis among all species are rare, even during drought years. Similarly, acorn production data from a four-year period in Tehama County (Barrett, unpublished data) indicate that annual production was approximately

60 percent, 20 percent, five percent, and 180 percent, respectively, of the mean annual crop between 1987 and 1990.

Alternatively, in vegetation communities comprised of annual plants, lack of fall germinating rains, or minimal spring rains can preclude germination of forbs and grasses, which are important sources of forage, primarily during the fall, winter, and spring. The seeds lie dormant in the soil until germinating conditions are suitable. Drought may also weaken resistance of plants to disease, fungus, and insect damage, cyclically affecting vegetation.

Hence, during drought, some plant species respond in ways that benefit wildlife (e.g., increased acorn production), while others respond in ways detrimental to wildlife (e.g., reduced grass and forb growth).

Native game mammals in California have evolved to withstand both drought and flood extremes within their ranges. Before human intervention, these ranges likely varied in response to periods of prolonged drought or wet conditions. Currently, however, remaining habitats are, to a large extent, managed and affected by humans. Water management has likely resulted in greater stability in modern wildlife populations in many cases due, in part, to the advent of water wells, sites developed to enhance water for wildlife (e.g., guzzlers), irrigation, and reservoirs. In many areas, water is more available to wildlife, regardless of drought, than it would have been prior to large-scale human development in California.

The reduced quantity of vegetative cover due to prolonged drought in some areas could affect thermal and hiding cover important to wildlife. However, such effects are not yet reflected in population data.

Significant impacts to wildlife due to drought in some areas of the State may occur if drought conditions persist for more than several years. Potential impacts include reduced habitat quality and quantity, resulting in reduced reproductive success and survival of individuals in a population. As a result, periodic drought conditions may produce short-term effects due to less available forage, but may have little, if any, long-term effects on the abundance of most species.

Effects of drought on wildlife species would be reflected in poorer physical condition of individual animals, decreased survival of individuals, declining reproduction and survival of young, and reduced population size. While fluctuations may occur annually in some areas, the large-scale effects of significant drought events could be felt statewide.

Effects of drought conditions on elk populations have been recorded in the Owens Valley and in the Cache Creek area (Fowler 1985, Booth et al. 1988, Racine et al. 1988). While drought may result in increased mortality among individuals in an elk population (primarily reduced calf survival), the proposed project is based on data collected on populations with exposure to periodic drought conditions and will not affect viability of local populations. Records of drought prior to 1988 indicate the Grizzly Island tule elk herd was not affected (Botti and Koch 1988). Based on the above information the possibility of drought impairing the statewide tule elk population is very unlikely.

The Department's evaluation of conditions and trends of elk herds and habitats is an ongoing facet of the Department's elk management program (CDFW 2018). Information collected by the Department and other sources will inform future recommendations for elk hunting programs and other management activities, such as habitat improvement or acquisition projects. The impacts, if any, of a catastrophic event on elk populations would be addressed in carrying out any future management actions. In addition, the Commission has the regulatory authority (Section 314, FGC) to take emergency action to cancel or suspend one or more proposed elk hunts if a catastrophic event occurred which, in conjunction with a hunting program, could significantly impact the elk population. Thus, the Commission does not anticipate adverse impacts will occur as a result of drought in combination with the proposed project.

Effects of Wildfire

One aspect of prolonged drought that would affect wildlife habitat is an increased risk of wildfire due to extremely dry conditions. However, wildfire can be a problem in extremely wet years due to increased fuel loads. Consequently, it can be difficult to conclude that drought years predispose some vegetation communities to wildfire more than wet years. In forested communities, woody plant communities affected by prolonged drought may experience increased plant mortality and decreased moisture content, increasing their susceptibility to wildfire.

Catastrophic events, such as wildfire and drought, have affected elk throughout their evolution. Although effects of drought and wildfire can have an impact on local populations of elk, historical data collected by the Department (McCullough 1969, Fowler 1985, Racine et al. 1988) indicate that there is no evidence that drought, wildfires, or other catastrophic events have resulted in the extirpation of an elk population.

Wildfires are a natural occurrence in elk range. Plant species in the hunt areas have evolved with fire, and many species of plants require fire to complete their life cycle. Fire is not known to have negative long-term effects on elk populations, and considerable information indicates fire can significantly improve elk habitat (Lyon and Ward 1982). Within the Northwestern Hunt Zone, the climate is heavily marine influenced and moist, minimizing risk of wildfire which is not expected to be prevalent.

Wildfires have the potential to positively impact elk populations. Iinitially, fire may displace elk for a short time period (two to three months). However, elk often return to burned areas immediately following fire. Longer-term impacts may have significant

positive effects on local populations. For example, a wildfire may burn habitat used by elk, causing short-term loss of some forage and cover. However, elk move back into the burned areas quickly to utilize the young nutritious forage growing in the burned areas (T. Burton, Department of Fish and Wildlife, Yreka, personal communication). Also, since elk are primarily grazing animals, eating mostly grasses, fires thatburn brush and trees open areas to allow more grasses to grow, and thus benefit elk (Lyon and Ward 1982).

Based on the above information, the possibility of wildfires impairing the statewide Roosevelt, Rocky Mountain, or tule elk populations from persisting in a healthy, viable condition is very unlikely. Evaluation of elk herd and habitat conditions and trends is an ongoing element of the Department's elk management program. Information collected by the Department and other sources will be used to modify any future recommendations for hunting programs and to recommend other management activities, such as habitat improvement or acquisition projects. The impacts, if any, of a catastrophic event on elk populations would be addressed in carrying out any future management actions. In addition, the Commission has the regulatory authority (Section 314, FGC) to take emergency action to cancel or suspend elk hunting if a catastrophic event occurs which, in conjunction with a hunting program, could significantly impact the elk population. Thus, the Commission does not anticipate adverse impacts will occur as a result of wildfire in combination with the proposed project.

Effects of Disease

Historical data indicate elk are remarkably free of disease (Fowler 1985, Booth et al. 1988, Botti and Koch 1988, and Racine et al. 1988). However, Roosevelt elk tested in the Prairie Creek area of Humboldt County showed signs of heavy parasite levels and poor body condition in 1960 and 1982 (Department of Fish and Game files). The Department routinely collects blood samples from the majority of elk captured. Over the last 20 years, the Department has analyzed approximately 900 tule elk and 200 Roosevelt elk blood samples to systematically determine the prevalence of disease and assess the general health of the State's elk.

Recent concern has grown about effects of Chronic Wasting Disease (CWD) on deer and elk in North America (Williams et al., 2002). CWD is a fatal, contagious transmissible spongiform encephalopathy infecting the brains of deer and elk. It has been diagnosed within numerous states and provinces of North America. The Department began a surveillance program in 1999 and has tested more than 900 samples from California deer for CWD. All results to date have been negative. California is considered a low risk state for CWD; game ranching of cervids is not allowed (except for fallow deer), and importing live cervids is severely restricted. CWD is not currently known to be naturally transmitted to humans or animals other than deer and elk. On August 30, 2002, the Fish and Game Commission adopted emergency regulations placing conditions on the importation of hunter-harvested deer and elk into California. Those restrictions, which prohibit the importation and/or possession of brain
matter or spinal cord of a deer, elk or cervid from another state, were made permanent. The Department has established a task force to expand its disease monitoring efforts and improved surveillance for CWD (and other diseases) to improve preparedness should CWD emerge in California.

There is no indication of a potential for the State's elk populations (either statewide or locally) to be significantly impacted by a major disease outbreak. There are no data available to indicate that disease, road kills, predation or other natural mortality factors will act as additive impacts which, along with the proposed hunting program, will have a significant adverse cumulative impact on local or statewide elk populations.

Effects of Habitat Loss and Degradation

The proposed project is not likely to cause habitat loss and degradation. The removal of individuals may actually improve elk habitat by decreasing grazing intensity. The elk hunting season is short, and most of the hunting areas are generally open to the public for other uses year-round. The effects on habitat loss and degradation by hunters during the elk hunting season would be negligible.

On private land, there are potential changes in land ownership which may result in landuse changes. No major changes in private land-use patterns are expected in the near future. The long-term outlook for elk habitat on public lands in California is stable to improving. The cumulative impacts of habitat modification plus hunting are not expected to have a significant adverse impact on elk populations. In combination with the proposed project, potential habitat modification/ degradation is unlikely to have significant adverse cumulative effects.

Effects of Illegal Harvest

Illegal harvest of game mammals is difficult to quantify. It is likely that elk have been taken illegally from proposed hunt areas, as well as from other herds where hunting is not proposed. Department records indicate at least three citations per year involving illegal take/possession of elk were issued in 1997 and 1998. At least three citations involving elk were issued each year in 2000 and 2001. Illegal harvest of subspecies other than Roosevelt elk has occurred in California and other western states (Potter 1982).

Illegal take of tule elk has occurred in the Owens Valley, at Grizzly Island and Fort Hunter Liggett during recent tule elk seasons. One hunter at Grizzly Island was cited for taking two and one cited for taking a spike elk while possessing an antlerless tag. Similar incidents occurred in sporadically in the past. Such incidents of unintentional illegal take have occurred with other game animals in California and other western states. The Department conducts mandatory hunter orientations for some tule elk hunt sin California and emphasizes avoiding incidents of unintentional illegal take and distributes informational material to all elk tag holders. The Department will continue this emphasis in future orientations; additionally, the Department will continue to issue citations to individuals for illegally taking elk, regardless of whether or not such take is intentional. Even with such measures, however, some level of unintentional illegal take is expected to continue. Nevertheless, there is no indication that illegal harvest will, in combination with the proposed project, have significant adverse cumulative effects.

Effects of Depredation

Private property conflicts involving effects of elk on agricultural crops, fences, and other personal property have occurred, and are likely to continue wherever elk and humans coexist. Section 4181, FGC, provides for the killing of elk when private "property is being damaged or is in danger of being damaged or destroyed." However, current Department policy is to attempt all reasonable and practical means of nonlethal control prior to issuing a depredation permit for elk.

Issuing depredation (kill) permits is considered as the final measure to alleviate localized private property conflicts involving elk; and the Department issued no elk depredation permits from 1989 until 2002. However, as elk populations have increased and distribution has expanded, conflicts on private property have increased in severity. Since 2002, the Department has issued approximately 19 elk depredation permits.

With the establishment of the SHARE Program, the Department offers recreational hunting opportunities in partnership with landowners to help alleviate effects of elk on private lands. This program provides incentives to to allow public access on private lands. The resulting hunting pressure helps alleviate some of the conflict and provides important recreational opportunities, which function as a tool for elk management.

In response to the increasing private property conflicts involving elk, the State Legislature passed Assembly Bill 1420 (AB1420, Laird; Chaptered September 4, 2003). Among other things, AB 1420 directs the Department to prepare a statewide elk management plan that identifies management activities necessary to alleviate private property damage caused by elk. The statewide Elk Conservation and Management Plan was completed and released in December 2018 (CDFW 2018). Prior to issuing an elk depredation permit, AB1420 requires the Department to verify damage caused by elk, provide a written summary of corrective measures to alleviate the problem, determine the viability of the subject elk herd and the minimum population numbers needed to sustain it, and finally to ensure that a permit will not reduce the herd below the minimum population level.

To alleviate private property conflicts involving elk, the Department will investigate the potential for expanding hunting opportunities. Because of the constraints in AB1420, the Commission does not anticipate adverse cumulative impacts to elk populations resulting from combined effects of the proposed project and issuance of depredation permits.

Effects of Vehicle-Caused Mortality

The number of elk killed by vehicles is not well documented. Unlike deer, very few elk in California appear to be killed by automobiles each year. Vehicle-caused elk mortalities have been reported (specifically with Roosevelt elk in Del Norte and Humboldt counties and tule elk in the Owens Valley and at Cache Creek) since 1990. Unreported incidents cannot be quantified. However, the Commission believes effects of vehicle-caused mortality on statewide and localized elk populations are minimal.

Conclusion

The Department has examined a variety of factors that might affect Roosevelt elk populations in the Northwestern elk zone. The Department does not anticipate adverse cumulative impacts to the local elk populations will occur as a result of the proposed project in combination with any factor discussed. However, if some unforeseen cataclysmic event should occur that threatens the welfare of either statewide elk populations or individual hunted populations, the Commission has the authority to take appropriate action, which may include emergency closure of seasons and/or reduction of future hunting opportunities.

Although hunting elk will result in the death of individual elk, limited tag quotas, short seasons, bag limits, and close monitoring of hunter activity in the field, will result in removing elk at a level below the individual herds' sustained-yield capabilities. The elk herds proposed for hunting will be maintained within specified management plan objective ranges. Statewide population levels for Roosevelt elk will remain stable. Therefore, significant adverse effects, individually or cumulatively, to elk populations are not expected to result from the proposed project. Additionally, no impacts from two or more separate factors have been identified where, when viewed alone would be minor, but whose combined effect would be significant. Because individual and cumulative negative impacts are not expected to occur, specific mitigation measures are unnecessary.

CHAPTER 3 - ALTERNATIVES

ALTERNATIVE 1 - NO PROJECT (NO CHANGE- MAINTAIN CURRENT CONDITION)

Other than annual tag quota modifications proposed in response to herd productivity, implementation of the No Project Alternative would result in no change from the 2010 tag quota range for Northwestern California. The Department does not expect age and sex ratios to change appreciably under this alternative. Herd size is expected to remain stable, or increase if currently below carrying capacity (Appendix 3). Since this alternative presents no changes to current levels of hunting activity and elk harvest, the no-project alternative would not lead to any potential significant impacts on the environment.

ALTERNATIVE 2 – INCREASED HARVEST

Alternative 2 represents management options that will achieve an increased harvest (IH) for Northwestern California by increasing the available tags to 60 instead of 20 in the proposed alternative. IH refers to a harvest strategy that maximizes the number of animals that can be harvested from a population, commensurate with the goals and objectives stated for that herd, for at least the following year. A potential issue with an IH management strategy is risk of overharvest. If overharvest occurs under an IH program, more conservative management strategies would be necessary the following year to address it. Based on the Department's current understanding of elk populations in the Northwestern Hunt Zone and the scenarios run in Elk Pop, an IH scenario may affect the ability to meet the statewide objective to increase populations by ten percent. While calf ratios are expected to increase in response to increased harvest under an IH program, herd growth in Northwestern California may be limited if an IH program is maintained for a ten-year period (Appendix 3). While impacts to the environment and the sustainability of California's elk population are not anticipated to be significant with this level of harvest, it may not achieve the Department's management objective of increasing the population by ten percent in suitable areas where depredation conflicts are minimal. Although the Northwestern Hunt Zone has experienced a significant increase in landowner conflicts, the Department does not recommend an IH strategy at this time but recognizes the importance and need for continued evaluation.

ALTERNATIVE 3 – REDUCED HARVEST

Alternative 3 represents management options for Northwestern California that will produce a relatively small increase in harvest by adding ten additional tags rather than 20. This reduced harvest (RH) is a strategy that provides hunting opportunities at reduced levels from those proposed under either IH or the proposed project. Calf ratios may increase slightly, whereas bull ratios are not expected to change appreciably under this alternative. Herd size is expected to remain stable, or increase if currently below carrying capacity (Appendix 3). Since this alternative would reduce hunting opportunity, it does not achieve the Department's management objective of providing for diversified recreational opportunities for enjoyment of wildlife, within sustainable levels.

There are no significant long-term adverse impacts associated with the proposed project or any of the three alternatives described above. However, the Department recommends the proposed project because it is most compatible with objectives of population growth (Objective 1.2), increasing hunting opportunities (Objective 3.1), and reducing human-elk conflicts on private property (Objective 4.1) in the Department's Elk Conservation and Management plan (CDFW 2018). Alternative 1 would not increase hunting opportunities or help alleviate conflicts on private property. Alternative 2 (IH) may be warranted, and additional research efforts to improve understanding of elk distribution and population dynamics are necessary to consider that level of increase. The Department recognizes continued elk population growth and increasing human-elk conflicts as it works in partnership with other agencies, non-profits and landowners to develop long-term solutions consistent with management plan objectives. Whereas Alternative 3 (RH) may also achieve these objectives, it does not optimize public hunting opportunities or alleviation of conflicts on private property.

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Appendix 1. CEQA Environmental Checklist Form

CEQA Appendix G: Environmental Checklist form

NOTE: The following is a sample form and may be tailored to satisfy individual agencies' needs and project circumstances. It may be used to meet the requirements for an initial study when the criteria set forth in CEQA Guidelines have been met. Substantial evidence of potential impacts that are not listed on this form must also be considered. The sample questions in this form are intended to encourage thoughtful assessment of impacts, and do not necessarily represent thresholds of significance.

- 1. Project title: Elk Hunting
- 2. Lead agency name and address:

California Fish and Game Commission

<u>1416 9th St</u>reet, Suite 1320____

Sacramento, CA 95814

- 3. Contact person and phone number: <u>Kari Lewis, Chief, Wildlife Branch (916) 445-3789</u>
- 4. Project location: <u>Statewide</u>
- 5. Project sponsor's name and address:

California Department of Fish and Wildlife

Wildlife Branch, 1812 9th Street

- Sacramento, CA 95811
- 6. General plan designation: <u>N/A</u>
- 7. Zoning: <u>N/A</u>
- Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.) <u>The proposed project would increase the tag quota range (by 20 tags) in the Northwestern Elk Zone.</u>
- 9. Surrounding land uses and setting: Briefly describe the project's surroundings:

The project occurs in areas in Del Norte and Humboldt Counties open to elk hunting.

- 10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.) <u>N/A</u>
- 11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

No.

NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

	Aesthetics		Agriculture and Forestry Resources		Air Quality
\boxtimes	Biological Resources		Cultural Resources		Geology /Soils
	Greenhouse Gas Emission	s	Hazards & Hazardous Materials		Hydrology / Water Quality
	Land Use / Planning		Mineral Resources		Noise
	Population / Housing		Public Services	\boxtimes	Recreation
	Transportation/Traffic		Tribal Cultural Resources		Utilities/Service Systems
Signif	Mandatory Findings of icance				

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT equivalent under the Commission's Certified Regulatory Plan is required.

I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT equivalent under the Commission's Certified Regulatory Plan is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance

Issues:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?				\boxtimes
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				\square
c) Substantially degrade the existing visual character or quality of the site and its surroundings?				\square
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				\square
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the <u>California Agricultural Land Evaluation and</u> <u>Site Assessment Model (1997)</u> prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the <u>Forest and Range Assessment Project</u> and the <u>Forest Legacy Assessment project</u> ; and forest carbon measurement methodology provided in <u>Forest Protocols</u> adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				\square
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				\boxtimes
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				
<u>III. AIR QUALITY.</u> Where available, the significance criteria established by the applicable <u>air quality management or</u>				

	Potentially Significant Impact	Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?				\square
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				\square
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				
d) Expose sensitive receptors to substantial pollutant concentrations?				\bowtie
e) Create objectionable odors affecting a substantial number of people?				\boxtimes
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the <u>California Department of Fish and Game</u> or <u>U.S. Fish and</u> <u>Wildlife Service</u> ?				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the <u>California Department of Fish and Game</u> or <u>US Fish and</u> <u>Wildlife Service</u> ?				
c) Have a substantial adverse effect on federally protected wetlands as defined by <u>Section 404 of the</u> <u>Clean Water Act</u> (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				\boxtimes
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				\boxtimes
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				\boxtimes
f) Conflict with the provisions of an adopted <u>Habitat</u> <u>Conservation Plan</u> , <u>Natural Community Conservation</u> <u>Plan</u> , or other approved local, regional, or state habitat conservation plan?				\square

Less Than

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				\square
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to <u>Division of Mines and Geology Special Publication 42</u> .				\boxtimes
ii) Strong seismic ground shaking?				\boxtimes
iii) Seismic-related ground failure, including liquefaction?				\square
iv) Landslides?				\boxtimes
b) Result in substantial soil erosion or the loss of topsoil?				\boxtimes
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				\boxtimes
d) Be located on <u>expansive soil</u> , as defined in Table 18-1- B of the Uniform Building Code (1994), creating substantial risks to life or property?				\boxtimes
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				\boxtimes
VII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?				\boxtimes
b) Conflict with an applicable plan, policy or <u>regulation</u> adopted for the purpose of reducing the emissions of greenhouse gases?				\boxtimes
<u>VIII. HAZARDS AND HAZARDOUS MATERIALS.</u> Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				\square
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				\square
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				

Less Than Potentially Significant with Less Than Significant Mitigation Significant No Impact Impact Incorporated Impact d) Be located on a site which is included on a list of \boxtimes hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? e) For a project located within an airport land use plan or, \boxtimes where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? f) For a project within the vicinity of a private airstrip, \times would the project result in a safety hazard for people residing or working in the project area? g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? h) Expose people or structures to a significant risk of loss, \times injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? IX. HYDROLOGY AND WATER QUALITY. Would the project: a) Violate any water quality standards or waste discharge requirements? b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? c) Substantially alter the existing drainage pattern of the \mathbb{N} site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? d) Substantially alter the existing drainage pattern of the \times site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? e) Create or contribute runoff water which would exceed Х the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of

polluted runoff?

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?				\boxtimes
g) Place housing within a 100-year flood hazard area as mapped on a <u>federal Flood Hazard Boundary</u> or <u>Flood</u> <u>Insurance Rate Map</u> or other flood hazard delineation map?				\square
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				\square
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				\square
j) Inundation by seiche, tsunami, or mudflow?				\boxtimes
X. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?				\boxtimes
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				\boxtimes
XI. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known <u>mineral</u> <u>resource</u> that would be of value to the region and the residents of the state?				\square
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				\boxtimes
XII. NOISE Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				\square
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				\boxtimes
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				\square
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?				\boxtimes
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the				\square

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
project expose people residing or working in the project area to excessive noise levels?				
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				\square
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				\boxtimes
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				\square
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				\square
XIV. PUBLIC SERVICES.				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?				\bowtie
Police protection?				\boxtimes
Schools?				\boxtimes
Parks?				\boxtimes
Other public facilities?				\square
XV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				\boxtimes
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				\square

XVI. TRANSPORTATION/TRAFFIC.

Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e) Result in inadequate emergency access?

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

XVII. TRIBAL CULTURAL RESOURCES

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

 i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision
(c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

VIII. UTILITIES AND SERVICE SYSTEMS. Would the project:

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
			\boxtimes
			\boxtimes
			\boxtimes
			\boxtimes
			\boxtimes

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable <u>Regional Water Quality Control Board</u> ?				\square
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				\square
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				\square
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				\square
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				\square
g) Comply with <u>federal</u> , <u>state</u> , and local statutes and regulations related to solid waste?				\square

XIX. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? \square

 \boxtimes

	Less Than			
	Potentially Significant Impact	Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				\boxtimes

Note: Authority cited: Sections <u>21083</u> and <u>21083.05</u>, <u>21083.09</u> Public Resources Code. Reference: <u>Section 65088.4</u>, Gov. Code; Sections <u>21073</u>, <u>21074</u> <u>21080(c)</u>, <u>21080.1</u>, <u>21080.3</u>, <u>21083</u>, <u>21083.05</u>, <u>21083.3</u>, <u>21080.3.1</u>, <u>21080.3.2</u>, <u>21082.3</u>, <u>21084.2</u>, <u>21084.3</u>, <u>21093</u>, <u>21094</u>, <u>21095</u>, and <u>21151</u>, Public Resources Code; <u>Sundstrom v. County of Mendocino</u>, (<u>1988</u>) <u>202</u> Cal.App.3d <u>296</u>; <u>Leonoff v.</u> Monterey Board of Supervisors, (<u>1990</u>) <u>222</u> Cal.App.3d <u>1337</u>; <u>Eureka Citizens for Responsible Govt. v. City of Eureka</u> (<u>2007</u>) <u>147</u> Cal.App.4th <u>357</u>; Protect the Historic Amador Waterways v. Amador Water Agency (2004) <u>116</u> Cal.App.4th at <u>1109</u>; <u>San Franciscans Upholding the</u> Downtown Plan v. City and County of San Francisco (2002) <u>102</u> Cal.App.4th <u>656</u>. **Appendix 2** - 2019 Proposed Elk Tag Allocation for the Northwest Zone. Tags will be distributed between general draws and SHARE hunts.

	2018 Tag Allocation	2018 Tag Range	2019 Tag Range (Proposed)
Bull	20	0-20	0-28
Antlerless	22	0-22	0-34
Either-sex	3	0-3	0-3

Appendix 3. Computer Model Runs (Elk Pop) Harvest

NORTHWESTERN CALIF. ELK HERD SIMULATION- GENERAL, PLM, SHARE TAGS, 2019 (Combined Harvest for Del Norte and Humboldt cos)

Ratio = 37/100/32 - Maximum Calf Survival = 40%

THIS PROGRAM CALCULATES CHANGES IN HERD CHARACTERISTICS BASED ON VARIOUS HARVEST

RATES.

CURRENT CONDITIONS = NO CHANGE. GENERAL, COOP ELK, SHARE AND PLM TAGS TO HARVEST APPROXIMATELY 44 BULLS AND 21 ANTLERLESS ELK

HERD SIZE	1600	ELK
% BULLS LOST TO NON HUNTING CAUSES	23.5	%
% COWS LOST TO NON HUNTING CAUSES	11.9	%
% OF BULLS KILLED BY HUNTERS	12.55	%
% OF COWS KILLED BY HUNTERS	2.2	%

				SURV.				BULLS	COWS
		BULLS	COWS	CALVES	TOTAL	K		HARVEST	HARVEST
START	AUG	350	947	303	1600	1600	Ì	44	21
YEAR 1	"	350	949	301	1600	1600		44	21
YEAR 2	"	349	950	300	1600	1600		44	21
YEAR 3	"	349	951	300	1600	1600		44	21
YEAR 4	"	348	952	300	1600	1600		44	21
YEAR 5	"	348	952	300	1600	1600		44	21
YEAR 6	"	347	953	300	1600	1600		44	21
YEAR 7	"	347	953	300	1600	1600		44	21
YEAR 8	"	347	953	300	1600	1600		44	21
YEAR 9	"	347	953	300	1600	1600		44	21
YEAR 10	"	347	954	300	1600	1600	Ì	44	21

		BULL	CALF
	F	RATIO	RATIO
START		37	32
POST HUNT YR	1	33	32
POST HUNT YR	2	33	32
POST HUNT YR	3	33	32
POST HUNT YR	4	33	32
POST HUNT YR	5	33	32
POST HUNT YR	6	33	32
POST HUNT YR	7	33	32
POST HUNT YR	8	33	32
POST HUNT YR	9	33	32
POST HUNT YR	10	33	32

NORTHWESTERN CALIF. ELK HERD SIMULATION- GENERAL, PLM, SHARE TAGS, 2019

(Combined Harvest for Del Norte and Humboldt cos)

Ratio = 37/100/32 - Maximum Calf Survival = 40% THIS PROGRAM CALCULATES CHANGES IN HERD CHARACTERISTICS BASED ON VARIOUS HARVEST RATES.

CURRENT CONDITIONS = NO CHANGE. GENERAL, COOP ELK, SHARE AND PLM TAGS TO HARVEST APPROXIMATELY 44 BULLS AND 21 ANTLERLESS ELK

HERD SIZE	1600	ELK
% BULLS LOST TO NON HUNTING CAUSES	23.5	%
% COWS LOST TO NON HUNTING CAUSES	11.9	%
% OF BULLS KILLED BY HUNTERS	12.55	%
% OF COWS KILLED BY HUNTERS	2.2	%

				SURV.			BULLS	COWS
		BULLS	COWS	CALVES	TOTAL	K	HARVEST	HARVEST
START	AUG	350	947	303	1600	1600	44	21
YEAR 1	"	350	949	370	1670	1760	44	21
YEAR 2	"	376	981	371	1728	1760	47	22
YEAR 3	"	393	1009	358	1760	1760	49	22
YEAR 4	"	400	1027	333	1760	1760	50	23
YEAR 5	"	395	1031	333	1760	1760	50	23
YEAR 6	"	392	1036	333	1760	1760	49	23
YEAR 7	"	389	1039	332	1760	1760	49	23
YEAR 8	"	387	1041	331	1760	1760	49	23
YEAR 9	"	386	1043	331	1760	1760	48	23
YEAR 10	"	385	1045	331	1760	1760	48	23
		BULL		CALF				
		RATIO		RATIO				
START		37		32				
POST HUNT YR	1	33		40				
POST HUNT YR	2	34		39				
POST HUNT YR	3	35		36				
POST HUNT YR	4	35		33				
POST HUNT YR	5	34		33				
POST HUNT YR	6	34		33				
POST HUNT YR	7	34		33				
POST HUNT YR	8	33		33				
POST HUNT YR	9	33		32				
POST HUNT YR	10	33		32				

NORTHWESTERN CALIF. ELK HERD SIMULATION- GENERAL, PLM, SHARE TAGS, 2019 (Combined Harvest for Del Norte and Humboldt cos)

Ratio = 37/100/32 - Maximum Calf Survival = 40% THIS PROGRAM CALCULATES CHANGES IN HERD CHARACTERISTICS BASED ON VARIOUS HARVEST RATES.

INCREASED PROPOSAL: ADD 24 BULL AND 36 ANTLERLESS (SHARE) TAGS TO HARVEST APPROXIMATELY 68 BULLS AND 57 ANTLERLESS ELK

HERD SIZE	1600	ELK
% BULLS LOST TO NON HUNTING CAUSES	23.5	%
% COWS LOST TO NON HUNTING CAUSES	11.9	%
% OF BULLS KILLED BY HUNTERS	19.55	%
% OF COWS KILLED BY HUNTERS	6	%

				SURV.			BULLS	COWS
		BULLS	COWS	CALVES	TOTAL	K	HARVEST	HARVEST
START	AUG	350	947	303	1600	1600	44	21
YEAR 1	"	350	949	301	1600	1600	68	57
YEAR 2	"	331	918	351	1600	1600	65	55
YEAR 3	"	338	915	345	1598	1600	66	55
YEAR 4	"	340	910	344	1594	1600	66	55
YEAR 5	"	341	905	342	1588	1600	67	54
YEAR 6	"	341	900	340	1581	1600	67	54
YEAR 7	"	340	896	339	1574	1600	66	54
YEAR 8	"	339	891	337	1566	1600	66	53
YEAR 9	"	337	886	335	1558	1600	66	53
YEAR 10	"	336	881	333	1550	1600	66	53
				-				
		BULL		CALF				
		RATIO		RATIO				
START		37		32				
POST HUNT YR	1	32		34				
POST HUNT YR	2	31		41				
POST HUNT YR	3	32		40				
POST HUNT YR	4	32		40				
POST HUNT YR	5	32		40				
POST HUNT YR	6	32		40				
POST HUNT YR	7	32		40				
POST HUNT YR	8	33		40				
POST HUNT YR	9	33		40				
POST HUNT YR	10	33		40				

NORTHWESTERN CALIF. ELK HERD SIMULATION- GENERAL, PLM, SHARE TAGS, 2019 (Combined Harvest for Del Norte and Humboldt cos) Ratio = 37/100/32 - Maximum Calf Survival = 40%

THIS PROGRAM CALCULATES CHANGES IN HERD CHARACTERISTICS BASED ON VARIOUS HARVEST RATES.

INCREASED PROPOSAL: ADD 24 BULL AND 36 ANTLERLESS (SHARE) TAGS TO HARVEST APPROXIMATELY 68 BULLS AND 57 ANTLERLESS ELK

HERD SIZE	1600	ELK
% BULLS LOST TO NON HUNTING CAUSES	23.5	%
% COWS LOST TO NON HUNTING CAUSES	11.9	%
% OF BULLS KILLED BY HUNTERS	19.55	%
% OF COWS KILLED BY HUNTERS	6	%

POST HUNT YR

				SURV.			BULLS	COWS
		BULLS	COWS	CALVES	TOTAL	K	HARVEST	HARVEST
START	AUG	350	947	303	1600	1600	44	21
YEAR 1	"	350	949	370	1670	1760	68	57
YEAR 2	"	357	949	357	1663	1760	70	57
YEAR 3	"	356	943	357	1656	1760	70	57
YEAR 4	"	356	938	355	1649	1760	70	56
YEAR 5	"	355	933	353	1641	1760	69	56
YEAR 6	"	353	928	351	1632	1760	69	56
YEAR 7	"	352	923	349	1624	1760	69	55
YEAR 8	"	350	918	347	1615	1760	68	55
YEAR 9	"	348	913	345	1607	1760	68	55
YEAR 10	"	346	909	343	1598	1760	68	55
		BULL		CALF				
		RATIO		RATIO				
START		37		32				
POST HUNT YR	1	32		42				

NORTHWESTERN CALIF. ELK HERD SIMULATION- GENERAL, PLM,SHARE TAGS, 2019 (Combined Harvest for Del Norte and Humboldt cos) Ratio = 37/100/32 - Maximum Calf Survival = 40%

THIS PROGRAM CALCULATES CHANGES IN HERD

CHARACTERISTICS BASED ON VARIOUS HARVEST RATES.

PROPOSED PROJECT: ADD 8 BULL AND 12 ANTLERLESS (SHARE) TAGS TO HARVEST APPROXIMATELY 52 BULLS AND 33 ANTLERLESS ELK

HERD SIZE	1600	ELK
% BULLS LOST TO NON HUNTING CAUSES	23.5	%
% COWS LOST TO NON HUNTING CAUSES	11.9	%
% OF BULLS KILLED BY HUNTERS	14.9	%
% OF COWS KILLED BY HUNTERS	3.5	%

				SURV.				BULLS	COWS
		BULLS	COWS	CALVES	TOTAL	K		HARVEST	HARVEST
START	AUG	350	947	303	1600	1600		44	21
YEAR 1	"	350	949	301	1600	1600		52	33
YEAR 2	"	343	939	318	1600	1600		51	33
YEAR 3	"	345	939	317	1600	1600		51	33
YEAR 4	"	346	937	317	1600	1600		51	33
YEAR 5	"	346	937	317	1600	1600		52	33
YEAR 6	"	347	936	317	1600	1600	Ì	52	33
YEAR 7	"	347	935	317	1600	1600	Ì	52	33
YEAR 8	"	347	935	317	1600	1600	Ì	52	33
YEAR 9	"	348	935	318	1600	1600	Ì	52	33
YEAR 10	"	348	935	318	1600	1600	Ì	52	33

		BULL	CALF
	I	RATIO	RATIO
START		37	32
POST HUNT YR	1	33	33
POST HUNT YR	2	32	35
POST HUNT YR	3	32	35
POST HUNT YR	4	33	35
POST HUNT YR	5	33	35
POST HUNT YR	6	33	35
POST HUNT YR	7	33	35
POST HUNT YR	8	33	35
POST HUNT YR	9	33	35
POST HUNT YR	10	33	35

NORTHWESTERN CALIF. ELK HERD SIMULATION- GENERAL, PLM,SHARE TAGS, 2019 (Combined Harvest for Del Norte and Humboldt cos) Ratio = 37/100/32 - Maximum Calf Survival = 40% THIS PROGRAM CALCULATES CHANGES IN HERD CHARACTERISTICS BASED ON VARIOUS HARVEST RATES.

PROPOSED PROJECT: ADD 8 BULL AND 12 ANTLERLESS (SHARE) TAGS TO HARVEST APPROXIMATELY 52 BULLS AND 33 ANTLERLESS ELK

HERD SIZE	1600	ELK
% BULLS LOST TO NON HUNTING CAUSES	23.5	%
% COWS LOST TO NON HUNTING CAUSES	11.9	%
% OF BULLS KILLED BY HUNTERS	14.9	%
% OF COWS KILLED BY HUNTERS	3.5	%

				SURV.				BULLS	COWS
		BULLS	COWS	CALVES	TOTAL	K		HARVEST	HARVEST
START	AUG	350	947	303	1600	1600		44	21
YEAR 1	"	350	949	370	1670	1760		52	33
YEAR 2	"	370	970	366	1706	1760		55	34
YEAR 3	"	381	986	374	1741	1760		57	35
YEAR 4	"	391	1003	366	1760	1760		58	35
YEAR 5	"	394	1014	352	1760	1760		59	35
YEAR 6	"	391	1017	352	1760	1760	Ì	58	36
YEAR 7	"	389	1020	351	1760	1760	Ì	58	36
YEAR 8	"	388	1021	351	1760	1760	Ì	58	36
YEAR 9	"	387	1023	350	1760	1760	Ì	58	36
YEAR 10	"	386	1024	350	1760	1760		57	36
		БШТ							
STADT		KA 110 27		KATIO 22					
	1	31 22		32					
	ו ס	33 24		40					
	2	34 24		39					
	J 2	34 24		39					
	4	34 24		30					
	5 6	34		30					
	0	34		30					
	/	34 22		30					
	8	33		36					
PUST HUNT YR	9	33		36					

35

NORTHWESTERN CALIF. ELK HERD SIMULATION- GENERAL, PLM, SHARE TAGS, 2019 (Combined Harvest for Del Norte and Humboldt cos) Ratio = 37/100/32 - Maximum Calf Survival = 40% THIS PROGRAM CALCULATES CHANGES IN HERD CHARACTERISTICS BASED ON VARIOUS HARVEST RATES.

POST HUNT YR 10 33

REDUCED PROPOSAL: ADD 4 BULL AND 6 ANTLERLESS (SHARE) TAGS TO HARVEST APPROXIMATELY 48 BULLS AND 27 ANTLERLESS ELK

HERD SIZE	1600	ELK
% BULLS LOST TO NON HUNTING CAUSES	23.5	%
% COWS LOST TO NON HUNTING CAUSES	11.9	%
% OF BULLS KILLED BY HUNTERS	13.8	%
% OF COWS KILLED BY HUNTERS	2.85	%

				SURV.				BULLS	COWS
		BULLS	COWS	CALVES	TOTAL	K	1	HARVEST	HARVEST
START	AUG	350	947	303	1600	1600	Ì	44	21
YEAR 1	"	350	949	301	1600	1600	Ì	48	27
YEAR 2	"	346	945	309	1600	1600	Ì	48	27
YEAR 3	"	346	945	309	1600	1600	Ì	48	27
YEAR 4	"	347	945	309	1600	1600	Ì	48	27
YEAR 5	"	347	945	309	1600	1600		48	27
YEAR 6	"	347	944	309	1600	1600		48	27
YEAR 7	"	347	944	309	1600	1600		48	27
YEAR 8	"	347	944	309	1600	1600		48	27
YEAR 9	"	347	944	309	1600	1600		48	27
YEAR 10	"	347	944	309	1600	1600	1	48	27
		BULL		CALE					
		RATIO		RATIO					
START		37		32					
POST HUNT YR	1	33		33					
POST HUNT YR	2	32		34					
POST HUNT YR	3	33		34					
POST HUNT YR	4	33		34					
POST HUNT YR	5	33		34					
POST HUNT YR	6	33		34					
POST HUNT YR	7	33		34					
POST HUNT YR	8	33		34					
POST HUNT YR	9	33		34					
POST HUNT YR	10	33		34					

NORTHWESTERN CALIF. ELK HERD SIMULATION- GENERAL, PLM, SHARE TAGS, 2019 (Combined Harvest for Del Norte and Humboldt cos) Ratio = 37/100/32 - Maximum Calf Survival = 40% THIS PROGRAM CALCULATES CHANGES IN HERD CHARACTERISTICS BASED ON VARIOUS HARVEST RATES.

REDUCED PROPOSAL: ADD 4 BULL AND 6 ANTLERLESS (SHARE) TAGS TO HARVEST APPROXIMATELY 48 BULLS AND 27 ANTLERLESS ELK

HERD SIZE	1600	ELK
% BULLS LOST TO NON HUNTING CAUSES	23.5	%
% COWS LOST TO NON HUNTING CAUSES	11.9	%
% OF BULLS KILLED BY HUNTERS	13.8	%
% OF COWS KILLED BY HUNTERS	2.85	%

				SURV.				BULLS	COWS
		BULLS	COWS	CALVES	TOTAL	K	1	HARVEST	HARVEST
START	AUG	350	947	303	1600	1600	Ì	44	21
YEAR 1	"	350	949	370	1670	1760	Ì	48	27
YEAR 2	"	373	975	369	1717	1760	Ì	51	28
YEAR 3	"	387	997	376	1760	1760	Ì	53	28
YEAR 4	"	399	1019	342	1760	1760	Ì	55	29
YEAR 5	"	394	1023	343	1760	1760	Ì	54	29
YEAR 6	"	391	1027	342	1760	1760		54	29
YEAR 7	"	389	1030	342	1760	1760		54	29
YEAR 8	"	387	1032	341	1760	1760	Ì	53	29
YEAR 9	"	386	1033	341	1760	1760	Ì	53	29
YEAR 10	"	385	1035	341	1760	1760	I	53	29

		BULL	CALF		
	F	RATIO	RATIO		
START		37	32		
POST HUNT YR	1	33	40		
POST HUNT YR	2	34	39		
POST HUNT YR	3	34	39		
POST HUNT YR	4	35	35		
POST HUNT YR	5	34	35		
POST HUNT YR	6	34	34		
POST HUNT YR	7	34	34		
POST HUNT YR	8	33	34		
POST HUNT YR	9	33	34		
POST HUNT YR	10	33	34		



Appendix 4. Estimated Elk Distribution and Land Ownership, 2017

Appendix 5. Current Elk Hunting Regulations

§364, Title 14, CCR. Elk.

- (a) Department Administered General Methods Roosevelt Elk Hunts:
 - (1) Siskiyou General Methods Roosevelt Elk Hunt:
 - (A) Area: In that portion of Siskiyou County beginning at the junction of Interstate Highway 5 with the California-Oregon state line; east along the state line to Hill Road at Ainsworth Corner; south along Hill Road to Lava Beds National Monument Road; south along Lava Beds National Monument Road to USDA Forest Service Road 49; south along USDA Forest Service Road 49 to USDA Forest Service Road 77; west along USDA Forest Service Road 77 to USDA Forest Service Road 15 (Harris Spring Road); south along USDA Forest Service Road 15 to USDA Forest Service Road 13 (Pilgrim Creek Road); southwest along USDA Forest Service Road 13 to Highway 89; northwest along Highway 89 to Interstate Highway 5; north along Interstate Highway 5 to the point of beginning.
 - (2) Northwestern California Roosevelt Elk Hunt:
 - (A) Area: In those portions of Humboldt and Del Norte counties within a line beginning at the intersection of Highway 299 and Highway 96, north along Highway 96 to the Del Norte-Siskiyou county line, north along the Del Norte-Siskiyou county line to the California-Oregon state line, west along the state line to the Pacific Coastline, south along the Pacific coastline to the Humboldt-Mendocino county line, east along the Humboldt-Mendocino county line to the Humboldt-Trinity county line, north along the Humboldt-Trinity county line to Highway 299, west along Highway 299 to the point of beginning.
 - (3) Marble Mountains General Methods Roosevelt Elk Hunt
 - (A) Area: In those portions of Humboldt, Tehama, Trinity, Shasta and Siskiyou counties beginning at the intersection of Interstate Highway 5 and the California-Oregon state line; west along the state line to the Del Norte County line; south along the Del Norte County line to the intersection of the Siskiyou-Humboldt county lines; east along the Siskiyou-Humboldt county lines to Highway 96; south along Highway 299 to the Intersection of the Humboldt/Trinity County line; south along the Intersection of Highway 36; east along the Humboldt Trinity County Line to the intersection of Highway 36; east along Highway 36 to the intersection of Interstate 5; north on Interstate Highway 5 to the point of beginning.
- (b) Department Administered General Methods Rocky Mountain Elk Hunts:
 - o (1) Northeastern California General Methods Rocky Mountain Elk Hunt:
 - (A) Area: Those portions of Siskiyou, Modoc, Lassen, and Shasta counties within a line beginning in Siskiyou County at the junction of the California-Oregon state line and Hill Road at Ainsworth Corner; east along the California-Oregon state line to the California-Nevada state line; south along the California-Nevada state line to the Tuledad-Red Rock-Clarks Valley Road (Lassen County Roads 506, 512 and 510): west along the Tuledad-Red Rock-Clarks Valley Road to Highway 395 at Madeline: west on USDA Forest Service Road 39N08 to the intersection of Highway 139/299 in Adin; south on Highway 139 to the intersection of Highway 36 in Susanville; west on Highway 36 to the intersection of Interstate 5 in Red Bluff; north on Interstate 5 to Highway 89; southeast along Highway 89 to USDA Forest Service Road 13 (Pilgrim Creek Road); northeast along USDA Forest Service Road 13 to USDA Forest Service Road 15 (Harris Spring Road): north along USDA Forest Service Road to USDA Forest Service Road 77; east along USDA Forest Service Road 77 to USDA Forest Service Road 49; north along USDA Forest Service Road 49 to Lava Beds National Monument Road; north along Lava Beds National Monument Road to Hill Road; north along Hill Road to the point of beginning.
- (c) Department Administered General Methods Roosevelt/Tule Elk Hunts:
 - (1) Mendocino General Methods Roosevelt/Tule Elk Hunt:
 - (A) Area: Those portions in Mendocino County within a line beginning at the Pacific Coastline and the Mendocino/Humboldt County line south of Shelter Cove; east along

the Mendocino/Humboldt County line to the intersection of the Humboldt, Mendocino, and Trinity County lines; south and east along the Mendocino/Trinity County line to the intersection of the Mendocino, Trinity, and Tehama County lines; south along the Mendocino County line to the intersection of Highway 20; north and west along Highway 20 to the intersection of Highway 101 near Calpella; south along Highway 101 to the intersection of Highway 253; southwest along Highway 253 to the intersection of Highway 128; north along Highway 128 to the intersection of Mountain View Road near the town of Boonville; west along Mountain View Road to the intersection of Highway 1; south along Highway 1 to the intersection of the Garcia River; west along the Garcia River to the Pacific Coastline; north along the Pacific Coastline to the point of beginning.

- (d) Department Administered General Methods Tule Elk Hunts:
 - o (1) Cache Creek General Methods Tule Elk Hunt:
 - (A) Area: Those portions of Lake, Colusa and Yolo counties within the following line: beginning at the junction of Highway 20 and Highway 16; south on Highway 16 to Reiff-Rayhouse Road; west on Reiff-Rayhouse Road to Morgan Valley Road; west on Morgan Valley Road to Highway 53; north on Highway 53 to Highway 20; east on Highway 20 to the fork of Cache Creek; north on the north fork of Cache Creek to Indian Valley Reservoir; east on the south shore of Indian Valley Reservoir to Walker Ridge-Indian Valley Reservoir Access Road; east on Walker Ridge-Indian Valley Reservoir Access Road to Walker Ridge Road; south on Walker Ridge Road to Highway 20; east on Highway 20 to the point of beginning.
 - (2) La Panza General Methods Tule Elk Hunt:
 - (A) Area: In those portions of San Luis Obispo, Kern, Monterey, Kings, Fresno, San Benito, and Santa Barbara counties within a line beginning in San Benito County at the junction of Highway 25 and County Highway J1 near the town Pacines, south along Highway 25 to La Gloria road, west along La Gloria road, La Gloria road becomes Gloria road, west along Gloria road to Highway 101 near Gonzales, south along Highway 101 to Highway 166 in San Luis Obispo County; east along Highway 166 to Highway 33 at Maricopa in Kern County; north and west along Highway 33 to Highway 198 at Coalinga in Fresno County, north along Highway 33 to Interstate 5 in Fresno County, north along Interstate 5 to Little Panoche road/County Highway J1, southwest along Little Panoche road/County Highway J1 to the intersection of Little Panoche road/County Highway J1 in San Benito County, northwest along Panoche road/County Highway J1 to the point of beginning.
 - (B) Special Conditions: All tagholders will be required to attend a mandatory orientation. Tagholders will be notified of the time and location of the orientation meeting upon receipt of their elk license tags.
 - o (3) Bishop General Methods Tule Elk Hunt:
 - (A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Highway 6 in the town of Bishop; north and east along Highway 6 to the junction of Silver Canyon Road; east along Silver Canyon Road to the White Mountain Road (Forest Service Road 4S01); south along the White Mountain Road to Highway 168 at Westgard Pass; south and west along Highway 168 to the junction of Highway 395; north on Highway 395 to the point of beginning.
 - (4) Independence General Methods Tule Elk Hunt:
 - (A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Aberdeen Station Road; east on Aberdeen Station Road to its terminus at the southern boundary of Section 5, Township 11S, Range 35E; east along the southern boundary of sections 5, 4, 3, and 2, Township 11S, Range 35E to the Papoose Flat Road at Papoose Flat; south and east on Papoose Flat Road to Mazourka Canyon Road; south and then west on Mazourka Canyon Road to Highway 395; north along Highway 395 to the point of beginning.
 - (5) Lone Pine General Methods Tule Elk Hunt:
 - (A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Mazourka Canyon Road; east and then north on Mazourka Canyon Road to the Inyo National Forest Boundary at the junction of the southern boundary of Township 12S

and the northern boundary of Township 13S; east along the southern boundary of Township 12S to Saline Valley Road; south on Saline Valley Road to Highway 190; north and then southwest on Highway 190 to the junction of Highway 395 at Olancha; north on Highway 395 to the point of beginning.

- (6) Tinemaha General Methods Tule Elk Hunt:
 - (A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Highway 168 in the town of Big Pine; north and east along Highway 168 to the junction of the Death Valley Road; south and east along the Death Valley Road to the junction of the Papoose Flat Road; south along the Papoose Flat Road to the southern boundary of Section 2, Township 11S, Range 35E; west along the southern boundaries of sections 2, 3, 4 and 5 to the terminus of the Aberdeen Station Road in Section 5, Township 11S, Range 35E; south and west along the Aberdeen Station Road to Highway 395; north along Highway 395 to the point of beginning.
- (7) West Tinemaha General Methods Tule Elk Hunt:
 - (A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Highway 168 in the town of Big Pine; south along Highway 395 to the north junction of Fish Springs Road; south along Fish Springs Road to the junction of Highway 395; south along Highway 395 to Taboose Creek in Section 14, Township 11S, Range 34E; west along Taboose Creek to the Inyo County line; north and west along the Inyo County line to the intersection of Tinemaha Creek; east along Tinemaha Creek to the intersection of McMurray Meadow Road; north on McMurray Meadow Road to the intersection of Glacier Lodge Road; north and east on Glacier Lodge Road to Crocker Avenue; east along Crocker Avenue to Highway 395; north along Highway 395 to the point of beginning.
- o (8) Tinemaha Mountain General Methods Tule Elk Hunt:
 - (A) Area: In that portion of Inyo County with a line beginning at the intersection of Glacier Lodge Road (9S21) and McMurray Meadow Road (9S03); south on McMurray Meadow Road to Tinemaha Creek; west along Tinemaha Creek to the Inyo County line; north and west along the Inyo County line to the southeast corner of Section 23, Township 10S, Range 32E; north along the eastern boundaries of sections 23, 14, 11, 2, Township 10S, Range 32E, and the eastern boundary of Section 36, Township 9S, Range 32E to Glacier Lodge Road; east along Glacier Lodge Road to the beginning.
- (9) Whitney General Methods Tule Elk Hunt:
 - (A) Area: In that portion of Inyo County with a line beginning at the intersection of Highway 395 and Onion Valley Road; south on Highway 395 to the intersection of Whitney Portal Road; west along Whitney Portal Road to the northern boundary of Section 36, Township 15S, Range 34E; west along the northern boundary of sections 36, 35, 34 and 33 Township 15S, Range 34 E to the Inyo County Line; north along the Inyo County Line to the intersection of Section 27 Township 13S, range 33E; east along the southern boundary of sections 27, 26 and 25 Township 13S, Range 33E; north along the eastern boundary of Section 25 Township 13S, Range 33E to the intersection of Onion Valley Road; east along Onion Valley Road to the point of beginning.
- (10) Goodale General Methods Tule Elk Hunt:
 - (A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Onion Valley Road; west along Onion Valley Road to the intersection of the Section 25 Township 13S, Range 33E; south along the eastern boundary of Section 25 Township 13S, Range 33E to the southern boundary of Section 25 Township 13S, Range 33E; west along the southern boundary of sections 27, 26, 25 Township 13S, Range 33E to the Inyo County line; North along the Inyo County Line to Taboose Creek; east along Taboose Creek to the intersection of Highway 395; south along Highway 395 to the point of beginning.
- o (11) Grizzly Island General Methods Tule Elk Hunt:
 - (A) Area: Those lands owned and managed by the Department of Fish and Game as the Grizzly Island Wildlife Area.

- (B) Special Conditions: All tagholders will be required to attend a mandatory orientation. Tagholders will be notified of the time and location of the orientation meeting after receipt of their elk license tags.
- o (12) Fort Hunter Liggett General Public General Methods Tule Elk Hunt:
 - (A) Area: That portion of Monterey County lying within the exterior boundaries of Fort Hunter Liggett, except as restricted by the Commanding Officer.
 - (B) Fort Hunter Liggett Special Conditions: See subsection 364(p).
- o (13) East Park Reservoir General Methods Tule Elk Hunt:
 - (A) Area: In those portions of Glenn and Colusa counties within a line beginning in Glenn County at the junction of Interstate Highway 5 and Highway 162 at Willows; west along Highway 162 (Highway 162 becomes Alder Springs Road) to the Glenn-Mendocino County line; south along the Glenn-Mendocino County line to the Glenn-Lake County line; east and then south along the Glenn-Lake County line to the Colusa-Lake County line; west, and then southeast along the Colusa-Lake County line to add the south and east along Goat Mountain Road to the Lodoga-Stonyford Road; east along the Lodoga-Stonyford Road to the Sites-Lodoga Road at Lodoga; east along the Sites-Lodoga Road to the Maxwell-Sites Road at Sites; east along the Maxwell-Sites Road to Interstate Highway 5 at Maxwell; north along Interstate Highway 5 to the point of beginning.
 - (B) Special Conditions:
 - 1. All tagholders will be required to attend a mandatory orientation. Tagholders will be notified of the time and location of the orientation meeting after receipt of their elk license tags.
 - 2. Access to private land may be restricted or require payment of an access fee.
 - 3. A Colusa County ordinance prohibits firearms on land administered by the USDI Bureau of Reclamation in the vicinity of East Park Reservoir. A variance has been requested to allow use of muzzleloaders (as defined in Section 353) on Bureau of Reclamation land within the hunt zone.
- (14) San Luis Reservoir General Methods Tule Elk Hunt:
 - (A) Area: In those portions of Merced, Fresno, San Benito, and Santa Clara counties within a line beginning in Merced County at the junction of Highway 152 and Interstate 5 near the town of Santa Nella, west along Highway 152 to Highway 156 in Santa Clara County, southwest along Highway 156 to Highway 25 near the town of Hollister in San Benito County, south along Highway 25 to the town of Paicine, south and east along J1 to Little Panoche Road, North and east along Little Panoche Road to Interstate 5 in Fresno County, north along Interstate 5 to the point of beginning.
- (15) Bear Valley General Methods Tule Elk Hunt:
 - (A) Area: in those portions of Colusa, Lake, and Yolo counties within a line beginning in Colusa County at the junction of Interstate Highway 5 and Maxwell Sites Road at Maxwell; west along Maxwell Sites Road to the Sites Lodoga Road; west along the Sites Lodoga Road to Lodoga Stonyford Road; west along Lodoga Stonyford Road to Goat Mountain Road; west and south along Goat Mountain Road to the Colusa-Lake County line; south and west along the Colusa-Lake County line to Forest Route M5; south along Forest Route M5 to Bartlett Springs Road; east along Bartlett Springs Road to Highway 20; east on Highway 20 to the fork of Cache Creek; north on the north fork of Cache Creek to Indian Valley Reservoir to Walker Ridge-Indian Valley Reservoir Access Road; east on Walker Ridge-Indian Valley Reservoir Access Road to Walker Ridge Road; south on Walker Ridge Road to Highway 20; east on Highway 20 to Highway 16; south on Highway 16 to Rayhouse Road; south and west on Rayhouse Road to the Yolo-Napa County line; east and south along the Yolo-Napa County line to Road 8053; east on Road 8053 to County Road 78A; east on County Road 78A to Highway 16; east on Highway 16 to Route E4 at Capay; north and east on Route E4 to Interstate Highway 5; north on Interstate Highway 5 to the point of beginning.
- (16) Lake Pillsbury General Methods Tule Elk Hunt:
 - (A) Area: in those portions of Lake County within a line beginning at the junction of the Glenn-Lake County line and the Mendocino County line; south and west along the

Mendocino-Lake County line to Highway 20; southeast on Highway 20 to the intersection of Bartlett Springs Road; north and east along Bartlett Springs Road to the intersection of Forest Route M5; northwest on Forest Route M5 to the Colusa-Lake County Line; northwest and east on the Colusa-Lake County Line to the junction of the Glenn-Colusa County Line and the Lake-Glenn County Line; north and west on the Lake-Glenn County Line to the point of beginning.

- (17) Santa Clara General Methods Tule Elk Hunt:
 - (A) Area: Those portions of Merced, Santa Clara, and Stanislaus Counties within the following line: beginning at the intersection of the Interstate 5 and the San Joaquin/Stanislaus County line; southeast along Interstate 5 to the intersection of Highway 152; west along Highway 152 to the intersection of Highway 101 near the town of Gilroy; north along Highway 101 to the intersection of Interstate 680 near San Jose; north along Interstate 680 to the intersection of the Alameda/Santa Clara County line; east along the Alameda/Santa Clara County line to the intersection of the San Joaquin, Stanislaus, Alameda, Santa Clara County lines; northeast along the San Joaquin/Stanislaus County line to the point of beginning.
- (18) Alameda General Methods Tule Elk Hunt:
 - (A) Area: Those portions of Alameda and San Joaquin Counties within the following line: beginning at the intersection of the Interstate 5 and the San Joaquin/Stanislaus County line; southwest along the San Joaquin/Stanislaus County line to the intersection of the San Joaquin, Stanislaus, Alameda, Santa Clara County lines; west along the Alameda/Santa Clara County Line to the intersection of Interstate 680; north along Interstate 680 to the intersection of Interstate 580; east and south along Interstate 580 to the intersection of Interstate 5; south along Interstate 5 to the point of beginning.
- (e) Department Administered General Methods Apprentice Elk Hunts:

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- (1) Marble Mountains General Methods Roosevelt Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(a)(3)(A).
 - (B) Special Conditions: Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
- o (2) Northeastern California General Methods Rocky Mountain Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(b)(1)(A).
 - (B) Special Conditions: Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt License tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
- (3) Cache Creek General Methods Tule Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(1)(A).
 - (B) Special Conditions:
 - 1. Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
- (4) La Panza General Methods Tule Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(2)(A).
 - (B) Special Conditions:
 - 1. All tagholders will be required to attend a mandatory orientation. Tagholders will be notified of the time and location of the orientation meeting after receipt of their elk license tags.
 - 2. Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunter tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
- (5) Bishop General Methods Tule Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(3)(A).
- (B) Special Conditions: Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
- (6) Grizzly Island General Methods Tule Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(11)(A).
 - (B) Special Conditions:
 - 1. All tagholders will be required to attend a mandatory orientation.
 Tagholders will be notified of the time and location of the orientation meeting after receipt of their elk license tags.
 - 2. Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
- (7) Fort Hunter Liggett General Methods General Public Tule Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
 - (C) Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
- (f) Department Administered Archery Only Elk Hunts:
 - o (1) Northeastern California Archery Only Rocky Mountain Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(b)(1)(A).
 - (B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.
 - o (2) Owens Valley Multiple Zone Archery Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in areas described in subsections 364(d)(3)(A), (d)(4)(A), (d)(5)(A), and (d)(10)(A).
 - (B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.
 - (3) Lone Pine Archery Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(5)(A).
 - (B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.
 - (4) Tinemaha Archery Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(6)(A).
 - (B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.
 - (5) Whitney Archery Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(9)(A).
 - (B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.
 - (6) Fort Hunter Liggett General Public Archery Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
 - (C) Elk may be taken with Archery Equipment only as specified in Section 354.
- (g) Department Administered Muzzleloader Only Elk Hunts:
 - (1) Bishop Muzzleloader Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(3)(A).
 - (B) Special Conditions: Elk may be taken with muzzleloader equipment only as specified in Section 353.
 - (2) Independence Muzzleloader Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(4)(A).
 - (B) Special Conditions: Elk may be taken with muzzleloader equipment only as specified in Section 353.
 - o (3) Fort Hunter Liggett General Public Muzzleloader Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(12)(A).
 - (B) Special Conditions: See subsection 364(p).

- (C) Elk may be taken with Muzzleloader Equipment only as specified in Section 353.
- (h) Department Administered Muzzleloader/Archery Only Elk Hunts:
 - (1) Marble Mountains Muzzleloader/Archery Only Roosevelt Elk Hunt.
 - (A) Area: The tag shall be valid in the area described in subsection 364(a)(3)(A).
 - (B) Special Conditions: Elk may be taken with archery or muzzleloader equipment only as specified in Sections 353 and 354.
- (i) Fund Raising Elk Hunts:
 - (1) Multi-zone Fund Raising Elk Hunt.
 - (A) Area: The tag shall be valid in the areas described in subsections 364(a)(1)(A), (a)(2)(A), (a)(3)(A), (b)(1)(A), and (d)(2)(A).
 - (2) Grizzly Island Fund Raising Tule Elk Hunt.
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(11)(A).
 - (B) Special Conditions: Advance reservations required by contacting the Grizzly Island Wildlife Area by telephone at (707) 425-3828.
 - (3) Owens Valley Fund Raising Tule Elk Hunt
 - (A) Area: The tag shall be valid in areas described in subsections 364(d)(3)(A), (d)(4)(A), (d)(5)(A), (d)(6)(A), (d)(7)(A), (d)(8)(A), (d)(9)(A), and (d)(10)(A).
- (j) Military Only Elk Hunts. These hunts are sponsored and tag quotas are set by the Department. The tags are assigned and the hunts are administered by the Department of Defense.
 - (1) Fort Hunter Liggett Military Only General Methods Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
 - o (2) Fort Hunter Liggett Military Only General Methods Tule Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
 - (C) Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
 - (3) Fort Hunter Liggett Military Only Archery Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
 - (C) Elk may be taken with Archery Equipment only as specified in Section 354.
 - (4) Fort Hunter Liggett Military Only Muzzleloader Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
- (k) Bag and Possession Limit: Each elk tag is valid only for one elk per season and only in the hunt area drawn.
- (I) Definitions:
 - (1) Bull elk: Any elk having an antler or antlers at least four inches in length as measured from the top of the skull.
 - (2) Spike bull: A bull elk having no more than one point on each antler. An antler point is a projection of the antler at least one inch long and longer than the width of its base.
 - (3) Antlerless elk: Any elk, with the exception of spotted calves, with antlers less than four inches in length as measured from the top of the skull.
 - (4) Either-sex elk: For the purposes of these regulations, either-sex is defined as bull elk, spike elk, or antlerless elk.
- (m) Method of Take: Only methods for taking elk as defined in Sections 353 and 354 may be used.
- (n) Tagholder Responsibilities:
 - (1) No tagholder shall take or possess any elk or parts thereof governed by the regulations except herein provided.
 - (2) The department reserves the right to use any part of the tagholder's elk for biological analysis as long as the amount of edible meat is not appreciably decreased.
 - (3) Any person taking an elk which has a collar or other marking device attached to it shall provide the department with such marking device within 10 days of taking the elk.
- (o) The use of dogs to take or attempt to take elk is prohibited.
- (p) Fort Hunter Liggett Special Conditions:

- (1) All tagholders hunting within the exterior boundaries of Fort Hunter Liggett will be required to attend a mandatory hunter orientation. Tagholders will be notified of the time and location of the orientation meeting upon receipt of their elk license tags.
- (2) Tagholders hunting within the exterior boundaries of Fort Hunter Liggett shall be required to purchase an annual hunting pass available from Fort Hunter Liggett.
- (3) All successful tagholders hunting within the exterior boundaries of Fort Hunter Liggett will be required to have their tags validated on Fort Hunter Liggett prior to leaving.
- (4) Due to military operations and training, the specified season dates within the exterior boundaries of Fort Hunter Liggett are subject to further restriction, cancellation, or may be rescheduled, between August 1 and January 31, by the Commanding Officer.
- (q) [subsection reserved]

(r) Department Administered General Methods Roosevelt Elk Hunts							
Hunt	1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season		
(1)(A) Siskiyou	20	20			Shall open on the Wednesday preceding the second Saturday in September and continue for 12 consecutive days.		
(2)(A) Northwestern	15	0	3		Shall open on the first Wednesday in September and continue for 23 consecutive days.		
(3)(A) Marble Mountains	35	10			Shall open on the Wednesday preceding the second Saturday in September and continue for 12 consecutive days.		
(s) Department Administe	ered Ger	neral Method	s Rocky N	lountain	Elk Hunts		

Hunt		1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season
(1)	(A) Northeastern California Bull	15				The bull season shall open on the Wednesday preceding the third Saturday in September and continue for 12 consecutive days.
	(B) Northeastern California Antlerless		10			The antlerless season shall open on the second Wednesday in November and continue for 12 consecutive days.

(t) De	(t) Department Administered General Methods Roosevelt/Tule Elk Hunts							
Hunt		1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season		
(1)(A)	Mendocino	2	0			The season shall open on the Wednesday preceding the fourth Saturday in September and continue for 12 consecutive days.		
(u) D	epartment Administe	red Ger	neral Method	s Tule Elk	Hunts			
Hunt		1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season		
(1)	Cache Creek							
	(A) Bull	2				The Bull season shall open on the second Saturday in October and continue for 16 consecutive days.		
	(B) Antlerless		2			The Antlerless season shall open on the third Saturday in October and continue for 16 consecutive days.		
(2)	La Panza							
	(A) Period 1	6	5			Shall open on the second Saturday in October and extend for 23 consecutive days.		
	(B) Period 2	6	6			Shall open on the second Saturday in November and extend for 23 consecutive days.		
(3)	Bishop							
	(A) Period 3	0	0			Shall open on the third Saturday in October and extend for 9 consecutive days.		
	(B) Period 4	0	0			Shall open on the first Saturday in November and extend for 9 consecutive days.		
	(C) Period 5	0	0			Shall open on the first Saturday in December and continue for 9 consecutive days.		
(4)	Independence							

	(A) Period 2	1	1		Shall open on the first Saturday in October and extend for 9 consecutive days.
	(B) Period 3	1	1		Shall open on the third Saturday in October and extend for 9 consecutive days.
	(C) Period 4	0	1		Shall open on the first Saturday in November and extend for 9 consecutive days.
	(D) Period 5	0	0		Shall open on the first Saturday in December and continue for 9 consecutive days.
(5)	Lone Pine				
	(A) Period 2	1	1		Shall open on the first Saturday in October and extend for 9 consecutive days.
	(B) Period 3	1	1		Shall open on the third Saturday in October and extend for 9 consecutive days.
	(C) Period 4		0		Shall open on the first Saturday in November and extend for 9 consecutive days.
	(D) Period 5	0	0		Shall open on the first Saturday in December and continue for 9 consecutive days.
(6)	Tinemaha				
	(A) Period 2	0	0		Shall open on the first Saturday in October and extend for 9 consecutive days.
	(B) Period 3	0	0		Shall open on the third Saturday in October and extend for 9 consecutive days.
	(C) Period 4	0	0		Shall open on the first Saturday in November and extend for 9 consecutive days.
	(D) Period 5	0	0		Shall open on the first Saturday in December and continue for 9 consecutive days.
(7)	West Tinemaha				
	(A) Period 1	0	0		Shall open on the second Saturday in September and extend for 16 consecutive days.

	(B) Period 2	0	0		Shall open on the first Saturday in October and extend for 9 consecutive days.
	(C) Period 3	0	0		Shall open on the third Saturday in October and extend for 9 consecutive days.
	(D) Period 4	0	0		Shall open on the first Saturday in November and extend for 9 consecutive days.
	(E) Period 5	0	0		Shall open on the first Saturday in December and continue for 9 consecutive days.
(8)	Tinemaha Mountain				
	(A) Period 1	0			Shall open on the second Saturday in September and extend for 16 consecutive days.
	(B) Period 2	0			Shall open on the first Saturday in October and extend for 9 consecutive days.
	(C) Period 3	0			Shall open on the third Saturday in October and extend for 9 consecutive days.
	(D) Period 4	0			Shall open on the first Saturday in November and extend for 9 consecutive days.
	(E) Period 5	0			Shall open on the first Saturday in December and continue for 9 consecutive days.
(9)	Whitney				
	(A) Period 2	0	1		Shall open on the first Saturday in October and extend for 9 consecutive days.
	(B) Period 3	0	0		Shall open on the third Saturday in October and extend for 9 consecutive days.
	(C) Period 4	0	0		Shall open on the first Saturday in November and extend for 9 consecutive days.
	(D) Period 5	0	0		Shall open on the first Saturday in December and continue for 9 consecutive days.
(10)	Goodale				

	(A) Period 1	0	0		Shall open on the second Saturday in September and extend for 16 consecutive days.
	(B) Period 2	0	1		Shall open on the first Saturday in October and extend for 9 consecutive days.
	(C) Period 3	0	1		Shall open on the third Saturday in October and extend for 9 consecutive days.
	(D) Period 4	0	0		Shall open on the first Saturday in November and extend for 9 consecutive days.
	(E) Period 5	0	0		Shall open on the first Saturday in December and extend for 9 consecutive days
(11)	Grizzly Island				
	(A) Period 1	0	6	0	Shall open on the second Tuesday after the first Saturday in August and continue for 4 consecutive days.
	(B) Period 2	0	2	4	Shall open on the first Thursday following the opening of period one and continue for 4 consecutive days.
	(C) Period 3	0	6	0	Shall open on the first Tuesday following the opening of period two and continue for 4 consecutive days.
	(D) Period 4	0	4	2	Shall open on the first Thursday following the opening of period three and continue for 4 consecutive days.
	(E) Period 5	0	8	0	Shall open on the first Tuesday following the opening of period four and continue for 4 consecutive days.
	(F) Period 6	0	0	0	Shall open on the first Thursday following the opening of period five and continue for 4 consecutive days.
	(G) Period 7	0	8	0	Shall open on the first Tuesday following the opening of period six and continue for 4 consecutive days.
	(H) Period 8	0	0	6	Shall open on the first Thursday following the opening

						of period seven and continue for 4 consecutive days.	
	(I) Period 9	0	8		0	Shall open on the first Tuesday following the opening of period eight and continue for 4 consecutive days.	
	(J) Period 10	3	0		0	Shall open on the first Thursday following the opening of period nine and continue for 4 consecutive days.	
	(K) Period 11	0	8		0	Shall open on the first Tuesday following the opening of period ten and continue for 4 consecutive days.	
	(L) Period 12	3			0	Shall open on the first Thursday following the opening of period eleven and continue for 4 consecutive days.	
	(M) Period 13	0	8		0	Shall open on the first Tuesday following the opening of period twelve and continue for 4 consecutive days.	
(12) Fort Hunter Liggett General Public							
	(A) Period 1	0	0			Shall open on the first Thursday in November and continue for 9 consecutive days.	
	(B) Period 2	0	0			Shall open on November 22 and continue for 9 consecutive days.	
	(C) Period 3	0	0			Shall open on the third Saturday in December and continue for 16 consecutive days.	
(13)(A Rese	∖) East Park rvoir	2	2			Shall open on the first Saturday in September and continue for 27 consecutive days.	
(14)(A	A) San Luis Reservoir	0	0	5		Shall open on the first Saturday in October and continue for 23 consecutive days.	
(15)(A	A) Bear Valley	2	1			Shall open on the second Saturday in October and continue for 9 consecutive days.	
(16)	Lake Pillsbury						

	(A) Period 1		4			Shall open on the Wednesday preceding the second Saturday in September and continue for 10 consecutive days.		
	(B) Period 2	2				Shall open Monday following the fourth Saturday in September and continue for 10 consecutive days.		
(17)(A	a) Santa Clara	0	0			Shall open on the second Saturday in October and continue for 16 consecutive days.		
(18)(A	N) Alameda	0	0			Shall open on the second Saturday in October and continue for 16 consecutive days.		
(v) De	epartment Administe	red App	orentice Hunt	s				
Hunt		1. Bull Tags	2. Antieriess Tags	3 Either- Sex Tags	4. Spike Tags	5. Season		
(1)(A) Gene Roose	Marble Mountain ral Methods evelt Elk Apprentice			2		Shall open on the Wednesday preceding the second Saturday in September and continue for 12 consecutive days.		
(2)(A) Gene Elk Aj	Northeast California ral Methods Rocky oprentice			2		Shall open on the Wednesday preceding the third Saturday in September and continue for 12 consecutive days.		
(3)(A) Gene Appre	Cache Creek ral Methods Tule Elk entice	1	0			Shall open on the second Saturday in October and continue for 16 consecutive days.		
(4)(A) Metho Appre	La Panza General ods Tule Elk entice	0	1			Shall open on the second Saturday in October and extend for 23 consecutive days.		
(5)(A) Metho Appre	Bishop General ods Tule Elk entice Period 2	0	0			Shall open on the first Saturday in October and extend for 9 consecutive days.		
(6)	Grizzly Island Genera	al Metho	ds Tule Elk A	pprentice				
	(A) Period 1		3		0	Shall open on the second Tuesday after the first Saturday in August and continue for 4 consecutive days.		
	(B) Period 2		0		2	Shall open on the first Thursday following the opening		
	80							

						of period one and continue for 4 consecutive days.
	(C) Period 3		3		0	Shall open on the first Tuesday following the opening of period two and continue for 4 consecutive days.
	(D) Period 4		0		2	Shall open on the first Thursday following the opening of period three and continue for 4 consecutive days.
(7)(A) Gene Metho	Fort Hunter Liggett ral Public General ods Apprentice	0	0			Shall open on the third Saturday in December and continue for 16 consecutive days.
(w) D	epartment Administe	ered Arc	hery Only Hu	unts		
Hunt		1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season
(1)(A) Arche	Northeast California ery Only	0	0	10		Shall open on the Wednesday preceding the first Saturday in September and continue for 12 consecutive days.
(2)(A) Multip Only	Owens Valley ble Zone Archery	3	0			Shall open on the second Saturday in August and extend for 9 consecutive days.
(3)(A) Only	Lone Pine Archery Period 1	0	1			Shall open on the second Saturday in September and extend for 16 consecutive days.
(4)(A) Only	Tinemaha Archery Period 1	0	0			Shall open on the second Saturday in September and extend for 16 consecutive days.
(5)(A) Only	Whitney Archery Period 1	0	0			Shall open on the second Saturday in September and extend for 16 consecutive days.
(6)	Fort Hunter Liggett			-		
	(A) General Public Archery Only Either Sex			3		Shall open on the last Wednesday in July and continue for 9 consecutive days.
	(B) General Public Archery Only Antlerless		4			Shall open on theTuesday preceding the fourth Thursday in November and continue for 9 consecutive days.

(x) Department Administered Muzzleloader Only Tule Elk Hunts							
Hunt	1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season		
(1)(A) Bishop Muzzleloader Only Period 1	0	0			Shall open on the second Saturday in September and extend for 16 consecutive days.		
(2)(A) Independence Muzzleloader Only Period 1	1	0			Shall open on the second Saturday in September and extend for 16 consecutive days.		
(3)(A) Goodale Muzzleloader Only Period 1	0	1			Shall open on the second Saturday in September and extend for 16 consecutive days.		
(4)(A) Fort Hunter Liggett General Public Muzzleloader Only	0	0			Shall open on the third Saturday in December and continue for 17 consecutive days.		
(y) Department Administered Muzzleloader/Archery Only Hunts							
Hunt	1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season		
(1)(A) Marble Mountain Muzzleloader/Archery Roosevelt Elk			5		Shall open on the last Saturday in October and extend for 9 consecutive days.		
(z) Fund Raising Elk Tags							
Hunt	1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season		
(1)(A) Multi-zone Fund Raising Tags	1				Siskiyou and Marble Mountains Roosevelt Elk Season shall open on the Wednesday preceding the first Saturday in September and continue for 19 consecutive days. Northwestern Roosevelt Elk Season shall open on the last Wednesday in August and continue for 30 consecutive days.		
					Northeastern Rocky Mountain Elk Season shall open on the		

						Wednesday preceding the last Saturday in August and continue for 33 consecutive days. La Panza Tule Elk Season shall open on the first Saturday in October and extend for 65 consecutive days.
(2)(A) Raisir	Grizzly Island Fund ng Tags	1				Shall open on the first Saturday in August and continue for 30 consecutive days
(3)(A) Raisir	Owens Valley Fund ng Tags	1				Shall open on the last Saturday in July and extend for 30 consecutive days.
(aa) N	lilitary Only Tule Elk	Hunts				
Hunt		1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	5. Season
(1)	Fort Hunter Liggett M	ilitary O	nly General M	lethods		
	(A) Early Season	0	0			The early season shall open on the second Monday in August and continue for 5 consecutive days and reopen on the fourth Monday in August and continue for 5 consecutive days.
	(B) Period 1		0			Shall open on the first Thursday in November and continue for 9 consecutive days.
	(C) Period 2		0			Shall open November 22 and continue for 9 consecutive days.
	(D) Period 3	0				Shall open on the third Saturday in December and continue for 16 consecutive days.
(2)(A) Militar Metho	Fort Hunter Liggett y Only General ods Apprentice	0	0			Shall open on the third Saturday in December and continue for 16 consecutive days.
(3) Fc	ort Hunter Liggett Milita	ry Only	Archery Only			
	(A) Either sex			3		Shall open on the last Wednesday in July and

					continue for 9 consecutive days.
	(B) Antlerless		4		Shall open on the last Wednesday in September and continue for 9 consecutive days.
(4)(A) Milita Only) Fort Hunter Liggett ry Only Muzzleloader	4			Shall open on the third Saturday in December and continue for 17 consecutive days.

Amendment filed 7/17/2017; effective 7/17/2017

§364.1, Title 14, CCR Department Administered Shared Habitat Alliance for Recreational Enhancement (SHARE) Elk Hunts

- (a) Season: The overall season shall open August 15 through January 31. Individual SHARE properties will be assigned seasons corresponding with management goals.
- (b) Bag and Possession Limit: Each elk tag is valid only for one elk per season and only in the SHARE hunt area drawn, and persons shall only be eligible for one elk tag per season through sections 364 or 364.1.
- (c) Individual property boundaries will be identified in the SHARE application package.
- (d Method of Take: Only methods for taking elk as defined in Sections 353 and 354 may be used.
- (e) Tagholder Responsibilities: See subsection 364(n)
- (f) The use of dogs to take or attempt to take elk is prohibited.
- (g) Applicants shall apply for a SHARE Access Permit, and pay a nonrefundable application fee as specified in Section 602, through the department's Automated License Data System terminals at any department license agent, department license sales office, or online.
- (h) Upon receipt of winner notification, successful applicants shall submit the appropriate tag fee as specified in Section 702 through any department license sales office or online through the department's Automated License Data System.

(i) Department Administered SHARE Roosevelt Elk Hunts						
Hunt	1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	(B) Area	
(1)(A) Siskiyou	2	2			Area: The tag shall be valid in the area described in subsection 364(a)(1)(A).	
(2)(A) Northwestern	7	20			Area: The tag shall be valid in the area described in subsection $364(a)(2)(A)$.	
(3)(A) Marble Mountain	0	0			Area: The tag shall be valid in the area described in subsection 364(a)(3)(A).	

(j) Department Administered General Methods SHARE Rocky Mountain Elk Hunts							
Hunt	1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	(B) Area		
(1)(A) Northeast California	0	0			Area: The tag shall be valid in the area described in subsection 364(b)(1)(A).		
(k) Department Administered SHARE Roosevelt/Tule Elk Hunts							
Hunt	1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	(B) Area		
(1)(A) Mendocino	2	4			Area: The tag shall be valid in the area described in subsection 364(c)(1)(A).		
(I) Department Ad	dministe	red SHARE Tu	ule Elk Hun	ts			
Hunt	1. Bull Tags	2. Antlerless Tags	3 Either- Sex Tags	4. Spike Tags	(B) Area		
(1)(A) Cache Creek	1	1			Area: The tag shall be valid in the area described in subsection 364(d)(1)(A).		
(2)(A) La Panza	5	10			Area: The tag shall be valid in the area described in subsection 364(d)(2)(A).		
(3)(A) Bishop	0	0			Area: The tag shall be valid in the area described in subsection $364(d)(3)(A)$.		
(4)(A) Independence	0	0			Area: The tag shall be valid in the area described in subsection $364(d)(4)(A)$.		
(5)(A) Lone Pine Period 2	0	0			Area: The tag shall be valid in the area described in subsection 364(d)(5)(A).		
(6)(A) Tinemaha	0	0			Area: The tag shall be valid in the area described in subsection 364(d)(6)(A).		
(7)(A) West Tinemaha	0	0			Area: The tag shall be valid in the area described in subsection $364(d)(7)(A)$.		
(8)(A) Tinemaha Mountain	0				Area: The tag shall be valid in the area described in subsection 364(d)(8)(A).		
(9)(A) Whitney	0	0			Area: The tag shall be valid in the area described in subsection 364(d)(9)(A).		

(10)(A) Goodale	0	0		Area: The tag shall be valid in the area described in subsection 364(d)(10)(A).
(11)(A) Grizzly Island	0	0	0	Area: The tag shall be valid in the area described in subsection 364(d)(11)(A).
(12)(A) Fort Hunter Liggett	0	0		Area: The tag shall be valid in the area described in subsection 364(d)(12)(A).
(13)(A) East Park Reservoir	1	1		Area: The tag shall be valid in the area described in subsection 364(d)(13)(A).
(14)(A) San Luis Reservoir	2	3		Area: The tag shall be valid in the area described in subsection 364(d)(14)(A).
(15)(A) Bear Valley	1	1		Area: The tag shall be valid in the area described in subsection 364(d)(15)(A).
(16)(A) Lake Pillsbury	0	0		Area: The tag shall be valid in the area described in subsection 364(d)(16)(A).
(17)(A) Santa Clara	0			Area: The tag shall be valid in the area described in subsection 364(d)(17)(A).
(18)(A) Alameda	0			Area: The tag shall be valid in the area described in subsection 364(d)(18)(A).

Amended 7/17/2017; effective 7/17/2017.

Appendix 6 – 2018 Elk Tags Issued and Harvested on PLM Ranches in the Northwestern Elk Zone

PLM Name	County	Authorized Harvest	Elk Tags Issued		Harvest	
			Bull	Antlerless	Bull	Antlerless
Alexandre Ecodairy Farms	Del Norte	2 bull elk and 4 antlerless elk	2	4	2	4
Big Lagoon	Humboldt	4 bull elk and 2 antlerless elk	4	2	4	2
Cottrell Ranch	Humboldt	12 deer of which no more than 10 may be antlerless deer, 1 bull elk, and 1 antlerless elk	1	1	1	1
Hunter Ranch	Humboldt	20 deer of which no more than 5 may be antlerless deer and 1 bull elk	1	0	1	0
Klamath PLM	Humboldt	2 bull elk and 2 antlerless elk	2	2	2	1
Redwood House Ranch	Humboldt	20 buck deer forked horn or better and 1 bull elk	1	0	0	0
Smith River	Del Norte	4 bull elk and 6 antlerless elk	4	6	3	5
Stover Ranch	Humboldt	4 bull elk and 2 antlerless elk	4	2	4	1
Wiggins Ranch	Humboldt	2 bull elk and 2 antlerless elk	2	2	2	2
		Totals	21	19	19	16

Appendix 7. Section 555, Title 14, CCR

§ 555. Cooperative Elk Hunting Areas.

To encourage protection and enhancement of elk habitat and provide eligible landowners an opportunity for limited elk hunting on their lands, the department may establish cooperative elk hunting areas and issue license tags to allow the take of elk as specified in Section 364, and subject to the following conditions:

(a) Definition and Scope. A cooperative elk hunting area is an area of private land located within the boundary of an area open to public elk hunting (as identified in Section 364). Minimum size of a cooperative elk hunting area shall be 5,000 acres, except that contiguous parcels of at least 640 acres in size may be combined to comprise a cooperative elk hunting area. Within an area open to public elk hunting, the number of cooperative elk hunting license tags issued shall not exceed 20 percent of the number of public license tags for the corresponding public hunt and shall be of the same designation (i.e., antlerless, spike bull, bull or either-sex) as the public license tags.

(b) Application Process. Application forms are available from the department's headquarters and regional offices. A person (as defined by Fish and Game Code Section 67) owning at least 640 acres within a cooperative elk hunting area shall be eligible to apply for a cooperative elk hunting area permit. Applicants shall designate one individual eligible to receive one elk license tag by the date indicated under subsection (3) below. Such individuals shall be at least 12 years of age and possess a valid California hunting license. A person may annually submit a cooperative elk hunting area application where they own sufficient habitat as described in subsection (a) above, for each public hunt area in which their property occurs.

(1) Applications shall be submitted to the department's regional office nearest the proposed cooperative elk hunting area. Department of Fish and Game regional offices are located as follows:

Northern California and North Coast Region, 601 Locust Street, Redding 96001 (530) 225-2300

Sacramento Valley and Central Sierra Region, 1701 Nimbus Road, Rancho Cordova 95670 (916) 358-2900

Central Coast Region, 7329 Silverado Trail, Box 47, Yountville 94599 (707) 944-5500 San Joaquin Valley and Southern Sierra Region, 1234 East Shaw Avenue, Fresno 93710 (559) 243-4005

South Coast Region, 4949 View Crest Avenue, San Diego 92123 (858) 467-4201 Eastern Sierra and Inland Deserts Region, 4775 Bird Farm Road, Chino Hills 91709 (909) 597-9823

(2) Completed applications must be received by the first business day following July 1. Only those applications that are filled out completely will be accepted. The Department will evaluate applications to determine if the specified parcels are of sufficient size within the boundary of a public elk hunt area, and contain important elk habitat. Rejected applications and those that are incomplete will be returned within 15 days of receipt by the department. If the number of accepted applications exceeds the license tags available, the department will determine successful applicants and a list of alternates by conducting a random drawing from the pool of qualified applicants as soon as possible after the application deadline. For any license year that the demand for cooperative elk hunting license tags within an area open to public hunting (as identified in Section 364) exceeds the number of tags available, tags will be first issued to applicants that did not receive a tag the previous year. If the quota is not filled, tags will be issued to the remaining applicants by random drawing.

(3) Successful applicants will be notified by the department as soon as possible after the application deadline. Applicants shall submit the name, address, and valid California hunting license number of designated elk license tag recipients and payment of elk license tag fees by check, money order, or credit card authorization in the amount specified by subsection 702(b)(1)(L)(M), to the department's regional office nearest the proposed cooperative elk hunting area, by the first business day following August 1. (c) An elk license tag issued pursuant to the provisions of this section is valid only during the general elk season in which the cooperative elk hunting area occurs and shall only be used on land specified in the landowner's application. License tags are not transferable.

(d) All provisions of the Fish and Game Code and Title 14, CCR, relating to the take of birds and mammals shall be conditions of all license tags issued pursuant to this section.

(e) Any permit issued pursuant to Section 555 may be canceled or suspended at any time by the commission for cause after notice and opportunity to be heard, or without a hearing upon conviction of a violation of this regulation by a court of competent jurisdiction.

Note: Authority cited: Section 1575, Fish and Game Code. Reference: Sections 67 and 1575, Fish and Game Code.