SHASTA COUNTY
USDA APHIS-WS IWDM PROGRAM
COOPERATIVE SERVICE AGREEMENT
DRAFT ENVIRONMENTAL IMPACT REPORT

State Clearinghouse No. 2019100323

Prepared for:

SHASTA COUNTY DEPARTMENT OF RESOURCE MANAGEMENT
PLANNING DIVISION
1855 PLACER STREET, SUITE 103
REDDING, CA 96001

Prepared by:

Michael Baker INTERNATIONAL

2729 PROSPECT PARK DRIVE, SUITE 220
RANCHO CORDOVA, CA 95670

AUGUST 2020

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APHIS-WS	Animal and Plant Health Inspection Service - Wildlife Services
BLM	US Bureau of Land Management
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game (name changed to Wildlife/CDFW in 2013)
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CSA	Cooperative Service Agreement
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIR	environmental impact report
ESA	Endangered Species Act
FGC	California Fish and Game Code
IWDM	Integrated Wildlife Damage Management
MBTA	Migratory Bird Treaty Act
MIS	Management Information System
MOU	Memorandum of Understanding
NAHC	Native American Heritage Commission
NASS	National Agricultural Statistics Service
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOP	Notice of Preparation
OIG	US Office of the Inspector General
OPR	Governor's Office of Planning and Research
SCH	State Clearinghouse
USC	United States Code
USDA	US Department of Agriculture

USFS	US Forest Service
USFWS	US Fish and Wildlife Service
WID	Work Initiation Document
WS	Wildlife Services

ES Executive Summary

The project evaluated in this Draft Environmental Impact Report (EIR) is the implementation of an Integrated Wildlife Damage Management (IWDM) program in Shasta County under a Cooperative Service Agreement (CSA) between Shasta County and the US Department of Agriculture (USDA) Animal and Plant Health Inspection Service - Wildlife Services (APHIS-WS) for wildlife damage management assistance in the County.

This executive summary provides background information, a brief description of the project and its alternatives, a summary of environmental impacts, and areas of controversy and issues to be resolved. The remainder of the document and technical appendices provide the discussion and support for the conclusions summarized herein.

ES.1 PURPOSE AND SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

Shasta County is the lead agency under the California Environmental Quality Act (CEQA) and has prepared an EIR for a CSA and annual work/financial plan between Shasta County and APHIS-WS for wildlife damage management assistance in the County (proposed project).

There would be no direct physical environmental impacts as a result of administrative actions that would provide for approval of a CSA to implement the IWDM program and thus these administrative actions do not require analysis under CEQA. However, implementation of the APHIS-WS IWDM program activities in the County by way of the CSA has the potential to result in impacts on wildlife species because some damage-causing common wildlife species may be removed by lethal methods. These indirect, or secondary, impacts require analysis under CEQA. The purpose of this Draft EIR is to determine whether implementation of the IWDM program under the CSA with APHIS-WS would result in any significant environmental impacts.

ES.2 LOCATION AND ENVIRONMENTAL SETTING

Shasta County is in Northern California and is bounded by Siskiyou County on the north, Trinity County on the west, Tehama County on the south, and Lassen County on the east (Figure ES-1, Project Location). The County is situated where the Central Valley of California meets the convergence of the Klamath and Coast Ranges to the northwest and west, with the Cascade Range to the northeast and east. It encompasses approximately 3,852 square miles. There are three incorporated cities: Redding, Anderson, and City of Shasta Lake. Shasta Lake, with 30,000 acres of surface area and the largest reservoir in California, is a prominent feature located in the Whiskeytown-Shasta-Trinity National Recreation Area.

The County is predominantly rural, with lands managed by the US Forest Service, National Park Service, and Bureau of Land Management and other federal agencies comprising approximately 1,527 square miles, nearly 40 percent of the County's land area. Approximately 2,260 square miles is in private ownership. Commercial forest uses occupy approximately 1,900 square miles (approximately 50 percent of the County). As of 2017, there were approximately 410,000 acres (640 square miles) of land in farms. While the amount of land in farms is less than 20 percent of the County's land area, the farm industry accounts for an important segment of the County's economic base. The total production value from field crops, nursery stock, orchards, apiaries, and livestock (approximately $81.4 million in 2018) is larger than the timber and forest products industry (approximately $55.2 million).

ES.3 BACKGROUND

USDA APHIS-WS has an existing IWDM program that it implements throughout California and the rest of the United States. The IWDM program is intended to protect residents, property, livestock, crops, and natural resources from damage caused by predators and other nuisance wildlife. APHIS-WS implements the IWDM program to selectively remove specific individual animals that cause damage to property, infrastructure, agricultural or livestock commodities, and public health and safety or are non-native species. The IWDM program does not seek to eradicate any species, regardless of legal status, or result in take that would substantially reduce species populations. APHIS-WS does not target certain species for reduction. For most wildlife damage management, once a damage situation is resolved, APHIS-WS wildlife specialists do not continue to remove additional animals unless a problem reoccurs, there are historical problems, and/or a request for assistance is made. Removal of animals by lethal methods is only used when other methods of control are not practical or have not been successful. Nonlethal methods are also used or may be recommended to a resource owner or manager.

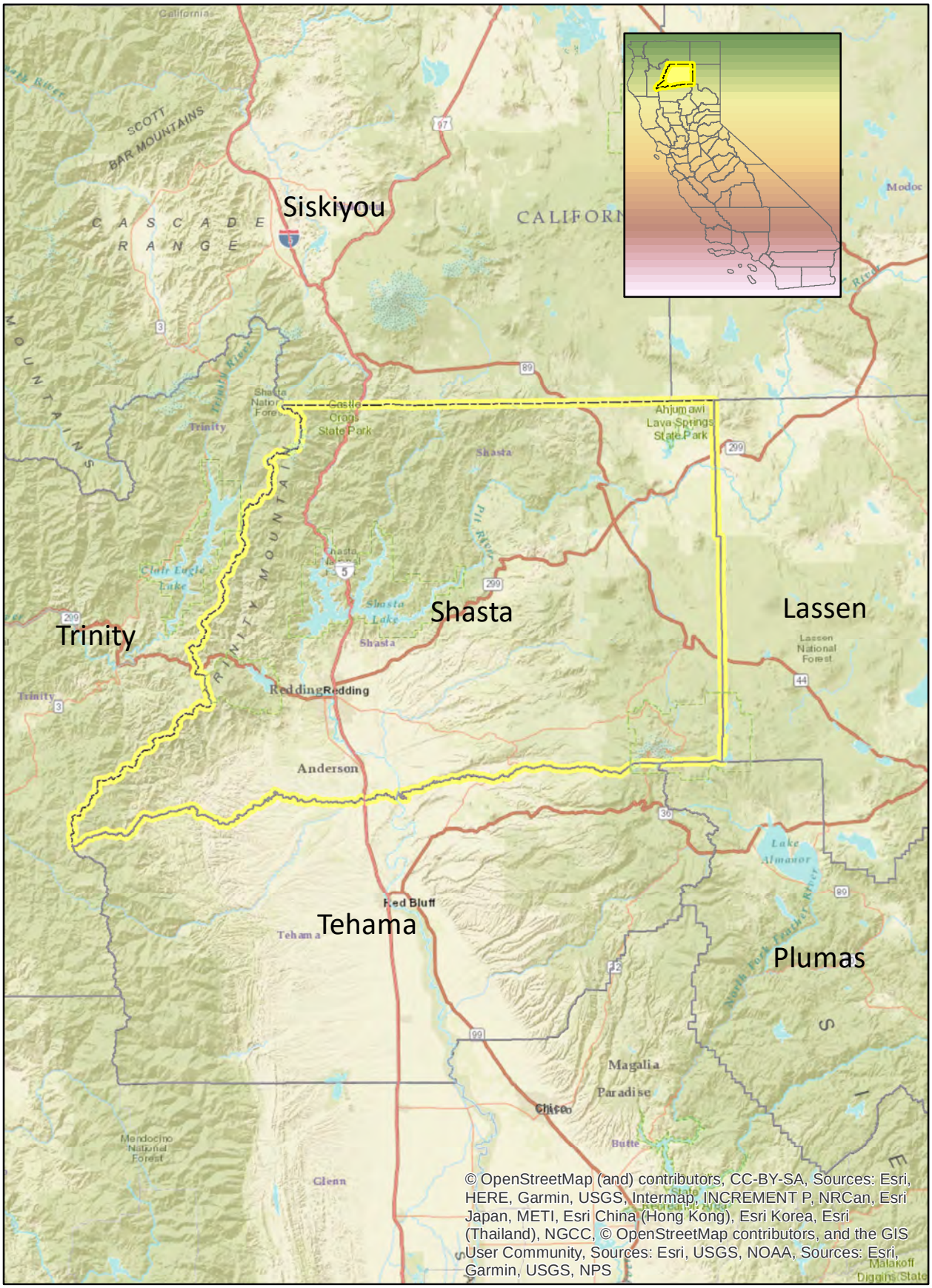
In 1998, the County Board of Supervisors approved its first CSA between APHIS-WS and the County, which was maintained thereafter by the Shasta County Department of Agriculture and APHIS-WS. The last CSA was approved in 2009 with work and financial plans established annually thereafter through the latest one in 2016. In February 2017, the Board of Supervisors approved a five-year CSA to remain in effect until June 30, 2021, or until either party requested to terminate the agreement, followed by approval of an annual work and financial plan for fiscal year 2017-18 in July 2017. The County voluntarily terminated the CSA with APHIS-WS in July 2018. There is currently no authorization in place for APHIS-WS services in the County, pending completion of environmental review pursuant to CEQA, and approval by the Board of Supervisors of another CSA.

The wildlife damage management services provided under the previous CSA with APHIS-WS were historically performed almost entirely on private land and on Bureau of Land Management (BLM) land where private ranchers lease land from the BLM. Between 2007 and 2017, APHIS-WS provided technical assistance to resource owners on private land totaling 360,827 acres (an annual median of approximately 22,800 acres). Work was also performed on 285,000 acres on BLM land where there are private grazing leases (an annual median of approximately 16,500 acres).[1]

In Shasta County, beaver, black bear, coyote, mountain lion, muskrat, striped skunk, red-winged and Brewer's blackbirds, and coot are the species for which APHIS-WS services were routinely provided. These are common wildlife, and none are afforded protection under federal or state endangered species act laws and regulations.[2] See Section 4.1, Biological Resources, for additional information about each of these species.

[1] APHIS-WS does not implement its services on the total number of reported acres. When a WID is signed by the requesting party, the agreement applies to the entire acreage of the parcel(s) for which services are requested. In some cases, this could be hundreds or thousands of acres. The total reflects the sum of all parcel acreages for which the WID has been signed. Thus, the extent of "on-the-ground" services is limited in geographic scope to only those specific locations on a property where the wildlife damage is occurring and where control services are actually provided.

[2] Mountain lion is a specially protected species under California Fish and Game Code Section 4800; it is not on the federal or California threatened or endangered species lists.



0 10 20 40 Miles

Figure ES-1
Project Location

Michael Baker INTERNATIONAL

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ES.4 PROJECT SUMMARY

The proposed project is the implementation of APHIS-WS IWDM activities that would be provided through a CSA between Shasta County and APHIS-WS. The overall goal of the proposed project is to ensure that wildlife damage management in Shasta County for purposes of protecting agricultural resources (including field crops, livestock, and bees), public health and safety, and property is performed in a biologically sound, environmentally safe, and accountable manner and in accordance with applicable federal and state laws and regulations. Under the proposed project, the IWDM services would be provided solely by APHIS-WS personnel and only at the request of the resource owner or manager. Shasta County would not decide whether a resource owner or manager should receive assistance, nor would the County be materially involved in conducting any of the IWDM technical assistance efforts or measures to control wildlife damage other than to cost share the financial portion of the program.

Similar to previous CSAs with APHIS-WS, it would be a cost-share agreement for a period of five years under which the County would fund a portion of APHIS-WS's estimated total cost of services. The CSA would require the approval of the Shasta County Board of Supervisors. Section 3.0, Project Description, includes a detailed description of the types of activities that would be performed. Activities performed under the IWDM program would be implemented by an APHIS-WS wildlife specialist in accordance with the regulations, standards, and guidelines of the APHIS-WS IWDM program, which are described in Section 2.0, Project Background.

If approved, the CSA would fund the APHIS-WS IWDM program in the County. Because APHIS-WS and the County operate on a fiscal-year basis, a new work plan (scope of services) and financial plan (budget) would be established between the County and APHIS-WS for each fiscal year of the CSA term. Yearly adjustments to the work plan would primarily focus on personnel and equipment costs. Technical assistance data maintained by APHIS-WS through its Management Information System would also be used to help develop the work plan and budget for subsequent years throughout the term of the CSA.

Neither APHIS-WS nor Shasta County is proposing any changes to the APHIS-WS IWDM program in Shasta County as it historically operated in conjunction with the implementation of the IWDM activities.

The IWDM program (as operated by APHIS-WS and approved by signature of the CSA and work plans) includes the following:

- Assignment of an APHIS-WS wildlife specialist trained in wildlife control methods and state and federal regulations, and certified in the safe handling and use of firearms and other control equipment.

- APHIS-WS procurement and maintenance of vehicles, tools, supplies, and other specialized equipment as deemed necessary to accomplish direct control activities.

- APHIS-WS supervision of safe and professional use of approved wildlife damage management tools/equipment, including the use of firearms, deterrent methods/devices (including pyrotechnics), traps, snares, trained dogs, all-terrain vehicles, Environmental Protection Agency and Drug Enforcement Administration approved chemicals (including immobilizing and euthanasia drugs), night vision equipment, and electronic calling devices.

- Data reporting for inclusion in the APHIS-WS Management Information System, which would consist of the number and types of request for assistance, control methods,

types of species, whether species causing damage or loss were removed or released, estimated value of loss, and other information used to document and monitor program activities.

Under the CSA, APHIS-WS would provide the following services in Shasta County:

- Offer technical advice/assistance to resource owners on prevention and/or control techniques.
- Inform and educate the public on how to prevent and reduce wildlife damage on their own, including through the use of APHIS-WS staff-prepared pamphlets and documentation.
- Provide expertise from wildlife specialists trained in wildlife control methods and state and federal regulations, and certified in the safe handling and use of firearms and other control equipment.
- Investigate wildlife damage situations to determine the responsible species and evaluate the site for applicability of prevention and control methods.
- Develop and implement wildlife damage management actions for the protection of agricultural resources, public health and safety, and property.
- Respond to incidents where wildlife species are threatening public health and safety (in coordination with the California Department of Fish and Wildlife [CDFW] and local law enforcement), including through the use of out-of-County resources and expertise.
- Collect samples for wildlife diseases that may affect agriculture and public safety.
- Provide access to APHIS-WS support staff, including at the National Wildlife Research Center, which conducts research on and develops wildlife damage management methods.

Technical assistance would be provided only at the request of affected resource owners or managers. The majority of services would likely be provided for the protection of field crops, apiary, and livestock because that has historically resulted in the most requests for technical assistance. However, technical assistance would also be available for protection of public health and safety (human-animal conflicts) and property. Before wildlife damage management is conducted, a Work Initiation Document (WID) must be signed by APHIS-WS and the landowner or manager. The County would not be involved in this action because it would be an agreement between APHIS-WS and the landowner or manager.

ES.5 ENVIRONMENTAL REVIEW PROCESS

The County published a Notice of Preparation (NOP) of an EIR for the project on October 17, 2019, for a 30-day review period ending November 15, 2019. An Environmental Initial Study, which contained a detailed project description and analysis of potential environmental effects, was included with the NOP.[3] A scoping meeting was held on October 29, 2019, at the Shasta County Department of Resource Management in Redding. There were no attendees.

The County received three comment letters, which were from CDFW, the Native American Heritage Commission (NAHC), and the Animal Legal Defense Fund (ALDF) on behalf of the Animal Welfare Institute, Center for Biological Diversity, Mountain Lion Foundation, Project Coyote, and WildEarth Guardians.[4] The NOP/Environmental Initial Study and comments received on the NOP during the public review period are included in Appendix A of this Draft EIR.

The Draft EIR will be circulated for public and agency review and comment for 45 days. The review period is **August 13, 2020 through September 28, 2020**. Public comment on the Draft EIR will be accepted in written form and may be sent via regular mail or email and should be addressed to:

Paul Hellman
Shasta County Department of Resource Management
1855 Placer Street, Suite 200
Redding, CA 96001
phellman@co.shasta.ca.us
Phone: (530) 225-5789

ES.6 PROJECT ALTERNATIVES

CEQA Guidelines Section 15126.6 sets forth the requirements for consideration and discussion of alternatives to a proposed project. The analyses of project impacts and cumulative impacts in Section 4.1, Biological Resources, provide substantial evidence that implementation of the CSA would not result in significant impacts on federal or state special-status species or species of special concern in California, interfere substantially with wildlife movement or established wildlife corridors, substantially reduce animal populations to levels that would not be sustainable compared to baseline conditions, or result in a contribution to cumulative impacts that would be cumulatively considerable. There would be no impacts on wetlands or conflicts with the General Plan or applicable resource plans. As such, other than the CEQA-required no project alternative (CEQA Guidelines Section 15126.6[e]), analysis of a reasonable range of alternatives that would reduce or avoid significant impacts, as required under CEQA Guidelines Section 15126.6(a), is limited for this project.

Nonetheless, to be responsive to comments received on the NOP and to aid the decision-making process, the Draft EIR includes three alternatives to the proposed project, in addition to the CEQA-required "no project" alternative. Two of the alternatives consider nonlethal methods. The analysis is presented in Section 5.0, Project Alternatives. The four alternatives evaluated in the Draft EIR are:

[3] The NOP/Environmental Initial Study is available at: https://www.co.shasta.ca.us/index/drm_index/planning_index/eirs.aspx.

[4] The County provided additional time for ALDF's review, extending the time to accept comments to December 6, 2019.

Alternative 1: No Project/No CSA with APHIS-WS

Alternative 2: Shasta County Provides Wildlife Damage Management Services

Alternative 3: Shasta County Provides Technical Assistance but No Lethal Control Methods Used

Alternative 4: Loss Indemnity and/or Cost-Share Reimbursement Program (no lethal control methods)

The alternatives analysis also addresses the ability of each alternative to achieve project objectives and the feasibility of the alternative.

ES.7 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

A common, key issue of concern to the public and various organizations at the local and national level is whether lethal controls should be used for wildlife damage management and/or whether APHIS-WS should have contracts with counties to implement activities that would remove wildlife by lethal methods. These are controversial topics subject to much debate and varying opinions, and in some cases litigation, but they do not require resolution in the Draft EIR. The Draft EIR does, however, and in accordance with CEQA, evaluate what the potential environmental impacts might be on wildlife species that are removed by lethal methods.

The issues to be resolved by the County are whether to approve a CSA with APHIS-WS, and if there are alternative approaches to making wildlife damage assistance available to County residents and resource owners. As noted above, there are no significant biological resources impacts, so the choice among alternatives is primarily a function of each alternative's ability to attain most of the basic objectives and each alternative's feasibility.

ES.8 SUMMARY OF ENVIRONMENTAL IMPACTS

Table ES-1 lists project and cumulative impacts. All impacts would be less than significant, and no mitigation measures are required.

TABLE ES-1: SUMMARY OF ENVIRONMENTAL IMPACTS

Impact		Level of Significance Without Mitigation	Mitigation Measure
4.1.1	Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS could affect target common wildlife species populations through the use of lethal methods to remove animals.	Less than significant	None required.
4.1.2	Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would have little or no adverse effect on protected species and/or sensitive habitat supporting those species.	Less than significant	None required.
4.1.3	Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would have no adverse effect on federally protected wetlands or waters of the state.	No impact	None required.
4.1.4	Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would have minimal effect on wildlife corridors.	Less than significant	None required.
4.1.5	Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would not conflict with Shasta County General Plan policies for protection of biological resources.	No impact	None required.
4.1.6	Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would not conflict with any habitat conservation plan or natural community conservation plan.	No impact	None required.
4.1.7	Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS, in combination with cumulative projects and actions, would not directly or indirectly result in adverse impacts on protected or common wildlife species or habitat supporting those species.	Less than cumulatively considerable	None required.

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1.0 Introduction

This Draft Environmental Impact Report (Draft EIR) has been prepared in accordance with and in fulfillment of the California Environmental Quality Act (CEQA) and the CEQA Guidelines to evaluate the environmental impacts of integrated wildlife damage management activities that would be implemented by the US Department of Agriculture (USDA) Animal and Plant Health Inspection Service - Wildlife Services (APHIS-WS) in Shasta County. As described in CEQA Guidelines Section 15121(a), an EIR is a public informational document that assesses the potential environmental impacts of a project. The County of Shasta (County) is the lead agency for the proposed project, which is summarized below and presented in greater detail in Section 3.0, Project Description.

1.1 PROJECT OVERVIEW

USDA APHIS-WS has an existing Integrated Wildlife Damage Management (IWDM) program that it implements throughout California and the rest of the United States. The IWDM program is intended to protect residents, property, livestock, crops, and natural resources from damage caused by predators and other nuisance wildlife. APHIS-WS implements the IWDM program to selectively remove specific individual animals that cause damage to property, infrastructure, agricultural or livestock commodities, and public health and safety or are non-native species. The IWDM program does not seek to eradicate any species, regardless of legal status, or result in take that would substantially reduce species populations. APHIS-WS does not target certain species for reduction. For most wildlife damage management, once a damage situation is resolved, APHIS-WS wildlife specialists do not continue to remove additional animals unless a problem reoccurs, there are historical problems, and/or a request for assistance is made. Removal of animals by lethal methods is only used when other methods of control are not practical or have not been successful. Nonlethal methods are also used or may be recommended to a resource owner or manager.

In 1998, the County Board of Supervisors approved its first Cooperative Service Agreement (CSA) between APHIS-WS and the County, which was maintained thereafter by the Shasta County Department of Agriculture and APHIS-WS. The last CSA was approved in 2009 with work and financial plans established annually thereafter through the latest one in 2016. In February 2017, the Board of Supervisors approved a five-year CSA to remain in effect until June 30, 2021, or until either party requested to terminate the agreement, followed by approval of an annual work and financial plan for fiscal year 2017-18 in July 2017. The County voluntarily terminated the CSA with APHIS-WS in July 2018. There is currently no authorization in place for APHIS-WS services in the County, pending completion of environmental review pursuant to CEQA and approval by the Board of Supervisors of another CSA. Additional information about the program in Shasta County is provided in Section 2.0, Project Background.

If approved, the CSA would fund the APHIS-WS IWDM program in the County. Because APHIS-WS and the County operate on a fiscal-year basis, a new work plan (scope of services) and financial plan (budget) would be established between the County and APHIS-WS for each fiscal year of the CSA term. Neither APHIS-WS nor Shasta County is proposing any changes to the APHIS-WS IWDM program as it historically operated in the County. The County would not be materially involved in any of the wildlife damage management activities, other than to cost-share the financial portion of the IWDM program, and it would not direct which activities or control methods would be used for wildlife damage management. Section 3.0, Project Description, includes a detailed description of the types of activities that would be performed.

There would be no direct physical environmental impacts as a result of administrative actions that would provide for implementation of the IWDM program and thus these administrative actions do not require analysis under CEQA. However, implementation of the APHIS-WS IWDM

program activities in the County by way of a CSA has the potential to result in impacts on wildlife species. These indirect, or secondary, impacts require analysis under CEQA. The purpose of this Draft EIR is to determine whether ongoing implementation of the IWDM program under the CSA with APHIS-WS would result in any significant environmental impacts.

1.2 ENVIRONMENTAL REVIEW PROCESS

The review and certification process for the proposed project involves the following general procedural steps:

NOTICE OF PREPARATION

In accordance with Section 15082 of the CEQA Guidelines, the County published a Notice of Preparation (NOP) of an EIR for the project on October 17, 2019, for a 30-day review period ending November 15, 2019. An Environmental Initial Study, which contained a detailed project description and analysis of potential environmental effects, was included with the NOP.[1] A scoping meeting was held on October 29, 2019, at the Shasta County Department of Resource Management in Redding. There were no attendees.

The NOP was provided to the State Clearinghouse, which distributed the NOP to the following state agencies: Department of Transportation (Caltrans) District 2; Department of Forestry and Fire Protection (Cal Fire); Department of Conservation; Department of Food and Agriculture; Department of Pesticide Regulation; Department of Parks and Recreation; Department of Water Resources; California State Lands Commission; Regional Water Quality Control Board (RWQCB) Central Valley Region 5 – Redding Office; Central Valley Flood Protection Board; Office of Historic Preservation; California Highway Patrol; and Natural Resources Agency. The County provided notice of availability of the NOP via direct mailing to other interested parties to solicit comments on the proposed project.[2]

The County received three comment letters, which were from the Native American Heritage Commission (NAHC),[3] California Department of Fish and Wildlife (CDFW), and the Animal Legal Defense Fund (ALDF) on behalf of the Animal Welfare Institute, Center for Biological Diversity, Mountain Lion Foundation, Project Coyote, and WildEarth Guardians.[4] The NOP/Environmental Initial Study and comments received on the NOP during the public review period are included in Appendix A of this Draft EIR. Table 1.0-1 summarizes the comments and how they are addressed in the Draft EIR.

[1] The NOP/Environmental Initial Study was posted on the County's website and is available at: https://www.co.shasta.ca.us/index/drm_index/planning_index/eirs.aspx.

[2] Federal and state agencies notified directly by Shasta County included US Fish and Wildlife Service, US Forest Service, APHIS-WS-California, National Marine Fisheries Service, California Department of Fish and Wildlife, California Department of Food and Agriculture, and Native American Heritage Commission. The complete mailing list is included in Appendix A.

[3] In accordance with Assembly Bill 52, the County mailed tribal consultation letters regarding the project to the Pit River Tribe and the Wintu Tribe of Northern California & Toyon-Wintu Center on March 4, 2019. The County did not receive any request for consultation.

[4] The County voluntarily provided ALDF additional time for review, extending the time to accept comments to December 6, 2019.

TABLE 1.0-1
SUMMARY OF NOTICE OF PREPARATION COMMENTS

Commenter	Topic(s)	Where Addressed in the Draft EIR
Federal Agencies		
none		
State Agencies		
California Department of Fish and Wildlife (November 15, 2019)	Project description (as included in Environmental Initial Study dated April 2019)	Text in Section 2.0, Project Background, and Section 3.0, Project Description, has been clarified to address comments about lethal methods, snares, and permitting.
	Threatened and endangered species (gray wolf)	See Section 4.1, Biological Resources, which provides information about gray wolves and potential impacts.
	Citations to Fish and Game Code and corresponding regulations in Title 14 of the California Code of Regulations	Citations have been revised as appropriate.
Native American Heritage Commission (November 1, 2019)	General requirements for Assembly Bill (AB) 52 and Senate Bill (SB) 18	Pursuant to AB 52, the County mailed tribal consultation letters regarding the project to the Pit River Tribe and the Wintu Tribe of Northern California & Toyon-Wintu Center on March 4, 2019. The County did not receive any request for consultation. Results of this process were documented in the Environmental Initial Study (p.2) included with the NOP (see Appendix A in this Draft EIR) SB 18 is not applicable to the proposed project because it does not involve adoption of a general plan or specific plan, or designation of open space.
Organizations		
Animal Legal Defense Fund, on behalf of the Animal Welfare Institute, Center for Biological Diversity, Mountain Lion Foundation, Project Coyote, and WildEarth Guardians (December 6, 2019)	Nonlethal alternatives, efficacy and cost/benefit of lethal methods, need for proposed project	See Section 2.0, Project Background, and Section 5.0, Alternatives, which discuss these topics.
	Effects of lethal methods on common wildlife populations threatened and endangered species, migratory birds	See Section 4.1, Biological Resources, which identifies species that may be affected and potential impacts.
	Potential for unintentional take of nontarget species	See Section 4.1, Biological Resources, which includes data specific to Shasta County.
	Physical health effects on target species	This is not an environmental impact issue that requires analysis under CEQA.
Individuals		
none		

DRAFT EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the project objectives, description of the environmental setting, and identification of impacts for the proposed project, as well as an analysis and comparison of the alternatives. Upon completion of the Draft EIR, the County will file a Notice of Completion (NOC) with the State Clearinghouse of the Governor's Office of Planning and Research and a Notice of Availability (NOA) with the Shasta County Clerk to begin the public review period (Public Resources Code Section 21161).

PUBLIC NOTICE/PUBLIC REVIEW

Concurrent with the NOC and NOA, the County will provide public notice of the availability of the Draft EIR for public review and invite comment from the general public, agencies, organizations, and other interested parties. The Draft EIR will be circulated for public and agency review and comment for 45 days. The review period is **August 13, 2020 through September 28, 2020**. Public comment on the Draft EIR will be accepted in written form and may be sent via regular mail or email and should be addressed to:

Paul Hellman, Director
Shasta County Department of Resource Management
1855 Placer Street, Suite 200
Redding, CA 96001
phellman@co.shasta.ca.us
Phone: (530) 225-5789

RESPONSE TO COMMENTS/FINAL EIR

Following the public review period, a Final EIR will be prepared. The Final EIR will respond to comments received during the public review period. The Draft EIR together with the Final EIR comprise the EIR for the proposed project.

CERTIFICATION OF THE EIR/PROJECT CONSIDERATION

The Shasta County Board of Supervisors will review and consider the EIR and may certify the EIR if it finds that the EIR is adequate and complete. The rule of adequacy generally holds that the EIR can be certified if it shows a good faith effort at full disclosure of environmental information and provides sufficient analysis to allow decisions to be made regarding the project in contemplation of its environmental consequences. Certification of the EIR does not automatically result in project approval. Upon review and consideration of the Final EIR, the Board of Supervisors may take action to approve, revise, or reject the proposed project.

CEQA Guidelines Section 15091 establishes the conditions under which findings must be prepared for an EIR as follows: "No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects." The analysis of environmental impacts in this Draft EIR concludes that implementation of the IWDM program by APHIS-WS in the County would not result in any significant project impacts or cumulative impacts. As such, findings would not be required.

1.3 ORGANIZATION OF THE DRAFT EIR

This Draft EIR is organized in the following sections:

EXECUTIVE SUMMARY

This section provides background information, a brief description of the project and its alternatives, a summary of environmental impacts, and areas of controversy and issues to be resolved.

SECTION 1.0 – INTRODUCTION

This section describes the intended use of the EIR, as well as the review and certification process.

SECTION 2.0 – PROJECT BACKGROUND

This section provides a comprehensive description of the background for the APHIS-WS IWDM program in Shasta County, including the overall regulatory framework for the program and data specific to Shasta County.

SECTION 3.0 – PROJECT DESCRIPTION

This section provides a detailed description of the proposed project and project objectives, along with background information and physical characteristics consistent with CEQA Guidelines Section 15124.

SECTION 4.0 – ENVIRONMENTAL IMPACTS

Section 4.0 describes the process to establish baseline conditions for the impact analysis and the scope of the analysis. This section also identifies impacts that were determined not to be significant and are not evaluated in detail in the Draft EIR, as provided under CEQA Guidelines Section 15128. The technical evaluation of biological resources impacts is presented in Section 4.1.

SECTION 5.0 – PROJECT ALTERNATIVES

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project that could feasibly attain the basic objectives of the project and avoid and/or substantially lessen any of the significant effects of the project. Four alternatives to the proposed project are evaluated in Section 5.0.

SECTION 6.0 – OTHER CEQA TOPICS

This section contains discussions and analysis of topics mandated by CEQA that are relevant to the project evaluated in this Draft EIR.

SECTION 7.0 – REFERENCES

This section provides bibliographic information for all cited references. The materials listed in Section 7.0 are available for review upon request. To request or review these items, please contact the Shasta County Department of Agriculture/Weights and Measures, 3179 Bechelli Lane, Suite 210, Redding, CA 96002, (530) 224-4949.

SECTION 8.0 – REPORT PREPARERS

This section lists authors and agencies that assisted in the preparation of the report by name, title, and company or agency affiliation.

APPENDICES

The appendices include all notices and other procedural documents pertinent to the EIR, as well as all technical material prepared to support the analysis.

2.0 PROJECT BACKGROUND

2.1 INTRODUCTION

The proposed project evaluated in this Draft Environmental Impact Report (EIR) is the establishment and implementation of a five-year Cooperative Service Agreement (CSA), including annual work plans (work and financial plans) required by the five-year CSA, between Shasta County and U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS) for wildlife damage management assistance in the County.

This section provides a context for these services and is also intended to disclose relevant information and data to the public and decision makers. It describes what wildlife damage is and the approach to managing it; the regulatory framework that allows APHIS-WS to provide wildlife damage management services in the County; and direct control methods that are or may be used for wildlife damage management (both nonlethal and lethal methods). This section also presents information about resource value and wildlife damage loss data from the USDA and the Shasta County Department of Agriculture. Data regarding the types of assistance provided by APHIS-WS is also included. Section 3.0, Project Description, describes the administrative elements of the CSA that would allow APHIS-WS to perform services for resource owners upon request.

2.2 BACKGROUND

WILDLIFE DAMAGE

Across the United States, wildlife habitat is altered as human populations expand and land is used for human needs. These human uses and needs often compete with wildlife, which increases the potential for conflicting human-wildlife interactions. Damage-causing wildlife in California includes a range of species that prey on livestock and wildlife, cause damage to property and other resources, and threaten public safety. There are several categories of resources that can be damaged or threatened by wildlife. The following summarizes information about the types of damage and the wildlife associated with that damage. Additional data specific to Shasta County appears at the end of this section under the "Shasta County Information" subheading.

Public Health and Safety

Wildlife that becomes habituated to human presence can pose a risk to human health and safety through direct contact (e.g., bites/attacks) and disease transmission (e.g., zoonotic disease, food contamination). Zoonotic (transmissible from wildlife to humans) diseases are one of the leading infectious causes of illness and death to humans. Rabies is frequently carried in raccoons, skunks, bats, foxes, and other animals. Plague can be carried in coyotes and other predators, and ground squirrels and other rodents. Because beavers defecate in water in which they live, giardia parasites can contaminate water that may be ingested by humans. Wildlife can also result in odor and noise nuisances (skunks and raccoons under houses). Coyotes and other mammals on airport property can damage aircraft, affect flights, and threaten human safety if present on runways during takeoffs and landings. Flood protection facilities (e.g., levees and berms) can be subject to damage by beavers and muskrats that burrow into these features, which causes the structure to weaken. Debris left by these species in irrigation canals can reduce capacity or redirect flows, which can also pose an increased flood risk. The species most commonly involved in human health and safety conflicts in California are coyotes, mountain lions, black bears, beavers, raccoons, and striped skunks.

Agriculture

Agricultural resources that can be damaged by wildlife include hay, pasture, vegetable and fruit crops, and apiaries. Examples of species that cause damage are badger and ground squirrel to hay fields, crops, and pastures; coyote, raccoon, and ground squirrel to vegetable and fruit crops; ground squirrel to pastures, rangeland, and fruit, nut, and row crops; and fox, coyote, or bobcat on small-enterprise operations with rabbits, chickens, sheep, goats, or other animals. Birds can damage and consume row crops, orchards, and vineyards.

Predators, including coyotes, mountain lions, bobcats, and black bears, and smaller wildlife such as skunks and weasels can kill, injure, and harass domestic livestock. In California, predators depredate on cattle, goats, sheep, chickens, and eggs, as well as other livestock. Cattle and calves are most vulnerable to predation (killing, harassment, or injury resulting in monetary losses to the owner) at calving season and less vulnerable at other times of year. However, sheep, and especially lambs, can sustain high predation rates throughout the year. Individual livestock producers can experience serious economic hardship from unexpected losses due to predation. Infected wildlife can also transmit zoonotic disease to livestock. Introduction of disease into the domestic livestock herds can damage the infected herd as well as the livestock industry (Shwiff et al. 2016).

The USDA National Agricultural Statistics Service (NASS) compiles death losses for livestock and reports those data every five years as a cooperative effort between the NASS and APHIS-WS and APHIS Veterinary Services. California farmers and ranchers suffered predation losses of cattle and calves valued at more than $2.5 million in 2015 (USDA 2017a: Table B.4), and sheep and lambs valued at approximately $1.1 million in 2014 (USDA 2015d: Table A.2.b). In California, coyotes were responsible for the majority of cattle, calf, sheep, and lamb losses to predators (USDA 2017a: Table D.1.c; USDA 2015d: Table C.8). Loss/damage data specific to Shasta County are presented under the "Shasta County Information" subheading, below.

Property

Wildlife living close to humans can damage homes and roofs while attempting to access human dwellings for shelter or food. Beavers may damage or destroy roads, homes, and other infrastructure while altering watercourses and plugging water control features. Wild turkeys may damage lawns and vehicles while foraging and displaying during the breeding season.

Natural Resources

Predation from abundant common predatory species may act as a limiting factor in the recovery of sensitive, threatened, or endangered species (e.g., coyote predation on snowy plovers). The behavior of some species may cause damage to sensitive habitats (e.g., beaver damage to restoration or conservation lands).

WILDLIFE DAMAGE MANAGEMENT

Federal Wildlife Damage Management Program Authority

The primary statutory authorities for the APHIS-WS Integrated Wildlife Damage Management (IWDM) program are the Animal Damage Control Act of 1931 (7 United States Code Section 426-426c; 46 Stat 1468) and the Rural Development, Agriculture, and Related Agencies Appropriations Act (Public Law 100-202, Dec. 22, 1987, Stat 1329-1331; 7 United States Code 426c, as amended in the Fiscal Year 2001 Agriculture Appropriations Bill). The APHIS-WS program operates under the

provisions of numerous laws, including the National Environmental Policy Act of 1969, as amended, and the federal Endangered Species Act of 1973, as amended.

APHIS-WS receives both federal appropriations funding and cooperator-provided funds to sustain its operations. APHIS-WS uses federal-appropriated funds for its national and regional office operations, and for its research functions. It funds state office operations through a combination of federal-appropriated and cooperator-provided funds.

Services provided by APHIS-WS personnel are conducted in compliance with its Wildlife Services Policy Manual (WS Policy Manual), which provides guidance to APHIS-WS personnel conducting official activities by addressing national policy and via a series of WS Directives (USDA 2019a).[1] Services are also conducted in compliance with applicable federal, state, and local laws and regulations as required under APHIS-WS Directive 2.210.

Overview of Integrated Wildlife Damage Management Approach

APHIS-WS uses an adaptive IWDM approach, sometimes called integrated pest management (WS Directive 2.105), in which a combination of methods is considered and may be used or recommended to reduce damage. The purposes of these methods are to alter the behavior of or repel the target species, physically prevent wildlife access to sensitive resources, remove specific damage-causing individuals from the population after other reasonable deterrent methods are attempted, or control invasive exotic species populations in order to eliminate or reduce the potential for loss or damage to resources.

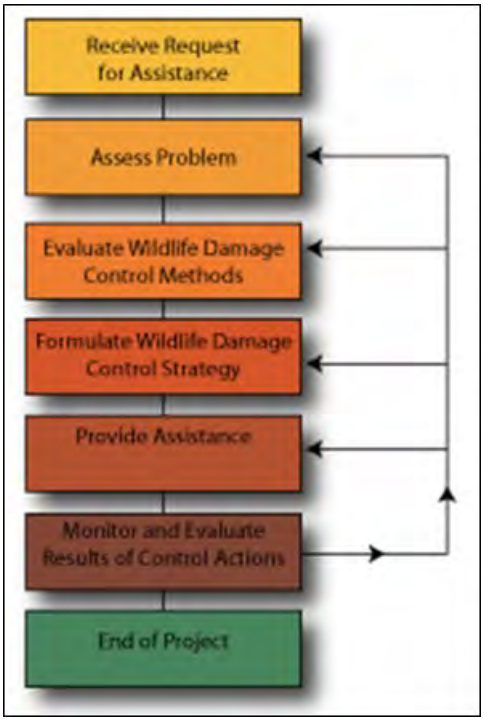
APHIS-WS Decision Model

When selecting a specific course of action, the WS Policy Manual requires that a range of management approaches and alternatives be evaluated. To do this, APHIS-WS managers, biologists, and specialists use the manual when responding to requests for assistance. The Decision Model (see Figure 2.0-1) determines the appropriate damage management method(s) to implement based on several factors: (1) species responsible, (2) magnitude, geographic extent, frequency, historical damage, and duration of the problem, (3) status of target and nontarget species, (4) environmental conditions, (5) potential biological, physical, economic, and social impacts, (6) potential legal restrictions, and (7) costs of damage management options (WS Directives 2.101 and 2.201).

The APHIS-WS wildlife specialists conducting service visits in response to calls treat each situation individually based on the facts at hand. A typical call may involve an investigation to positively identify the species involved and to understand the scope of the problems occurring; development of a plan of action for the property owner to mitigate the problem using reasonable nonlethal means; and, if necessary, take (i.e., the removal by lethal means) of an animal. Confirmed losses are verified by APHIS-WS specialists during a site visit. If the incident involves predation, the APHIS-WS specialists not only confirm that the loss was caused by a predator but also which predator species was responsible.

[1] The entire WS Policy Manual and WS Directives are available at https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/SA_WS_Program_Directives.

FIGURE 2.0-1: APHIS-WS DECISION MODEL



Before wildlife damage management is conducted, a Work Initiation Document (WID) must be signed by APHIS-WS and the landowner or manager, or an APHIS-WS work plan is presented to the land management administrator or agency representative for review. APHIS-WS cooperates with land and wildlife management agencies when appropriate and as requested to combine efforts to effectively and efficiently resolve wildlife damage problems in compliance with all applicable federal, state, and local laws and memorandums of understanding (MOUs) between APHIS-WS and other agencies.

IWDM methods may include alteration of cultural practices and habitat and behavioral modification to prevent or reduce damage. The reduction of wildlife damage may also require that offending animal(s) be removed through lethal means. Removal of animals by lethal methods is only used when other methods of control are not practical or have not been successful. The methods that may be used by APHIS-WS personnel, as provided under its directive and guidance, are described in Appendix B of this Draft EIR.

The APHIS-WS IWDM program does not seek to eradicate any species, regardless of legal status, or result in take that would substantially reduce species populations. It does not "target" certain species for reduction.

Results of 2014 Federal Audit of APHIS-WS Wildlife Damage Management Activities

In 2014, the US Office of the Inspector General (OIG) completed an audit of APHIS-WS wildlife damage management activities for the period fiscal year 2012 through the second quarter of 2014 (USDA 2015b).[2] As described in the audit report, the objectives of the audit were to: 1) determine whether wildlife damage management activities were justified and effective; 2) assess the controls over cooperative agreements; 3) assess APHIS-WS's Management Information System (MIS) for reliability and integrity; and 4) follow up on implementation of prior audit recommendations concerning hazardous materials. California was one of five state offices selected for field site visits as part of the audit because it is one of the states with large allocated budgets for fiscal years 2012 and 2013 and it was a state with the most kills of selected predators, such as coyotes. The OIG concluded that APHIS-WS wildlife damage management activities and its system for tracking controlled materials complied with all applicable federal and state laws and regulations. The audit report did not identify any findings or recommendations associated with those areas. Auditors found that the MIS contained inaccurate information, which resulted in inflated wildlife control numbers and transmission of inaccurate data to the public. Another finding concerned WIDs (Form 12s). APHIS-WS agreed with the audit's findings and recommendations and is implementing the recommended improvements to the MIS (USDA 2015b; USDA 2015c).

The MIS data is used extensively by APHIS-WS for evaluating its program, and these data are also used in this Draft EIR. Although some deficiencies were found by the OIG, the data compiled and maintained by APHIS-WS represent the best available information with regard to the type, detail, and amount of data with respect to reporting information about resources affected, value of damages, the types of wildlife management services provided by APHIS-WS, methods for control, and the numbers of intentional and unintentional take of species.

Cooperator Agreements

APHIS-WS Directives 3.101 and 3.102 authorize APHIS-WS to enter into cooperative agreements with federal agencies, states, local jurisdictions, individuals, and public and private agencies, organizations, and institutions to reduce the risks of injurious animal species and/or nuisance mammals and birds and those mammal and bird species that are reservoirs for zoonotic diseases. Shasta County is an example of a cooperator. However, the directives do not require that local jurisdictions such as Shasta County enter into cooperative agreements. The decision to enter into a cooperative agreement with APHIS-WS is at the discretion of each entity.

CSA terms, agreements for control, MOUs, and other documents establish the need for the requested work, legal authorities allowing the requested work, and the responsibilities of APHIS-WS and its cooperators. If a cooperative agreement is in place, APHIS-WS responds to requests for assistance when valued resources are lost, damaged, or threatened by wildlife. Responses can be in the form of technical assistance or operational damage management. The degree of APHIS-WS's involvement varies, depending on the complexity of the wildlife problem.

[2] The full report, which describes the audit methodology in detail, is available at https://www.usda.gov/oig/webdocs/33601-0002-41.pdf.

APHIS-WS IWDM PROGRAM ACTIVITIES IN CALIFORNIA

Since 1916, APHIS-WS has operated in partnership with federal, (US Forest Service, US Fish and Wildlife Service, Bureau of Land Management [BLM]), state (California Department of Food and Agriculture [CDFA], California Department of Fish and Wildlife [CDFW], California Department of Public Health [CDPH]), and local (County governments and regional authorities) agencies to respond to requests for assistance on wildlife damage-related issues throughout California. APHIS-WS has current MOUs with CDFW, CDFA, and CDPH (USDA 2015a: 11). Currently, APHIS-WS has agreements with 34 of the state's 58 counties to conduct wildlife damage management activities on public or private property when the property/resource owners or managers request assistance.

APHIS-WS operational activities at the state level provide wildlife damage control assistance in four major areas: (1) agricultural resources, which includes protecting livestock from predators and alleviating bird damage at aquaculture facilities; (2) natural resources, which includes protecting threatened and endangered species and managing invasive species; (3) property, which includes protecting homes, landscaping, and industrial facilities from damage by mammals and birds; and (4) public safety and health, which includes reducing the risk of aircraft strikes of wildlife around airport runways as well as reducing and monitoring the spread of wildlife diseases to livestock, pets, or humans.

In California, there are five APHIS-WS districts: North District, Sacramento District, Central District, San Luis District, and South District. Shasta County is in the North District.

Environmental Review of APHIS-WS Activities in California

To implement its IWDM services in California, and in Shasta County, specifically, APHIS-WS has prepared the following environmental reviews for its activities:

- *Pre-decisional Environmental Assessment for Mammal Damage Management for the Protection of Human Health and Safety, Property, Agricultural Resources and Natural Resources in California* (USDA 2005)

- *Pre-decision Environmental Assessment for Mammal Damage Management in California APHIS-WS North District* (USDA 2015a)

In 2018, APHIS-WS entered into an MOU with the CDFA to prepare a joint environmental impact statement/environmental impact report pursuant to the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) that will address APHIS-WS IWDM activities at the statewide level. As of August 2020, the joint document has not been completed.

2.3 ROLE OF OTHER AGENCIES

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW has management authority and responsibility for resident wildlife, and conducts management programs for furbearers, game species, and nongame mammals. CDFW can request assistance from APHIS-WS for any species under its primary responsibility. APHIS-WS may provide recommendations and referral of callers to CDFW, as well as operational management assistance with the implementation of wildlife damage management upon request and as permitted or otherwise authorized by CDFW.

APHIS-WS is not authorized to issue take permits for wildlife. Species such as mountain lion and all game species (feral swine, deer, elk, black bear, beaver, turkey, etc.) require a depredation permit. Such permits are issued to individual landowners by CDFW when criteria for a permit are met. Under the cooperative agreement, APHIS-WS may act on the permit at the permit holder's request.

Services provided by APHIS-WS to the County under the CSA are required to be implemented in cooperation with CDFW and in accordance with applicable regulations of that agency pertaining to wildlife damage management. CDFW does not allow for the relocation of wildlife causing damage. Except in limited cases where CDFW makes an individual exemption, CDFW dictates that the disposition of all wildlife captured for resource protection must be euthanized. Relocation of wildlife known to cause resource damage in one area does not correct the damaging behavior and can spread the problem to a new area. Relocation can also spread disease to other wildlife and domestic species.

CDFW has completed environmental documents in accordance with CEQA for evaluating its hunting and trapping regulations. The most recent documents were completed in 2004 and 2001, respectively: *Draft Environmental Document, Sections 265, 460-467, and 472-480, Title 14, California Code of Regulations Regarding Furbearing and Nongame Mammal Hunting and Trapping*; and *Final Environmental Document, Sections 250, 250.5, 251, 251.5, 252, 257, 257.5, 307-310, 310.5, 311, and 354, Title 14, California Code of Regulations Regarding Resident Small Game Mammal Hunting*. CDFW concluded that even with APHIS-WS take, assumed to be 33 percent of statewide take, and in conjunction with other related past, present, and reasonably foreseeable future projects identified in the cumulative analysis, cumulative impacts would not be significant (CDFG 2004: 32-35, 47, 95-111). Additional information on the scope of the analysis is provided in Impact 4.1.7 (Cumulative Impacts) in Section 4.1, Biological Resources.

SHASTA COUNTY ANIMAL REGULATIONS OFFICE

The Shasta County Sheriff's Office - Animal Regulations Office handles concerns regarding stray animals, animal cruelty, animal bites, injured or diseased animals, dangerous or vicious dogs, nuisance barking, and kennel inspections. The office does not handle incidents involving wildlife damage.

2.4 INTEGRATED WILDLIFE DAMAGE MANAGEMENT CONTROL METHODS

NONLETHAL CONTROLS

APHIS-WS may recommend nonlethal control methods to resource owners; Appendix B of this Draft EIR identifies those methods and their associated limitations. Many nonlethal methods may be safely used by resource owners (e.g., animal husbandry practices, exclusion [e.g., fencing/penning], and frightening devices (e.g., lights). However, the current federal program does not allow for federal funds to be used in a cost-share program to provide materials (e.g., fencing or fladry) or resources (guard animals) directly to resource owners for use by and for the benefit of private resource owners. Some methods must be used only by trained professionals (e.g., pyrotechnics). Other nonlethal methods have the potential to result in unintentional effects on species that are protected by federal and/or state law. Shasta County staff would not be responsible for determining the nonlethal methods to be used by private parties.

LETHAL CONTROLS

The lethal control of animals is authorized under APHIS-WS Directive 2.505. A variety of methods for removing a target animal species are available in California. Appendix B identifies those methods. These descriptions are provided for disclosure purposes. The descriptions in Appendix B also indicate which methods APHIS-WS may not use in Shasta County because they are no longer allowed as well as methods that have not been used in the County for over 10 years. As with nonlethal methods, Shasta County would not be responsible for determining the methods to be used.

2.5 SHASTA COUNTY INFORMATION

COOPERATIVE SERVICE AGREEMENT

In 1998, the County Board of Supervisors approved its first CSA between APHIS-WS and the County, which was maintained thereafter by the Shasta County Department of Agriculture and APHIS-WS. The last CSA was approved in 2009 with work and financial plans established annually thereafter through the latest one in 2016 (USDA 2017b). Previous annual work and financial plans provided for a maximum of approximately 3,600 hours of specialist time on an annual basis, with little variation between years.

The wildlife damage management services provided under the previous CSA with APHIS-WS were historically performed almost entirely on private land and on BLM land where private ranchers lease land from the BLM. Between 2007 and 2017, APHIS-WS provided technical assistance to resource owners on private land totaling 360,827 acres (an annual median of approximately 22,800 acres) (see Table B-1 in Appendix B for additional detail). Work was also performed on 285,000 acres on BLM land where there are private grazing leases (an annual median of approximately 16,500 acres) (USDA 2019b). APHIS-WS does not implement its services on the total number of acres. When a WID is signed by the requesting party, the agreement applies to the entire acreage of the parcel(s) for which services are requested. In some cases, this could be hundreds or thousands of acres. The total annual acreage reflects the sum of all parcel acreages for which the WID has been signed. Thus, the "on-the-ground" impact of services is limited in geographic scope to only those specific locations on a property where the wildlife damage is occurring and where control services are actually provided.

In February 2017, the Board of Supervisors approved a five-year CSA to remain in effect until June 30, 2021, or until either party requested to terminate the agreement (USDA 2017b), followed by approval of an annual work and financial plan for fiscal year 2017-18 in July 2017. The County voluntarily terminated the CSA with APHIS-WS in July 2018. There is currently no authorization in place for APHIS-WS services in the County, pending completion of environmental review pursuant to CEQA, and approval by the Board of Supervisors of another CSA.

RESOURCES PROTECTED

According to the 2017 Census of Agriculture, in Shasta County, there were approximately 410,000 acres (640 square miles) of land in farms (USDA 2019f). While the amount of land in farms is less than 20 percent of the County's land area, the farm industry accounts for an important segment of the County's economic base. The IWDM program services provided by APHIS-WS in Shasta County have been primarily for the protection of agricultural resources, which includes field crops, nursery stock, orchards, apiaries, and livestock. In 2018, the total value of agricultural products

produced in the County was approximately $81.4 million.[3] Crop production (fruits and nuts, nursery stock, field crops, and apiaries) have accounted for approximately $60.7 million or nearly 75 percent of the value. Wild rice has been the County's leading field crop commodity in terms of dollar value for many years. Livestock production ($20.6 million) was approximately 25 percent of total value.[4] (Shasta County 2019).

TECHNICAL ASSISTANCE

Technical assistance includes recommendations for implementing various techniques for protecting resources from damage caused by wildlife. Technical assistance projects associated with specific species in Shasta County for the 2007–2018 reporting period are shown in Table 2.0-1.

TABLE 2.0-1
APHIS-WS TECHNICAL ASSISTANCE PROJECTS IN SHASTA COUNTY (2007–2018)

Mammals	Participants[a]	Birds	Participants[a]
Mountain lion	633	Brewer's blackbird	29
Black bear	507	Red-winged blackbird	44
Coyote	311	Yellow-headed blackbird	28
Muskrat	166	American coot	37
Striped skunk	95	Brown-headed cowbird	28
Beaver	85	Northern flicker	1
Raccoon	29	Great horned owl	1
Feral swine	29	Feral pigeon	1
Gray fox	23	European starling	5
Bobcat	22	Wild turkey	3
Feral dog	12	Acorn woodpecker	2
Wolf, gray/timber	7	Canada goose	1
Deer (black-tail and mule)	4	*Subtotal Birds*	*180*
River otter	3	**Other**	
Botta's pocket gopher	3	General/multi-species	10
Ground squirrel	3	Non-wildlife species	1
Bison (buffalo)	1	*Subtotal Other*	*11*
Red fox	1		
Hare / Jackrabbit	1		
Mole	1		
Virginia opossum	1		
Woodchuck	1		
Subtotal Mammal	*1,938*		
		TOTAL	**2,129**

Source: USDA 2019b
a Total: Number of calls or face-to-face interactions.

During the reporting period, APHIS-WS specialists in Shasta County performed over 2,000 technical assistance projects. Activities included individual phone calls, field visits, presentations, and informational pamphlets and literature. Nearly 90 percent of all technical assistance projects were associated with mammal species. As indicated by these data, mountain lion, black bear, coyote,

[3] Timber and other forest products are part of the County's economic base. In 2018, the value was $55 million, but this is not a component of the total agricultural resources production value reported (Shasta County 2019).
[4] In 2018, there were approximately 25,000 head of cattle and calves and 2,200 head of sheep and lambs (Shasta County 2019).

muskrat, striped skunk, and beaver were the mammal species resulting in the most requests for technical assistance, with blackbirds and coots comprising the greatest number for avian species. The data in Table 2.0-1 only provides information about technical assistance. It does not indicate the number of wildlife species removed by lethal methods. The reader is referred to Section 4.1, Biological Resources, and Tables 4.1-3 and 4.1-4 therein for additional information and analyses regarding species take data and information about these species. Some species, such as feral dogs, Virginia opossum, and red fox, are non-native species. Feral swine is a non-native invasive species. For the reporting period, APHIS-WS staff spent an average of approximately 3,200 hours annually providing technical assistance, with most of the hours associated with direct control activities. Detailed information is provided in Table B-1 in Appendix B.

For purposes of the impact analysis in the context of evaluating potential impacts on species populations resulting from the use of lethal methods, the historical technical assistance data (Table 2.0-1) and hours worked by the wildlife specialist combined with mammal and avian species take data presented in Tables 4.1-3 and 4.1-4 in Section 4.1, Biological Resources, respectively, are a reasonable indicator of future activity levels with ongoing implementation of the IWDM program in Shasta County.

LOSS/DAMAGE DATA

Table 2.0-2 summarizes confirmed damages caused by wildlife from 2007 to 2018 by resource category (crops, livestock, other agricultural resources, natural resources and property) and whether the damage was caused by mammal species or avian species. As shown, confirmed damage to crops, apiary, and aquaculture was over $1.6 million, or nearly 90 percent of total confirmed damages in the County during that time period, with birds responsible for nearly $870,000 in damage to the County's wild rice crop, or just under 50 percent of total damages. Approximately $465,000 (26 percent of the total damages) was caused by bears (see Table B-2 in Appendix B). Additional detail about damage, confirmed by APHIS-WS staff, is provided in Table B-3 (mammals) and Table B-4 (birds) in Appendix B. The total value of confirmed damages has varied widely from year to year.

Not all resource, property, or landowners/managers who experience damage from wildlife report the damage or request assistance. Confirmed losses are verified by APHIS-WS wildlife specialists during a site visit. APHIS-WS wildlife specialists not only confirm that the loss was caused by predators (in the case of livestock losses) but also which predator species was responsible. Because only a fraction of the damage or loss is reported to or can be confirmed by APHIS-WS (similar to statewide loss data), wildlife damage loss in Shasta County is likely underestimated. The data about damages and causes are provided for background and disclosure purposes and to inform the decision-making process. An analysis of loss/damage data is not required under CEQA nor is it necessary for purposes of evaluating the biological resources impacts of the proposed project.

INTEGRATED WILDLIFE DAMAGE MANAGEMENT METHODS

Under the previously existing CSA, APHIS-WS conducted direct control methods in response to requests from residents and/or resource owners for purposes of agricultural resource, public health and safety, and property protection and when the WID was signed. APHIS-WS's scope of services in Shasta County will be limited to targeting specific individual animals and only when it has been determined by the APHIS-WS wildlife specialist it is the animal responsible for damage. The request for APHIS-WS assistance will be at the discretion of the resource owner, and neither APHIS-WS nor the County would have the authority to compel the resource owner to use (or not use) APHIS-WS services.

TABLE 2.0-2
SHASTA COUNTY CONFIRMED WILDLIFE DAMAGES SUMMARY 2007-2018

	Agriculture Field Crops	Agriculture Livestock	Agriculture Other	Natural Resources	Property	Health and Safety	Total Confirmed Damages
Total all confirmed damages all species over 12-year period	**$1,007,269**	**$227,103**	**$377,771(a)**	**$27,627(b)**	**$166,395**	**$100**	**$1,806,265**
Percent caused by mammals	14%	100%	100%	100%	99%	100%	
Percent caused by avian species over 12-year period	86%	0%	0%	0%	1%	0%	
Mammals							
Total confirmed damages from mammals and others over 12-year period	$139,192	$227,103	$377,771(a)	$27,627(b)	$164,895	$100	$936,521
Primary mammal species causing damage	Beaver: 47% Feral swine: 26% Muskrat: 25%	Mountain lion: 46% Coyote: 21% Black Bear: 19%	Black bear: 99.9% Raccoon: 0.1%	Black bear: 73% Muskrat: 20%	Beaver: 31% Muskrat: 30% Black bear: 14% Coyote: 13%	Striped skunk: 100%	
Birds							
Total confirmed damages from avian species over 12-year period	$868,077(c)	0	0	0	$1,500	0	$869,577
Primary avian species causing damage	American coots: 56% Red-winged blackbird: 44%	N/A	N/A	N/A	Acorn woodpecker: 100%	N/A	

Notes:
(a) Wildlife damage includes damages to bees, consumption of honey, and damages to hive structures ($377,546) plus livestock ($225).
(b) Natural resources damages are predominantly from wildlife damage to aquaculture activities.
(c) All field crop damage was to the wild rice resource.
Source: USDA 2019b

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Some producers in the County likely use one or more nonlethal methods as common practice (e.g., fencing, guard animals). An APHIS-WS wildlife specialist may recommend additional nonlethal practices as part of the technical assistance services provided to a requestor. Producers in Shasta County that use nonlethal methods at their discretion are not funded by the County's CSA with APHIS-WS. Producers are not required under any federal, state, or local regulation to report the type(s) of methods they use, and it is the producers, not APHIS-WS or the County, who are responsible for monitoring the efficacy of various methods in reducing damage to agricultural resources or property on private lands. There is no requirement that producers or property owners report data about nonlethal methods used or cost/benefit information to the County or APHIS-WS. Section 5.0, Alternatives, presents additional information about nonlethal methods as an alternative to lethal methods and related considerations.

COST/BENEFIT CONSIDERATIONS OF APHIS-WS IWDM METHODS IN SHASTA COUNTY

The cost/benefit of the IWDM program services provided under the CSA does not require analysis, nor is the EIR required to resolve concerns about this topic under CEQA, since it is an economic consideration (CEQA Guidelines Section 15131 [Economic and Social Effects]). However, to be responsive to comments on this topic, the following is provided for informational purposes and to help inform the decision-making process.

APHIS-WS has prepared cost-benefit studies for its services in California (Shwiff et al. 2006) and for Shasta County specifically (Shwiff n.d.). These studies, which addressed agricultural resources, public health and safety, natural resources, and property, concluded that County investment in the cost-share program with APHIS-WS does provide a financial benefit by helping to reduce damage caused by wildlife.

An ongoing topic in the scientific community and debated by decision makers and the public is whether lethal methods for predator control should be used at all due to the availability of effective nonlethal techniques. The County is aware of numerous studies evaluating the usefulness and potential benefits and/or efficacy of nonlethal methods to help minimize and sometimes reduce predation on livestock. These studies, which have been ongoing for decades, include: Bergstrom (2017); Conner et al. (1998); Davidson-Nelson and Gehring (2010); Defenders of Wildlife (2012); Knowlton, Gese, and Jaeger (1999); Lance et al. (2010); Musiani et al. (2003); NRDC (2012); Project Coyote (n.d.); Rashford, Grant, and Strauch (2008); Shivik, Treves, and Callahan (2003); Shwiff et al. (2006); Stone et al. (2017); Treves and Karanth (2003); Wallach, Ramp, and O'Neill (2017); and Warnert (2015). Methods and results have varied among the studies.

A common opinion expressed by some authors and the public who advocate the use of nonlethal methods is that lethal methods are ineffective in protecting livestock from predation. Studies in support of that opinion include but are not limited to Dranheim (2017); Harper et al. (2008); Musiani et al. (2003); Treves, Krofel, and McManus (2016); van Eeden et al. (2018); and Wielgus and Peebles (2014). Key topics addressed by the authors of some of the above-referenced studies included how losses are calculated relative to the value of the resource protected, methodology for performing cost-benefit analyses, and that the economic and ecologic value of predators has not been accounted for in cost-benefit analyses to date. Some authors are of the opinion that the loss attributable to livestock predation is small relative to the production value and how that value is accounted for in the cost-benefit analyses.

For an individual resource owner or manager with losses, it remains a personal decision whether the costs of wildlife damage management services provided by APHIS-WS and borne by Shasta County justify the benefit of having APHIS-WS provide assistance.

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3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

The project evaluated in this EIR is the implementation of an Integrated Wildlife Damage Management (IWDM) program in Shasta County under a Cooperative Service Agreement (CSA) between Shasta County and the US Department of Agriculture (USDA) Animal and Plant Health Inspection Service - Wildlife Services (APHIS-WS) for wildlife damage management assistance in the County. The overall goal of the proposed project is to ensure that wildlife damage management in Shasta County for purposes of protecting agricultural resources (including livestock and bees), public health and safety, and property is performed in a biologically sound, environmentally safe, and accountable manner and in accordance with applicable federal and state laws and regulations. Under the proposed project, the IWDM services would be provided solely by APHIS-WS personnel and only at the request of the resource owner or manager. Shasta County would not decide whether a resource owner or manager should receive assistance, nor would the County be materially involved in conducting any of the IWDM technical assistance efforts or measures to control wildlife damage other than to cost share the financial portion of the program.

This section describes the location of the proposed project and its environmental setting, background about the proposed project, a statement of objectives, a general description of the proposed project's technical, economic, and environmental characteristics, and intended uses of the EIR.

3.2 ENVIRONMENTAL SETTING

Shasta County is in Northern California and is bounded by Siskiyou County on the north, Trinity County on the west, Tehama County on the south, and Lassen County on the east (Figure 3.0-1, Project Location). The County is situated where the Central Valley of California meets the convergence of the Klamath and Coast Ranges to the northwest and west, with the Cascade Range to the northeast and east. It encompasses approximately 3,852 square miles. There are three incorporated cities: Redding, Anderson, and City of Shasta Lake. Shasta Lake, with 30,000 acres of surface area and the largest reservoir in California, is a prominent feature located in the Whiskeytown-Shasta-Trinity National Recreation Area.

The County is predominantly rural. Nearly 60 percent of land in the County is privately owned. Federal lands comprise approximately 40 percent and include lands managed by the Bureau of Land Management (BLM), National Park Service, US Forest Service, Bureau of Reclamation, US Fish and Wildlife Service, and other federal agencies. Table 3.0-1 summarizes land ownership and jurisdiction in the County. Figure 3.0-2 shows the geographic extent of each of these general land use categories and details about ownership and jurisdiction.

Commercial forest uses occupy approximately 1,900 square miles or approximately 50 percent of the County (Shasta County 2004). As of 2017, there were approximately 410,000 acres (640 square miles) of land in farms (USDA 2019g). While the amount of land in farms is less than 20 percent of the County's land area, the farm industry accounts for an important segment of the County's economic base. The total production value from field crops, nursery stock, orchards, apiaries, and livestock (approximately $81.4 million in 2018) is larger than the timber and forest products industry (approximately $55.2 million) (Shasta County 2019).

TABLE 3.0-1: SHASTA COUNTY LAND OWNERSHIP AND JURISDICTION

Ownership/Jurisdiction	Square Miles	Percent of County Land Area
Federal	1,538	39.9
State	43.7	1.1
Tribal Lands (Bureau of Indian Affairs)	4.1	0.1
Private	2,261	58.7
Local Government	1.5	0.4
Non-Project Conservation and Trusts	3.55	0.09
TOTAL	**3,852**	

Coniferous forest is the predominant vegetation in the mountainous regions of the County, but in many areas this cover has been modified by human activities. Extensive modification has also occurred in the Sacramento and Fall River Valleys, which are characterized by cultivated and pasture lands, oak woodlands, and grasslands. These habitats are home to numerous common wildlife species as well as species that are protected under federal and state laws and regulations. Human activities have modified their habitat areas and thus their geographic distribution throughout the County. Additional information about species is presented in Section 4.1, Biological Resources.

3.3 PROJECT BACKGROUND

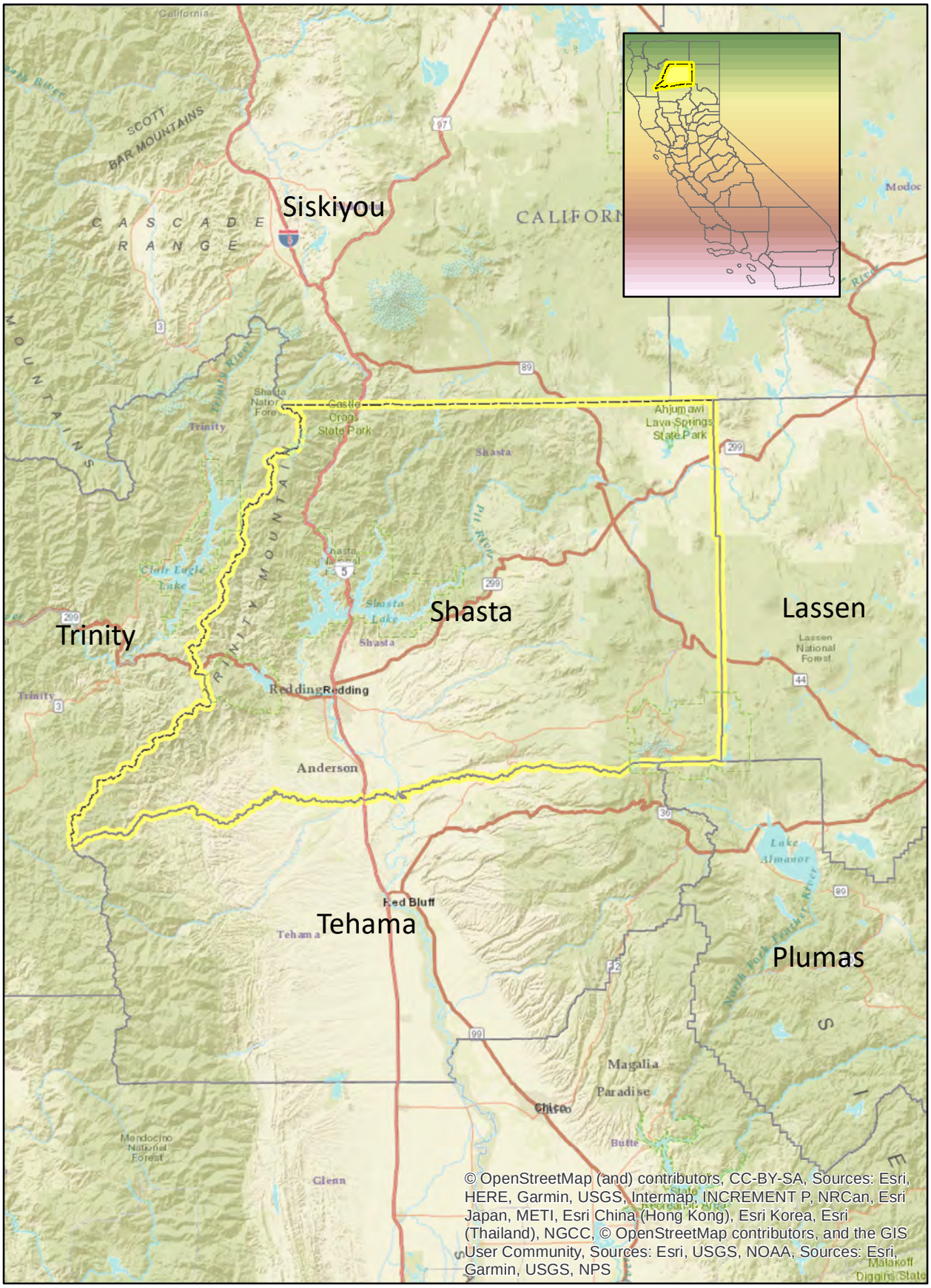
USDA APHIS-WS implements the USDA's IWDM program throughout the United States. In California, 34 counties have an agreement with APHIS-WS for IWDM services. The IWDM program is intended to protect residents, property, livestock, crops, and natural resources from damage caused by predators and other nuisance wildlife.

Section 2.0, Project Background, describes what wildlife damage is and the approach to managing it, the regulatory framework that allows APHIS-WS to provide wildlife damage management services in the County, and IWDM methods.

AGREEMENT BETWEEN SHASTA COUNTY AND APHIS-WS

In 1998, the County Board of Supervisors approved its first CSA between APHIS-WS and the County, which was maintained thereafter by the Shasta County Department of Agriculture and APHIS-WS. The last CSA was approved in 2009 with work and financial plans established annually thereafter through the latest one in 2016. Previous annual work and financial plans provided for a maximum of approximately 3,600 hours of specialist time on an annual basis, with little variation between years. In February 2017, the Board of Supervisors approved a five-year CSA to remain in effect until June 30, 2021, or until either party requested to terminate the agreement, followed by approval of an annual work and financial plan for fiscal year 2017-18 in July 2017.

The County voluntarily terminated the CSA with APHIS-WS in July 2018. There is currently no authorization in place for APHIS WS services in the County, pending completion of environmental review pursuant to the California Environmental Quality Act (CEQA), and approval by the Board of Supervisors of another CSA.



0 10 20 40 Miles

Figure 3.0-1
Project Location

Michael Baker INTERNATIONAL

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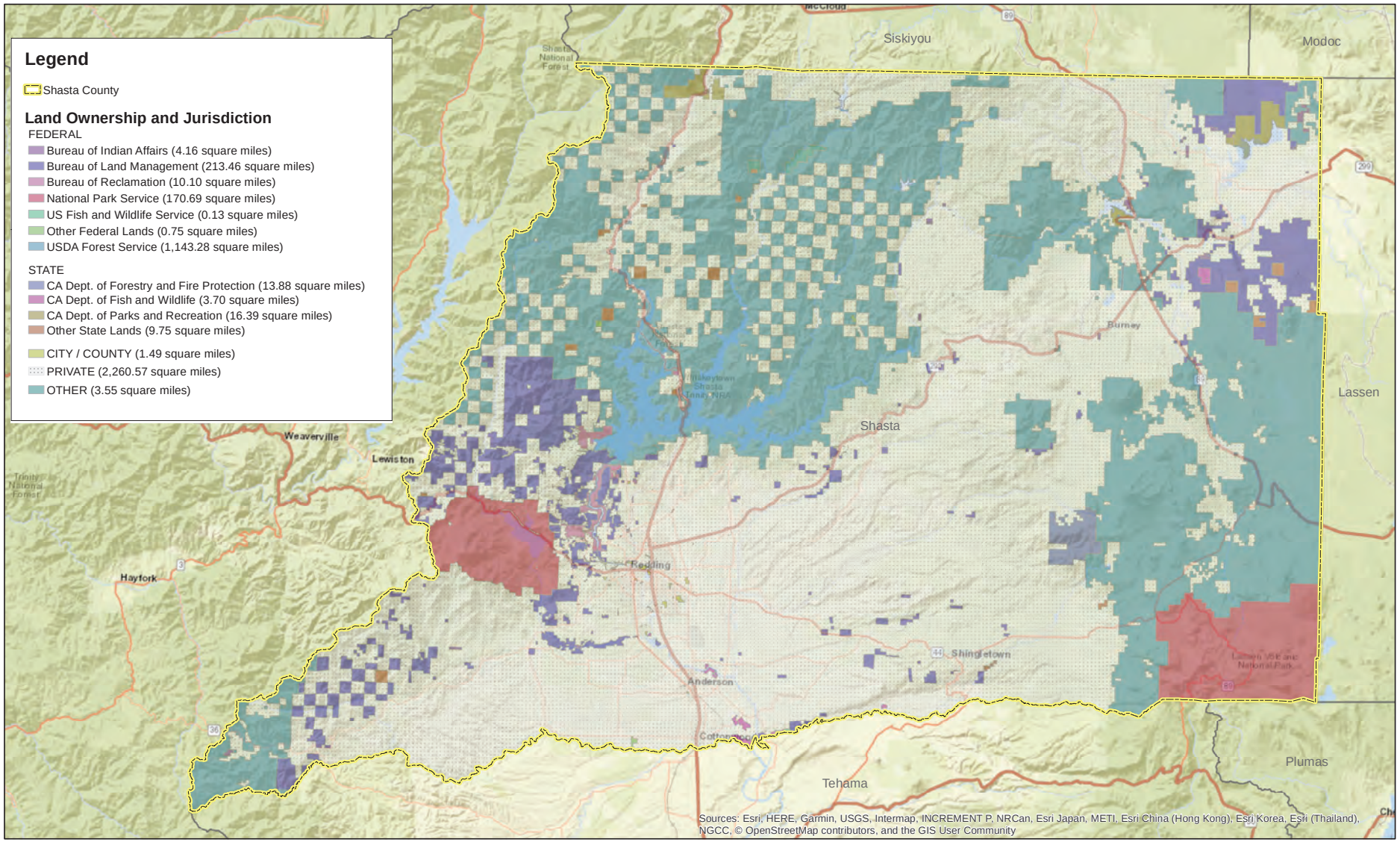

0 3.75 7.5 15 Miles

Figure 3.0-2
Land Ownership/Jurisdiction

Michael Baker INTERNATIONAL

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The wildlife damage management services provided under the previous CSA with APHIS-WS were historically performed almost entirely on private land and on BLM land where private ranchers lease land from the BLM.[1] Between 2007 and 2017, APHIS-WS provided technical assistance to resource owners on private land totaling 360,827 acres (an annual median of approximately 22,800 acres). Work was also performed on 285,000 acres on BLM land where there are private grazing leases (an annual median of approximately 16,500 acres) (USDA 2019b).

In Shasta County, black bear, coyote, mountain lion, muskrat, striped skunk, red-winged and Brewer's blackbirds, and coot are the species for which APHIS-WS services were routinely provided. These are common wildlife, and none are afforded protection under federal or state endangered species act laws and regulations.[2] See Section 4.1, Biological Resources, for additional information about each of these species.

3.4 PROJECT OBJECTIVES

The overall goal of the proposed project is to ensure that wildlife damage management in Shasta County for purposes of protecting agricultural resources, public health and safety, and property is performed in a biologically sound, environmentally safe, and accountable manner and in accordance with applicable federal and state laws and regulations.

The County has identified the following objectives of the proposed project:

1) Provide an administrative mechanism for private citizens and property owners in Shasta County to request assistance for wildlife damage management services.

2) Facilitate access to on-site educational services (e.g., informational materials, advice, and demonstrations) regarding wildlife damage management specific to conditions in Shasta County.

3) Implement an integrated approach that allows qualified professionals to consider the range of options available for wildlife damage management that take into account the species responsible, magnitude of the problem, environmental conditions, legal restrictions such as listed species and permitting, and other considerations to formulate an appropriate strategy for the situation.

4) Have a process through which professionals who specialize in wildlife damage management can provide technical assistance to resource owners about the variety of nonlethal methods that can be used to resolve problems (e.g., animal husbandry practices, guard animals, fencing, frightening) and where it is appropriate for resource owners to resolve the problem themselves.

5) Ensure that methods and techniques for lethal control to handle wildlife damage situations that may be difficult or dangerous for the public to use are implemented by professionals

[1] APHIS-WS does not implement its services on the total number of reported acres. When a Work Initiation Document (WID) is signed by the requesting party, the agreement applies to the entire acreage of the parcel(s) for which services are requested. In some cases, this could be hundreds or thousands of acres. The total reflects the sum of all parcel acreages for which the WID has been signed. Thus, the extent of "on-the-ground" services is limited in geographic scope to only those specific locations on a property where the wildlife damage is occurring and where control services are actually provided.

[2] Mountain lion is a specially protected species under California Fish and Game Code Section 4800; it is not on the federal or California threatened or endangered species lists.

who are specially trained in such methods and who provide those services in a legal manner that is protective of human health and the environment.

6) Provide a transparent process for monitoring and documenting wildlife damage management activities to ensure accurate reporting of the types of wildlife damage and number of wildlife species removed by lethal methods, and to help assess the impacts of wildlife damage and associated wildlife damage management activities in Shasta County.

7) Provide wildlife damage management at similar funding levels and ensure that Shasta County funds for wildlife damage management are used in a fiscally sound manner.

8) Ensure that processes remain in place for the protection of public safety.

3.5 PROJECT DESCRIPTION

PROGRAM IMPLEMENTATION

The proposed project is the implementation of APHIS-WS IWDM activities that would be provided through a CSA between Shasta County and APHIS-WS. Similar to previous CSAs with APHIS-WS, it would be a cost-share agreement for a period of five years under which the County would fund a portion of APHIS-WS's estimated total cost of services, typically around 80 percent of the total cost. The CSA would require the approval of the Shasta County Board of Supervisors. Activities performed under the IWDM program would be implemented by APHIS-WS field specialists in accordance with the regulations, standards, and guidelines of the IWDM program, including its Wildlife Services (WS) Policy Manual, Directives, and standard operating procedures. The County would not be materially involved in any of the wildlife damage management activities other than to cost-share the financial portion of the program.

If approved, the CSA would fund the APHIS-WS IWDM program in the County. Because APHIS-WS and the County operate on a fiscal-year basis, a new work plan (scope of services) and financial plan (budget) would be established between the County and APHIS-WS for each fiscal year of the CSA term. Yearly adjustments to the work plan would primarily focus on personnel and equipment costs. Technical assistance data maintained by APHIS-WS through its Management Information System would also be used to help develop the work plan and budget for subsequent years throughout the term of the CSA.

Neither APHIS-WS nor Shasta County is proposing any changes to the APHIS-WS IWDM program in Shasta County as it has historically operated in conjunction with the County's approval of the CSA with APHIS-WS or the implementation of the IWDM activities. The reader is referred to Section 2.0, Project Background, for a description of the program and historical operational data. Section 4.0, Introduction to the Analysis, provides an overview of how baseline conditions are established for purposes of evaluating environmental impacts, with specific wildlife species data and analysis in Section 4.1, Biological Resources.

PROGRAM ACTIVITIES

Overview

Primary functions provided by APHIS-WS in the County would include offering technical advice/assistance to resource owners on prevention and/or control techniques; informing and educating interested individuals on how to prevent and reduce wildlife damage on their own;

investigating wildlife damage situations to determine the responsible species and evaluate the incident for applicability of prevention and/or control methods; and responding to incidents where wildlife species are threatening public health and safety (in coordination with the California Department of Fish and Wildlife [CDFW] and local law enforcement) including, when necessary, the use of out-of-County resources and expertise. Technical assistance would be provided only at the request of affected resource owners or managers.

The IWDM program does not seek to eradicate any species, regardless of legal status, or result in take that would substantially reduce species populations. APHIS-WS does not target certain species for reduction. For most wildlife damage management, once a damage situation is resolved, APHIS-WS field specialists do not continue to remove additional animals unless a problem reoccurs, there are historical problems, and/or a request for assistance is made.

Under the IWDM program, APHIS-WS may selectively remove specific individual animals that cause damage to property, infrastructure, agricultural or livestock commodities, and/or public health and safety or are non-native. Removal of animals by lethal methods is only used when other methods of control are not practical or have not been successful. Nonlethal methods are also used or may be recommended to a resource owner or manager.

Agreement Terms

The IWDM program (as operated by APHIS-WS and approved by signature of the CSA and work plan) includes the following:

- Assignment of an APHIS-WS wildlife specialist trained in wildlife control methods and state and federal regulations, and certified in the safe handling and use of firearms and other control equipment.

- APHIS-WS procurement and maintenance of vehicles, tools, supplies, and other specialized equipment as deemed necessary to accomplish direct control activities.

- APHIS-WS supervision of safe and professional use of approved wildlife damage management tools/equipment, including the use of firearms, deterrent methods/devices (including pyrotechnics), traps, snares, trained dogs, all-terrain vehicles, Environmental Protection Agency and Drug Enforcement Administration approved chemicals (including immobilizing and euthanasia drugs), night vision equipment, and electronic calling devices.

- Data reporting for inclusion in the APHIS-WS Management Information System, which would consist of the number and types of request for assistance, control methods, types of species, whether species causing damage or loss were removed or released, estimated value of loss, and other information used to document and monitor program activities.

The level of APHIS-WS staff effort would be consistent with the CSA and work and financial plans from previous years (see Section 2.0, Project Background).

Technical Assistance Activities

Technical assistance would be provided only at the request of affected resource owners or managers. The majority of services would likely be provided for the protection of field crops, apiaries, and livestock because that has historically resulted in the most requests for technical assistance, as described in Section 2.0, Project Background. However, technical assistance would

also be available for protection of public health and safety (human-animal conflicts) and property. APHIS-WS would not perform any activities funded by the County for the protection of threatened and endangered species.

Under the CSA, APHIS-WS would provide the following services in Shasta County:

- Offer technical advice/assistance to resource owners on prevention and/or control techniques.
- Inform and educate the public on how to prevent and reduce wildlife damage on their own, including through APHIS-WS staff-prepared pamphlets and documentation.
- Provide expertise from wildlife specialists trained in wildlife control methods and state and federal regulations, and certified in the safe handling and use of firearms and other control equipment.
- Investigate wildlife damage situations to determine the responsible species and evaluate the site for applicability of prevention and control methods.
- Develop and implement wildlife damage management actions for the protection of agricultural resources, public health and safety, and property.
- Respond to incidents where wildlife species are threatening public health and safety (in coordination with CDFW and local law enforcement) including through the use of out-of-County resources and expertise.
- Collect samples for wildlife diseases that may affect agriculture and public safety.
- Provide access to APHIS-WS support staff, including at the National Wildlife Research Center, which conducts research on and develops wildlife damage management methods.

Wildlife Damage Management

Before wildlife damage management is conducted, a Work Initiation Document (WID) must be signed by APHIS-WS and the landowner or manager. The County would not be involved in this action because it would be an agreement between APHIS-WS and the landowner or manager.

When services are requested by a resource owner, APHIS-WS personnel would conduct an initial investigation that defines the nature, history, and extent of the problem, species and specific individual animal(s) responsible for the damage, and methods available to resolve the problem. In selecting damage management techniques for specific wildlife damage situations, the APHIS-WS wildlife specialist would consider the species and specific individual animal(s) responsible and the frequency, extent, and magnitude of the damage. In addition, consideration would be given to the status of target and potential nontarget species, local environmental conditions, relative costs of applying management techniques, environmental impacts, and social and legal concerns. Section 2.0, Project Background, describes this process and the regulatory framework under which these decisions may be made by APHIS-WS personnel.

Although the County would provide funding for the services, County staff would not be involved in the decision-making regarding which methods should or should not be used. The County is not

authorized to do so, because the federal government has delegated that authority to APHIS-WS, as explained in Section 2.0, Project Background.

Public Safety Considerations

Most of the integrated wildlife damage management methods that could be used by APHIS-WS under the CSA with the County would be implemented for the protection of flood protection systems and field crops on agricultural lands, consistent with historical practices. APHIS-WS's work on federal lands, if any, would be limited to areas with private grazing leases and/or where public access is not allowed. APHIS-WS would not perform work funded under the CSA on any national forest lands, where there may be publicly accessible trails and wildlife viewing areas.

If traps are used, APHIS-WS Directive 2.450 (Traps and Trapping Devices) requires that appropriate warning signs be posted on commonly used public access points to publicly accessible areas where traps or snares are in use. Signs must be routinely checked by APHIS-WS wildlife specialists to ensure they are present, obvious, and readable. Capture devices must be set where they would minimize the public's view of captured animals. In California, pursuant to California Fish and Game Code (FGC) Section 4180, traps must be checked at least once daily, and each time traps are checked, all trapped animals must be removed. Therefore, it would be highly unlikely for the public to encounter a trapped, dead, or injured animal. WS Directive 2.515 (Disposal of Wildlife Carcasses) requires that carcasses be transported in manner in which they are placed totally out of sight of the general public and disposed of in a manner consistent with federal, state, County, and local regulations.

Hazardous materials such as chemicals and pesticides, which are described in Appendix B, may be used by the APHIS-WS wildlife specialist. APHIS-WS Directive Section 2.4 (Specialized Methods and Techniques) establishes procedures and protocols that must be followed regarding the use and disposal of chemicals and pesticides to ensure compliance with applicable federal and state laws and regulations so that such use does not pose an environmental or human health risk. APHIS-WS Directive Section 2.435 (Explosives Use and Safety) provides protocols for the use of explosives for removing debris created by beaver activities that causes damage to property or other resources. If pyrotechnics or incidental explosives are used for nonlethal controls, such use would be subject to the requirements set forth in WS Directives 2.625 and 2.627. Aircraft operations, if any, must conform to standards set forth in WS Directive 2.620 (Aviation Safety and Operations).

3.6 INTENDED USES OF THE DRAFT EIR

This Draft EIR evaluates the environmental impacts associated with implementation of the IWDM program. However, the APHIS-WS IWDM program analyzed in the EIR is not limited by the five-year time frame of the CSA, should it be approved. Potential future renewal of the IWDM program for subsequent five-year terms is considered a later activity of the proposed project and is programmatically analyzed in the EIR.

The analysis takes into account historical data, which is a reasonable indicator of future activities because no changes to the IWDM activities or terms of the previously existing CSA are proposed.[3] The County has also used its best efforts to find out and disclose all that it reasonably can regarding cumulative impacts. Additional environmental review under CEQA is not anticipated to be necessary for the annual work and financial plans required by the five-year CSA, unless the County determines there may be new effects not examined in this Draft EIR or there is new information of

[3] Section 4.0, Introduction to the Analysis, includes additional detail about how baseline conditions were determined for purposes of this Draft EIR.

substantial importance, which was not known and could have been known with exercise of reasonable diligence at the time this Draft EIR was prepared, and that information shows the project will have one or more significant effects not identified in this Draft EIR.[4]

There would be no direct physical environmental impacts as result of administrative actions that would provide for implementation of the IWDM program and thus these administrative actions do not require analysis under CEQA. However, implementation of the APHIS-WS IWDM program activities in the County by way of the CSA has the potential to result in impacts on wildlife species. These indirect, or secondary, impacts require analysis under CEQA. The purpose of this Draft EIR is to determine whether implementation of the IWDM program under the CSA with APHIS-WS would result in any indirect significant environmental impacts.

It is not the purpose of this Draft EIR to justify project objectives, evaluate how a federal program operates, study the costs of wildlife damage management relative to the benefits, or provide a recommendation whether the proposed project should be approved or denied by the Shasta County Board of Supervisors. There are many factors the Board of Supervisors will consider in making its determination, and the information presented in this Draft EIR will help inform that decision-making.

As per CEQA, this Draft EIR is not required to provide an analysis of humaneness or ethical issues associated with lethal control. However, this Draft EIR does evaluate alternatives to the proposed project that consider nonlethal controls as an option to lethal controls for wildlife damage management. That evaluation is presented in Section 5.0, Alternatives.

SCOPE OF ENVIRONMENTAL IMPACT ANALYSIS IN THIS DRAFT EIR

The proposed project provides for a variety of activities that may be performed in Shasta County under the CSA with APHIS-WS. The following describes the approach and rationale for the scope of the environmental impact analysis in this Draft EIR for these various project elements.

Technical Assistance Not Involving Direct Control of Wildlife Damage Management

The CSA between the County and APHIS-WS is for a range of services, which would be provided to resource owners upon their request. Many of the activities that would be performed by APHIS-WS personnel under the CSA would be administrative—for example, responding to telephone inquiries, preparing informational literature and giving presentations, and performing initial investigations at the request of resource owners. Personnel would also offer recommendations to resource owners on wildlife damage management that would not involve removal of animals causing damage (that is, nonlethal methods for damage management). These administrative-type activities would not result in physical changes in the environment that require analysis in this Draft EIR.

Use of Integrated Wildlife Damage Management Control Methods by APHIS-WS

As described above and in Section 2.0, Project Background, some activities would be performed by APHIS-WS for wildlife damage control that are expected to involve lethal methods. These methods, which are described in Appendix B (Integrated Wildlife Damage Management Control Methods), would only be used when other methods of control are not practical or have not been successful. The most common methods for mammal wildlife species are the use of devices such as cages, traps, or snares to capture animals, and shooting. With few exceptions, target animals

[4] The requirements for subsequent environmental review are set forth in CEQA Guidelines Section 15162.

that are captured but not killed by shooting are immobilized and/or euthanized. In rare cases, a captured animal may be relocated per the direction of CDFW. Because Shasta County would not be materially involved in any of the wildlife damage management activities, other than to cost-share the financial portion of the program, it would not direct which lethal methods may or may not be used.

The CSA would authorize APHIS-WS to operate an IWDM program, which includes the use of various direct lethal control methods when deemed appropriate by the wildlife specialist evaluating the conflict situation. Before wildlife damage management is conducted in response to a request for assistance from a property or resource owner, the WID must be signed by APHIS-WS and the landowner or representative. The removal of a target species by lethal means by APHIS-WS has the potential to affect species populations, which is a physical environmental effect that requires analysis under CEQA. That evaluation is presented in Section 4.1, Biological Resources, of this Draft EIR.

Depredation Permits

Nine species managed by CDFW require depredation permits to be issued prior to taking an animal to resolve damage. CDFW's implementing regulations (Title 14 of the California Code of Regulations [CCR]) identify the issuance of a depredation permit as a ministerial action (14 CCR 757(b)(4).) In the County, species historically removed by the APHIS-WS IWDM program and for which a depredation permit is required include beaver, black bear, bobcat, and mountain lion. FGC Section 4181 provides that any owner or tenant of land or property being damaged or destroyed or in danger of being damaged or destroyed by elk, bear, beaver, wild pig, or gray squirrels, may apply to CDFW for a permit to kill the mammals. Upon evidence of threatened or actual damage or destruction, CDFW "shall" issue a depredation permit. The depredation permit is issued to the party experiencing loss or damage rather than to APHIS-WS. Upon request from the permittee, APHIS-WS may act on the permittee's behalf to remove the animal.

As established in FGC Section 4802 et seq., CDFW is required, upon request, to issue depredation permits to individuals reporting livestock loss or damage caused by mountain lions, if the loss or damage is confirmed by CDFW staff to have been caused by mountain lion. Depredation permits may also be issued for bobcat causing livestock loss, but unlike mountain lion, CDFW has discretion in the issuance of a depredation permit for bobcat. The depredation permit is issued to the owner of the resource being damaged, which may either be a private party (e.g., a rancher) or a public entity. The permit is not issued to APHIS-WS, but if requested APHIS-WS may act on the permittee's behalf to remove the animal.

FGC Section 4181.1 states that landowners may kill a bear encountered in the act of molesting or injuring livestock. In the case of a problem bear, the law provides for the issuance of a depredation permit to landowners or tenants who experience property damage from bears. The permit allows the permittee or designee to kill the offending bear regardless of the time of year.

Requirements such as method of carcass disposal, use of traps, and specified or prohibited methods or ammunition can be identified in the depredation permit, as well as the time period for which the permit is valid.

Use of Nonlethal Control Methods by APHIS-WS

The previous CSA and annual work and financial plans included expenses for pyrotechnics (a nonlethal control method), so it is possible APHIS-WS could implement this nonlethal deterrent type of control on private land under its WID with a resource owner. Potential impacts on species are

evaluated in Impact 4.1.2 in Section 4.1, Biological Resources. The agreement does not provide for funding nonlethal controls that are recommended through technical assistance but are implemented by the individual resource owners, which are summarized below.

Use of Nonlethal Control Methods by Private Parties

As part of technical assistance to resource owners, APHIS-WS staff may recommend nonlethal methods for wildlife damage management. These methods are described in Appendix B (Integrated Wildlife Damage Management Control Methods). Some of these methods could be safely implemented by the resource owner and would be the responsibility of the resource owner. This could include altering animal husbandry practices, fencing, night pens, or use of guard animals, among others. Neither APHIS-WS nor County staff would be involved in implementing these actions, nor would the CSA allow for County funds to be provided directly to resource owners to acquire materials or resources to implement nonlethal methods on private property. As such, the use of nonlethal methods by private parties would be at the sole discretion of the resource owner. The use of nonlethal methods by private parties, and potential environmental effects, would occur with or without the proposed project, and there are no aspects of the proposed project that would change what nonlethal controls a resource owner might use, either by limiting them or adding new ones. The use of nonlethal controls as an alternative to the proposed project, and potential environmental impacts, are examined in Section 5.0, Alternatives.

3.7 PERMITS AND APPROVALS

The following actions and approvals by Shasta County would be required to implement the proposed project:

- Shasta County Board of Supervisors' certification of the EIR.
- Shasta County Board of Supervisors' approval of the CSA between Shasta County and USDA APHIS-WS and approval of work and financial plans on an annual basis.

No state agency approvals are required.

4.0 Introduction to the Analysis

4.1 INTRODUCTION

The following is an introduction to the environmental analysis for the proposed project and a discussion of general assumptions used in the environmental analysis.

4.2 STRUCTURE OF THE ENVIRONMENTAL IMPACT ANALYSIS

The individual technical sections of the Draft EIR include the following information:

Environmental Setting

This subsection includes a description of the physical setting associated with the technical area of discussion, consistent with CEQA Guidelines Section 15125. Additional explanation regarding the approach to determining baseline conditions is provided below.

Environmental Baseline

An EIR must include a description of the physical environmental conditions in the project area as they exist at the time the NOP is published. This environmental setting will normally constitute the baseline conditions by which a lead agency, in this case Shasta County, determines whether an impact is significant. By definition, if a project results in no significant adverse changes in environmental baseline conditions, then no significant impact will occur.

The NOP for the proposed project was issued on October 17, 2019. Thus, under CEQA Guidelines Section 15125(a), the environmental setting as of that date would normally constitute the baseline physical conditions against which impacts of the proposed project should be evaluated. However, because the County previously had a CSA with APHIS-WS, and services provided under this agreement have occurred since 1998 until the County terminated the CSA in 2018, the activities performed by APHIS-WS have, over time, resulted in the conditions that are present today with respect to wildlife populations in the County. Selecting only a complete year for which data are available (for example, fiscal year 2018-19) that is closest to the NOP publication date as a baseline condition would misrepresent conditions because there have been variations in the types and number of target species affected by APHIS-WS activities during the last 20 years, as shown in Tables 4.1-3 and 4.1-4 in Section 4.1, Biological Resources. Therefore, for purposes of this document, the environmental baseline comprises a 20-year period beginning in 1999 and ending in 2018, the latest year for which data were available at the time the NOP was published. The Environmental Setting in Section 4.1, Biological Resources, evaluates how activities over that 20-year period may have affected species populations. This also provides a baseline for the cumulative analysis. Using a 20-year average (or median, where appropriate) as well as highest take provides a reasonable range of baseline assumptions for the analysis.

Regulatory Framework

This subsection identifies applicable federal, state, regional, and local plans, policies, laws, and regulations.

Impacts and Mitigation Measures

This subsection identifies direct and indirect physical environmental effects associated with implementation of the proposed project. Direct effects are those physical effects that are caused by the project and occur at the same time and place. Indirect effects are those

physical effects that are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Standards of significance are identified and used to determine whether the environmental effects are considered significant. Each environmental impact analysis is identified numerically.

Cumulative Impact Analysis

A cumulative impact is created as a result of the combination of the project evaluated in an EIR together with other projects causing related impacts. As provided by CEQA Guidelines Section 15130(b), the discussion of cumulative impacts must reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as much detail as is provided for the effects attributable to the project alone. There are two approaches defined in the CEQA Guidelines for determining the scope of the analysis: either a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the lead agency (in this case, Shasta County); or a summary of projections contained in an adopted plan or related document. For purposes of this Draft EIR, the list approach is used because direct and indirect cumulative effects on wildlife species is a function of specific activities in a geographic area.

The Cumulative Impacts subsection in Section 4.1, Biological Resources, describes the geographic context for the cumulative analysis, a summary of the expected environmental effects to be produced by those projects, and analysis, as required under CEQA Guidelines Sections 15130(b)(B)(3) through 15130(b)(B)(5).

4.3 TERMINOLOGY

This Draft EIR uses the following terminology to describe the environmental effects of the proposed project:

> **No Impact**: There would be no change in the physical condition of the environment compared to baseline conditions.
>
> **Less Than Significant Impact**: There would be no substantial adverse change in the physical condition of the environment compared to baseline conditions (no mitigation would be required for project effects found to be less than significant).
>
> **Less Than Cumulatively Considerable Impact**: The proposed project would contribute to cumulative impacts that would occur without the project, but the proposed project's contribution would not be cumulatively considerable. Less than cumulatively considerable means that the incremental effects of an individual project would not be considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (CEQA Guidelines Section 15064[h][1]).

4.4 ENVIRONMENTAL IMPACTS NOT EVALUATED IN DETAIL IN THE DRAFT EIR

INTRODUCTION

Section 15128 of the CEQA Guidelines provides that an EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. This section complies with that requirement.

The County prepared an Environmental Initial Study for the proposed project, which contained a detailed project description and analysis of potential environmental effects.[1] The Initial Study, which is included in Appendix A, concluded the proposed project would result in no impact or less than significant impacts for the following impact categories listed in Appendix G of the 2019 CEQA Guidelines, which was the current version in effect at the time the NOP was circulated in October 2019: aesthetics, agriculture and forestry resources, air quality, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use, noise, population and housing, recreation, public services, transportation, tribal cultural resources,[2] utilities and service systems, and wildfire. The County did not receive any comments during the NOP review period indicating that these topics should be further evaluated in the Draft EIR.

[1] The NOP/Environmental Initial Study was posted on the County's website and is available at: https://www.co.shasta.ca.us/index/drm_index/planning_index/eirs.aspx.

[2] In accordance with Public Resources Code Section 21080.3.1, the County mailed tribal consultation letters regarding the project to the Pit River Tribe and the Wintu Tribe of Northern California & Toyon-Wintu Center on March 4, 2019. The County did not receive any requests for consultation.

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4.1 Biological Resources

This section describes the environmental setting, laws, and regulations that are applicable to the proposed project for the wildlife resources that could be affected by continuation of the County's Cooperative Service Agreement (CSA) with the US Department of Agriculture (USDA) Animal and Plant Health Inspection Service - Wildlife Services (APHIS-WS), and project and cumulative impacts.

4.1.1 ENVIRONMENTAL SETTING

LOCATION

Shasta County is in Northern California and is bounded by Siskiyou County on the north, Trinity County on the west, Tehama County on the south, and Lassen County on the east. The County is situated where the Central Valley of California meets the convergence of the Klamath and Coast Ranges to the northwest and west, with the Cascade Range to the northeast and east. It encompasses approximately 3,852 square miles. There are three incorporated cities: Redding, Anderson, and City of Shasta Lake. Shasta Lake, with 30,000 acres of surface area and the largest reservoir in California, is a prominent feature located in the Whiskeytown-Shasta-Trinity National Recreation Area.

LAND USE AND HABITAT

The County is predominantly rural. Nearly 60 percent of land in the County is privately owned. Federal lands comprise approximately 40 percent and include lands managed by the Bureau of Land Management (BLM), National Park Service, US Forest Service (USFS), Bureau of Reclamation, US Fish and Wildlife Service (USFWS), and other federal agencies. Commercial forest uses occupy approximately 1,900 square miles or approximately 50 percent of the County (Shasta County 2004). As of 2017, there were approximately 410,000 acres (640 square miles) of land in farms (USDA 2019g).

Important wildlife habitats in Shasta County include: deer winter ranges, which support migratory deer herds as well as other associated flora and fauna species; oak-woodland habitat in the Oak Run-Whitmore area; numerous riparian (streamside) communities; and wetland habitats associated with Big Lake, Fall River, and the Sacramento River corridor in the Sacramento Valley. The upper Sacramento River habitat corridor above Shasta Lake is another important wildlife habitat area. Coniferous forest is the predominant vegetation in the mountainous regions of the County. Rivers, creeks, and lakes in Shasta County provide habitat for numerous fish species. The Fall, Pit, and McCloud Rivers support large populations of rainbow and brown trout, as do Burney, Hat, and Lava Creeks, and Baum, Crystal, and Eastman Lakes. The Sacramento River is famous for its large salmon and steelhead fisheries, plus trout fisheries above and below Shasta Dam.

In many areas, land cover has been modified by human activities such as in the Sacramento and Fall River Valleys, which are characterized by cultivated and pasture lands, oak woodlands, and grasslands. These habitats are home to numerous common wildlife species as well as species that are protected under federal and state laws and regulations. However, human activities have modified their habitat areas and thus their geographic distribution throughout the County.

Potentially suitable habitat for each of the target common wildlife mammal species evaluated in this Draft EIR was determined from the California Department of Fish and Wildlife (CDFW) predicted habitat suitability BIOS GIS dataset, with the exception of American beaver and muskrat, for which stream mile data from the US Geological Survey National Hydrography Dataset was obtained for Shasta County. Table C-1 in Appendix C summarizes the suitable habitat results for each species, which are used in the individual species' detailed analyses included in Appendix C.

WILDLIFE CORRIDORS

There are 10 deer winter ranges located throughout the County, which support migratory deer herds (Shasta County 2004: p. 6.7.01). The only targeted mammal species evaluated in this Draft EIR that exhibits migratory behavior is the mountain lion, a species that generally has a fixed range and migrates seasonally in response to prey movements, following migrating herds of deer. Aquatic and riparian habitat support many fish species found in the County, including anadromous species that migrate long distances in rivers and streams.

SPECIAL-STATUS SPECIES

There are numerous federally and state-listed endangered and threatened mammal, bird, amphibian, reptile, invertebrate, and fish species, which are identified in Table 4.1-1. There are also CEQA-defined special-status species and wildlife species of special concern in the County, which are listed in Table 4.1-2. More than 190 plants in Shasta County are included on the federal and/or state lists of threatened or endangered species or are identified by the California Native Plant Society as presumed extirpated, rare, threatened, or endangered (CNPS 2019). Table C-2 in Appendix C contains a list of these special-status plants.

CRITICAL HABITAT

Some areas in the County are designated as critical habitat by the USFWS and National Oceanic and Atmospheric Administration - National Marine Fisheries Service (NOAA-NMFS) for the following wildlife species: birds (northern spotted owl); fish (coho and Chinook salmon, steelhead, and southern green sturgeon; and invertebrates (vernal pool fairy shrimp and vernal pool tadpole shrimp). In addition, Essential Fish Habitat (EFH) has been established for coho and Chinook salmon (USFWS 2020; NOAA-NMFS 2016). Integrated Wildlife Damage Management (IWDM) program activities may occur in critical habitat or EFH, but APHIS-WS is not allowed to implement activities that would intentionally result in take of a species for which critical habitat has been designated. APHIS-WS does not modify habitat of any kind.

HABITAT CONSERVATION AND RESOURCE MANAGEMENT PLANS

USFWS has approved recovery plans for certain federal-listed threatened and endangered species, which describe strategies and actions to protect these species and help plan recovery efforts. There are no recovery plans for protected mammal species in the County, but there are recovery plans for bull trout (final); California red-legged frog (final); northern spotted owl (final revised), Shasta crayfish (final), valley elderberry longhorn beetle (final revised); and vernal pool ecosystems (final).

There are approximately 1,100 square miles of land managed by the USFS in the County. The Shasta-Trinity National Forests Land and Resource Management Plan, approved in 1995, sets forth management activities that allow use and protection of forest resources. Shasta County does not fund APHIS-WS activities on federal forest land in the County. As such, this plan is not applicable to the proposed project.

There are no habitat conservation plans or natural communities conservation plans that have been adopted for use in Shasta County (CDFW 2019d).

TABLE 4.1-1
SHASTA COUNTY THREATENED AND ENDANGERED SPECIES

Scientific Name	Common Name	Federal List	California List	Global Rank	State Rank	Other Status	Habitats
Amphibian							
Hydromantes shastae	Shasta salamander	None	Threatened	G1G2	S3	BLM-S|USFS-S	Cismontane woodland | Limestone
Rana boylii	foothill yellow-legged frog	None	Threatened	G3	S3	BLM-S|SSC | USFS-S	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian woodland | Sacramento/San Joaquin flowing waters
Rana draytonii	California red-legged frog	Threatened	None	G2G3	S2S3	CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Aquatic | Artificial flowing waters | Artificial standing waters | Freshwater marsh | Marsh & swamp | Riparian forest | Riparian scrub | Riparian woodland | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | Wetland
Rana cascadae	Cascades frog	None	Candidate Endangered	G3G4	S3	SSC	Aquatic | Lower montane coniferous forest
Rana pretiosa	Oregon spotted frog	Threatened	None	G2	SH	BLM-S|SSC	Aquatic | Meadow & seep
Bird							
Agelaius tricolor	tricolored blackbird	None	Candidate Endangered	G2G3	S1S2	BLM-S|SSC	Freshwater marsh | Marsh & swamp | Swamp | Wetland
Antigone canadensis tabida	greater sandhill crane	None	Threatened	G5T4	S2	BLM-S| SSC | U_SFS-S	Marsh & swamp | Meadow & seep | Wetland
Coccyzus americanus	yellow-billed cuckoo – Western DPS	Threatened	Endangered	G5T2T3	S1	BLM-S | NABCI-RWL | USFS-S | USFWS-BCC	Riparian forest
Empidonax traillii	willow flycatcher	None	Endangered	G5	S1S2	USFS-S	Meadow & seep | Riparian scrub | Riparian woodland | Wetland
Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	G4T4	S3S4	CDF-S |CDFW-FP	
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	G5	S3	BLM-S|CDF-S | CDFW-FP|USFS-S |	Lower montane coniferous forest | Old growth

TABLE 4.1-1
SHASTA COUNTY THREATENED AND ENDANGERED SPECIES

Scientific Name	Common Name	Federal List	California List	Global Rank	State Rank	Other Status	Habitats
Laterallus jamaicensis coturniculus	California black rail	None	Threatened	G3G4T1	S1	BLM-S| CDFW-FP	Brackish marsh | Freshwater marsh | Marsh & swamp | Salt marsh | Wetland
Riparia	bank swallow	None	Threatened	G5	S2	BLM-S	Riparian scrub | Riparian woodland
Strix occidentalis caurina	northern spotted owl	Threatened	Threatened	G3T3	S2S3	CDF-S | IUCN-NT	North coast coniferous forest | Old growth | Redwood
Crustacean							
Branchinecta conservatio	Conservancy fairy shrimp	Endangered	None	G2	S2	IUCN_EN-Endangered	Valley & foothill grassland | Vernal pool | Wetland
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None	G3	S3		Valley & foothill grassland | Vernal pool | Wetland
Lepidurus packardi	vernal pool tadpole shrimp	Endangered	None	G4	S3S4		Valley & foothill grassland | Vernal pool | Wetland
Pacifastacus fortis	Shasta crayfish	Endangered	Endangered	G1	S1		Aquatic | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters
Fish							
Acipenser mediorostris	Green sturgeon, southern DPS	Threatened	None				Aquatic | Sacramento/San Joaquin flowing waters
Cottus asperrimus	rough sculpin	None	Threatened	G2	S2	BLM-S |CDFW-FP	Aquatic | Sacramento/San Joaquin flowing waters
Oncorhynchus kisutch pop. 2	Coho salmon – southern Oregon/Northern California ESU	Threatened	Threatened	G4T2Q	S2?		Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2		Aquatic | Sacramento/San Joaquin flowing waters
Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	G5	S1		Aquatic | Sacramento/San Joaquin flowing waters
Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	Endangered	Endangered	G5	S1		Aquatic | Sacramento/San Joaquin flowing waters
Salvelinus confluentus	bull trout	Threatened	Endangered	G4	SX		Aquatic | Sacramento/San Joaquin flowing waters

TABLE 4.1-1
SHASTA COUNTY THREATENED AND ENDANGERED SPECIES

Scientific Name	Common Name	Federal List	California List	Global Rank	State Rank	Other Status	Habitats
Insect							
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Threatened	None	G3T2	S2		Riparian scrub
Mammal							
Canis lupus	Gray wolf	Endangered	Endangered	G4	S1		Habitat generalists, historically occupying diverse habitats including tundra, forests, grasslands, and deserts. Primary habitat requirements are the presence of adequate ungulate prey, water, and low human contact.
Gulo	California wolverine	Proposed Threatened	Threatened	G4	S1	CDFW-FP| USFS-S	Alpine | Alpine dwarf scrub | Meadow & seep | Montane dwarf scrub | North coast coniferous forest | Riparian forest | Subalpine coniferous forest | Upper montane coniferous forest | Wetland
Vulpes necator	Sierra Nevada red fox	Candidate	Threatened	G5T1T2	S1	USFS-S	Alpine | Alpine dwarf scrub | Broadleaved upland forest | Meadow & seep | Riparian scrub | Subalpine coniferous forest | Upper montane coniferous forest | Wetland

Source: CDFW 2019c; USFWS 2020; NOAA-NMFS 2016

TABLE 4.1-2
SHASTA COUNTY SPECIES OF SPECIAL CONCERN

Scientific Name	Common Name	Global Rank	State Rank	Other Status	Habitats
Amphibian					
Ambystoma macrodactylum sigillatum	southern long-toed salamander	G5T4	S3	SSC	
Ascaphus truei	Pacific tailed frog	G4	S3S4	SSC	Aquatic | Klamath/North coast flowing waters | Lower montane coniferous forest | North coast coniferous forest | Redwood | Riparian forest
Spea hammondii	western spadefoot	G3	S3	BLM -Sensitive |SSC	Cismontane woodland | Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland
Bird					
Accipiter cooperii	Cooper's hawk	G5	S4		Cismontane woodland | Riparian forest | Riparian woodland | Upper montane coniferous forest
Accipiter gentilis	northern goshawk	G5	S3	BLM-S |CDF-S- |SSC	North coast coniferous forest | Subalpine coniferous forest | Upper montane coniferous forest
Ardea alba	great egret	G5	S4	CDF-S	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland
Ardea herodias	great blue heron	G5	S4	CDF-S	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland
Cypseloides niger	black swift	G4	S2	SSC	
Pandion haliaetus	osprey	G5	S4	CDF-S	Riparian forest
Picoides arcticus	black-backed woodpecker	G5	S2		
Progne subis	purple martin	G5	S3	SSC	Broadleaved upland forest | Lower montane coniferous forest

TABLE 4.1-2
SHASTA COUNTY SPECIES OF SPECIAL CONCERN

Scientific Name	Common Name	Global Rank	State Rank	Other Status	Habitats
Crustacean					
Linderiella occidentalis	California linderiella	G2G3	S2S3		Vernal pool
Fish					
Cottus klamathensis macrops	bigeye marbled sculpin	G4T3	S2S3	SSC	Aquatic | Sacramento/San Joaquin flowing waters
Entosphenus tridentatus	Pacific lamprey	G4	S4	BLM-S|SSC| USFS-S	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters
Lavinia symmetricus mitrulus	Pit roach	G4T2	S2	SSC	Aquatic | Sacramento/San Joaquin flowing waters
Mylopharodon conocephalus	hardhead	G3	S3	SSC |USFS-S	Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters
Oncorhynchus mykiss ssp. 2	McCloud River redband trout	G5T1	S1S2	SSC| USFS-S	Aquatic | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters
Mammals					
Antrozous pallidus	pallid bat	G5	S3	BLM-S|SSC|USFS-S |	Chaparral | Coastal scrub | Desert wash | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Riparian woodland | Sonoran desert scrub | Upper montane coniferous forest | Valley & foothill grassland
Aplodontia rufa californica	Sierra Nevada mountain beaver	G5T3T4	S2S3	SSC	Riparian forest | Riparian scrub | Riparian woodland

TABLE 4.1-2
SHASTA COUNTY SPECIES OF SPECIAL CONCERN

Scientific Name	Common Name	Global Rank	State Rank	Other Status	Habitats
Corynorhinus townsendii	Townsend's big-eared bat	G3G4	S2	BLM-S| SSC|USFS-S-	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub
Erethizon dorsatum	North American porcupine	G5	S3		Broadleaved upland forest | Cismontane woodland | Closed-cone coniferous forest | Lower montane coniferous forest | North coast coniferous forest | Upper montane coniferous forest
Euderma maculatum	spotted bat	G4	S3	BLM-S |SSC	
Lasionycteris noctivagans	silver-haired bat	G5	S3S4		Lower montane coniferous forest | Oldgrowth | Riparian forest
Lasiurus blossevillii	western red bat	G5	S3	SSC	Cismontane woodland | Lower montane coniferous forest | Riparian forest | Riparian woodland
Lasiurus cinereus	hoary bat	G5	S4		Broadleaved upland forest | Cismontane woodland | Lower montane coniferous forest | North coast coniferous forest
Lepus americanus klamathensis	Oregon snowshoe hare	G5T3T4Q	S2	SSC	Riparian woodland
Martes caurina sierrae	Sierra marten	G5T3	S3	USFS-S	
Myotis evotis	long-eared myotis	G5	S3	BLM-S-Sensitive	
Myotis thysanodes	fringed myotis	G4	S3	BLM-S | USFS-S	

TABLE 4.1-2
SHASTA COUNTY SPECIES OF SPECIAL CONCERN

Scientific Name	Common Name	Global Rank	State Rank	Other Status	Habitats
Myotis volans	long-legged myotis	G5	S3		Upper montane coniferous forest
Myotis yumanensis	Yuma myotis	G5	S4	BLM-S	Lower montane coniferous forest | Riparian forest | Riparian woodland | Upper montane coniferous forest
Ochotona princeps schisticeps	gray-headed pika	G5T2T4	S2S4		Alpine talus & scree slope | Talus slope
Taxidea taxus	American badger	G5	S3	SSC	Alkali marsh | Alkali playa | Alpine | Alpine dwarf scrub | Bog & fen | Brackish marsh | Broadleaved upland forest | Chaparral | Chenopod scrub | Cismontane woodland | Closed-cone coniferous forest | Coastal bluff scrub | Coastal dunes | Coastal prairie
Reptile					
Emys marmorata	western pond turtle	G3G4	S3	BLM-S|SSC| USFS-S	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters

Source: CDFW 2019c

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GEOGRAPHIC EXTENT OF APHIS-WS IWDM PROGRAM SERVICES IN SHASTA COUNTY

The services that have historically been provided by APHIS-WS in the County under the CSA are limited in geographic scope to only those specific locations on a property where the wildlife damage has occurred and where control services have actually been provided. The IWDM services provided under the previous CSA with APHIS-WS were historically performed almost entirely on private land and on BLM land where private ranchers lease land from the BLM. Between 2007 and 2017, APHIS-WS provided technical assistance to resource owners on private land totaling 360,827 acres (an annual median of approximately 22,800 acres). Work was also performed on 285,000 acres on BLM land where there are private grazing leases (an annual median of approximately 16,500 acres). Some of the private land is managed for conservation of wild trout and watershed protection. As explained in Section 2.0, the total number of acres is not an indicator of actual "on-the-ground" work; the total acreage reflects the sum of all of the parcel acreages for which the Work Initiation Documents have been signed. The actual on-the-ground activity (for example, placing a trap, snare, or cage, or tracking an animal) is limited to a few square yards or less.

TAKE DATA FOR TARGETED WILDLIFE SPECIES

Under the previous CSAs with APHIS-WS, specific mammal and avian species have been targeted for wildlife damage control by lethal methods, referred to as "intentional take." In Shasta County, APHIS-WS removes wildlife species for protection of agricultural resources, public health and safety, and property. Intentional take of predators to protect threatened and endangered species is not funded by the County but is conducted separately by APHIS-WS.

CDFW does not allow the relocation of wildlife causing damage. Except in limited cases where it makes an individual exemption, CDFW dictates that the type of disposition of all wildlife captured for resource protection be euthanasia. Relocation of wildlife known to cause resource damage in one area does not correct the damaging behavior and can spread the problem to a new area. Relocation can also spread disease to other wildlife and domestic species.

Mammals

Table 4.1-3 lists the total number of target mammal species removed as part of the County's CSA with APHIS-WS in Shasta County for the 20-year period from 1999 through 2018, which is the latest year for which full-year data were available at the time the NOP was published in October 2019. The historical take data in Table 4.1-3 represents the baseline condition with respect to take of targeted species for purposes of the impact evaluation in this Draft EIR. The effect of historical take on species populations is described under the "Target Mammal Species Characteristics and Population Estimates" subheading, below.

Muskrat, coyote, American beaver, mountain lion, black bear, and striped skunk were the primary mammal species for which the most technical assistance was provided (see Table 2.0-2 in Section 2.0, Project Background) and also comprised the greatest number of removals relative to all the species listed in Table 4.1-3. Some of the targeted animals are not native to California (e.g., Virginia opossum and feral swine, the latter of which is also an invasive species).

As illustrated by the data in Table 4.1-3, the number of target mammal species intentionally taken as a result of APHIS-WS activities under previous CSAs with Shasta County is generally consistent on an annual basis for some species, while for other species take is infrequent and/or low in number. For some species, there were few requests for assistance, or the frequency and number

of take of these animals was minimal (e.g., ground squirrel). As such, the frequency and number of removals have a negligible effect on those species' populations.

Take data for nine species removed in greatest number and/or resulting in the most requests for assistance in the County under the CSA with APHIS-WS and information about species characteristics and populations are provided under the "Target Mammal Species Characteristics, Population Estimates, and Take Data" subheading, below.

Target Mammal Species Characteristics, Population Estimates, and Take Data

American Beaver

Characteristics

American beaver (*Castor canadensis*) is widely distributed in California, through reestablishment and introductions. High-value habitats include montane riparian, valley foothill riparian, riverine, lacustrine, aspen, and fresh emergent wetland. However, the species requires a perennial, year-round source of water to survive. American beaver is not migratory, nor does it hibernate. It is nocturnal and averages 40 pounds in weight and measures over 3 feet, including the tail. Beavers are entirely herbivorous and able to digest 30 percent of the cellulose they ingest. American beavers prefer to eat grasses, leaves, and aquatic plants, although they often feed on the bark and cambium of trees and shrubs which are stored in their lodge during the fall and winter. American beavers typically live in colonies consisting of one adult pair, the young of the year, and occasionally second-year young, although some colonies may have more than two adults. Females usually give birth in May or June, with each litter averaging three to four young. Most young disperse in the second year (Zeiner et al. 1990a).

American beaver has a profound effect on its habitat. Its construction of dams and lodges can affect the composition of plant and animal species, change the water table, create meadows and ponds, and cause indirect effects on other wildlife species. American beaver has some positive effects on other species and their habitat. Beaver dams assist in increasing surface water storage, replenishing alluvial aquifers, removing contaminants from water flow, adding complexity to habitats (such as variations in temperatures, depths, and velocities of beaver ponds), creating and/or expanding wetlands, and increasing potential habitat for many species. These changes can increase and enhance habitat for salmonids, among other species.

These positive effects are juxtaposed against adverse impacts caused by the same behavior. Agricultural and property damage attributed to beavers include the destruction of nursery stock, orchards, timber, and landscaping, as well as flooding of field and row crops. This type of beaver damage results in significant financial losses for California resource owners. In addition, beavers can threaten infrastructure and human health and safety by: damaging levees that protect residential and municipal areas; damaging irrigation dikes, ditches, or impoundments that carry water throughout the state; obstructing culverts under roads/railways, which undermines the roadbed; creating dams that threaten or cause flooding of roads and/or residential areas; creating open water on and adjacent to airports, which attracts ducks, geese, and other birds that increase the hazard of bird strikes; creating open water adjacent to residential areas, which promotes breeding of the mosquito vector of the West Nile Virus, a potentially fatal infection in humans; and damaging public utilities such as electrical, stormwater, and wastewater treatment facilities.

TABLE 4.1-3
SHASTA COUNTY APHIS-WS TARGET MAMMAL SPECIES INTENTIONAL TAKE 1999-2018 UNDER PREVIOUS CSAS

Species	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
American beaver	32	15	31	9	9	15	10	8	13	9	7	14	12	11	3	3	5	9	1	19	235
Badger	0	0	1	0	0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--	1
Black bear	8	15	9	16	20	12	11	9	7	7	12	22	22	27	10	12	8	17	28	9	281
Bobcat	0	6	7	2	1	1	3	1	0	1	0	0	1	6	2	0	0	0	0	0	31
Coyote	28	107	92	99	45	48	112	123	84	55	58	52	75	93	60	49	46	46	24	21	1,317
Deer, black-tailed	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	1	0	0	0	0	1
Fox (gray)	0	2	0	15	0	0	2	0	0	0	4	0	1	3	2	3	0	0	0	1	33
Feral swine	--	--	--	--	--	--	--	--	0	0	0	3	0	1	0	3	0	3	0	0	10
Marmot	0	3	17	0	0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--	20
Mountain lion	2	13	10	10	7	24	10	9	16	6	6	8	13	5	8	9	5	7	2	13	183
Muskrat	1	78	17	787	1353	505	218	183	815	1168	301	391	90	113	120	95	195	9	109	1069	7,617
Opossum, Virginia	1	0	0	1	1	7	0	0	0	0	1	0	1	0	0	1	0	0	0	0	13
Raccoon	30	8	4	12	0	3	2	9	1	0	1	12	1	1	0	11	0	0	1	1	97
Rat (pack)	0	0	1	0	2	10	0	0	--	--	--	--	--	--	--	--	--	--	--	--	13
Skunk (spotted)	2	2	1	0	0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--	5
Skunk (striped)	6	18	32	31	5	4	0	2	10	0	7	4	10	25	11	13	1	0	3	9	191
Squirrel (ground/Calif)	--	--	--	--	--	--	--	--	0	0	0	19	0	0	0	0	0	3	0	0	22
Squirrel (ground/other)	0	0	10	50	0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--	60

Source: USDA 2019b, 2019c (included in Appendix C of this Draft EIR)

Notes:

-- none reported in dataset for this year

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Approximately 96 percent of the beavers lethally removed by APHIS-WS-California in the past five calendar years were removed for the protection of human health and safety and infrastructure. Burrowing animals can present a significant threat to levee integrity; therefore, proactive animal control and damage repair is required. For example, the California Department of Water Resources (DWR) attributed the catastrophic 2004 Jones levee breach in the Delta to beaver burrowing. Damage from this breach was estimated at $90 million (USDA 2019d).

Population

CDFW (CDFG 2004: Appendix 2 [Beaver Population Model]) estimates there are between approximately 18,000 and 46,000 American beavers in California. Applying the same population dynamics that were used by CDFW to estimate statewide population (adults per stream kilometer), the Shasta County beaver population is estimated to range from approximately 1,800 to 23,000 (Table C-3 in Appendix C).

As noted in CDFG (2004: pp. 39, 57), CDFW considers its statewide population estimates very conservative because marshes and wetlands, lake margins, and irrigation ditches also provide habitat. However, CDFW stated there are no data for lakeshore miles and wetland acres where beavers occur, and only stream kilometers in combination with lowest density per stream mile data were used in its evaluation of beaver annual population cycles. Because the estimate of County beaver population also uses only stream kilometers and density data approach, consistent with CDFW's approach, it is reasonable to assume the County low population estimate is also conservative.

Take Data

In Shasta County between 1999 and 2018, there were 235 beavers removed by APHIS-WS under the previous CSAs, for an average of 12 per year. Most of the removals were related to damage to levees, drainage conveyances, and irrigation systems, which are not preferred beaver habitat. APHIS-WS does not remove beaver dams, lodges, or dens. Statewide, 18,981 beavers were removed by APHIS-WS over the 20-year period, with removals in the County accounting for approximately 1 percent of the total statewide APHIS-WS take but less than 1 percent, annually, of the state low population estimate (Table C-3 in Appendix C). CDFW has established a sustainable cumulative annual statewide harvest level of 30 percent of the statewide population (CDFG 2004: p. 39), and removals in the County on an annual basis are well below this value. This suggests that APHIS-WS activities in Shasta County under baseline conditions have not had a substantial adverse effect on American beaver population to date.

Black Bear

American black bear (*Ursus americanus*) is a widespread, common to uncommon resident species that occurs in mature stands of many forest habitats. It feeds in a variety of habitats including brushy stands of forest, valley foothill riparian, and wet meadow in the North Coast Ranges, Cascades, Sierra Nevada, parts of the southern Coast Ranges, and in the San Gabriel and San Bernardino Mountains (Zeiner et al. 1990b).

The black bear is the most widely distributed species of bears in North America and can have large variations in size, coloring, diet, and sleeping patterns. Despite its name, a black bear can be black, brown, cinnamon, blonde, blue/gray, or white. They can range from 100 to 600 pounds, with males typically being larger than females. They will move seasonally to different habitats and will migrate to different altitudes. Most black bears hibernate during the winter, with those bears

living in colder climates hibernating for longer periods and those living in warmer climates sometimes not truly hibernating at all.

Black bears are omnivorous and feed on grasses and forbs, fruits, nuts, insects, carrion, human refuse, meat, fish, and more. The American black bear is able to kill adult hoofed wildlife, like deer and moose, but often only preys on the very young of these species. Black bears are solitary except during mating season and when a female has cubs. While mating season occurs around May and June, the embryos do not start developing until fall, with females giving birth during the winter. Each litter averages between one and six young, which usually disperse in the spring after their second winter with their mother. Females will begin reproducing as early as their third summer, with all females reproducing by their fifth. The black bear is known to live up to 30 years in the wild, though most will die in or before their early 20s.

The black bear is considered an apex predator in California and is the largest meat-eating species in the state.[1] Adults have few predators other than humans. They are seen as a nuisance by humans as they will feed on human refuse, take stored foods (especially from campsites), damage and kill trees (sometimes those in orchards), and damage beehives.

Population

CDFG (2011b: p. 7) estimates there are between approximately 17,000 and 23,000 black bears in California. Applying the same population dynamics that were used by CDFW to estimate statewide population and CDFW's potentially suitable habitat model for black bear, the Shasta County population is estimated to range from approximately 2,800 to 7,100 (Table C-4 in Appendix C).

Take Data

In Shasta County between 1999 and 2018, there were 281 black bears removed under the APHIS-WS IWDM program. Average removals were 14 per year, or less than 1 percent, annually, of the County's estimated low population and less than 0.1 percent, annually, of the state estimated low population (Table C-4 in Appendix C). Statewide, 2,155 black bears were removed by APHIS-WS over the 20-year period, with removals in the County accounting for approximately 13 percent of the total. CDFW has established a sustainable cumulative annual statewide harvest level of 3,875 bears (CDFG 2011: p. 25). Black bear take in the County on an annual basis is low relative to statewide take and is well below annual harvest levels. This suggests that APHIS-WS activities in Shasta County under baseline conditions have not had a substantial adverse effect on black bear population to date.

Bobcat

Characteristics

Bobcat (*Lynx rufus*) is a permanent resident game species throughout the majority of California and is found in almost all suitable terrestrial habitat types and successional stages of vegetation

[1] An apex predator (sometimes referred to as a keystone predator) occupies the highest trophic level of a food chain and preys on one or more species in lower trophic levels. In the context of large North American terrestrial ecosystems, the historical apex predators are wolf, brown bear, mountain lion, and jaguar. Apex predators in California are generally thought to be mountain lion, bear, and wolf.

growth. The optimal habitat for bobcats is low-growing brushy stages and low- to mid-elevation conifer, oak, and pinyon-juniper forests. This species also prefers all stages of chaparral and riparian habitats. Bobcats are not migratory.

Bobcats are mostly carnivorous and consume lagomorphs (rabbits and hares, rodents (squirrels, rats, and mice), young deer, birds, amphibians and reptiles, and invertebrates. It is also thought that they may consume significant amounts of grass and fruit. This species stalks or ambushes prey using a variety of tactics but will usually only pursue prey for a few leaps or bounds rather than chasing for long distances. Bobcats will also sometimes cache their prey if the meal is too big to consume in one day. Bobcats use natural cavities including caves, logs, snags, or dense shrubs and chaparral for cover. The optimal habitat for bobcats is mountainous and rocky terrain that supports brush and deciduous and conifer forests or chaparral. The species also prefers habitats adjacent to riparian areas and dense forest. Bobcats are active all year and are primarily crepuscular (active during twilight) and nocturnal; however, some diurnal activity is not abnormal. Most births (one litter per year) occur in the spring in California with litter sizes known to range between one and seven. Females generally begin breeding in their first year, males in their second. Individuals may live up to 14 years. Bobcats can be preyed upon by mountain lions, or in the case of young bobcats, large raptors, and may compete for resources with coyotes (Zeiner et al. 1990c).

Population

CDFW (CDFG 2004: Appendix 3 [Bobcat Population Model]) estimates there are between approximately 81,700 and 86,100 bobcats in California. Applying the same population dynamics that were used by CDFW to estimate statewide population and CDFW's potentially suitable habitat model for bobcat, the Shasta County bobcat population is estimated be approximately 3,500 (Table C-5 in Appendix C).

Take Data

In Shasta County between 1999 and 2018, there were 31 bobcats removed under the APHIS-WS IWDM program. In some years, no bobcats were taken. Statewide, 1,093 bobcats were taken. The County average removal is two bobcats per year, approximately 3 percent of the total statewide APHIS-WS take and less than 0.01 percent, annually, of the state low population estimate (Table C-5 in Appendix C). CDFW established a sustainable cumulative annual statewide harvest level for bobcats at 20 percent of the adult low population, which CDFW has determined would equal approximately 14,400 bobcats per year (CDFG 2004: p. 59).

In October 2019, pursuant to Assembly Bill 1254, the California Fish and Game Code (FGC) was amended to add Section 1456 to the FGC, making it illegal to hunt or otherwise take a bobcat except under specified circumstances. The law became effective January 1, 2020. Trapping had been previously prohibited by the Bobcat Protection Act of 2015 (FGC Section 4155). The sustainable harvest threshold noted above is provided for informational purposes only.

Bobcat take in the County on an annual basis is very low relative to statewide take and is well below the annual harvest level that was previously applied to this species. This suggests that APHIS-WS activities in the County under baseline conditions have not had a substantial adverse effect on bobcat population to date.

Coyote

The coyote (*Canis latrans*) is a widely distributed and an abundant nongame permanent resident in California found in almost all habitats, including brush, scrub, shrub, and herbaceous habitats, and may be associated opportunistically with croplands. They are also found in younger stands of deciduous and conifer forest and woodland with low to intermediate canopy, and shrub and grass understory.

Coyotes are opportunists, and their prey typically includes smaller animals such as rodents, lagomorphs, and carrion. They are also known to eat insects, reptiles, amphibians, fruits, and occasionally birds and their eggs, and deer fawns. Golden eagles, great horned owls, and mountain lions occasionally may kill coyotes. Coyotes host various ectoparasites and endoparasites, and occasionally may carry rabies (Zeiner et al. 1990d). The coyote also commonly preys on cattle, goats, sheep, chickens, and eggs, as well as other livestock. Cattle and calves are most vulnerable to predation at calving season and less vulnerable at other times of year. However, sheep, and especially lambs, can sustain high coyote predation rates throughout the year.

Scientists, ecologists, and conservation biologists agree that the coyote is an important contributor to species biodiversity and ecosystems. As to be expected, however, there are differing scientific opinions whether coyote is a mesopredator or apex predator.[2] Some biologists believe coyotes are apex predators, while others do not. In ecosystems containing wolves, most authors of scientific studies describe coyotes as a mesopredator. Elsewhere, coyotes are often considered to have been promoted to apex predators even though they are occasional prey of mountain lions and they still display many of the common attributes of mesopredators such as their omnivorous, opportunistic diet and their ability to tolerate close contact with humans (Prugh et al. 2009).

Coyotes are adaptable predators. They are tolerant of human activities, and adapt and adjust rapidly to perturbations and changes in their environment. The urban fringe often offers coyotes a high-quality habitat with a bountiful year-round food supply that can include garbage, pet food, small dogs, and domestic cats, among other things. Researchers have speculated that the urban fringe can provide 10–20 times the normal carrying capacity for coyotes compared to wildland habitats. The highly adaptable coyote may be losing its fear of humans (Baker and Timm 1998; Timm et al. 2004; Timm and Baker 2007; UC ANR 2007; White and Gehrt 2009).

Historically, attacks on humans were rare. The only reported coyote-caused fatality in California, according to CDFW, occurred in 1981. Another fatality occurred in Canada in 2009. However, as coyotes become habituated to people because they associate people with food, they begin to exhibit increased levels of aggression, which can lead to public safety problems. There have been reports of coyote encounters and attacks on humans throughout the state, particularly in Southern California (CDFW 2011a, 2015). More recently, there have been additional reports of coyotes attacking people in urban areas in California as well as other states.

Population Estimates

CDFW (CDFG 2004: Appendix 4 [Coyote Population Model]) estimates there are between approximately 227,900 and 1,140,000 coyotes in California. There have been no definitive studies that indicate the population is less than 227,900, or that the population dynamics used in the CDFG

[2] A mesopredator is a mid-trophic-level predator that preys on lower-level animals but is also a potential prey of higher-level mesopredators and apex predators.

(2004) study to estimate population are incorrect. Applying the same population dynamics that were used by CDFW to estimate statewide population and CDFW's potentially suitable habitat model, the Shasta County coyote population is estimated to range from approximately 10,000 to 52,700 (Table C-6 in Appendix C).

Numerous scientific publications, studies, and other literature have documented that coyotes are highly prolific and able to rebound rapidly from reductions in population from an area following localized damage management and sport hunting. CDFW established an allowable harvest level of 70 percent of the population (CDFG 2004: p. 40). USDA APHIS-WS researchers have noted the harvest level can be up to 60 percent of the population for a sustained time because recruitment annually replaces breeders. In a computer simulation, all populations recovered within one year when less than 60 percent of the population was removed. Recovery occurred within five years when 60 to 90 percent of the population was removed. When the removal rate was less than 60 percent of the population, the population size was the same as for an unexploited population (Pitt, Knowlton, and Box 2001). APHIS-WS reported that these findings are consistent with the CDFW population model that indicated that coyote populations could withstand an annual removal of up to 70 percent of their numbers and still maintain a viable population (USDA 2015a: p. 49). However, for purposes of this Draft EIR, the lower value (60 percent) is used to conservatively estimate impacts.

Take Data

In Shasta County between 1999 and 2018, there were 1,317 coyotes removed by APHIS-WS under the CSA. The County average removal is 66 per year. Statewide, 118,429 coyotes were taken over the 20-year period, with removals in the County accounting for approximately 1 percent of the total statewide APHIS-WS take and less than 0.1 percent, annually, of the estimated state low population. Even with the highest take in the 20-year period (123 coyotes), this represents less than 2 percent of the County's estimated low population and 0.1 percent of the statewide low population estimate (Table C-6 in Appendix C). Because take in the County on an annual basis is low relative to statewide take and is well below the 60 percent sustainable cumulative annual statewide harvest level, this suggests that APHIS-WS activities in the County under baseline conditions have not had a substantial adverse effect on coyote population to date.

Mesopredator Release/Trophic Cascade Considerations

The County acknowledges that some scientists, researchers, and wildlife protection organizations believe that removing predators such as coyotes (particularly in large numbers) would result in mesopredator release[3] and potential trophic cascade[4] effects: smaller mammals would increase in number because they would be less vulnerable to coyote predation. These smaller mammals such as raccoon and fox would prey on yet smaller wildlife such as birds and their eggs, rodents, reptiles, and amphibians, resulting in increased loss of those species' populations. Increased abundance of smaller, primarily herbivore mammals such as rabbits and hares would also increase vegetation removal, which can result in widespread effects.[5]

[3] The mesopredator release theory states that removal or severe reduction in the number of larger apex predators will result in an increase in abundance of smaller predators.

[4] A trophic cascade is an ecological effect in which a significant change in the trophic level of one species causes disruptions in the numbers of one or more species in other trophic levels in a food chain or web.

[5] Evidence of these effects frequently referenced by proponents and critics alike is the reintroduction of wolves into Yellowstone National Park in the 1990s after their eradication in the 1930s (see, for example, Beschta and Ripple [2009]). This is not applicable to the proposed project.

Some researchers suggest that another potential unintended consequence of predator control, particularly as it relates to the coyote, is a reduction in other species' diversity and native ecosystem changes. Studies frequently cited (e.g., Henke and Bryant 1999; Gehrt and Clark 2003; Berger 2006; Bergstrom et al. 2014; Bergstrom 2017) speculate about potential adverse effects on biodiversity due to predator removals.[6] A limited number of published studies also suggest that aggressive efforts to remove large numbers of coyotes (which does not occur in Shasta County) may increase coyote populations through compensatory reproduction by changing population dynamics—i.e., there would be greater numbers of younger coyotes causing damage (CDFG 2004: p. 60). Other studies suggest that longer-term removals may also have a similar effect on population increases, or that there could be a reduction in other species (e.g., Henke 1995; Henke and Bryant 1999; Jackson 2014). In some cases, there is conflicting information, or disagreement among experts.

There is, as yet, no published, definitive research or data specifically applicable to effects of coyote removals in Shasta County, or widely accepted consensus on this topic, in general. Moreover, the type, numbers, frequency, and methods of species removals in Shasta County differ substantially from the conditions reported in the studies, some of which were controlled experiments. The conditions evaluated in published studies to date are not readily transferable to how wildlife damage management is conducted on land in the County. Under the CSA, as with other cooperative agreements, APHIS-WS targets specific individuals causing damage and only responds to requests for assistance. The CSA between the County and APHIS-WS does not provide for large-scale removals to increase game species.

Gray Fox

Characteristics

Gray fox (*Urocyon cinereoargenteus*) is an uncommon to common non-migratory species found throughout most of the state. It is found in shrublands, valley foothill riparian, montane riparian, and brush stages of many deciduous and conifer forest, woodland habitats, meadows, and cropland areas.

It is omnivorous, with rabbits, mice, gophers, woodrats, and squirrels as the principal foods. Fruits, nuts, grains, insects, carrion, and herbage are also part of its diet. Gray fox is primarily crepuscular and nocturnal and occasionally active during the day. Brush, natural cavities, and occasionally human-made structures provide cover. The average litter size is four young and dispersal occurs in the first year. Adult gray foxes have few predators. Family groups (parents with juveniles) are usually separated spatially, indicating territoriality. Large hawks, golden eagles, great horned owls, domestic dogs, and bobcats may prey on pups (Zeiner et al. 1990e).

Population

CDFW (CDFG 2004: Appendix 5 [Gray Fox Population Model]) estimates there are between approximately 157,200 and 477,800 gray foxes in California. Applying the same population dynamics that were used by CDFW to estimate statewide population and CDFW's potentially suitable habitat model, the Shasta County gray fox population is estimated to range from approximately 9,000 to 28,000 (Table C-7 in Appendix C).

[6] These studies focus primarily on reintroduction of wolves and wolf-coyote and deer and sheep predation, using historical removal data and retrospective evaluation. They do not include any data or interpretation specific to Shasta County.

Take Data

In Shasta County between 1999 and 2019, there were 33 gray foxes removed by APHIS-WS under the CSA. The County average removal is 2 per year, or less than 0.1 percent of the County's estimated low population. Statewide, 2,905 gray foxes were taken over the 20-year period, with removals in the County accounting for a little over 1 percent of the total statewide APHIS-WS take and less than 0.01 percent, annually, of the estimated state low population (Table C-7 in Appendix C). CDFW has established a sustainable cumulative annual statewide harvest level of 25 percent of the statewide population (CDFG 2004: 41). Because take in the County on an annual basis is very low relative to statewide take and is well below the sustainable harvest level, this suggests that APHIS-WS activities in the County under baseline conditions have not had a substantial adverse effect on gray fox population to date.

Mountain Lion

Characteristics

Mountain lion (*Puma concolor*) is a widely distributed and permanent resident species in California. It is a specially protected species under FGC Section 4800, and it is illegal to hunt or trap them. Almost all habitats can harbor mountain lions with the exception of desert habitats and croplands in the Central Valley, which do not support deer populations. This species generally has a fixed range and migrates seasonally in response to prey movements, following migrating herds of deer. The highest population densities can be found in riparian areas and stages of brush.

Mountain lion is considered an apex predator in California. It is carnivorous, with deer making up 60 to 80 percent of its diet during a given year. Other prey includes rodents, rabbits, skunks, turkey, grouse, fish, berries, and on occasion, domestic livestock. This species hunts and tracks its prey by scent. It finds cover in caves and other natural crevices and cavities or in areas of dense brush and timber. Reproduction generally occurs in caves and other natural cavities, and then the mother will create a den in thickets of vegetation. Mountain lions are active all year long and are primarily crepuscular and nocturnal. Most births are likely to occur in the spring and consist of a litter size between one and six, but usually two to four. Mountain lions have few predators other than humans; however, some young may be taken by large raptors and bears. Competitors for resources include bobcats, bears, and coyotes (Zeiner et al. 1990f).

Mountain lions are solitary and elusive, and their nature is to avoid humans. Mountain lion attacks on humans are extremely rare. However, conflicts are increasing as California's human population expands into mountain lion habitat. CDFW maintains records of mountain lion attacks on humans, where an attack is defined as an encounter in which skin is broken or there is a death. Although there have been several accounts of mountain lion encounters in urban areas (e.g., mountain lions in residential backyards or attacking domestic pets), the last attack—as defined by CDFW and as reported on the CDFW website was in May 2019, which did not result in a human fatality (CDFW 2019a). More recently, there was a verified attack in Southern California in January 2020.

Population

Mountain lion studies over the last 30 years have estimated population densities for different habitat types around the state. CDFW had estimated there were between 4,000 and 6,000 mountain lions statewide (CDFW 2007), and that the population may have increased since the 1970s (CDFW 2013). More current research suggests that mountain lion densities are fairly stable across a wide variety of habitat types in the western United States with an estimated average density of 1.6 adults per 100 square kilometers (Beausoleil 2013), although highly suitable habitat in California could support 2.2 adults per 100 square kilometers (Dellinger and Torres 2020: Table

3). Systematic assessments of mountain lion populations have not been completed to date. However, as reported by Dellinger and Torres (2020), based on a recent estimate of mountain lion habitat in the state (165,350 to 170,085 square kilometers) and statistical analysis of historic trends, the population is within the 1,500 to 5,000 range.

Based on predicted habitat suitability model data compiled by CDFW for mountain lion, conservatively assuming the average density of 1.6 adults per 100 square kilometers, and population dynamics, the estimated County population is approximately 150 mountain lions. This should not be considered an absolute number of individuals, however, because there is similar habitat that can support mountain lion in adjoining counties to the south, and species movement patterns do not coincide with jurisdictional boundaries such as county lines. For example, CDFW's Mountain Lion Habitat Connectivity Model for the Northern Sierra Nevada Foothills illustrates Shasta County's location in an extensive connectivity area along the west slope of the Sierra Nevada beginning in Shasta County on the north and ending in Madera County on the south (CDFW 2014).

Take Data

In Shasta County between 1999 and 2018, there were 183 mountain lions removed under the APHIS-WS IWDM program. The average removal was 9 per year. Statewide, 2,043 mountain lions were removed by APHIS-WS over the 20-year period, with removals in the County accounting for approximately 9 percent of the total statewide APHIS-WS take and less than 1 percent, annually, of the state lowest population estimated by Dellinger and Torres (2020) (Table C-8 in Appendix C). CDFW manages the species for conservation and as such there are no sustainable harvest levels.

Given that take occurs only with authorization from a trustee agency of the state for the species (CDFW) and APHIS-WS take in Shasta County is minor compared to the state population size, the effect on the population under baseline conditions has not resulted in conditions that have adversely affected species population.

Muskrat

Characteristics

Common muskrat (*Ondatra zibethicus*) are common to abundant in valley foothill and montane riparian habitats, aspen, and lacustrine, riverine, and estuarine habitats. Muskrats also occupy human-made habitats such as roadside and irrigation ditches. Common muskrats are not migratory.

Common muskrats are mainly herbivorous. Their diet consists of aquatic plants, like cattail and bulrush, though they will also eat invertebrates like mollusks and crayfish, and vertebrates like turtles and fish, if the opportunity arises. Common muskrats will form conical-shaped houses that are above the water level using dominant emergent plants in the area or will excavate burrows in the banks of waterways. As a result of these burrowing activities, common muskrats can cause extensive damage to water impoundments and agricultural lowlands. Muskrats are diurnal and nocturnal, with rainfall stimulating earlier activity. Both sexes are territorial, but females are more so, often killing intruders. Common muskrats reproduce year-round in southern parts of California, but only reproduce in spring and summer in the northern counties of California. Common muskrats have many predators, such as humans, minks, raccoons, large birds of prey, and mammalian predators. Litter size averages four to eight young. Populations fluctuate markedly and may be cyclic (Zeiner et al. 1990g).

Muskrats neither cut down large woody debris nor create dams that affect the flow of water. As such, muskrats do not beneficially affect habitat for native fish (USDA 2019d). In fact, muskrats can have a negative effect on fish habitat. After muskrats were introduced into the Fall River in Shasta County in the 1930s, studies have shown that burrowing activities increased sedimentation in the river and affected stream channel geomorphology to such an extent that muskrat activity has been implicated as having had a detrimental effect on the wild trout fishery and federal- and state-listed Shasta crayfish. Stream bank erosion can be exacerbated by the presence of muskrat burrows that collapse easily when cattle walk on them (Whisson, Marcum, and Ruth 2000). Muskrats that are injuring growing crops or other property can be taken at any time and in any manner authorized by California law pertaining to fur-bearing mammals (FGC Section 4000).

Population

CDFW (CDFG 2004: Appendix 7 [Muskrat Population Model]) estimates there are between approximately 78,400 and 392,000 common muskrats in California. CDFW considers this a conservative estimate because there are no data or lakeshore miles and wetland acres where muskrats occur, and only stream kilometers in combination with lowest density per stream kilometer data were used in estimating populations (CDFG 2004: p. 42). Applying the same population dynamics that were used by CDFW to estimate statewide population and CDFW's potentially suitable habitat model, the Shasta County common muskrat population is estimated to range from approximately 11,000 to 56,000 (Table C-9 in Appendix C). Because the estimate of County muskrat population also uses only stream kilometers and density data, it is reasonable to assume the County low population estimate is also conservative.

Take Data

In Shasta County between 1999 and 2018, there were 7,617 muskrats removed by APHIS-WS under the CSA, for an average removal of 381 per year. Statewide, 9,566 muskrats were removed by APHIS-WS over the 20-year period, with removals in the County accounting for nearly 80 percent of the total statewide APHIS-WS take but less than 1 percent, annually, of the state low population estimate (Table C-9 in Appendix C). The large percentage of muskrat removals in the County is attributed to damage caused by burrowing activity that has increased sedimentation in the Fall River wild trout fishery and in the watershed itself. CDFW has established a sustainable cumulative annual statewide harvest level of 60 percent of the population (CDFG 2004: p. 42), and removals in the County on an annual basis are well below this value. This suggests that APHIS-WS activities in Shasta County under baseline conditions have not had a substantial adverse effect on common muskrat population to date.

Raccoon

Characteristics

Raccoon (*Procyon lotor*) is a widespread, common to uncommon, nonmigratory permanent resident throughout most of the state. It occurs in all habitats with water availability and is most abundant in riparian and wetland areas at low to middle elevations.

Raccoons are omnivorous and highly opportunistic. In spring, they eat primarily animal matter: crayfish, fish, arthropods, amphibians, a few small mammals, birds, and eggs. In summer and fall, they eat large amounts of grains, acorns, other nuts, and fruits. They frequently feed in agricultural and urban areas. They may prey on domestic animals or consume cultivated fruits, vegetables, and other crops. Raccoons use cavities in trees, snags, logs, and rocky areas for dens and other cover. They also use abandoned buildings and dense vegetation for cover. They are nocturnal

and remain dormant in winter dens. Litters average three to four and young are weaned at 60 to 90 days and become semi-independent at about 130 days. Raccoons are very adaptable and tolerant of most human activity. Great horned owls, bobcats, and domestic dogs prey on raccoons. Raccoon may carry diseases such as trichinosis, rabies, and leptospirosis, among others (Zeiner et al. 1990h).

Population

CDFW (CDFG 2004: Appendix 8 [Raccoon Population Model]) estimates there are between approximately 36,900 and 107,700 raccoons in California, although CDFW also believes this is likely an underestimate of the true raccoon population (CDFG 2004: p. 67). Applying the same population dynamics that were used by CDFW to estimate statewide population and CDFW's potentially suitable habitat model, the Shasta County raccoon population is estimated to range from approximately 2,200 to 6,400, which for the same reasons is likely conservative (Table C-10 in Appendix C).

Take Data

In Shasta County between 1999 and 2018, there were 97 raccoons removed under the APHIS-WS IWDM program, for an average of 5 per year. Statewide, 42,476 raccoons were removed by APHIS-WS over the 20-year period, with removals in the County accounting for less than 1 percent of the total statewide APHIS-WS take and less than 0.1 percent, annually, of the state low population estimate (Table C-10 in Appendix C). CDFW reports the sustainable cumulative annual statewide harvest level for raccoon is 49 percent (CDFG 2004: p. 43). Raccoon take in the County on an annual basis is well below the harvest level, which suggests that APHIS-WS activities in Shasta County under baseline conditions have not had a substantial adverse effect on raccoon population to date.

Striped Skunk

Characteristics

Striped skunk (*Mephitis mephitis*) is a common nongame permanent resident species throughout California that can be found in almost all habitats but is most densely populated in early successional plant communities of coniferous and deciduous forests; in patchy canopy cover with shrub understory; and in landscaping consisting of herbaceous shrubs and areas with canopy cover. The only place in California this species is not found is in areas of the Mojave and Colorado Deserts.

Striped skunks are omnivorous and mostly eat insects, mammals and other small vertebrates, eggs, crustaceans, fruits, seeds, and sometimes decaying carcasses. They search for food on the ground level digging in the soil, looking under logs and in other ground-level cavities. This species seeks cover in ground-level cavities including under logs, snags, rocks, and houses, and in abandoned burrows. They may also excavate their own burrows in well-drained and easily crumbled soils or den in thick vegetation above the surface. They are primarily nocturnal with limited crepuscular activity and are known to remain in their den during severe weather conditions. For reproduction, they will den in similar types of refuges as where they find cover. Sexual maturity occurs at around 10 months for both males and females, and breeding starts in late January through March. They have one litter per year of an average of about four young, which are typically born between April and June. Natural predators of striped skunks include great horned owls, mountain lions, eagles, coyotes, badgers, foxes, and bobcats (Zeiner et al 1990i).

Population

CDFW (CDFG 2004: Appendix 10 [Striped Skunk Population Model]) estimates there are between approximately 143,200 and 683,000 striped skunks in California. Applying the same population dynamics that were used by CDFW to estimate statewide population and CDFW's potentially suitable habitat model, the Shasta County striped skunk population is estimated to range from approximately 14,500 to 69,000 (Table C-11 in Appendix C).

Take Data

In Shasta County between 1999 and 2018, there were 191 striped skunks removed by APHIS-WS under the CSA, for an average of 10 per year. Statewide, 78,619 skunks were removed by APHIS-WS over the 20-year period, with removals in the County accounting for less than 1 percent of the total statewide APHIS-WS take and less than 0.1 percent, annually, of the state low population estimate (Table C-11 in Appendix C). CDFW has not established sustainable harvest levels for striped skunk.

Virginia Opossum

Characteristics

Virginia opossum (*Didelphis virginiana*) is a common to abundant, nonmigratory inhabitant of riparian, moist woodlands, brushy habitats, wetlands, and agricultural and residential areas at low elevations. It is a non-native species introduced into California in 1910.

Opossum is highly opportunistic and eats a variety of foods, including carrion and insects, which are the principal foods, but fruits, berries and grains, green vegetation, earthworms, and fungi may also be important. It feeds on the ground or in shrubs and trees. Cover includes hollow snags, logs, rocks, piles of brush, or other animal burrows. Buildings and culverts also may be used. It is nocturnal, with peak activity near midnight. It is solitary, aggressive, and a prolific species. Females have multiple estrous cycles, with litters ranging from 6 to 10 produced in two peak periods, January-March and May-July. Up to 25 young may be born, but many do not survive long enough to nurse. If the first litter is lost, the female will immediately breed again. Populations are composed mostly of young. Predators include owls and dogs. Motor vehicle traffic is a primary source of mortality (Zeiner et al. 1990j).

Population

CDFW (CDFG 2004: Appendix 11 [Virginia Opossum Population Model]) estimates there are between approximately 40,500 and 628,500 opossums in California. Applying the same population dynamics that were used by CDFW to estimate statewide population, the Shasta County Virginia opossum population is estimated to range from approximately 28,000 to approximately 433,000 (Table C-12 in Appendix C).

Take Data

In Shasta County between 1999 and 2018, there were 13 Virginia opossums removed by APHIS-WS under the CSA, for an average on one per year. Statewide, 22,604 opossums were removed by APHIS-WS during the 20-year period, with removals in the County accounting for 0.1 percent of the total statewide APHIS-WS take and less than 0.1 percent, annually, of the state low population estimate (Table C-12 in Appendix C). CDFW has not established sustainable harvest levels for Virginia opossum. However, given the low percentage of removals, species high reproductive

characteristics, and its non-native status, the removals have not had an adverse effect on the population.

Avian Species

Nine common bird species were target species intentionally taken by APHIS-WS under its CSA with the County (Table 4.1-4). Blackbirds were removed in greatest number, and removals were for the protection of the County's wild rice crop, which has been the County's leading field crop commodity in terms of dollar value for many years (Shasta County 2019). The annual average blackbird removals over the 20-year period was approximately 4,700 blackbirds per year (all species combined).

Of the avian species removed, only blackbirds, coot, cowbird, and sapsucker are protected under the Migratory Bird Treaty Act (MBTA) (USFWS 2018). APHIS-WS Directive 2.301 provides guidance for managing damage caused by migratory birds to agriculture, aquaculture, natural resources, property, and public health and safety. Nonlethal and lethal bird controls may be used. APHIS-WS preferentially uses nonlethal methods such as hazing for migratory bird control. For the period 2007-2018, over 3.5 million birds were dispersed (Table C-13a in Appendix C), with blackbird dispersals accounting for over 99 percent of the avian species controlled using nonlethal methods.

No federal permit is required to scare, harass, or herd depredating migratory birds other than migratory birds that are also listed as endangered or threatened species and bald or golden eagles.

Tricolored blackbird, a state-listed threatened species, may forage in mixed flocks containing red-winged and Brewer's blackbirds, both of which have been removed in the past by APHIS-WS in the County. No mixed flocks that had the potential to contain tricolored blackbird have been removed or dispersed statewide since 2014 when tricolored blackbird was listed, and APHIS-WS activities in Shasta County have not resulted in take of tricolored blackbird, specifically. For additional information about tricolored blackbird population, see the "Threatened and Endangered Species" subsection, below.

Bald and Golden Eagles

Both bald and golden eagles are protected under the Bald and Golden Eagle Protection Act. No bald or golden eagles have been taken. Although the bald eagle is no longer protected under the federal Endangered Species Act (ESA), APHIS-WS follows provisions for the protection of the bald eagle from former ESA consultations with USFWS. APHIS-WS is required to notify the appropriate USFWS office within five days of the finding of any dead or injured bald or golden eagle. Cause of death, injury, or illness, if known, must be reported to USFWS. APHIS-WS monitors and routinely removes carcasses of trapped animals resulting from wildlife damage management conducted in the immediate vicinity of active bald or golden eagle sites to prevent attracting eagles to the area of ongoing wildlife damage management activities. The California APHIS-WS IWDM program has not taken a bald or golden eagle (USDA 2015a: p. 71).

TABLE 4.1-4
SHASTA COUNTY APHIS-WS TARGET AVIAN SPECIES INTENTIONAL TAKE 1999-2018 UNDER PREVIOUS CSAS

Species	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Blackbird, Brewer's	0	0	0	0	0	82	305	286	619	374	22	0	37	0	190	21	54	0	0	0	1,990
Blackbird, red-winged	0	0	0	0	0	409	99	880	831	5859	4291	2497	3171	10868	4303	5070	3412	8090	5782	0	55,562
Blackbird, yellow-headed	0	0	0	0	0	800	1110	692	390	1022	396	0	5	0	61	473	317	0	0	0	5,266
Blackbird, mixed species	0	8468	14901	3713	4314	178	0	0	--	--	--	--	--	--	--	--	--	--	--	--	31,574
Coot, American	0	0	0	0	326	0	0	25	110	0	211	252	0	94	529	232	90	0	211	0	2,080
Cowbird, brown-headed	0	0	0	0	0	1915	2190	2154	3675	2233	549	0	180	504	950	147	715	0	0	0	15,212
Sapsucker, yellow-bellied	0	0	1	1	0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--	2
Sparrow, house	0	0	0	0	0	1	0	0	4	0	0	0	0	35	0	0	0	0	0	0	40
Starling, European	0	426	1115	1054	0	2460	2396	721	706	369	533	0	117	642	171	29	1	0	0	97	10,837

Source: USDA 2019b, 2019c

Notes:

-- none reported in dataset for this year

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THREATENED AND ENDANGERED SPECIES

APHIS-WS is authorized to remove targeted wildlife species to protect threatened and endangered species; however, these services have not been provided in Shasta County, nor does the CSA provide for this activity. During the 20-year baseline period, no threatened or endangered mammal species were removed in the County (USDA 2019b, 2019c).

For the federally and state-listed wildlife species listed in Table 4.1-2, APHIS-WS previously determined through consultation with federal and state agencies whether its wildlife damage management actions would have an adverse effect on a federal or state-threatened or endangered species. Table C-15 in Appendix C identifies the results of those consultations. The results of those consultations indicate there would be no adverse effects. In addition, as shown in Table C-15 in Appendix C, APHIS-WS has completed formal USFWS Section 7 consultations regarding its actions for vertebrate species for which critical habitat has been designated.

Listed Fish Species

There are several federally listed fish species and critical habitat in Shasta County (Table 4.1-1). Beaver is an aquatic mammal whose activities can increase and enhance salmonid habitat. When beavers are removed, there is the potential that habitat supporting NMFS-listed fish species and associated habitat may be adversely affected because beaver activity that creates habitat may no longer occur in a specific location. However, it is important to note that the NMFS-listed species cannot access certain water structures or waterways such as human-made drainage structures and irrigation ditches or similar features in locations such as leveed rivers and channels managed for continuous water flow by resource managers/owners. Most of the beaver removals performed by APHIS-WS in the County under the CSA were related to damage to levees, drainage conveyances, and irrigation systems, which are not typically located in preferred beaver or salmonid habitat.

While APHIS-WS has mammal damage management programs in place in the state, and completed Section 7 ESA consultation, there is no corresponding program for aquatic mammals such as beaver. As part of developing such a program, in 2019, APHIS-WS-California initiated an ESA Section 7 consultation with the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA-NMFS) for aquatic mammal management actions within the state. The state of Washington recently completed this consultation, which resulted in the issuance of a Biological Opinion from NMFS.[7]

Beaver, muskrat, and nutria are the damage-causing species to which this consultation applies in California. Only beaver and muskrat are present and managed in Shasta County. The APHIS-WS-California program is currently operating within the limitations of an ESA Section 7(d) Determination prepared by the State Director, California Office APHIS-WS pending completion of the NOAA-NMFS consultation. During the pendency of this consultation, APHIS-WS has ceased several aquatic mammal damage management activities in the state that have potential to affect water abundance or habitat character at fish-rearing sites within ESA-listed salmonid habitat (i.e., designated critical habitat or other habitat occupied by the listed salmonids and

[7] In 2018, APHIS-WS initiated efforts toward an aquatic mammal damage management program in the state of Washington, which included ESA Section 7 consultation with NOAA-NMFS, which issued its Biological Opinion in 2019 (NOAA-NMFS 2019). In its opinion, NMFS concluded that the aquatic mammal damage management program in Washington is not likely to jeopardize the continued existence of ESA-listed salmonids in the state provided reasonable and prudent measures are implemented to minimize incidental take (NOAA-NMFS 2019).

sturgeon), and thus would apply to Shasta County. A limited number of exceptions may be relevant to Shasta County, which could result in the removal of beavers by lethal means or require beaver damage management. For example, beaver control may still be undertaken if there is an imminent public safety incident declared by a regulatory or enforcement agency (e.g., flooding) or in locations such as irrigation canals, culverts, or similar human-made features.

In evaluating the potential effects of APHIS-WS aquatic mammal damage management activities in California while operating under Section 7(d), APHIS-WS-California reviewed the data developed for the Washington Biological Opinion in combination with consideration of the types of lethal and nonlethal methods used in both states, which follow the same WS Directives. APHIS-WS-California has no record of non-target take of the NMFS-listed salmonid species in the County. Based on its analysis, APHIS-WS-California concluded that managing aquatic mammal damage caused by beaver in accordance with the 7(d) Determination—which has specific limitations—would not "make an irreversible or irretrievable commitment of resources that have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures for the protection of listed salmonids, sturgeon, and eulachon, or their critical habitats" (USDA 2019d).

In Washington, APHIS-WS is considering relocating beavers, where feasible, rather than removing by lethal means. Relocations could provide opportunities for enhanced salmonid habitat, although this was not factored into the analysis supporting the Biological Opinion (NOAA-NMFS 2019: p. 75). However, this approach would not be available in California because CDFW does not issue permits for the relocation of beavers because the activities of beavers can create conflict with wildlife, agriculture, infrastructure, or human safety (USDA 2019d).

Muskrat damage management, including the lethal removal of muskrat, is one of the activities that will continue to occur in the County while it operates under the Section 7(d) Determination. Although muskrats create burrows in banks of streams or dike/levee systems, which damages those structures, they do not create structural elements or otherwise positively affect habitat for native fish. Based on its analysis, APHIS-WS-California concluded that managing aquatic mammal damage caused by muskrat in accordance with the 7(d) Determination—which has specific limitations—would not "make an irreversible or irretrievable commitment of resources that have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures for the protection of listed salmonids, sturgeon, and eulachon, or their critical habitats" (USDA 2019d).

Gray Wolf

Gray wolves (*Canis lupus*) are protected as federally and state endangered throughout California. The state is home to one breeding pack (Lassen County). The Shasta pack, which produced five pups in Siskiyou County during 2015, has since disappeared. California has been visited by a number of radio-collared dispersing wolves from Oregon. One such wolf OR-54, traveled 700 miles before being found dead in Shasta County in late 2019. There are currently no wolves known to have established territories in Shasta County.

Wolves in California are protected from take due to its federal ESA and CESA status. As such, while CDFW investigations have confirmed that wolves have killed livestock in California, take of the wolves is prohibited under state and federal law. Currently, wolf-livestock conflicts in California are managed through nonlethal actions including increased human presence deemed "range riding" and installation of flag fencing called "fladry" or "turbo-fladry" (electrified fence with flags). Should wolves become established in Shasta County, APHIS-WS would respond to wolf-livestock

conflicts as it has in other counties in California, through the use nonlethal methods to minimize the impacts on producers.

USFWS reviewed APHIS-WS actions in 2015 under Section 7 of the ESA and concurred that its IWDM activity is not likely to adversely affect gray wolves. An update to this consultation is in process. In the recent past, CDFW has used authorization under Section 6 of the federal ESA to place collars on gray wolves for research and preservation of the species. If requested, APHIS-WS may act as CDFW's agent to capture wolves for this purpose. This action could be carried out in Shasta County or anywhere else in California at the request of CDFW. However, these actions would be distinct from any IWDM activities carried out under a CSA between APHIS-WS and Shasta County and as such do not require analysis in this Draft EIR.

Tricolored Blackbird

Tricolored blackbird (state threatened)[8] occurs throughout most of the lower-elevation parts of the state. The species exhibits a breeding behavior that combines colonial, nomadic, and itinerant behaviors, which is thought to be an adaption to unpredictable insect outbreaks and/or high rates of predation and environmental stressors, including drought (USFWS 2019). The species can forage in mixed flocks dominated by red-winged and Brewer's blackbird and can be difficult to discern from red-winged blackbird because they are sister taxa. Surveys in 2017 indicated the statewide population is over approximately 177,000 (USFWS 2019: p. 34). In the "Northeast Interior" region of the survey, there were no tricolored blackbirds observed in Shasta County in 2017, but some were reported in 2008 (1,030 birds) and in 2014 (250 birds).[9]

Although the species has experienced a substantial decline in recent decades, surveys and research conducted statewide over the period 2014-2017 breeding season suggest that the number of tricolored blackbirds remained relatively stable during that time frame and the species may be adaptable to changing colony size and changing nesting habitat types (USFWS 2019).

As shown in Table 4.1-4, various species of blackbirds have been removed in the County. To avoid any take of tricolored blackbirds, APHIS-WS does not use any potentially lethal actions in mixed flocks. No mixed flocks that have the potential to contain tricolored blackbird have been removed or dispersed statewide since 2014 when tricolored blackbird was listed, and APHIS-WS activities in Shasta County have not resulted in take of tricolored blackbird, specifically. In the APHIS-WS North District (which includes Shasta County) and statewide during the reporting period 2007-2018, tricolored blackbirds were either dispersed or freed (USDA 2019b).

UNINTENTIONAL TAKE AND NONTARGET WILDLIFE SPECIES

Target Unintentional Take

In the course of providing services, particularly through the use of methods to capture a target species, there have been occasions when a target species was killed but the animal killed was not identified as the one causing damage.[10] If a target species is caught, but it is not the individual causing damage, APHIS-WS makes every effort to release it unharmed, unless the animal is injured

[8] In August 2019, in its finding on a petition to list tricolored blackbird as an endangered or threatened species under the federal ESA, USFWS determined that listing was not warranted (Federal Register 84(158): 41698).

[9] For purposes of the USFWS study and reporting, the Northeast Interior region consisted of Lassen, Modoc, Shasta, and Siskiyou Counties (USFWS 2019).

[10] APHIS-WS does not conduct any aerial hunting in Shasta County through the IWDM funding mechanism, so there is no potential for unintentional take of a target species as a result of aerial hunting.

and the APHIS-WS wildlife specialist determines that it would not likely survive if released. Incidents of unintentional target animal deaths are extremely low; most animals are freed. This is due to the techniques used by the APHIS-WS wildlife specialists to ensure that the correct location(s) for the target species of concern is identified. For the period 1999-2018, only a few target species were caught unintentionally (feral cat [2], feral dog [3], gray fox [2], raccoon [24], and striped skunk [1]), which were freed. During the 20-year baseline period, one bobcat, one feral dog, one river otter, and five skunks were unintentionally killed (USDA 2019b, 2019c [Table C-13b in Appendix C]).

Nontarget Unintentional Take

Nontarget animals refer to wildlife species that were inadvertently captured and/or killed in conjunction with APHIS-WS IWDM program services performed in the County but were not identified as the specific cause of damage. For the period 1999-2018, one badger, two feral dogs, one gray fox, one raccoon, and four opossums were caught but were freed. Five bobcats, one deer, one gray fox, and one mountain lion were killed. (USDA 2019b, 2019c [Table C-13b in Appendix C).

4.1.2 REGULATORY FRAMEWORK

Section 2.0, Project Background, describes the regulatory framework that establishes authority for APHIS-WS to conduct wildlife damage management in Shasta County. The following summarizes key legislation at the federal, state, and local levels pertaining to wildlife protection in the County.

FEDERAL

Federal Endangered Species Act of 1973 (ESA)

The federal Endangered Species Act (ESA), as amended, provides protective measures for federally listed threatened and endangered species, including their habitats, from unlawful take (16 United States Code (USC) Sections 1531–1544). The ESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Title 50, Part 222, of the Code of Federal Regulations (CFR) further defines "harm" to include "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including feeding, spawning, rearing, migrating, feeding, or sheltering." Activities performed by APHIS-WS must comply with the ESA.

Migratory Bird Treaty Act of 1918 (MBTA)

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC Sections 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Section 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Section 21). APHIS-WS is authorized by the federal government under 50 CFR Section 21.41 to respond to damage caused by migratory birds. No federal permit is required to scare, harass, or herd depredating migratory birds other than migratory birds that are also listed as endangered or threatened species and bald or golden eagles.

Bald and Golden Eagle Protection Act (BGEPA)

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668) prohibits take and disturbance of individuals and nests. Take permits for birds or body parts are limited to religious, scientific, or

falconry pursuits. With the 2007 removal of bald eagle (*Aquila chrysaetos*) from the federal ESA list of threatened and endangered species, USFWS issued new regulations to authorize the limited take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles under this act, where the take to be authorized is associated with otherwise lawful activities. A final Eagle Permit Rule was published on September 11, 2009 (74 Federal Register 46836–46879; 50 CFR 22.26).

STATE

California Endangered Species Act (CESA)

Under the California Endangered Species Act (CESA), CDFW has the responsibility for maintaining a list of endangered and threatened species (FGC Section 2070). CDFW also maintains a list of candidate species, which are species formally noticed as being under review for potential addition to the list of endangered or threatened species, and a list of species of special concern, which serves as a species "watch list." California-listed species with the potential to occur in Shasta County are identified in Table 4.1-2, above. State-listed species are fully protected under the mandates of the CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Activities performed by APHIS-WS must comply with CESA.

Fully Protected Species

California statutes also afford fully protected status to a number of specifically identified birds, mammals, reptiles, and amphibians. The fully protected species are identified in FGC Sections 3511, 3515, and 4700. In Shasta County, fully protected species that may potentially occur are listed in Table 4.1-2. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. To ensure that APHIS-WS complies with these regulations, APHIS-WS has consulted with CDFW and USFWS regarding the actions it implements in California and potential effects on protected species. These consultations, which are listed in Table C-15 in Appendix C, have resulted in a finding of no effect or not likely to adversely affect the species. Further consultation by the County is not required to implement the CSA with APHIS-WS.

California Wildlife Protection Act

Under the California Wildlife Protection Act of 1990, mountain lions are a specially protected mammal in California (FGC Section 4800). It is unlawful to possess, transport, import, or sell any mountain lion or part or product thereof (including taxidermy mounts). Hunting and trapping, by any individual or entity, is illegal. Mountain lions may only be taken with a depredation permit. As established in FGC Section 4802 et seq., CDFW is required, upon request by the resource owner, to issue depredation permits to the individual reporting livestock loss or damage caused by mountain lion, if the loss or damage is confirmed by CDFW staff to have been caused by the mountain lion. CDFW manages the species for conservation and has not established a cumulative statewide sustainable harvest threshold.

California Fish and Game Code (FGC)

Under FGC Section 2051, some species of fish, wildlife, and plants are in danger of, or threatened with, extinction because their habitats are threatened by destruction, adverse modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors. FGC Section 2080 provides legal protection for threatened and endangered species of fish, wildlife,

and plants in the state by prohibiting their take, unless specifically authorized by CDFW. Hunting and trapping laws for common game and nongame furbearers are also set forth in FGC, with specific implementing regulations in Title 14 of the California Code of Regulations, summarized below.

Nine species managed by CDFW require depredation permits to be issued prior to taking an animal to resolve damage. CDFW's implementing regulations (CCR Title 14) identify the issuance of a depredation permit as a ministerial action (14 CCR 757(b)(4).) In the County, species historically removed by the APHIS-WS IWDM program and for which a depredation permit is required include beaver, black bear, bobcat, and mountain lion. FGC Section 4181 provides that any owner or tenant of land or property being damaged or destroyed or in danger of being damaged or destroyed by elk, bear, beaver, wild pig, or gray squirrels, may apply to CDFW for a permit to kill the mammals. Upon evidence of threatened or actual damage or destruction, CDFW "shall" issue a depredation permit. The depredation permit is issued to the party experiencing loss or damage rather than to APHIS-WS. Upon request from the permittee, APHIS-WS may act on the permittee's behalf to remove the animal.

As established in FGC Section 4802 et seq., CDFW is required, upon request, to issue depredation permits to individuals reporting livestock loss or damage caused by mountain lions, if the loss or damage is confirmed by CDFW staff to have been caused by mountain lion. Depredation permits may also be issued for bobcat causing livestock loss, but unlike mountain lion, CDFW has discretion in the issuance of a depredation permit for bobcat. The depredation permit is issued to the owner of the resource being damaged, which may either be a private party (e.g., a rancher) or a public entity. The permit is not issued to APHIS-WS, but if requested, APHIS-WS may act on the permittee's behalf to remove the animal.

FGC Section 4181.1 states that landowners may kill a bear encountered in the act of molesting or injuring livestock. In the case of a problem bear, the law provides for the issuance of a depredation permit to landowners or tenants who experience property damage from bears. The permit allows the permittee or designee to kill the offending bear regardless of the time of year.

For feral swine, FGC Section 4181.1 provides that feral swine may be taken immediately when the animal is harming or threatening to harm property. In such situations, a depredation permit is not required. The person taking the animal must report the taking no later than the next working day to CDFW and shall make the carcass available to CDFW.

Requirements such as method of carcass disposal, use of traps, and specified or prohibited methods or ammunition can be identified in the depredation permit, as well as the time period for which the permit is valid.

Migratory Birds and Birds of Prey

Under FGC Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. Under APHIS-WS Directive 2.301, APHIS-WS is authorized by the federal government under 50 CFR Section 21.41 to respond to damage caused by migratory birds. No federal permit is required to scare, harass, or herd depredating migratory birds other than migratory birds that are also listed as endangered or threatened species and bald or golden eagles.

California Code of Regulations (CCR)

CCR Title 14 contains regulations for implementing corresponding laws in the FGC pertaining to wildlife take.

Hunting and Trapping

Hunting and trapping regulations are set forth in 14 CCR Division 1, Subdivision 2 (Game, Furbearers, Nongame, and Depredators). Section 460 et seq. contains specific regulations for beaver, gray fox, muskrat, and raccoon, which are nongame species that may be taken by the public with a valid license. Licenses are not required for striped skunk and Virginia opossum, which may be taken at any time of year and in any number (14 CCR Section 472). As also provided by 14 CCR 472, coyote may be taken year-round and in any number without a license. Bear may be taken with a hunting license in accordance with the provisions of 14 CCR Section 365. Until the end of 2019, bobcats could be hunted with a valid license. However, pursuant to AB 1254, bobcat hunting is no longer permitted in the state. Trapping had been previously prohibited by the Bobcat Protection Act of 2015 (FGC Section 4155).

CDFW has completed environmental documents in accordance with CEQA for evaluating its hunting and trapping regulations. The most recent documents were completed in 2004 and 2001, respectively: *Draft Environmental Document, Sections 265, 460-467, and 472-480, Title 14, California Code of Regulations Regarding Furbearing and Nongame Mammal Hunting and Trapping*; and *Final Environmental Document, Sections 250, 250.5, 251, 251.5, 252, 257, 257.5, 307-310, 310.5, 311, and 354, Title 14, California Code of Regulations Regarding Resident Small Game Mammal Hunting*. Mammal species addressed in these documents that are relevant to Shasta County are beaver, bobcat, coyote, gray fox, muskrat, raccoon, striped skunk, and Virginia opossum.

APHIS-WS capture methods include the use of traps and snares. Trapping regulations for California are specified in 14 CCR Section 465.5, and County-funded APHIS-WS activities in the County must adhere to those regulations. The requirement to comply with 14 CCR Section 465.5 is established in APHIS-WS Directive 2.450, which states that appropriate warning signs must be posted on main entrances or commonly used access points to publicly accessible areas where traps or snares are in use. Signs must be routinely checked by APHIS-WS wildlife specialists to ensure they are present, obvious, and readable. Capture devices are to be set where they would minimize the public's visibility of captured animals. Pursuant to 14 CCR Section 465.5, traps must be checked at least once daily, and each time traps are checked, all trapped animals must be removed.

LOCAL

Shasta County General Plan

The Shasta County General Plan, comprehensively amended most recently in 2004, serves as the general, long-range guiding policy document for future development in Shasta County. The General Plan includes goals, policies, and implementation measures to reduce impacts of projects on biological resources. The Shasta County General Plan Resources Group Fish and Wildlife Habitat Chapter contains 11 policies addressing protection of wildlife and habitat (Shasta County 2004). The policies, which are listed in Table C-14 in Appendix C, identify actions related to land use planning as well as policy direction aimed at habitat restoration. No policies are pertinent to those activities that would be implemented under the CSA, as explained in Table C-14.

Shasta County Sheriff's Department

The Shasta County Sheriff's Office Animal Regulations Office handles concerns regarding stray animals, animal cruelty, animal bites, injured or diseased animals, dangerous or vicious dogs, nuisance barking, and kennel inspections. The office does not handle incidents involving wildlife damage.

4.1.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Appendix G of the 2020 CEQA Guidelines provides a list of topics related to biological resources that may be considered in an EIR.

For purposes of this EIR, the proposed project would have a significant effect on the environment if it would:

1) 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 CDFW or the USFWS.

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFW or the USFWS.

3) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

4) 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.

5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

7) Reduce the number or restrict the range of an endangered, rare, or threatened plant or animal species or biotic community, thereby causing the species or community to drop below self-sustaining levels.

CDFW has established sustainable cumulative annual statewide harvest levels for American beaver, black bear, bobcat, coyote, gray fox, muskrat, and raccoon species populations. The harvest values are levels that would allow for harvesting a particular species without adverse effect on the species population on a statewide, cumulative basis (CDFG 2004; CDFG 2011). These values, which are shown in the detailed species take tables in Appendix C, are used to determine whether the proposed project would cause the species to drop below self-sustaining levels (threshold 7) both at the project level and cumulatively. Use of the CDFW values is appropriate because CDFW is the regulatory agency responsible for managing wildlife in the state in accordance with federal and state laws and regulations pertaining to wildlife protection.

The County, in its discretion, has determined the CDFW values are appropriate for use as thresholds of significance because they are based on substantial evidence and requirements of CEQA Guidelines Section 15067.4 (Thresholds of Significance).[11] Numerical thresholds have not been developed or approved by CDFW for mountain lion because it is managed as a specially protected species, as explained above.

METHODOLOGY

The potential for the proposed project to result in significant impacts on protected and common wildlife target species is based on a review of publicly available data obtained from the USDA APHIS-WS Management Information System (MIS) and informational materials prepared by APHIS-WS available on its website, environmental documents prepared by APHIS-WS and CDFW, species lists prepared by the USFWS, CDFW, and California Native Plant Society, and numerous scientific publications, which are listed in Section 7.0 References. The materials listed in Section 7.0 are available for review upon request.[12]

Species population estimates for Shasta County were prepared for the following target wildlife species populations using CDFW population models (CDFG 2004) and CDFW potentially suitable habitat models from its BIOS GIS dataset (CDFW 2016): American beaver, bobcat, coyote, gray fox, muskrat, raccoon, striped skunk, and Virginia opossum. For black bear and mountain lion, specific population data were obtained from CDFG (2011) and Beausoleil (2013), respectively, and combined with CDFW potentially suitable habitat model data from its BIOS GIS dataset. Details of population estimates for each mammal species and sources of information are presented in Appendix C.

Although County population estimates are provided, potential effects on populations are evaluated in a statewide (and cumulative) context. This is because the species are present throughout the state and harvest levels set by CDFW are statewide; similar habitat supporting the various species is present in adjacent counties (e.g., Sierra Nevada foothill woodland, forest, and riparian habitats to the north, east, and south); and species' movement patterns do not coincide with jurisdictional boundaries such as county lines.

For purposes of the impact analysis in the context of evaluating potential impacts on target species populations resulting from take via lethal methods, the historical technical assistance data (Table 2.0-2 in Section 2.0, Project Background), combined with 20-year baseline take data (Table 4.1-3, above), are a reasonable indicator of the projected take in the foreseeable future with ongoing implementation of wildlife damage management activities under the CSA. Both average and median take data for the 20-year period relative to population estimates for both County and cumulative conditions are considered because in some cases the median value may be higher than the average value or vice versa. For purposes of the analysis, the more conservative value is used. As with previous CSAs, the proposed CSA provides for one federal wildlife specialist, with no increase in staffing anticipated. As such, it is unlikely that there will be a substantial increase

[11] CDFW has completed environmental documents in accordance with CEQA for evaluating its hunting and trapping regulations. The most recent documents were completed in 2004: *Draft Environmental Document, Sections 265, 460-467, and 472-480, Title 14, California Code of Regulations Regarding Furbearing and Nongame Mammal Hunting and Trapping*; and *Final Environmental Document, Sections 250, 250.5, 251, 251.5, 252, 257, 257.5, 307-310, 310.5, 311, and 354, Title 14, California Code of Regulations Regarding Resident Small Game Mammal Hunting*.

[12] To request or review these items, please contact the Shasta County Department of Agriculture/Weights and Measures, 3179 Bechelli Lane, Suite 210, Redding, CA 96002, (530) 224-4949.

in APHIS-WS staff hours under ongoing and future activities and the potential for that, in turn, to result in additional technical assistance efforts resulting in lethal take.

APHIS-WS has not, and under the proposed project would not, perform services with County funds for protection of threatened and endangered species. However, the analysis does consider whether the proposed project would result in unintentional take of threatened and endangered species in conjunction with direct control activities conducted for agricultural resource, public health and safety, and property protection. Similar to target species, the baseline data are a reasonable indicator of what would be likely to occur in the future.

PROJECT IMPACTS

Common Wildlife Species (Standard of Significance 7)

Impact 4.1.1 Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS could affect target common wildlife species populations through the use of lethal methods to remove animals. **(Less than Significant)**

Impact Overview

Wildlife and humans are constantly interacting and experiencing resource conflicts. Thus, the likelihood of some impact (damage occurring and animals being removed as a result of that damage) is high, with or without the services provided by the APHIS-WS IWDM program. There would be no direct physical impact on biological resources as a result of the CSA because it is an administrative action. However, implementation of APHIS-WS IWDM activities in the County by way of the CSA has the potential to result in impacts on target common wildlife species. These indirect, or secondary impacts, are evaluated in this section.

Under the CSA, the APHIS-WS wildlife specialist would continue to provide information and advice to County residents and resource owners (e.g., phone calls, field visits, presentations, development and dissemination of information, and service visits) regarding recommendations of nonlethal methods. These activities would have no direct effect on wildlife populations.

However, after using the IWDM Decision Model, the APHIS-WS wildlife specialist may determine that an animal causing damage may need to be removed by lethal methods. Removal of animals by lethal methods is only used when other methods of control are not practical or have not been successful. The techniques used by the IWDM program are designed to be target-specific, and all wildlife specialists are certified and trained in techniques to minimize the risk of capturing nontarget wildlife. The existing APHIS-WS program does not seek to eradicate any species, regardless of legal status, or result in take that would substantially reduce species' populations. As with the current CSA, APHIS-WS does not target certain species for reduction. For most wildlife damage management, once a damage situation is resolved, APHIS-WS wildlife specialists do not continue work to remove additional animals unless a problem reoccurs, there are historical problems, and/or an additional request for assistance is made.

The number of target species that would be removed by lethal methods as a result of IWDM activities under the CSA would be a function of the number of requests and decisions made by APHIS-WS staff in the field using the agency's decision model. It is reasonable to assume a similar level of take would occur with future implementation of activities under the CSA, and there would continue to be some annual variability in the number of removals as shown in Table 4.1-3 (mammals) and Table 4.1-4 (avian species). Moreover, given that no changes are contemplated that would increase staffing (one wildlife specialist) relative to previous CSAs, it is also reasonable

to assume there would be similar levels of effort directed at wildlife damage activities, including those that may result in the removal of a wildlife species by lethal methods.

Few, if any, nontarget species effects would be expected to result from the project. Historically, the number of nontarget species take has been very small, so it is reasonable to assume continuation of the services would not result in an increase in nontarget take that would affect species populations. However, if a nontarget species is caught, as with activities performed historically by APHIS-WS, every effort is made to release it unharmed, unless the nontarget animal is injured and determined to not likely survive if released. Incidents of nontarget animal deaths are extremely low. This is due to the techniques used by the APHIS-WS wildlife specialist to ensure that the correct location(s) for the target species is identified. No aerial hunting would be performed in Shasta County through the IWDM funding mechanism, so nontarget species would not be inadvertently killed by this method. The geographic scope of the program is also limited. Historically, APHIS-WS provided assistance covering approximately 361,000 acres between 2007 and 2017 (approximately 15 percent of the County's total land area) for an annual median of approximately 22,800 acres per year; it is reasonable to assume this would continue under the CSA because no changes to the IWDM program are proposed.[13] Therefore, in any given geographic area, removals of target species would continue to occur on a small percentage of land.

The analysis below focuses on the impacts on mammal species that have historically resulted in the highest number of requests for assistance and/or removals by lethal methods: American beaver, black bear, bobcat, coyote, gray fox, mountain lion, muskrat, raccoon, striped skunk, and Virginia opossum. For the remaining mammal species listed in Table 4.1-3, either the number of requests for assistance is low or the number and frequency of removals is low (e.g., squirrel), and some are non-native species (e.g., feral swine, an invasive species). It is reasonable to assume that a similar level of take would occur as has historically occurred (baseline conditions) and would have little, if any, impact on those species' populations or biodiversity.

All of the direct control methods that could be used by APHIS-WS under its CSA with the County would be implemented primarily on private land and on BLM land where private ranchers lease land from BLM, as has occurred historically. APHIS-WS would not perform work in national forests in the County that would be funded under the CSA, where there may be publicly accessible trails and wildlife viewing areas. A minimal amount, if any, would be performed on state or County public lands. However, if traps/snares are used on any land to which the public has access, Directive 2.450 requires that appropriate warning signs be posted on commonly used public access points to areas where traps/snares are in use. Signs must be routinely checked by APHIS-WS wildlife specialists to ensure they are present, obvious, and readable. Capture devices must be set where they would minimize the public's view of captured animals. In California, pursuant to FGC Section 465.5, traps must be checked at least once daily, and each time traps are checked, all trapped animals must be removed. Therefore, it would be highly unlikely for the public to encounter a trapped, dead, or injured animal.

[13] APHIS-WS does not implement its services on the total number of reported acres. When a Work Initiation Document (WID) is signed by the requesting party, the agreement applies to the entire acreage of the parcel(s) for which services are requested. In some cases, this could be hundreds or thousands of acres. The total reflects the sum of all parcel acreages for which the WID has been signed. Thus, the "on-the-ground" impact of services is limited in geographic scope to only those specific locations on a property where the wildlife damage is occurring and where control services are actually provided.

Finally, APHIS-WS in Shasta County coordinates with CDFW, California Department of Food and Agriculture, and California Department of Public Health, as well as federal agencies such as the USFWS, USDA, and BLM. In addition to acting on behalf of private landowners who receive depredation permits from CDFW, APHIS-WS activities are performed in consultation with the above-mentioned agencies. This ensures the use of proper techniques, handling, and accuracy with equipment, chemicals, and animal control methods, all of which reduce potential impacts to common wildlife species.

Target Mammal Species Impacts

American Beaver

In Shasta County between 1999 and 2018, there were 235 beavers removed by APHIS-WS under the previous CSAs, for an average of 12 per year. Most of the removals were related to damage to levees, drainage conveyances, and irrigation systems, which are not preferred beaver habitat. APHIS-WS does not remove beaver dams, lodges, or dens. Statewide, 18,981 beavers were removed by APHIS-WS over the 20-year period, with removals in the County accounting for approximately 1 percent of the total statewide APHIS-WS take but less than 1 percent, annually, of the state low population estimate (Table C-3 in Appendix C). CDFW has established a sustainable cumulative annual statewide harvest level of 30 percent of the statewide population (CDFG 2004: p. 39), and removals on an annual basis in the County are well below this value. This suggests that APHIS-WS activities in Shasta County under baseline conditions have not had a substantial adverse effect on American beaver population to date.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. The number of beavers removed would be a function of the number of requests for assistance. However, even if the number of requests for wildlife damage management resulting in beaver take were to increase to the highest take in the 20-year baseline period (32 individuals), this still would not be substantial because it would be only approximately 2 percent, annually, of the state low population estimate and well below the 30 percent cumulative CDFW harvest threshold. Because the proposed project would not reduce the number or restrict the range of American beaver, it would not cause the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Black Bear

In Shasta County between 1999 and 2018, there were 281 black bears removed under the APHIS-WS IWDM program. Average removals were 14 per year, or less than 1 percent, annually, of the County's estimated low population and less than 0.1 percent, annually, of the state estimated low population (Table C-4 in Appendix C). Statewide, 2,155 black bears were removed by APHIS-WS over the 20-year period, with removals in the County accounting for approximately 13 percent of the total. CDFW has established a sustainable cumulative annual statewide harvest level of 3,875 bears (CDFG 2011: p. 25). Black bear take in the County on an annual basis is low relative to statewide take and is well below annual harvest levels. This suggests that APHIS-WS activities in Shasta County under baseline conditions have not had a substantial adverse effect on black bear population to date.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. The number of black bears removed would be a function of the number of requests for assistance by resource owners. However, even if the number of requests for wildlife damage management resulting in black bear take were to increase to the highest take in the 20-year baseline period (28

individuals), this still would not be substantial because it would be well under CDFW's sustainable annual statewide harvest threshold. Because the proposed project would not reduce the number or restrict the range of black bear, it would not cause the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Bobcat

In Shasta County between 1999 and 2018, there were 31 bobcats removed under the APHIS-WS IWDM program. In some years, no bobcats were taken. Statewide, 1,093 bobcats were taken. The County average removal is two bobcats per year, approximately 3 percent of the total statewide APHIS-WS take and less than 0.01 percent, annually, of the state low population estimate (Table C-5 in Appendix C). CDFW established a sustainable cumulative annual statewide harvest level for bobcats at 20 percent of the adult low population, which CDFW has determined would equal approximately 14,400 bobcats per year (CDFG 2004: p. 59). Bobcat take in the County is very low relative to statewide take and is well below the harvest level. This suggests that APHIS-WS activities in the County under baseline conditions have not had a substantial adverse effect on bobcat population to date.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. No changes are proposed that would allow for increasing bobcat take. The number of bobcats removed would be a function of the number of requests for assistance by resource owners, and bobcat take may only occur with a depredation permit issued by CDFW. However, even if the number of requests for wildlife damage management resulting in bobcat take were to increase to the highest take in the 20-year baseline period (7 individuals), this still would not be substantial because it would be well under CDFW's harvest threshold. Because the proposed project would not reduce the number or restrict the range of bobcat, it would not cause the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Coyote

In Shasta County between 1999 and 2018, there were 1,317 coyotes removed by APHIS-WS under the CSA. The County average removal is 63 per year. Statewide, 118,429 coyotes were taken over the 20-year period, with removals in the County accounting for approximately 1 percent of the total statewide APHIS-WS take and less than 0.1 percent, annually, of the estimated state low population. Even with the highest take in the 20-year period (123 coyotes), this represents less than 2 percent of the County's estimated low population and 0.1 percent of the statewide low population estimate (Table C-6 in Appendix C). Because take in the County on an annual basis is low relative to statewide take and is well below the 60 percent sustainable cumulative annual statewide harvest level, this suggests that APHIS-WS activities in the County under baseline conditions have not had a substantial adverse effect on coyote population to date.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. No changes are proposed that would allow for increasing coyote take. The number of coyotes removed would be a function of the number of requests for assistance by resource owners. However, even if the number of requests for wildlife damage management resulting in coyote take were to increase to the highest take in the 20-year baseline period (123 individuals), this still would not be substantial because it would be well under CDFW's harvest threshold. Because the proposed project would not reduce the number or restrict the range of coyote, it would not cause the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

As explained in the Environmental Setting, above, mesopredator release and trophic cascade and related effects on species biodiversity due to coyote removals remain the subject of debate and opinion. As shown in Table 4.1-3, the number of coyote removals is small in the County, and as explained above, the percentage of removals is also small relative to County and statewide low population estimates. It may be surmised that given the low level of coyote take that would likely occur under the CSA, the potential for adverse effects on biodiversity would be unlikely. Nonetheless, after having thoroughly reviewed and considered available information, the County finds that a significance conclusion regarding mesopredator release and biodiversity impacts related to coyote take is too speculative for evaluation. No impact determination is made, as provided for under CEQA Guidelines Section 15145.

Gray Fox

In Shasta County between 1999 and 2019, there were 33 gray foxes removed by APHIS-WS under the CSA. The County average removal is 2 per year, or less than 0.1 percent of the County's estimated low population. Statewide, 2,905 gray foxes were taken over the 20-year period, with removals in the County accounting for a little over 1 percent of the total statewide APHIS-WS take and less than 0.01 percent, annually, of the estimated state low population (Table C-7 in Appendix C). CDFW has established a sustainable cumulative annual statewide harvest level of 25 percent of the statewide population (CDFG 2004: p. 41). Because take in the County on an annual basis is very low relative to statewide take and is well below the sustainable harvest level, this suggests that APHIS-WS activities in the County under baseline conditions have not had a substantial adverse effect on gray fox population to date.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. No changes are proposed that would allow for increasing gray fox take. The number of gray foxes removed would be a function of the number of requests for assistance by resource owners. However, even if the number of requests for wildlife damage management resulting in gray fox take were to increase to the highest take in the 20-year baseline period (15 individuals), this still would not be substantial because it would be well under CDFW's harvest threshold. Because the proposed project would not reduce the number or restrict the range of gray fox, it would not cause the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Mountain Lion

In Shasta County between 1999 and 2018, there were 183 mountain lions removed under the APHIS-WS IWDM program. The average removal was 9 per year. Statewide, 2,043 mountain lions were removed by APHIS-WS over the 20-year period, with removals in the County accounting for approximately 9 percent of the total statewide APHIS-WS take and less than 1 percent, annually, of the state lowest population estimated by Dellinger and Torres (2020) (Table C-8 in Appendix C). CDFW manages the species for conservation and as such there are no sustainable harvest levels.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. No changes are proposed that would allow for increasing mountain lion take. Moreover, mountain lion may only be taken with a depredation permit from CDFW. The number of mountain lions removed would be a function of the number of requests for assistance by resource owners. However, even if the number of requests for wildlife damage management resulting in mountain lion take were to increase to the highest take in the 20-year baseline period (24 individuals), this still would not be substantial. Given that take occurs only with authorization from CDFW (trustee agency) and take in the County is minor compared to the state population size, the proposed

project would not reduce the number or restrict the range of mountain lion, thereby causing the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Muskrat

In Shasta County between 1999 and 2018, there were 7,617 muskrats removed by APHIS-WS under the CSA, for an average removal of 381 per year. Statewide, 9,566 muskrats were removed by APHIS-WS over the 20-year period, with removals in the County accounting for nearly 80 percent of the total statewide APHIS-WS take but less than 1 percent, annually, of the state low population estimate (Table C-9 in Appendix C). The large percentage of muskrat removals in the County is attributed to damage caused by burrowing activity that has increased sedimentation in the Fall River wild trout fishery and in the watershed itself. CDFW has established a sustainable cumulative annual statewide harvest level of 60 percent of the population (CDFG 2004: p. 42), and removals in the County on an annual basis are well below this value. This suggests that APHIS-WS activities in Shasta County under baseline conditions have not had a substantial adverse effect on common muskrat population to date.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. No changes are proposed that would allow for increasing muskrat take. The number of muskrats removed would be a function of the number of requests for assistance by resource owners. However, even if the number of requests for wildlife damage management resulting in muskrat take were to increase to the highest take in the 20-year baseline period (1,353 individuals), this still would not be substantial because it would be well under CDFW's harvest threshold. Because the proposed project would not reduce the number or restrict the range of muskrat, it would not cause the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Raccoon

In Shasta County between 1999 and 2018, there were 97 raccoons removed under the APHIS-WS IWDM program, for an average of 5 per year. Statewide, 42,476 raccoons were removed by APHIS-WS over the 20-year period, with removals in the County accounting for less than 1 percent of the total statewide APHIS-WS take and less than 0.1 percent, annually, of the state low population estimate (Table C-10 in Appendix C). CDFW reports the sustainable cumulative annual statewide harvest level for raccoon is 49 percent (CDFG 2004: p. 43). Raccoon take in the County on an annual basis is well below the harvest level, which suggests that APHIS-WS activities in Shasta County under baseline conditions have not had a substantial adverse effect on raccoon population to date.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. No changes are proposed that would allow for increasing raccoon take. The number of raccoons removed would be a function of the number of requests for assistance by resource owners. However, even if the number of requests for wildlife damage management resulting in raccoon take were to increase to the highest take in the 20-year baseline period (30 individuals), this still would not be substantial because it would be well under CDFW's 49 percent harvest threshold. Because the proposed project would not reduce the number or restrict the range of raccoon, thereby causing the species or community to drop below self-sustaining levels compared to baseline conditions, the impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Striped Skunk

In Shasta County between 1999 and 2018, there were 191 striped skunks removed by APHIS-WS under the CSA, for an average of 10 per year. Statewide, 78,619 skunks were removed by APHIS-WS over the 20-year period, with removals in the County accounting for less than 1 percent of the total statewide APHIS-WS take and less than 0.1 percent, annually, of the state low population estimate (Table C-11 in Appendix C). CDFW has not established sustainable harvest levels for striped skunk.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. No changes are proposed that would allow for increasing striped skunk take. The number of striped skunks removed would be a function of the number of requests for assistance by resource owners. CDFW has not established sustainable harvest levels for striped skunk. Even with continued removals, activities under the CSA would not reduce the number or restrict the range of striped skunk, thereby causing the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Virginia Opossum

In Shasta County between 1999 and 2018, there were 13 Virginia opossums removed by APHIS-WS under the CSA, for an average of one per year. Statewide, 22,604 opossums were removed by APHIS-WS during the 20-year period, with removals in the County accounting for 0.1 percent of the total statewide APHIS-WS take and less than 0.1 percent, annually, of the state low population estimate (Table C-12 in Appendix C). CDFW has not established sustainable harvest levels for Virginia opossum. However, given the low percentage of removals, species high reproductive characteristics, and its non-native status, the removals have not had an adverse effect on the population.

Under the CSA, APHIS-WS would provide the same services as have historically occurred. No changes are proposed that would allow for increasing opossum take. The number of opossums removed would be a function of the number of requests for assistance by resource owners. Even with continued removals, activities under the CSA would not reduce the number or restrict the range of opossum, thereby causing the species or community to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant. Cumulative impacts are evaluated in Impact 4.1.7.

Other Mammals

Historically, take of other mammals removed under the IWDM program (e.g., squirrels) has been limited and infrequent. Feral swine is an invasive species. As such, the frequency and number of removals has had a negligible effect on those species' populations, and ongoing implementation of the CSA would similarly not result in adverse impacts.

Avian Species

Nine common bird species were target species intentionally taken by APHIS-WS under its CSA with the County (Table 4.1-4). Blackbirds were removed in greatest number. The annual average blackbird removals over the 20-year period was approximately 4,700 blackbirds per year (all species combined).

It is reasonable to assume avian take would continue to occur and it would be similar to historical levels, with blackbirds accounting for most of the removals. However, APHIS-WS would continue to use nonlethal deterrent methods for bird control in the County because that is the preferred method and results in substantially more freed and dispersed species (Table C-13a in Appendix C) compared to the number removed. A specific method would be determined on a case-by-case basis by the wildlife specialist to ensure that nests and eggs of birds protected under the MBTA would not be affected. Impacts on non-listed common avian species would be less than significant.

Potential impacts on the tricolored blackbird, a state-threatened species, are evaluated in Impact 4.1.2.

Mitigation Measures

None required.

Special-Status Species and Species of Special Concern (Standards of Significance 1 and 7)

Impact 4.1.2 Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would have little or no adverse effect on protected species and/or sensitive habitat supporting those species. **(Less than Significant)**

Table 4.1-1 and Table 4.1-2 list special-status species in Shasta County that are protected under the federal ESA and CESA and as California species of special concern. In the 20-year period that IWDM management activities have been performed under the CSA with Shasta County, none have resulted in killing a protected species (USDA 2019b, 2019c). APHIS-WS has consulted with USFWS's Ecological Services and CDFW concerning the proposed program's potential to affect federally and state-listed threatened and endangered species, and also species that are proposed for federal listing.

Special efforts are made to avoid jeopardizing threatened and endangered species. APHIS-WS consults with USFWS and CDFW when any APHIS-WS program activities may affect animals or plants protected under the federal ESA and CESA so that restrictions or mitigation measures are applied when necessary.[14] In addition, as explained above, APHIS-WS-California is in the process of consulting with NOAA-NFMS for aquatic mammal damage management.

It is reasonable to assume the likelihood of take of a protected species would remain minimal. However, in the unlikely event a protected species is captured (e.g., in a trap, snare, or cage), APHIS-WS is required to make efforts to release it unharmed, unless the animal is injured and the wildlife specialist has determined that it would not likely survive if released. Incidents of nontarget animal deaths are extremely low, and with few exceptions all were freed (Table C-13 in Appendix C). It is reasonable to assume that if a protected species were caught, the likelihood of death would also be low. This is due to the techniques used by the APHIS-WS wildlife specialist to ensure that the correct location(s) for the target species is identified. Also, APHIS-WS does not conduct any aerial hunting in Shasta County through the IWDM program funding mechanism, and none

[14] APHIS-WS is authorized to remove targeted wildlife species to protect threatened and endangered species; however, these services have not been provided in Shasta County, nor does the CSA provide for this activity.

would occur under the CSA. As such, protected species that may otherwise be impacted by aerial hunting would not be affected.

APHIS-WS is not authorized to modify sensitive habitat(s) that support protected species, nor does it make that recommendation to resource owners or managers. Program activities do not involve land development, construction, or soil/vegetation removal. A negligible amount of ground disturbance would occur with the placement of capture devices. However, the capture devices would not be a permanent feature. Wildlife specialists may access sites on foot or vehicle, which may involve off-trail or off-road use. It is possible that this would occur where sensitive habitat or special-status plant species occur. It would be speculative to ascertain which habitats or plant species could be affected. However, this would have minimal impact on habitat or special-status plants because it would be of limited spatial extent, infrequent, and temporary.

NMFS-Listed Salmonid and Sturgeon

As indicated in Table 4.1-1, there are protected salmonid and sturgeon species in Shasta County, and critical habitat has been designated by the USFWS for salmonids. APHIS-WS-California has no record of nontarget take of the NMFS-listed salmonid species in the County (USDA 2019d).

American beaver activity may have a beneficial effect on salmonid habitat and populations by increasing and enhancing wetland habitats. APHIS-WS is not allowed to modify sensitive habitat such as that supporting salmonids, which includes removal of beaver dams that may or may not have a localized effect on salmonids. American beaver is removed in Shasta County to control damage to levees, drainage conveyances, and irrigation systems, but these features are not typically located in preferred beaver or salmonid habitat. Relocation of beavers is not authorized by CDFW because the activities of beavers can create conflict with wildlife, agriculture, infrastructure, or human safety.

Under the CSA, APHIS-WS would remove beavers and muskrats causing damage to infrastructure systems, particularly where damage could affect public safety (e.g., flooding). To implement these actions, APHIS-WS-California has initiated consultation with NOAA-NMFS, and APHIS-WS operates within the limitations of an ESA Section 7(d) Determination that addresses aquatic mammal damage management, which includes beaver and muskrat. During the pendency of its consultation with NOAA-NMFS, APHIS-WS has ceased several aquatic mammal damage management activities in the state that have potential to affect water abundance or habitat character at fish-rearing sites within ESA-listed salmonid habitat (i.e., designated critical habitat or other habitat occupied by the listed salmonids and sturgeon), and thus would apply to Shasta County. A limited number of exceptions may be relevant to Shasta County, which could result in the removal of beavers by lethal means or require beaver damage management. For example, beaver control may still be undertaken if there is an imminent public safety incident declared by a regulatory or enforcement agency (e.g., flooding) or in locations such as irrigation canals, culverts, or similar human-made features.

Based on its analysis, APHIS-WS-California staff concluded that managing aquatic mammal damage caused by beaver and muskrat in accordance with the federal ESA Section 7(d) Determination would not "make an irreversible or irretrievable commitment of resources that have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures for the protection of listed salmonids, sturgeon, and eulachon, or their critical habitats" (USDA 2019d).

Based on the foregoing, implementation of the CSA would result in less than significant impacts on NMFS-listed salmonids and sturgeon.

Gray Wolf

Wolves in California are protected from take due to its federal ESA and CESA status. The USFWS reviewed APHIS-WS actions in 2015 under Section 7 of the federal ESA and concurred that its IWDM activity is not likely to adversely affect gray wolves. Currently, wolf-livestock conflicts in California are managed through nonlethal actions including increased human presence deemed "range riding" and installation of flag fencing called "fladry" or "turbo-fladry" (electrified fence with flags). There are currently no wolves known to have established territories in Shasta County. Should wolves become established in Shasta County, APHIS-WS would respond to wolf-livestock conflicts as it has in other counties in California, through the use nonlethal methods to minimize the impacts on producers. As such, the proposed project would not result in any significant impacts on gray wolf.

Tricolored Blackbird

there were no tricolored blackbirds observed during surveys in Shasta County in 2017, but some were reported during surveys in 2008 and 2014. As such, there is the potential that tricolored blackbird could be present at some point in the future. The species can forage in mixed flocks dominated by red-winged and Brewer's blackbird and can be difficult to discern from red-winged blackbird because they are sister taxa. APHIS-WS activities in Shasta County have not resulted in take of tricolored blackbird. In the APHIS-WS North District (which includes Shasta County) and statewide during the reporting period 2007-2018, tricolored blackbirds in other counties were either dispersed or freed (USDA 2019b). Although the species has experienced a substantial decline in recent decades, surveys and research conducted statewide over the 2014-2017 breeding season suggest that the number of tricolored blackbirds remained relatively stable during that time frame and the species may be adaptable to changing colony size and changing nesting habitat types (USFWS 2019).

In order to avoid any take of tricolored blackbirds, APHIS-WS does not use any potentially lethal actions in mixed flocks. No mixed flocks that have the potential to contain tricolored blackbird have been removed or dispersed statewide since 2014 when tricolored blackbird was listed.

As such, implementation of the CSA is unlikely to result in take of tricolored blackbird, and the impact would be less than significant.

Summary

The proposed project would not result in 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 CDFW, USFWS, or NOAA-NFMS; nor would it reduce the number or restrict the range of an endangered, rare, or threatened plant or animal species, thereby causing the protected species to drop below self-sustaining levels compared to baseline conditions. The impact would be less than significant.

Mitigation Measures

None required.

Wetlands (Standard of Significance 3)

Impact 4.1.3 Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would have no adverse effect on federally protected wetlands or waters of the state. **(No Impact)**

As described in Impact 4.1.2, APHIS-WS is not authorized nor does it perform activities such as land development, construction, or soil vegetation removal, nor does it recommend such activities to resource owners. There would be no modification of federally protected wetlands as defined by Section 404 of the Clean Water Act (e.g., marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means, or impacts on waters of the state. Most of the locations where beavers have been and would continue to be removed under the CSA are in areas containing levees, drainage conveyances, and irrigation systems. APHIS-WS does not remove beaver dams, lodges, or dens in wetland locations as part of its activities under the CSA. There would be no impact.

Mitigation Measures

None required.

Wildlife/Migratory Corridors (Standard of Significance 4)

Impact 4.1.4 Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would have minimal effect on wildlife corridors. **(Less than Significant)**

Land development projects that result in habitat loss or fragmentation are kinds of projects that have the potential to adversely affect wildlife corridors. The wildlife damage management services that would continue to be provided to requestors under the CSA would not involve ground disturbance such as soil and vegetation removal, construction of buildings, or creation of artificial barriers (e.g., a roadway) to wildlife movement or migration patterns.

Capture methods would involve the use of traps, snares, or cages, as described in "Integrated Wildlife Damage Methods" in Appendix B, and these devices would be used to target a specific animal in a specific location. They are used sparingly and are not placed or grouped in a manner that would be so wide as to physically impede wildlife movement.

The only targeted mammal species evaluated in this Draft EIR that exhibits migratory behavior is the mountain lion, a species that generally has a fixed range and migrates seasonally in response to prey movements, following migrating herds of deer. APHIS-WS would only target a mountain lion in response to a request from the depredation permit holder (permittee), and it would not target the entire migration corridor. A depredation permit is required from CDFW to take mountain lion, so the number of mountain lions that may be removed is substantially limited and would remain similar to the levels of take in the County (see Table 4.1-3). As such, there is no substantial evidence that the IWDM activities performed under the County's agreement with APHIS-WS would substantially or adversely affect mountain lion migratory patterns.

Anadromous fish in Shasta County waterways exhibit migratory behavior. Chinook salmon, steelhead, and green sturgeon are special-status species in aquatic habitats where American beaver is also present. APHIS-WS does not remove beaver dams, but it may remove beaver in locations where beaver have damaged levees or irrigation or drainage canals. As explained in the Environmental Setting, above, APHIS-WS operates in California under a federal ESA Section

7(d) Determination that substantially limits beaver removals, except in limited cases, pending completion of its consultation with NOAA-NMFS. Beaver relocations are not authorized by CDFW. The locations where beavers are removed are not preferred beaver or aquatic habitat for special-status fish species. Thus, removal of the beavers would not have an adverse effect on fish migration.

For the reasons stated in Impacts 4.1.1 and 4.1.2, the wildlife damage management activities targeting specific animals under the CSA would not reduce species populations to levels that would reduce biodiversity or not be self-sustaining, nor eliminate or reduce migration corridors. Therefore, the proposed project would not 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 compared to baseline conditions. Impacts would be less than significant.

Mitigation Measures

None required.

Consistency with Policies Protecting Biological Resources (Standard of Significance 5)

Impact 4.1.5 Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would not conflict with Shasta County General Plan policies for protection of biological resources. **(No Impact)**

Section 15125(d) of the CEQA Guidelines requires that an EIR discuss any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans as part of the environmental setting. The applicable plan is the Shasta County General Plan, which was comprehensively amended most recently in 2004.

The Shasta County General Plan Resources Group Fish and Wildlife Habitat Chapter contains 11 policies addressing protection of wildlife and habitat (Shasta County 2004). The policies, which are listed in Table C-14 in Appendix C, identify actions related to land use planning as well as policy direction aimed at habitat restoration. No policies are pertinent to those activities that would be implemented under the CSA, as explained in Table C-14. There would be no impact.

Mitigation Measures

None required.

Habitat Conservation Plans (Standard of Significance 6)

Impact 4.1.6 Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS would not conflict with any habitat conservation plan or natural community conservation plan. **(No Impact)**

There are no habitat conservation or natural community conservation plans that have been adopted for Shasta County. There would be no impact.

Mitigation Measures

None required.

4.1.4 CUMULATIVE IMPACTS

Section 4.0, Introduction to the Analysis, provides a general overview of the requirements for a cumulative analysis and the approach used in this Draft EIR. As provided by CEQA Guidelines Section 15130(b), the discussion of cumulative impacts must reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as much detail as is provided for the effects attributable to the project alone.

The results of the analyses in Impacts 4.1.3 (Wetlands), 4.1.5 (Consistency with Policies Protecting Biological Resources), and 4.1.6 (Habitat Conservation Plans) show that the proposed project would result in no impacts for these topics. As such, no cumulative impact analysis for these topics is required.

Although the proposed project would result in less than significant impacts on species and wildlife corridors (Impacts 4.1.1, 4.1.2, and 4.1.4), in accordance with CEQA, the cumulative impact analysis, below, evaluates the proposed project's contribution to impacts that may occur on a cumulative level.

CUMULATIVE CONTEXT

The geographic area for the cumulative analysis comprises Shasta County and the state. Consideration of areas outside the administrative boundary of the County is appropriate because the species evaluated in this Draft EIR are present throughout the state and harvest levels for many of those species are set by CDFW for population management at the statewide level. In addition, similar habitat supporting the various species is present in adjacent counties (e.g., Sierra Nevada foothill woodland, forest, and riparian habitats to the north, east, and south), and species' movement patterns do not coincide with jurisdictional boundaries such as county lines.

For purposes of the cumulative impact analysis, projects with the potential to cause related effects on wildlife species are growth and development under the Shasta County General Plan, trapping by licensed trappers, hunting that requires a permit or license from CDFW, other APHIS-WS activities in the County that are not funded under the CSA, and APHIS-WS services statewide. The analysis addresses the mammal species that have historically resulted in the most technical assistance and removals, as evaluated in Impacts 4.1.1, 4.1.2, and 4.1.4.

Activities such as poaching or killing wildlife without required permits or licenses from CDFW do not require analysis in an EIR because they are illegal and, as such, are not required under CEQA to be evaluated. Thus, they are not included in the cumulative analysis. The analysis recognizes such activities could occur, however, but estimates of illegal take would be speculative, which also does not require analysis under CEQA.

CUMULATIVE IMPACTS

Impact 4.1.7 Implementation of the IWDM program under the CSA between Shasta County and APHIS-WS, in combination with cumulative projects, would not directly or indirectly result in adverse impacts on protected or common wildlife species or habitat supporting those species. The proposed project's contribution would be **less than cumulatively considerable,** and the cumulative impact is **less than significant.**

Projects and Actions Contributing to Cumulative Impacts

Cumulative impacts on wildlife species may occur as a result of species take or effects on habitat that may support species. The following describes the types of projects that could contribute to these impacts.

Shasta County General Plan

The Shasta County General Plan, comprehensively amended most recently in 2004, serves as the general, long-range guiding policy document for future development in Shasta County. Future growth in the County has the potential to result in construction-related and operational impacts on biological resources. The General Plan includes policies to reduce impacts.

Hunting and Trapping

The common wildlife species addressed in this analysis, with the exception of bobcat and mountain lion, may be hunted or trapped by the public, and some species require a valid license from CDFW. Those activities represent a source of non-APHIS take that is considered in the cumulative analysis of population effects. Sport hunting and/or commercial trapping has historically resulted in take of beaver, bobcat, black bear, coyote, gray fox, muskrat, raccoon, striped skunk, and Virginia opossum in Shasta County during the 20-year baseline period. Under cumulative conditions, it is expected that these activities (with the exception of bobcat for which both trapping and hunting are no longer allowed) would continue and would therefore represent a portion of cumulative take of the target common wildlife species managed by APHIS-WS. Table C-16 in Appendix C presents take data for hunting and trapping for each of these species obtained from licensed fur trappers and dealers reports (CDFW 2018b), bobcat harvest assessment reports[15] (CDFW 2019b), bear harvest reports (CDFW 2018a), and hunter survey reports (CDFW 2011b; Responsive Management 2015), with summaries presented below. As illustrated by the data, the number of each species removed in the County is low relative to statewide take. It is illegal to hunt or trap mountain lion and bobcat; they may only be taken with a depredation permit issued by CDFW.

American Beaver

American beaver can be legally hunted by the public with a valid CDFW hunting license from November 1 through March 31.[16] There are no daily bag or possession limit or reporting requirements for recreational hunting of beaver by the public. Historically, when commercial trapping was allowed, 170 beavers were taken in the County between 1998 and 2018 (an

[15] Historical take data provided for informational purposes as a component of baseline cumulative (past) conditions.

[16] As of September 2019, trapping is no longer allowed (14 CCR Section 463, which supersedes FGC Section 4001).

average of eight per year) and approximately 3,700 statewide, or an average of approximately 174 per year (Table C-16 in Appendix C). There are no sport hunter data.

Black Bear

Black bear can be legally hunted with a valid CDFW hunting license, and CDFW establishes a seasonal limit each year. According to CDFW bear take reports prepared annually, there were 3,128 black bears taken in the County between 1998 and 2016, for an annual average of 165 per year. Statewide, 31,342 black bears were taken for an annual average of 1,650 (Table C-16 in Appendix C). On average, bear take by hunters in the County represents only approximately 1 percent of annual statewide harvest.

Bobcat

Historically, commercial trapping accounted for most of the bobcats taken in the state until 2015 when the Bobcat Protection Act of 2015 (FGC Section 4155) banned trapping (CDFW 2019b). After 2015, bobcat could be hunted by the public with a valid CDFW hunting license. However, in 2019, bobcat hunting was prohibited in California by AB 1254, and the law became effective January 1, 2020. According to CDFW historical bobcat harvest assessment reports prepared annually, when hunting was legal, there were 224 bobcats taken in the County between 1998 and 2018, or approximately 11 per year. Statewide, 6,355 bobcats were taken for an annual average of 303 (Table C-16 in Appendix C).

Because hunting and trapping are no longer legal, the only future take would be associated with a CDFW depredation permit. When harvest was legal, CDFW (CDFG 2004: p. 59) established a statewide quota of 14,400 bobcats per year. Based on the low number of bobcats removed historically in the County to resolve wildlife damage issues, depredation take would be well below this quota. Because there would be no future hunting and trapping take, and APHIS-WS cannot remove a bobcat without a depredation permit from CDFW, cumulative future take would decrease compared to historic conditions.

Coyote

Coyote is an unprotected furbearer and nongame animal and may be taken year-round for any reason. CDFW does not require depredation permits or hunting licenses for coyotes. However, trapping is allowed with a valid trapping license. Based on CDFW data, 70 coyotes were trapped in the County between 1998 and 2018, and approximately 5,800 statewide, for a statewide average of approximately 275 annually. Although a permit and reporting are not required for recreational hunting of coyote, CDFW does have some limited data about coyote take, which it obtained through hunter surveys. According to surveys for the years 1998 through 2008 and in 2010, approximately 19,000 coyotes were taken by sport hunting in the County and approximately 710,800 statewide, for a County annual average of approximately 1,600 and statewide average of approximately 55,000 (Table C-16 in Appendix C). By comparison, the number of coyotes taken by APHIS-WS in Shasta County over the entire 20-year period was approximately 1,300 (approximately 95 percent less than sport hunter take in the County).

Gray Fox

Gray fox can be legally trapped by the public with a valid CDFW hunting license. Based on CDFW data, 533 foxes were trapped in the County between 1998 and 2018. Approximately 10,400 were taken statewide, for an average of approximately 500 per year. According to CDFW game take surveys, approximately 1,400 were taken by sport hunting in the County, and approximately 17,200

statewide (Table C-16 in Appendix C). With trapping and hunting combined, the County annual average is approximately 200 per year compared to the statewide annual average of approximately 2,400.

Mountain Lion

Mountain lion is a specially protected mammal in California (California FGC Section 4800). Hunting and trapping are not allowed. It is unlawful to possess, transport, import, or sell any mountain lion or part or product thereof (including taxidermy mounts). Hunting and trapping, by any individual or entity, is illegal.

Muskrat

Common muskrat can be legally trapped by the public with a valid CDFW trapping license. There is no bag and possession limit. Between 1998 and 2018, approximately 25,000 muskrats were trapped in the County, for an average of approximately 1,100 per year and over 99,000 were trapped statewide, for an average of approximately 4,700 annually (Table C-16 in Appendix C).

Raccoon

Raccoon can be legally trapped by the public with a valid CDFW trapping license. There is no bag and possession limit. There were approximately 260 raccoons trapped in the County between 1998 and 2018, for an average of approximately 13 per year. Approximately 11,800 were taken statewide. According to CDFW game take surveys, approximately 400 were taken by sport hunting in the County and approximately 39,400 statewide, for a County annual average of 60 per year and a statewide average of approximately 5,600 per year (Table C-16 in Appendix C). With trapping and hunting combined, the County annual average is 75 per year, compared to the statewide annual overage of approximately 6,200.

Striped Skunk

Striped skunk can be legally trapped by the public with a valid CDFW trapping license. They may be taken at any time of year and in any number. Between 1998 and 2018, approximately 200 striped skunks were trapped in the County, and approximately 11,000 were trapped statewide, for a statewide average of approximately 520 annually (Table C-16 in Appendix C). A numerical harvest threshold for striped skunk has not been identified by CDFW, but the agency notes that annual trapping harvest is well below the number of young produced each year and trapping constitutes a minor portion of annual mortality (CDFG 2004: p. 68).

Virginia Opossum

Virginia opossum, a non-native species, can be legally trapped by the public with a valid CDFW trapping license. They may be taken at any time of year and in any number. Between 1998 and 2018, 67 opossums were trapped in the County, or approximately three per year, and approximately 6,000 were trapped statewide, for a statewide average of approximately 290 annually (Table C-16 in Appendix C).

Statewide Cumulative

As noted in the Environmental Setting, CDFW has completed environmental documents in accordance with CEQA for evaluating its hunting and trapping regulations. CDFW concluded that even with APHIS-WS take (conservatively assumed to be 33 percent of statewide take) and

in conjunction with other related past, present, and reasonably foreseeable future projects and actions identified in the cumulative analysis,[17] cumulative impacts of hunting and trapping would not be significant (CDFG 2004: pp. 32–35, 47, 95–111).

Take by Private Parties Other Than Hunting and Trapping

The number of hunting and trapping licenses issued by CDFW for species requiring such permits and reporting provides some indication of the number of individual animals taken. However, there are no bag and possession limits or reporting for some of the species, as noted above. The other mammal species taken by private parties for damage control is unknown because there is no requirement for reporting. For example, CDFW does not have records for the numbers of coyotes that are killed by private landowners and hunters because permits are not required to recreationally hunt or take coyotes that cause damage, nor is any reporting to CDFW or the County required in those cases. In the case of coyotes, CDFW noted there are an unknown number of coyotes taken for damage control purposes by private property owners and other entities or persons (CDFG 2004: p. A-4). CDFW commissioned an independent survey completed in 2015, which reported on statewide and regional hunter take for select species for 2014-15. There are no data specific to Shasta County or the region due to low sample sizes and uncertainty regarding the breakdown between killing for property protection and killing while hunting. However, statewide survey results indicated that 65 percent were killed for property protection, with the remaining 35 percent for sport hunting (Responsive Management 2015: pp. 14, 15, 24). CDFW concluded that even if over 61,000 coyotes were removed by nuisance wildlife control operators, private property owners, and other entities or parties, it would be far below the estimated number of young animals produced each year and would not have a significant impact on the coyote population in California (CDFG 2004: p. 61).

Similar to coyotes, other mammal species taken by private parties for damage control is unknown because there is no requirement for reporting. In its estimate of take and potential impacts on furbearing and nongame mammal hunting and trapping, CDFW concluded that even with an unknown number of animals taken by private property owners and other entities or persons in addition to APHIS-WS take, there would be no adverse impacts on beaver, bobcat, gray fox, muskrat, raccoon, striped skunk, or Virginia opossum populations (CDFG 2004: pp. 55–72).

Take Requiring Depredation Permits

CDFW data for the period 2001 to 2018 show that approximately 1,700 mountains lions were depredated statewide (an average of approximately 97 per year) (CDFW 2019e). In Shasta County, reported take with a depredation permit for the same time period was 105 mountain lions, for an average of 6 per year. Shasta County accounted for less than approximately 10 percent of the statewide take. It is reasonable to assume there would be future depredation take in the County and statewide. As explained above, California law establishes that mountain lions may not be hunted or trapped, and they may only be taken with a depredation permit from CDFW. Because mountain lion depredation is regulated by CDFW as a trustee agency to ensure species conservation, future cumulative take without the project would be within limits established by CDFW.

[17] In addition to a 33 percent assumption for APHIS-WS take, the following projects and actions were assumed in the cumulative analysis: wildfires, drought and floods, disease, illegal harvest (poaching), vehicle-caused mortality, habitat loss and degradation, and major development projects.

CDFW data for the period 2006 to 2018 show that 1,008 black bears were depredated statewide (an average of approximately 77 per year) (CDFW 2019f). In Shasta County, 70 black bears were taken with depredation permits. Shasta County accounted for approximately 8 percent of the statewide take. It is reasonable to assume there would be future depredation take in the County and statewide.

As of January 2020, bobcat may be taken only with a depredation permit from CDFW, as explained above, and some future take would be expected to occur in the County.

APHIS-WS Activities in Shasta County Not Funded by County

APHIS-WS is authorized to remove targeted wildlife species to protect threatened and endangered species; however, these services have not been provided in Shasta County, nor does the CSA provide for this activity. Therefore, the only cumulative impacts without the project would be associated with historical take of common wildlife species, which are not significant, as explained in Impacts 4.1.1, 4.1.2, and 4.1.4, above.

APHIS-WS Activities in California

To implement its IWDM services in California, and in Shasta County, specifically, APHIS-WS has prepared the following environmental reviews for its activities:

- *Pre-decisional Environmental Assessment, Mammal Damage Management for the Protection of Human Health & Safety, Property, Agricultural Resources and Natural Resources in California* (USDA 2005)

- *Pre-decision Environmental Assessment Mammal Damage Management in California APHIS-WS North District* (USDA 2015a)

APHIS-WS completed an environmental assessment (EA) in 2005 for its statewide activities that provided estimates of species take under its existing programs and in combination with other sources of take. This included hunting and trapping, and an additional 33 percent take (referred to as "inflated" take in the EA) to account for counties in which it did not provide assistance and to account for take by private pest control operators (USDA 2005: p. 27). It also evaluated an expanded program that would include work on public lands (BLM and USFS) that were not covered in work plans or cooperative agreements, and that could also expand onto all other land classes as permitted by federal and state laws and regulations. The 2005 EA addressed numerous species, including the following target species that are evaluated in this Draft EIR—bobcat, coyote, gray fox, muskrat, raccoon, striped skunk, and Virginia opossum—as well as nontarget species, and threatened and endangered species. The EA provided population estimates for the species and take estimates from all sources of take. The EA concluded that APHIS-WS activities would not result in impacts at the project level or cumulatively significant environmental impacts on species populations (USDA 2005: pp. 27-39).

Shasta County is in the APHIS-WS North District. APHIS-WS completed an EA in 2015 for the North District that provided estimates of species take using the same methodology as the 2005 statewide EA. The North District EA addressed numerous species, including the following target species that are evaluated in this Draft EIR—bobcat, coyote, gray fox, muskrat, raccoon, striped skunk, and Virginia opossum—as well as nontarget species, and threatened and endangered species. The North District EA provided population estimates for the species and take estimates from all sources of take. The North District EA concluded that APHIS-WS activities in the North District would not result in cumulatively significant environmental impacts (USDA 2015a: pp. 49-65).

To date, no statewide CEQA analysis has been prepared for wildlife damage management carried out by various government partners throughout the state. In 2018, APHIS-WS entered into a Memorandum of Understanding (MOU) with the California Department of Food and Agriculture (CDFA) to prepare a joint environmental impact statement/environmental impact report pursuant to the National Environmental Policy Act (NEPA) and CEQA that will address APHIS-WS, CDFA, and County activities at the statewide level. As of August 2020, the joint document has not been completed. Until the statewide document is published, the information in the 2005 and 2015 EAs represents the best available and most current information regarding APHIS-WS's evaluation of cumulative impacts with respect to Shasta County. The County is not aware of any peer-reviewed technical studies prepared by researchers or any government agencies that invalidate or contradict the conclusions of the previously prepared EAs as they relate to conditions in Shasta County.

Although APHIS-WS has prepared cumulative analyses and documented those results in the 2005 and 2015 EAs, the analysis presented herein reflects the County's independent evaluation of cumulative impacts and does not rely on the impact conclusions presented in the 2005 and 2015 EAs with regard to cumulative impacts of ongoing implementation of the CSA.

Cumulative Impact Analysis

The following evaluates whether the proposed project's contribution to the projects and actions comprising the cumulative context described above would be cumulatively considerable.

Growth Under the Shasta County General Plan

Land use and development consistent with the General Plan could result in impacts on protected species and habitat supporting protected species, sensitive habitat, and wildlife corridors/migratory patterns for fish and wildlife species. The General Plan includes policies to reduce impacts.

The proposed project would not result in a cumulative contribution to the biological resources impacts that would occur with implementation of the General Plan. The APHIS-WS IWDM program does not involve land development that would disturb habitat supporting special-status species, modify sensitive habitats such as riparian areas and wetlands, or impair the use of wildlife corridors, as explained in Impacts 4.1.1 through 4.1.5, above. Therefore, the proposed project's contribution would not be cumulatively considerable in the context of biological resources impacts associated with growth under the County's adopted General Plan.

Cumulative Take of Target Common Mammal Species

Activities that would contribute to cumulative take impacts on target mammal species include the proposed project, APHIS-WS activities statewide, commercial trapping, sport hunting, and take that requires a depredation permit. As explained, activities such as poaching or killing wildlife without required permits or licenses from CDFW are excluded from the analysis because they are illegal. However, to account for unknown activities, 33 percent is added to account for take by private parties and all other known sources of mortality. It is consistent with the factor applied by APHIS-WS in assessing impacts (USDA 2005, 2015a) as well as CDFW in its review of hunting and trapping (CDFG 2004). Tables C-3 through C-12 in Appendix C provide a quantified analysis of cumulative impacts for the target mammal species evaluated in this Draft EIR, with results summarized in Table 4.1-5.

TABLE 4.1-5
TARGET MAMMAL SPECIES TAKE CUMULATIVE IMPACT SUMMARY

Species	County APHIS-WS Annual Take (20-Year Historic)[a]	County Cumulative Annual Take (Estimated)[b]	Statewide APHIS-WS Annual Take (20-Year Historic)[a]	Statewide Cumulative Annual Take (Estimated)[b]	Cumulative Take Compared to State Low Population (Percent)	County Contribution to Cumulative Impact (Percent)	CDFW Sustainable Harvest Threshold (if established)	Threshold Exceeded?
American beaver	12	24	949	1,436	8.0%	1.6%	30%	No
Black bear	14	196	108	1,965	11.6%	10.0%	3,875[c]	No
Bobcat	1	24[d]	58	379[d]	0.5%	6.4%	–	–
Coyote	66	1,732	6,111	65,084	29.0%	2.7%	60%	No
Gray fox	2	205	145	2,600	1.7%	7.9%	25%	No
Mountain lion[e]	9	17	103	234	16.0%[f]	7.0%	–	–
Muskrat	381	1,700	478	6,055	8.0%	28.0%	60%	No
Raccoon	5	80	2,194	7,910	21.4%	1.0%	49%	No
Striped skunk	10	23	3,931	5,746	4.0%	0.4%	–	–
Virginia opossum	1	2	1,191	1,872	4.6%	0.1%	–	–

Source: compiled from Tables C-3 through C-12 in Appendix C.

Notes:
a) Higher value of average or median (individuals)
b) Species take (individuals)
c) Number of individuals
d) As of January 2020, may only be taken with depredation permit. Cumulative take based on historic trapping and hunting.
e) May only be taken with depredation permit
f) Species is managed by CDFW (trustee agency). Cumulative take % conservatively based on low end of state population range (Dellinger and Torres 2020).
– CDFW has not established a harvest threshold, or historic threshold (e.g., bobcat) no longer applicable

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As shown in Table 4.1-5, cumulative take would not exceed thresholds, where established. The County's contribution to cumulative take would be minimal for all species except muskrat. In Shasta County, muskrat take is a function of efforts to protect habitat in the Fall River Valley, which supports an important wild trout fishery. Muskrat is a highly prolific species, and the level of take in the County would not exceed the harvest threshold. As such, the project's contribution to muskrat take would not be cumulatively considerable.

Cumulative Impacts on Listed Species

NMFS-Listed Salmonid and Sturgeon

Under the CSA, APHIS-WS would remove beavers, although the number of removals is not substantial, as explained in Impact 4.1-1, and as illustrated in Table 4.1-5, the County's contribution to cumulative annual take would be less than 2 percent. Because the number of beavers taken on a cumulative basis would not be substantial and APHIS-WS activities would limit beaver removals pending completion of the NOAA-NMFS Section 7 consultation, the proposed project would not result in impacts on NMFS-listed fish species that would be cumulatively considerable. APHIS-WS-California staff concluded that managing aquatic mammal damage caused by beaver in accordance with the ESA Section 7(d) Determination would not "make an irreversible or irretrievable commitment of resources that have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures for the protection of listed salmonids, sturgeon, and eulachon, or their critical habitats" (USDA 2019d). The 7(d) Determination applies statewide and therefore assesses cumulative conditions.

Gray Wolf

There would be no project-level impacts on gray wolf, and therefore there would be no cumulative impact.

Tricolored Blackbird

APHIS-WS activities in Shasta County have not resulted in take of tricolored blackbird. Although blackbirds were removed (Table 4.1-4), no mixed flocks that have the potential to contain tricolored blackbird have been removed or dispersed statewide since 2014 when tricolored blackbird was state-listed. In the APHIS-WS North District (which includes Shasta County) and statewide during the reporting period 2007-2018, tricolored blackbirds were either dispersed or freed (USDA 2019b). Although the species has experienced a substantial decline in recent decades, surveys and research conducted statewide over the period 2014-2017 breeding season suggest that the number of tricolored blackbirds remained relatively stable during that time frame and the species may be adaptable to changing colony size and changing nesting habitat types (USFWS 2019). To avoid any take of tricolored blackbirds, APHIS-WS does not use any potentially lethal actions in mixed flocks. For these reasons, ongoing implementation of the CSA would not result in impacts on tricolored blackbird that would be cumulatively considerable.

Mitigation Measures

None required.

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5.0 ALTERNATIVES

5.1 INTRODUCTION

OVERVIEW

CEQA Guidelines Section 15126.6(a) states that an EIR shall describe and analyze a range of reasonable alternatives to a project. These alternatives should feasibly attain most of the basic objectives of the project, while providing a means of avoiding or substantially lessening one or more of the project's significant environmental impacts that would otherwise result from implementation of a proposed project. An EIR need not consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. The discussion of alternatives is to focus on those alternatives that are capable of avoiding or substantially lessening any significant effects of the project, even if they impede the attainment of the project objectives to some degree or would be more costly (CEQA Guidelines Section 15126.6[b]). The Guidelines also state that the alternatives discussion should not be remote or speculative (CEQA Guidelines Section 15126.6[f][3]).

CEQA Guidelines Section 15126.6(e)(1) requires that a no project alternative be analyzed. Beyond the no project alternative, the CEQA Guidelines establish that several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project; (2) the ability of alternatives to avoid or lessen the significant impacts associated with the project; (3) the ability of the alternatives to achieve the objectives of the project; and (4) the feasibility of the alternatives. Each of these factors as they relate to the proposed project are described below.

It is important to note that it is not the purpose of the Draft EIR to promote or advocate a particular alternative for wildlife damage management, to debate or resolve ethical issues (particularly as they relate to lethal control), or to justify costs and benefits of particular methods of control. The purpose of the alternatives analysis in this Draft EIR is to determine, based on available information, whether an alternative could avoid or substantially reduce the proposed project's environmental impacts, which in this case are impacts on wildlife species.

Impact Avoidance

The analyses of project Impacts 4.1.1, 4.1.2, and 4.1.4 and cumulative Impact 4.1.7 in Section 4.1, Biological Resources, provide substantial evidence that implementation of IWDM program activities under the County's cooperative service agreement (CSA) with APHIS-WS would not result in significant impacts on federal or state special-status species or species of special concern in California, interfere substantially with wildlife movement or established wildlife corridors, substantially reduce animal populations to levels that would not be sustainable compared to baseline conditions, or result in a contribution to cumulative impacts that would be cumulatively considerable. The proposed project would result in no impact on wetlands (Impact 4.1.3) or conflict with General Plan policies regarding biological resources (Impact 4.1.5) or other adopted resource plans (Impact 4.1.6). As such, other than the CEQA-required no project alternative, analysis of a reasonable range of alternatives that would reduce or avoid significant impacts, as required by CEQA, is limited for this project. Nonetheless, this Draft EIR does present four alternatives to the proposed project that evaluate whether the proposed project's less than significant biological resources impacts could be further reduced.

Project Objectives

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible, and establishes that a public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment. It recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors (CEQA Guidelines Section 15021 [Duty To Minimize Environmental Damage And Balance Competing Public Objectives]).

The overall goal of the proposed project is to ensure that wildlife damage management in Shasta County for purposes of protecting agricultural resources, public health and safety, and property is performed in a biologically sound, environmentally safe, and accountable manner and in accordance with applicable federal and state laws and regulations.

The County has identified the following objectives of the proposed project:

1) Provide an administrative mechanism for private citizens and property owners in Shasta County to request assistance for wildlife damage management services.

2) Facilitate access to on-site educational services (e.g., informational materials, advice, and demonstrations) regarding wildlife damage management specific to conditions in Shasta County.

3) Implement an integrated approach to wildlife damage management that allows qualified professionals to consider the range of options available for wildlife damage management that take into account the species responsible, magnitude of the problem, environmental conditions, legal restrictions such as listed species and permitting, and other considerations to formulate an appropriate strategy for the situation.

4) Have a process through which professionals who specialize in wildlife damage management can provide technical assistance to resource owners about the variety of nonlethal methods that can be used to resolve problems (e.g., animal husbandry practices, guard animals, fencing, frightening) and where it is appropriate for resource owners to resolve the problem themselves.

5) Ensure that methods and techniques for lethal control to handle wildlife damage situations that may be difficult or dangerous for the public to use are implemented by professionals who are specially trained in such methods and who provide those services in a legal manner that is protective of human health and the environment.

6) Provide a transparent process for monitoring and documenting wildlife damage management activities to ensure accurate reporting of the types of wildlife damage and number of wildlife species removed by lethal methods, and to help assess the impacts of wildlife damage and associated wildlife damage management activities in Shasta County.

7) Provide wildlife damage management at similar funding levels and ensure that Shasta County funds for wildlife damage management are used in a fiscally sound manner.

8) Ensure that processes remain in place for the protection of public safety.

Feasibility

CEQA Guidelines Section 15126.6(f)(1) states that "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, jurisdictional boundaries, and whether the proponent can reasonably acquire, control or otherwise have access to alternative sites."

The factors suggested in the CEQA Guidelines are typically associated with development projects and are not intended to be all-encompassing nor to narrow how feasibility should be addressed. In terms of the CSA, feasibility is considered in the context of Shasta County's authority and discretion to decide whether the County should have a CSA with APHIS-WS for IWDM services and how County funds should be used within the context of regulatory, environmental, and economic considerations, along with practicality and ease of implementation.

Public Safety Considerations in the Alternatives Analysis

The IWDM program services provided by APHIS-WS in Shasta County have been and are intended to be primarily for the protection of agricultural resources, as evidenced by the loss/damage values shown in Table 2.0-2 (Shasta County Confirmed Wildlife Damages Summary 2007-2018) in Section 2.0, Project Background. However, an important element of wildlife damage management is also addressing human-wildlife conflicts, particularly those that cause human injury or are fatal (e.g., mountain lion).

An existing process is in place to protect public safety if a mountain lion or coyote attacks a human. This process would be in place regardless of whether there is a CSA with APHIS-WS or the County were to implement a wildlife damage management program on its own. As with the previous CSA, CDFW (the resource agency responsible for managing wildlife in the state) and local law enforcement would provide initial response after an incident has been reported. CDFW and/or local law enforcement would then coordinate with APHIS-WS, which would mobilize field staff to locate the animal and remove it. If there were no CSA and no County-operated program, APHIS-WS staff would still be available to provide assistance to CDFW and/or local law enforcement, but there would be additional administrative actions that would need to occur, and a response to the incident could potentially be delayed because APHIS-WS field staff may not be immediately available. If the County were to operate the program, it would have trained staff who could respond.

As such, wildlife damage management for public safety as it relates to wildlife attacks on humans is inherent in each alternative, and the alternatives analysis does not need to consider a scenario in which there would be no response services for incidents involving wildlife attacks on humans. However, there may be a difference in the availability of wildlife damage management services as related to food safety (e.g., crop or food contamination), which is addressed in the alternatives.

5.2 PROJECT ALTERNATIVES

OVERVIEW

The proposed project is the implementation of IWDM program activities by APHIS-WS in Shasta County through a CSA. The services provided under the CSA, which may include direct controls involving lethal or nonlethal methods for wildlife damage management, are described in Section 3.0, Project Description.

APPROACH TO IDENTIFYING ALTERNATIVES

The decision to be made by the County is whether to provide for implementation of wildlife damage management services by APHIS-WS, which would be accomplished through a CSA and annual work and financial plans. Approval of a CSA and annual work plans is an administrative action and is the proposed project. Therefore, if the County does not approve a CSA with APHIS-WS, this would be the no project alternative. This approach is consistent with CEQA Guidelines Section 15126.6(e).

There are four possible no project scenarios: (1) the County does not enter into a CSA with APHIS-WS and takes no further action to provide wildlife damage management services in the County (No Project/No CSA); (2) the County does not enter into a CSA with APHIS-WS but provides the entire range of services itself (including lethal methods); (3) the County does not enter into a CSA with APHIS-WS and provides the services itself, but would not use lethal methods; and (4) the County does not enter into a CSA with APHIS-WS, but other options would be available to resource owners to reduce losses and that would not involve lethal methods. For ease of reference, the names of Alternatives 2 through 4 reflect the scenario type, without reference to "No Project."

Thus, for each no project alternative, the analysis describes what could be reasonably expected to occur in the foreseeable future and the practical result of non-approval if the County does not have a CSA with APHIS-WS. The County recognizes that this may be perceived as a departure from a typical EIR alternatives analysis that considers only one no project alternative. However, this approach is a function of the nature of the project: to approve or not approve the CSA with APHIS-WS for integrated wildlife damage management services. Recognizing public concern about wildlife damage management practices that involve killing common wildlife species, the analysis also considers two alternatives that would not involve lethal methods to remove target wildlife species.

- **Alternative 1 – No Project/No CSA with APHIS-WS**

  Under the No Project/No CSA alternative, Shasta County would not implement the CSA with APHIS-WS for wildlife damage management services, and consequently APHIS-WS would not provide County-funded technical assistance of any kind (including direct control lethal and/or nonlethal methods) to the County, its residents, or resource owners. The County would not provide any wildlife damage management services.

- **Alternative 2 –Shasta County Provides Wildlife Damage Management Services**

  In Alternative 2, Shasta County would not implement the CSA with APHIS-WS. Instead, the County would provide wildlife damage management services that would have otherwise been provided by APHIS-WS. As with the previous CSA, the funded services would be used for addressing agricultural losses, public health and safety, and property damage, and would include direct control (nonlethal and lethal methods). To implement this alternative, the County would need to have qualified staff and/or enter into subcontracts with qualified professionals to provide the services formerly delivered by APHIS-WS wildlife specialists.

- **Alternative 3 –Shasta County Provides Technical Assistance but No Lethal Control Methods Used**

  In Alternative 3, the County would not implement the CSA with APHIS-WS. The County would offer technical assistance in the form of responding to requests for information

and/or advice via telephone and field visits (including making recommendations to resource owners about nonlethal methods for loss/damage control), informational materials, and educational programs and demonstrations. No lethal control methods would be used for wildlife damage management. To implement this alternative, the County would need to have qualified staff and/or enter into subcontracts with qualified professionals for these services. The funded services would be used to address agricultural losses, public health and safety, and property damage.

- Alternative 4 –Loss Indemnity and/or Cost-Share Reimbursement Program

  In Alternative 4, the County would not implement the CSA with APHIS-WS. This alternative would reimburse resource owners/managers for agricultural or property losses instead of funding services by APHIS-WS or the County for technical assistance. Neither APHIS-WS nor the County would provide advice or guidance, and there would be no use of lethal methods by APHIS-WS or the County.

5.3 ALTERNATIVES REJECTED FROM ANALYSIS OF COMPARATIVE BIOLOGICAL RESOURCES IMPACTS

The County considered additional alternatives, but each were dismissed from detailed evaluation in the Draft EIR for the individual reasons stated for each potential alternative, as allowed under CEQA Guidelines Section 15126.6(f) (Rule of Reason) and specifically Section 15126.6(f)(1) and Section 15126.6(f)(3), which address feasibility and speculation, respectively.

SHASTA COUNTY SHERIFF'S OFFICE

The Shasta County Sheriff's Office Animal Regulations Office handles concerns regarding stray animals, animal cruelty, animal bites, injured or diseased animals, dangerous or vicious dogs, nuisance barking, and kennel inspections. The office does not handle incidents involving wildlife damage. For the Sheriff's Office to provide technical assistance and control services, it would require funding as described in Alternative 2. This alternative was rejected from further analysis in this Draft EIR because it is not feasible and there is no substantial evidence that it would avoid or substantially reduce the project's biological resources impacts because removals of common wildlife target species would still occur to address wildlife damage management issues.

SHASTA COUNTY CSA WITH APHIS-WS TO PROVIDE TECHNICAL ASSISTANCE BUT NO LETHAL CONTROL METHODS USED

The County considered whether it could stipulate in the CSA that APHIS-WS would be prohibited from removing by lethal means any animal the wildlife specialist has identified as causing damage or loss. Under this scenario, APHIS-WS would only provide technical assistance in the form of responding to requests for information and/or advice via telephone and field visits (including making recommendations to resource owners about nonlethal methods for loss/damage control), providing informational materials, and conducting educational programs and demonstrations.

As explained in Section 2.0, Project Background, APHIS-WS is authorized by the federal government to perform wildlife damage management services under CSAs. APHIS-WS activities are a combination of technical assistance and direct controls that are determined on a case-by-case basis by the wildlife specialist(s) using the APHIS-WS decision model. While wildlife specialists may recommend nonlethal controls to resource owners, the current federal program does not allow federal funds to be used in a cost-share program to provide materials (e.g., fencing or fladry)

or resources (e.g., guard animals) directly to private resource owners for use by and for the benefit of private resource owners.

This alternative was rejected from further analysis in the Draft EIR for several reasons. First, as part of the federal authorization, APHIS-WS is required to document, report, and monitor its wildlife damage management activities. Under a nonlethal methods scenario, while APHIS-WS may recommend specific nonlethal controls, it would not be able to verify whether the recommended types of nonlethal methods were used or monitor their effectiveness. As a result, if the County limited APHIS-WS's scope of services to technical assistance only, APHIS-WS would not be able to fulfill its reporting obligations under federal law. Second, the current federal program does not allow federal funds to be used to provide materials for nonlethal controls directly to private resource owners. Third, the decision whether to use new or additional nonlethal methods would be at the discretion of the resource owner, not APHIS-WS, and there are no regulations that require resource owners to report on and monitor the effectiveness of nonlethal methods used. Fourth, absent lethal controls implemented by APHIS-WS, some residents and property owners would likely independently pursue other measures to reduce losses, some of which might involve lethal methods, and potentially without regard to humaneness or potential effects on species other than the target species. There would be no reporting mechanism for lethal removals, so the type and number of species removed would be unknown. As such, the ability of this alternative to reduce the less than significant impacts of the project cannot be ascertained.

SHASTA COUNTY CSA WITH APHIS-WS BUT NO BIRDS REMOVED BY LETHAL METHODS

The proposed project would result in removals of blackbirds and other avian species protected under the MBTA. It would not result in the removal of tri-colored blackbird, a state-listed species, because no lethal methods are used in mixed flocks where tri-colored blackbird may be present. No significant impacts on listed or migratory bird species were identified. As explained in Section 4.1, Biological Resources, many more blackbird species were dispersed than removed. However, because blackbird removals (particularly red-winged) comprise a substantial amount of avian take in response to crop damage, the County considered an alternative in which it could include a provision in the CSA with APHIS-WS that no birds confirmed to have caused crop damage would be removed by lethal methods, but nonlethal methods could still be used, as has occurred historically. The County determined this is not a feasible alternative that should be evaluated in detail. First, this Draft EIR evaluates three alternatives that would not involve lethal methods (Alternatives 1, 3, and 4), which would address bird removals. Second, the damage caused by birds is to the County's wild rice industry (Table 2.0-2), which has been the leading field crop commodity in terms of dollar value in the County for many years. Absent some level of lethal removals, the County determined this alternative would likely have adverse effects on the County's economy. Third, no significant impacts requiring mitigation were identified. As such, this alternative was rejected from further analysis in the Draft EIR.

5.4 COMPARATIVE ANALYSES OF ALTERNATIVES EVALUATED IN THE EIR

INTRODUCTION

As described in the Environmental Setting in Section 4.1, Biological Resources, APHIS-WS activities in Shasta County have resulted in the removal of several common wildlife species by lethal methods, which are listed in Table 4.1-3. These species were removed because APHIS-WS wildlife specialists determined they were responsible for verified damage or were a public health and safety concern. Table 2.0-2 summarizes which species were responsible for each kind of damage. It is reasonable to assume that with or without the proposed project, there will continue to be wildlife damage of some kind in Shasta County, and that some resource or property owners would

implement nonlethal control methods and/or seek to reduce losses by removing the responsible animal by lethal means. As a result, some loss of common wildlife species that have historically caused the most damage and/or resulted in the most requests for assistance (e.g., muskrats, bears, coyote) in the County will continue to occur beyond what would be expected due to natural mortality. For mountain lion, legal take would be limited to depredation permits where damage has occurred.

ALTERNATIVE 1: NO PROJECT/NO CSA WITH APHIS-WS

Overview

Under this alternative, there would not be a CSA with APHIS-WS, nor would the County provide wildlife damage management assistance.

Comparative Analysis of Biological Resources Impacts

Under the No Project/No CSA alternative, the services provided by APHIS-WS (e.g., investigating and responding to requests for assistance; recommending nonlethal control methods to resource owners to resolve problems, where it is appropriate for resource owners to resolve the problem themselves) would not occur, and the County would also not provide such services. Resource owners could, however, seek assistance from other sources and implement direct controls, which could include nonlethal and lethal removals. The potential effect on species populations absent a process for reporting damage and resultant removals cannot be ascertained based on available information and would be speculative at best.

Compared to the proposed project, this alternative has the potential to result in additional take of certain target species by other individuals or other entities; it is unknown whether additional take of other species could occur that would be more or less than that of the proposed project. Therefore, there is no substantial evidence that this alternative would avoid or substantially reduce the less than significant biological resources impacts of the proposed project.

If there were not a CSA, there would still be a limited amount of take. APHIS-WS would continue to perform some work in the County by assisting CDFW, which responds to incidents reported directly to CDFW involving black bear, bobcat, and mountain lion damage. For species such as mountain lion, a permit would be required from CDFW to legally take one of these animals. A depredation permit for mountain lion requires that CDFW verify the loss before issuing it to the requestor, which substantially limits how many mountain lions may legally be killed by a private party. Historically, under the APHIS-WS program, approximately six mountain lions were taken per year over the 20-year baseline period (Table C-8). For black bear, five black bears were taken with a depredation permit, on average, over the last 20 years (Table C-4).Bobcat may now only be taken with a depredation permit. Based on historic take data, the number of bobcat removals would be expected to remain small (Table C-5).

This Draft EIR is not required to speculate to what extent illegal common wildlife species take by private parties—absent the APHIS-WS IWDM program or a County-run program in Shasta County—might have on species populations. Such activities could also include illegal take of listed species.

In the case of coyote, it is a nongame species that can be taken for any reason and without approval from CDFW, with the exception of a commercial trapping permit. As such, the potential number of removals that could occur if private parties do not request assistance or if they decide to kill coyotes is unknown. In addition, while APHIS-WS wildlife specialists target an individual coyote because it has been confirmed as the animal causing a loss, a private party may not apply the

same criteria, so more coyotes than the one(s) causing damage could be killed. Therefore, it is not possible to develop an estimate of coyote removals and whether those would be substantially more or less than what would be expected to occur based on historical data.

Ability to Achieve Project Objectives

The No Project/No CSA alternative would not achieve project objectives 1 through 7. A process would still be in place to protect public safety if there were a reported wildlife attack on a human, but protection of public safety in the food production industry (e.g., APHIS-WS activities to investigate and manage crop contamination resulting from wildlife) may not be readily available. As such, the No Project/No CSA alternative would only partially meet objective 8.

Feasibility

The No Project/No CSA alternative is feasible because the decision whether to have a CSA with APHIS-WS for IWDM services is at the discretion of the County. However, as noted above, it would not achieve any of the project objectives.

ALTERNATIVE 2: SHASTA COUNTY PROVIDES WILDLIFE DAMAGE MANAGEMENT SERVICES

Overview

Under this alternative, Shasta County would not have a CSA with APHIS-WS and would, instead, perform the technical assistance functions APHIS-WS would have performed using County staff and/or subcontractors. For purposes of the analysis, this alternative is assumed to be identical to the proposed project in terms of its scope of activities, as described in Section 3.0, Project Description. The County would provide wildlife damage management services for the protection of agricultural resources, public health and safety, and property, and such activities could result in the removal of target wildlife species by lethal methods.

Comparative Analysis of Biological Resources Impacts

This alternative would result in the removal of target species. Therefore, the less than significant biological resources impacts would generally be the same as those identified in Impacts 4.1.1, 4.1.2, 4.1.4, and 4.1.7, and this alternative would not avoid or substantially reduce any of the proposed project's less than significant impacts.

Ability to Achieve Project Objectives

Alternative 2 would meet most of the project objectives because it would provide a mechanism for residents and resource owners in the County to obtain assistance for wildlife damage management that would be applied in accordance with applicable laws and regulations. It would implement an integrated approach to wildlife damage management in a responsible and accountable manner, and would provide information and data about how to help the County assess the impacts of wildlife damage and associated wildlife damage management activities in the County, which would be available to the public and decision-makers as well as the state's wildlife resource agency (CDFW) and USDA APHIS-WS. It would also be consistent with objective 8. As discussed below, however, this alternative may not be economically feasible for the County to implement, so it would not achieve objective 7.

Feasibility

The number of hours and the County's cost share of funds needed to implement this alternative is based on the services provided by trained and highly experienced wildlife specialists whose services are guided by the WS Policy Manual and Directives. The Board of Supervisors historically approved a certain level of funding for the cost-share program. The County does not have staff with similar qualifications as APHIS-WS wildlife specialists and their supervisors. For the County to assume responsibility for wildlife damage management, it would either have to hire qualified specialists who already have the appropriate training and experience, train its own staff, or subcontract the work to similarly qualified persons. The level of expertise provided by APHIS-WS is necessary to ensure that control methods are biologically sound, environmentally safe, and legal. A private or commercial trapper or hunter would not have this expertise. Although there are private companies who provide wildlife rescue and control services, these companies' services are generally limited to animals such as raccoon and opossum, rodents, reptiles, and other small animals around homes in urban environments.

The County also does not have the vehicles (e.g., ATVs), equipment, and materials that are available to APHIS-WS personnel and therefore would need to acquire them. APHIS-WS also maintains an extensive database (its Management Information System) for its services, which is necessary to document wildlife damage and implemented controls, and which is used by other USDA programs as well as CDFW. However, the County would not have access to this database, so it would likely need to develop its own. This administrative-type function along with others would require staff in addition to wildlife specialists and technical supervisors. While the Shasta County Department of Agriculture collaborates closely with the UC Cooperative Extension to provide general information and resources about integrated pest management, neither has staff who specialize in evaluating wildlife damage situations and recommending possible nonlethal control strategies to residents and resource owners.

If the County were to train existing staff or new hires, there would be additional costs associated with training and supervision. Additional staff would also be needed to perform administrative functions. The County would need to acquire vehicles, equipment, and materials. There would be an initial period of training and startup during which no services would be available. On a cost-per-hour basis, the County would not be able to provide the same level of service as APHIS-WS. In addition, there would not be a cost-share agreement, so the entire cost would have to be funded by the County. As an example, under the annual work and financial plan for fiscal year 2018-19, the County's cost-share portion for APHIS-WS services was $125,404 (USDA 2018). By comparison, the approved 2019-20 budget for a Placer County-operated integrated wildlife damage program that provides technical assistance and direct controls similar to APHIS-WS is $543,393 (Placer County 2019: 137).[1]

Given the additional funding that would be needed to hire and train new personnel and acquire vehicles, equipment, and materials, along with having to fully fund the cost of services rather than a cost-share, this alternative is deemed infeasible because the County would not be able to provide the same level of expertise and scope of services as APHIS-WS without burdening the County with additional costs. Moreover, as explained above, the biological resources impacts

[1] Placer County's program includes technical assistance for behavior modification, use of repellents, exclusion, and habitat modification (nonlethal controls). Personnel primarily trap problem skunks, raccoons, and opossums in and around the urban areas as well as in rural areas, but they also respond to depredation calls involving the loss of livestock and pets from predators like coyotes, mountain lions, and bears. Lethal controls are used where necessary. The job description for wildlife specialist indicates supervision is provided by the Agricultural Commissioner's Office and functional supervision from the APHIS-WS district supervisor. (Placer County 2017).

would be identical to the project. Beyond its practical and economic infeasibility, it is also considered infeasible because it would not avoid or substantially reduce any of the less than significant biological resources impacts.

ALTERNATIVE 3: SHASTA COUNTY PROVIDES TECHNICAL ASSISTANCE BUT NO LETHAL CONTROL METHODS USED

Overview

In Alternative 3, there would not be a CSA with APHIS-WS, and the County would, instead, provide professional technical assistance, which would include responding to requests for information and/or advice via telephone and field visits (including making recommendations to resource owners about nonlethal methods for loss/damage control), providing informational materials, and conducting educational programs and demonstrations. The County would not perform any services that would result in the removal by lethal methods of an animal causing damage.

As part of the technical assistance, the County would make recommendations to resource owners about the variety of nonlethal methods that can be used to resolve problems and where it is appropriate for resource owners to resolve the problem themselves.

Those methods, which are described in "Integrated Wildlife Damage Management Methods" in Appendix B, include resource management (e.g., animal husbandry practices, guard animals, lure crops), physical exclusion (e.g., fences and pens) deterrents (e.g., frightening devices and harassment), and modifying human behavior (e.g., not feeding wildlife). While the County would recommend types of nonlethal controls, County funds would not be used to help resource owners implement the methods. Further, the decision as to which specific nonlethal method to use (or whether to use a nonlethal method) would be at the discretion of the resource owner.

Comparative Analysis of Biological Resources Impacts

If no lethal methods are used by the County in its own program, then there would be no target wildlife species removed by lethal methods compared to those removed by APHIS-WS under the proposed project. This would reduce the magnitude of the less than significant impacts identified in Impacts 4.1.1, 4.1.2, 4.1.4, and 4.1.7 because the County would not be contributing to the removals and associated species population impacts.

However, agricultural resource and property damage would still occur. Therefore, it is reasonable to assume resource owners would likely seek assistance elsewhere or implement direct controls themselves. This could include lethal removals, potentially without regard to humaneness or potential effects on species other than target species, and it would not require reporting (other than for species requiring depredation permits). It is unknown whether additional take of target or other species could occur that would be more or less than that of the proposed project because the actions of private parties cannot be predicted with any certainty. The potential effect on species populations absent a process for reporting damage and resultant removals cannot be ascertained based on available information and would be speculative at best. Therefore, there is no substantial evidence that this alternative would avoid or substantially reduce the less than significant biological resources impacts of the proposed project.

Ability to Achieve Project Objectives

IWDM encompasses three basic strategies: manage the resource, manage the wildlife species, or physically separate the two so that the damage is minimized. Alternative 3 would generally

achieve the intent of project objectives 1, 2, and 4 because it would provide a mechanism for residents and resource owners in the County to obtain professional assistance for wildlife damage management, and it could facilitate gathering some information and data about the use of nonlethal methods, which would be available to the public and decision-makers as well as the state's wildlife resource agency (CDFW) and APHIS-WS. Objective 7 could be met because it would involve fewer personnel hours than the fully funded alternative (Alternative 2) and minimal equipment, so it would be expected that costs would be less. As described above, an existing process is in place to protect public safety in the event of wildlife attack on a human. However, it is unknown whether this alternative could achieve objective 8 in the context of food safety.

Under this alternative, it is assumed resource owners would use nonlethal controls for wildlife damage management, based on their own experience or with guidance from the County. However, resource owners would not be required to report on the types or effectiveness of nonlethal controls, unless the County establishes a process as part of its technical assistance program for them to do so. Absent such information, it is unknown what nonlethal measures resource owners might use. There is also the possibility that resource owners would decide to use lethal controls on their own or hire private parties to remove animals. Resource owners would be required to obtain depredation permits from CDFW for beaver, bobcat, and mountain lion, but it is unknown what other species, and in what numbers, would be removed because no reporting would be done. This alternative also has the potential to result in inadvertent take of a protected species, which may be illegal, or methods used by individuals not familiar with or having no expertise in lethal methods. This would not achieve the intent of objective 5.

Resource owners could implement nonlethal controls to manage their resources, but the ability to successfully manage the wildlife species responsible for damage may or may not be successful. For example, better animal husbandry and exclusion practices might help reduce damage in one location, but predators (such as opportunistic coyotes) would likely seek easier prey elsewhere. In other words, the problem is not remedied; it is just relocated. In that regard, this alternative would not fully achieve IWDM. As such, objective 3 would only partially be met.

Feasibility

This alternative may be feasible economically and relatively easy to implement because it would be similar in scope to integrated pest management assistance provided by the County. Similar to Alternative 2, the County would likely have to train or hire additional staff to provide technical assistance services specific to the types of wildlife damage situations beyond those typically encountered in integrated pest management. As described for Alternative 2, there would be no CSA with APHIS-WS, so the County would be responsible for funding services in their entirety. However, with technical assistance only, this may result in fewer staff hours and reduced expenses, which could offset the difference.

Other Considerations

Under this alternative, County-funded professionals would be able to provide recommendations about nonlethal controls. However, the decision whether to use new or additional nonlethal methods would be at the discretion of the resource owner, not the County. There are no regulations that require resource owners to monitor the effectiveness of nonlethal controls and report their observations. As such, it cannot be ascertained whether controls would actually deter wildlife species to levels where a particular species would no longer pose a problem that ultimately would result in the animal's removal by lethal means. It is unknown whether additional take of target or other species could occur that would be more or less than that of the proposed project because the actions of private parties cannot be predicted with any certainty.

Efficacy of Nonlethal Methods for Wildlife Damage Management of Predators

Most of the confirmed damage in the County is related to crops, apiary, and aquaculture, with birds and bears causing most of the damage (see Table 2.0-2 in Section 2.0, Project Background). However, there are some livestock losses due to predation, primarily by mountain lion and to a lesser extent by coyote, although the losses due to predation represent only approximately 12 percent of the total losses.

An ongoing topic in the scientific community and debated by decision makers and the public is whether lethal methods of predator control should be used at all due to the availability of effective nonlethal techniques. The County is aware of numerous studies evaluating the usefulness and potential benefits of nonlethal methods that may help minimize and sometimes reduce predation on livestock. These studies, which have been ongoing for decades, include: Bergstrom (2017); Conner et al. (1998); Davidson-Nelson and Gehring (2010); Defenders of Wildlife (2012); Knowlton, Gese, and Jaeger (1999); Lance et al. (2010); Musiani et al. (2003); NRDC (2012); Project Coyote (n.d.); Rashford, Grant, and Strauch (2008); Shivik, Treves, and Callahan (2003); Shwiff et al. (2006); Stone et al. (2017); Treves and Karanth (2003); Wallach, Ramp, and O'Neill (2017); and Warnert (2015). Methods and results have varied among the studies. A common opinion expressed by some authors and the public who advocate the use of nonlethal methods is that lethal methods are ineffective in protecting livestock from predation. Studies in support of that opinion include Dranheim (2017); Harper et al. (2008); Musiani et al. (2003); Treves, Krofel, and McManus (2016); van Eeden et al. (2018); and Wielgus and Peebles (2014).

Successful use of nonlethal methods in minimizing or reducing losses would be the result of a combination of many site-specific variables, which cannot be predicted with any accuracy, based on available information. Most studies cited by advocates of nonlethal methods were controlled studies (e.g., penned animals and a single predator of interest). A strategy that works in one location may not be suitable for another. The County is not aware of any published, peer-reviewed scientific studies specific to Shasta County regarding the efficacy of nonlethal control methods for livestock protection. Given the number of variables, it would be speculative to draw any conclusion whether the exclusive use of nonlethal methods would, in fact, result in fewer predators being removed than by lethal methods.

ALTERNATIVE 4: LOSS INDEMNITY AND/OR COST-SHARE REIMBURSEMENT PROGRAM

Overview

This alternative would reimburse resource owners/managers for agricultural or property losses instead of funding services by APHIS-WS or the County for technical assistance. Neither APHIS-WS nor the County would provide advice or guidance, and there would be no use of lethal methods by APHIS-WS or the County to remove common wildlife species. The focus of this approach is generally limited to agricultural losses such as livestock.

An example of a loss indemnity approach is the USDA's Farm Service Agency's Livestock Indemnity Program, in which livestock producers may be compensated 75 percent of the average fair market value for losses in excess of normal mortality caused by adverse weather, eligible disease, or attacks by eligible animals. This federal program does not address public health and safety or property damage. Benefits are provided if the Farm Service Agency determines the loss is eligible for reimbursement. Under the federal program, an eligible attack means an attack by animals reintroduced into the wild by the federal government or protected by federal law, including wolves and avian predators, which directly results in the death of eligible livestock in excess of normal mortality (USDA 2019e). Livestock Indemnity Program payments in California for the period

1995-2018 totaled $34.4 million, with nearly $26 million of that in one year (2007). No payments were made to producers in Shasta County during that period (EWG 2019).

Only one county in California (Marin County) has attempted an indemnity program unrelated to the federal program, and it was used in conjunction with a cost-share program until there was decline in interest in the program and funding was reduced (Larson, McGranahan, and Timm 2019).[2] In Marin County, the County determined which producers would be eligible for the program and entered into a cost-share agreement with them. County staff was responsible for assessing the need through field visits; periodic inspections to verify that only methods approved by the County were being used; ensuring that producers were correctly monitoring and reporting the effectiveness of the controls; and enforcement in the event that cost-share terms were not being followed. Other considerations for this alternative are practicality and cost/benefit. While there was some success with a cost-share reimbursement program in Marin County, its viability in Shasta County would be less certain. This is primarily because livestock production in the two counties differs in terms of the numbers of head of livestock and how livestock is managed.

There is no similar indemnity program administered by Shasta County for use within the County. A number of factors could affect the efficacy of such a program, were one to be developed. It would require personnel to investigate and validate all losses and to determine and administer appropriate compensation, which would require funding. Depending on staffing and funding, it may not be possible to assess and confirm losses in a timely manner for all requests, and as a result some losses may not be verified and would not be compensated. Similar to the federal program, compensation would most likely be below full market value. An indemnification approach has the potential to be a disincentive to livestock and property owners to limit damages through the use of nonlethal controls such as improving animal husbandry practices, use of exclusion fencing, and guard animals.

Comparative Analysis of Biological Resources Impacts

If no lethal methods are used, then there would be no target wildlife species removed by lethal methods compared to those removed by APHIS-WS under the proposed project. This would reduce the magnitude of the less than significant impacts identified in Impacts 4.1.1, 4.1.2, 4.1.4, and 4.1.7, because APHIS-WS would not be contributing to the removals and associated species population impacts.

However, agricultural resource and property damage would still occur. Therefore, it is reasonable to assume resource owners would likely seek assistance elsewhere or implement direct controls themselves. This could include lethal removals, potentially without regard to humaneness or potential effects on species other than target species, and it would not require reporting (other than for species requiring depredation permits). It is unknown whether additional take of target or other species could occur that would be more or less than that of the proposed project because the actions of private parties cannot be predicted with any certainty. The potential effect on species populations absent a process for reporting damage and resultant removals cannot be ascertained based on available information and would be speculative at best. Therefore, there is no substantial evidence that this alternative would avoid or substantially reduce the less than significant biological resources impacts of the proposed project.

[2] The program in Marin County was limited to livestock losses due to sheep predation. It did not address crop or property loss.

Ability to Achieve Project Objectives

As explained in Alternative 3, IWDM encompasses three basic strategies: manage the resource, manage the wildlife species, or physically separate the two so that the damage is minimized. Resource owners could implement nonlethal controls to manage their resources, which could reduce reimbursable damages, but the ability to successfully manage the wildlife species responsible for damage may or may not be successful. Although this alternative would provide a mechanism for reimbursement of losses, this alternative would not achieve objectives 1 through 7 because it would not implement any IWDM strategies. As described above, an existing process is in place to protect public safety in the event of wildlife attack on a human (objective 8). However, it is unknown whether this alternative could achieve objective 8 in the context of food safety (e.g., crop contamination by birds).

Feasibility

Similar to Alternative 3, the County would likely have to train or hire additional staff to assess wildlife damage situations beyond those typically encountered in integrated pest management. However, there are also several constraints. For this type of program to be developed, it would require personnel to perform site visits to ensure nonlethal controls are in place, investigate and validate all losses, and determine and administer appropriate compensation, which would require funding. Depending on staffing and funding, it may not be possible to assess and confirm losses in a timely manner for all requests, and as a result some losses may not be verified and would not be compensated. Reimbursement funding levels would have to be determined by the Board of Supervisors and would be based on numerous factors, the analysis of which is beyond the scope of this EIR.

5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 5.0-1 summarizes the results of the comparative analysis of alternatives, based on the evaluation presented above. The project would not result in any significant impacts for which alternatives that would avoid or substantially reduce impacts are required under CEQA. The No Project/No CSA with APHIS-WS alternative would not be environmentally superior because there is no substantial evidence it would avoid or substantially reduce impacts on common wildlife species populations, and it would not achieve any of the project objectives. Because the No Project/No CSA with APHIS-WS is not the environmentally superior alternative, identification of an alternate environmentally superior alternative as directed under CEQA Guidelines Section 15126.6(e)(2) is not required.

TABLE 5.0-1: COMPARISON OF ENVIRONMENTAL IMPACTS OF ALTERNATIVES

Impacts	Comparison				
	Proposed Project (CSA with APHIS-WS)	Alternative 1 (No Project/No CSA)	Alternative 2 (County IWDM Program)	Alternative 3 (County Nonlethal Only)	Alternative 4 (Loss Indemnity and/or Cost Reimbursement)
4.1.1 Wildlife Populations	Less than significant	*Reduced impact**	Same impact	*Reduced impact**	*Reduced impact**
4.1.2 Special-Status and Protected Species and Habitat	Less than significant	*Reduced impact**	Same impact	*Reduced impact**	*Reduced impact**
4.1.3 Wetlands	No impact	No impact	No impact	No impact	No impact
4.1.4 Wildlife Corridors	Less than significant	*Reduced impact**	Same impact	*Reduced impact**	*Reduced impact**
4.1.5 Policies	No impact	No impact	No impact	No impact	No impact
4.1.6 Conservation Plans	No impact	No impact	No impact	No impact	No impact
4.1.7 Cumulative	Less than cumulatively considerable	*Reduced impact**	Same impact	*Reduced impact**	*Reduced impact**
Ability to Achieve Objectives?					
	Yes	No	Yes, partially	Yes, partially	No
Feasible?					
	Yes	Yes	No	Yes, with limitations	No

Notes:

** Impact is reduced only in absolute terms with regard to quantification of potential impacts on species populations directly affected by APHIS-WS or the County's activities. As stated in the comparative analyses, it is unknown how many animals would be killed by private parties for wildlife damage control if there is no program or if only nonlethal controls are used.*

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6.0 OTHER CEQA TOPICS

6.1 INTRODUCTION

This section evaluates growth inducement, in accordance with CEQA Guidelines Sections 15126.2(b) through 15126.2(d).

CEQA Guidelines (Section 15130) requires an analysis of cumulative impacts of a proposed project. The cumulative impact analysis is presented in Impact 4.1.7 in Section 4.1, Biological Resources.

As provided by CEQA Guidelines Section 15127, an evaluation of significant irreversible environmental changes (CEQA Guidelines Section 15126.2[c]) is not required. The analysis in Section 4.1, Biological Resources, provides substantial evidence that the project would not result in any significant impacts that cannot be mitigated. As such, no further analysis or description is required (CEQA Guidelines Section 15126.2[a][b]).

6.2 GROWTH-INDUCING IMPACTS

CEQA Guidelines Section 15126.2(d) requires that an EIR evaluate the growth-inducing impacts of a proposed project, and that the analysis should consider:

> *…the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth … Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also … the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.*

The proposed project is limited to wildlife damage management activities. This would not induce population growth in the County or in surrounding areas, because it would not include the construction of new residential or nonresidential development. The project does not include development activities that would result in or encourage the extension of paved roadways or public service/utility infrastructure into an undeveloped area and thus indirectly encourage population and housing growth. Further, a substantial number of new jobs is not anticipated because the number of APHIS-WS personnel would not increase compared to historical staffing levels provided by the annual work plans. Therefore, the project would not induce substantial growth in the County.

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7.0 REFERENCES

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