RESOLUTION NO. [redacted] 2025-9029

A RESOLUTION OF PLUMAS COUNTY ADOPTING CERTAIN FINDINGS CONCERNING IMPACTS AND MITIGATION MEASURES, IN ACCORDANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT FOR THE WILDLIFE DAMAGE MANAGEMENT PLAN FOR WHICH AN ENVIRONMENTAL IMPACT REPORT HAS BEEN PREPARED.

WHEREAS, the California Environmental Quality Act (CEQA) requires that in connection with the approval of a project for which an EIR identifies one or more significant environmental effects, the decision-making agency must make certain findings regarding those effects and;

WHEREAS, the Board of Supervisors is the decision-making body for Plumas County, and;

WHEREAS, the Board of Supervisors understands and acknowledges that Wildlife Services (WS-California), a state office within the U.S. Department of Agriculture's (USDA's) Animal and Plant Health Inspection Service (APHIS), and the California Department of Food and Agriculture (CDFA) entered into a memorandum of understanding (MOU) to develop a joint environmental review of both agencies' roles in WDM (Wildlife Damage Management) in California. WS-California and the CDFA cooperated as joint lead agencies to prepare this environmental impact report (EIR) and environmental impact statement (EIS) evaluating current and proposed WDM activities and potential alternatives for both agencies' involvement in managing wildlife damage and conflict in California; and

WHEREAS, the Board of Supervisors understands and acknowledges that the EIR portion of the document was prepared to comply with the California Environmental Quality Act (CEQA) and the EIS was prepared to comply with the National Environmental Policy Act (NEPA), and;

WHEREAS, CEQA requires that an EIR identify the project sponsor's objectives, which are similar to the purpose required by NEPA (14 CCR 15124 [b]). The objectives provide benchmarks for selecting a reasonable range of alternatives for analysis, as required by CEQA. The objectives also aid decision makers in selecting a course of action and in preparing findings at the end of the CEQA process; and

WHEREAS, CEQA provides public agencies the opportunity to streamline the environmental review of later activities that implement a broader program for which a Program EIR has been prepared. In general, agencies are authorized to approve later activities that are "within the scope" of a Program EIR without preparing additional environmental documents so long as certain requirements are satisfied (CEQA Guidelines Sections 15168[c][2], 15162). All California counties (the Counties), despite their current WDM approach, could elect to rely on the WDM EIR to facilitate any future decisions regarding WDM activities; and

WHEREAS, the Counties have a unique system of County Agricultural Commissioners, and the California Legislature has specified that where the CDFA and County Agricultural Commissioners have joint responsibilities, WDM is performed at a county level by the Counties respective Agricultural Commissioners while the CDFA primarily serves in an oversight and support capacity by providing data and issuing recommendations and policies;, and

WHEREAS, Plumas County and its Agricultural Commissioner has reviewed the WDM EIR (attached as Exhibit A) and understands the project description, impact assessments, and mitigation measures adopted by the CDFA in the certified WDM EIR and its mitigation monitoring plan and Plumas County (with CDFA guidance) has reviewed Plumas County's proposed WDM activities for consistency with the WDM EIR as reflected in the "Environmental Checklist for California Counties Wildlife Damage Management Programs" ("Checklist") (attached as Exhibit B); and

WHEREAS, the Board of Supervisors intends to adopt and approve the proposed WDM PLAN in order to manage and control animals in Plumas County pursuant to Appendix C: WDM methods (Attached as Exhibit C) and contract with the Animal and Plant Health Inspection Service (APHIS) for Wildlife Management services, and;

WHEREAS, all of Plumas County and CDFA proposed WDM activities will be consistent with the WDM EIR and none of CEQA's provisions requiring additional environmental review apply, no additional CEQA documentation would be required. The County will incorporate applicable mitigation measures (attached as Exhibit D) and policies into its individual WDM program; and

WHEREAS, the Board of Supervisors understands and acknowledges that a scoping process was undertaken in preparing this EIR Activities which included soliciting agency, organization, and public input to develop a complete draft purpose and need statement; identifying a preliminary range of alternatives; and discussing potentially significant environmental issues. As described in the report, the scoping period began on September 10, 2020, and ended on November 10, 2020; and

WHEREAS, pursuant to CEQA (14 CCR 15082), a Notice of Preparation for the EIR was submitted to the State Clearinghouse (SCH No. 2020099012), a division of the Governor's Office of Planning and Research that coordinates the state-level review of CEQA documents. The Notice of Preparation was distributed on September 10, 2020, to responsible, federal, and trustee agencies, Native American tribal representatives, representatives of interest groups and associations, and individual members of the public. The Notice of Preparation announced the intent of the CDFA to prepare an EIR/EIS for the CDFA's proposed Program and included a list of the potential environmental issues to be analyzed in the EIR/EIS; and

WHEREAS, the County has reviewed a "reasonable range of alternatives" as identified and described in the EIR; and

WHEREAS, the Board of Supervisors acknowledges and agrees with the CDFA in their identification of the following objectives for the proposed Program:

- Generally align with the historic (i.e., pre-2003) CDFA program objectives.
- Accomplish the following additional WDM Program objectives: Inform the implementation of WDM activities conducted by state and local agencies throughout California.
- Provide rapid response to high-risk wildlife damage scenarios in order to prevent harm to agricultural resources and property, human health and safety, and natural resources.
- Support the development and implementation of measures to avoid, minimize, and mitigate unintended impacts to California's important natural resources from WDM materials and technologies.
- Build upon existing resources, including WS-California's data reporting system, to develop a statewide information management, reporting, and data sharing system for wildlife damage incidents and management activities that will allow a robust evaluation of management activities to support an integrated and adaptive WDM approach.
- Establish an administrative mechanism for California Counties (Counties) that wish to participate in a statewide WDM Program to streamline their environmental compliance; and

WHEREAS, the Board of Supervisors is the decision-making body for Plumas County.

NOW THEREFORE, BE IT RESOLVED by the Plumas County Board of Supervisors as follows:

1. The Board of Supervisors does hereby declare that the EIR has been presented to it, that Plumas County has independently reviewed and analyzed the EIR and other information in the record, and has considered the information contained therein, prior to acting upon or approving the Project, and has found that the EIR represents the independent judgment and analysis of the CDFA as Lead Agency for the Project, and designates the Agricultural Commissioner/ Sealer of Weights and Measures, as the custodian of documents and records of proceedings on which this decision is based.
2. On June 17, 2025, the Board of Supervisors certifies the EIR/EIS as having been completed in compliance with the requirements of the California Environmental Quality Act of 1970 ("CEQA") and NEPA.
3. The County and their proposed WDM activities are consistent with the WDM EIR and none of CEQA's provisions requiring additional environmental review apply, no additional CEQA documentation is required.
4. The Board of Supervisors does hereby adopt the California Wildlife Damage Management Project in its entirety put forth by the State document labelled California Wildlife Damage

and related appendices and stored in its entirety at https://ceqanet.lci.ca.gov/Search/serp?q=2020099012.

5. The Board of Supervisors directs the Agriculture Commissioner to contact CDFA and/or APHIS to negotiate a contract to provide Wildlife Damage Management services to Plumas County consistent with the WDM EIR.

The foregoing resolution was duly passed and adopted by the Board of Supervisors of the County of Plumas, State of California, at a regular meeting of said Board held on the 17th day of June 2025, by the following vote:

AYES: Supervisors: Ceresola, McGowan, Goss, Hall, Engel

NOES: Supervisors:

ABSTAIN: Supervisors:

Chair, Board of Supervisors

ATTEST:

Clerk of the Board of Supervisors

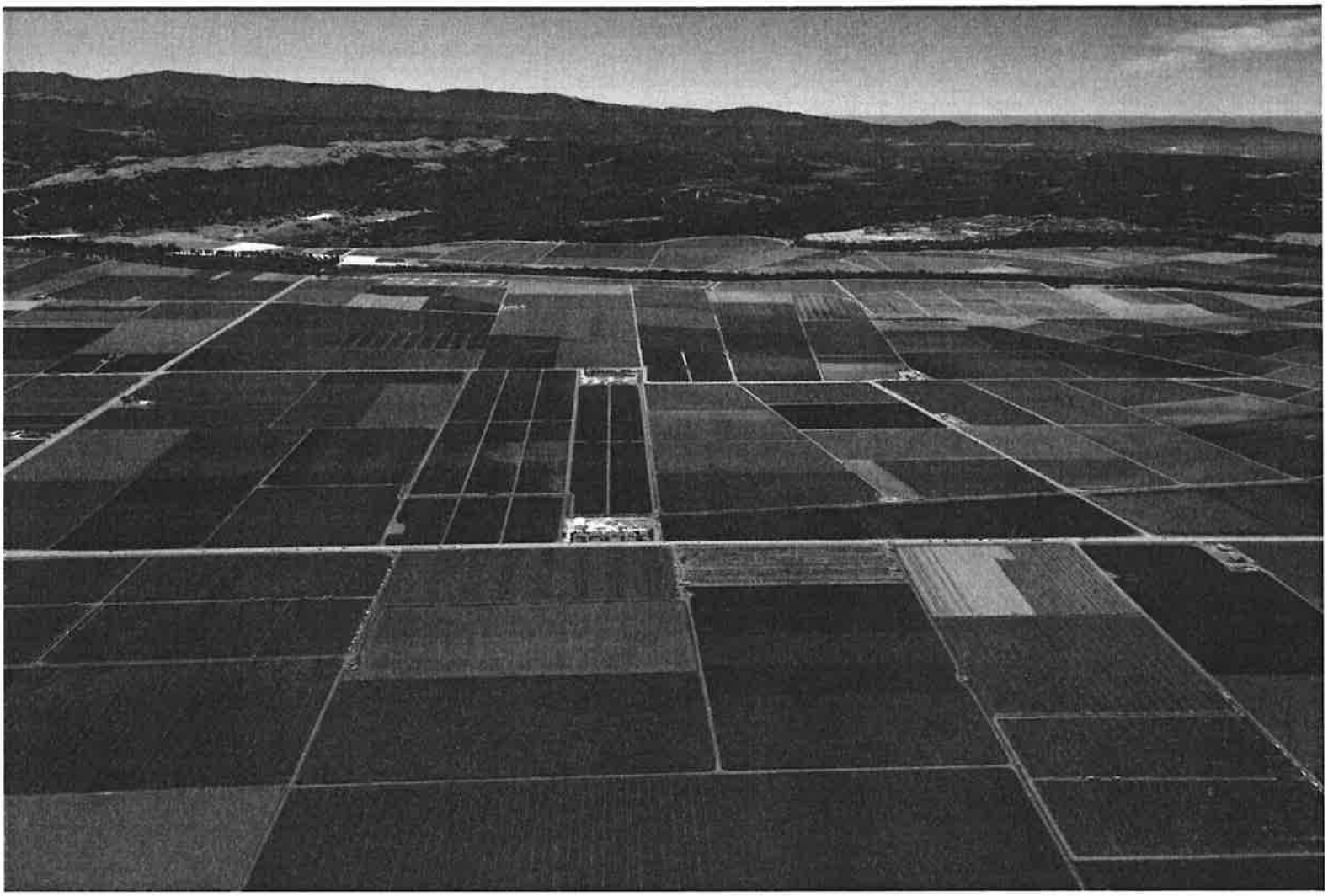
Approved as to form:

Joshua Brechtel, Attorney
County Counsel's Office

FINAL May 2024

Environmental Impact Report/Environmental Impact Statement for the

CALIFORNIA WILDLIFE DAMAGE MANAGEMENT PROJECT



Prepared for:

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FINAL

Environmental Impact Report/ Environmental Impact Statement

California Wildlife Damage Management

MAY 2024

Prepared for:

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Executive Summary

Wildlife provides many benefits, including ecological, cultural, aesthetic, and economic. However, they also may be involved in conflicts with humans by preying upon livestock, damaging agricultural resources and property, and threatening human and companion animal health and safety. Wildlife damage management (WDM) in California is necessary to resolve these conflicts. This joint Environmental Impact Report/Environmental Impact Statement[1] (EIR/EIS) reviews the environmental impacts of the Proposed Project/Proposed Action and variety of alternatives for responding to requests for assistance with WDM including the cessation of current California Wildlife Services (WS-California) WDM activities. Requests for assistance may come from many sources including private groups or individuals; other federal, state, and local agencies; and Native American Tribes. The Proposed Project/Proposed Action and five alternatives considered in this EIR/EIS evaluate and compare varying degrees of WS-California, the California Department of Food and Agriculture (CDFA), and California County wildlife specialists' involvement in WDM.

Objectives

The CDFA and WS-California have each identified objectives for their respective programs. The programs are explained in more detail in Chapters 1 and 2.

The CDFA has identified the following objectives:

- Align with the historic (i.e., pre-2003) CDFA program objectives.
- Accomplish the following additional WDM Program objectives:
  - Inform the implementation of WDM activities conducted by state and local agencies throughout California.
  - Provide rapid response to high-risk wildlife damage scenarios in order to prevent harm to agricultural resources and property, human health and safety, and natural resources.
  - Support the development and implementation of measures to avoid, minimize, and mitigate unintended impacts to California's important natural resources from WDM materials and technologies.
  - Build upon existing resources, including WS-California's data reporting system, to develop a statewide information management, reporting, and data sharing system for wildlife damage incidents and management activities that will allow a robust evaluation of management activities to support an integrated and adaptive WDM approach.
  - Establish an administrative mechanism for California Counties (Counties) that wish to participate in a statewide WDM Program to facilitate their environmental compliance.

WS-California has identified the following objectives:

- Respond in a timely and appropriate way to all WDM requests for technical and/or operational assistance, whether from private or public sources.
- Implement an integrated WDM approach which incorporates biological, legal, economic, environmental, cumulative, and sociocultural factors.

[1] The EIS portion of this joint document will proceed under the 1978 National Environmental Policy Act (NEPA) regulations and existing Animal and Plant Health Inspection Service (APHIS) procedures since this document was initiated prior to the September 14, 2020 NEPA revisions.

- Comply with all applicable federal, state, and local laws; Wildlife Services policies and directives; cooperative agreements; MOUs; and other legal requirements.
- Develop and improve lethal and non-lethal strategies to promote the most effective, target-specific, and humane remedies available given legal, environmental, and other constraints.
- Coordinate with the management goals and objectives of applicable WDM plans or guidance as determined by the jurisdictional state, tribal, or federal wildlife or land management agency.

Proposed Project/Proposed Action and Alternatives

WS-California currently uses an integrated approach to WDM involving access to the full range of legally available non-lethal and lethal WDM methods to optimize WDM. For this EIR/EIS five alternatives were developed. The alternatives are explained in more detail in Chapter 3. The Council on Environmental Quality (CEQ) defined the environmentally preferable alternative as the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act (NEPA), Section 101, which is the alternative that causes the least damage to the biological and physical environment, while still meeting the need for action. CEQ also considered that the environmentally preferred alternative would best protect, preserve, and enhance historic, cultural, and natural resources. The Proposed Project/Proposed Action is the environmentally preferrable alternative because it allows WS-California to provide the greatest amount of assistance in resolving human-wildlife conflicts while also supporting the welfare of and harmony between wildlife and humans in accordance with NEPA Section 101. CEQA Guidelines Section 15126.6 define the environmentally superior alternative as meeting most of the needs of the basic project objectives, similar to satisfying the purpose and need, and resulting in the fewest or least severe combination of significant environmental impacts. The environmentally superior alternative is the Proposed Project/Proposed Action.

Proposed Project/Proposed Action: CDFA WDM Program/Continuation of WS-California including Emergency/Rapid Response

Under the Proposed Project/Proposed Action, the CDFA would have a new role in statewide activities, formalizing a program that provides an adaptive and integrated approach, cooperator/requestor participation, technical assistance on lethal and non-lethal techniques, and/or lethal and non-lethal operational WDM assistance that is similar to WS-California's existing WDM activities. As part of the Proposed Project/Proposed Action, the CDFA would also be a centralized data repository for integrated WDM activities (coordination and documentation review), participate in education and outreach, enact a rapid response plan for emergency WDM incidents and/or infestations, and conduct analysis of independent County integrated WDM programs (note that WDM activities of more limited scope could be delegated to individual counties by the CDFA, responding to their specific needs).

Under the Proposed Project/Proposed Action, WS-California would continue to provide technical assistance on lethal and non-lethal WDM techniques and/or provide lethal and non-lethal operational WDM assistance. Similarly, the Proposed Project/Proposed Action would include WS-California T&E species protection and wildlife hazard management (WHM) at airports.

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or county WDM would be established. This alternative would not include any CDFA or county-led emergency/rapid response activities. WS-California would continue to operate WDM. This would include T&E species protection and airport WHM. Components of this alternative include collaboration and

identification, education and training, technical assistance, non-lethal and lethal operational WDM, and monitoring. WS-California could also loan equipment to cooperators/requestors for WDM activities.

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and Airport WHM

Under Alternative 2, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques and/or provide non-lethal operational WDM assistance, but would not provide lethal WDM assistance, except for cases of human health and safety, companion animal health and safety, T&E species protection, and airport WHM. Components of Alternative 2 include collaboration and identification, education and training, technical assistance, non-lethal operational WDM, and monitoring. The CDFA/Counties/WS-California could also loan equipment used for non-lethal techniques and/or other WDM activities. Alternative 2 could include CDFA/County/WS-California emergency/rapid response activities.

Alternative 3: Non-Lethal Operational WDM

Under Alternative 3, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques and provide only non-lethal operational WDM assistance. No lethal operational WDM assistance would be provided. Components of Alternative 3 include collaboration and identification, education and training, technical assistance, non-lethal operational WDM, and monitoring. The CDFA/Counties/WS-California could also loan equipment used for non-lethal techniques and/or other WDM activities. Alternative 3 could include CDFA/County/WS-California emergency/rapid response activities, but no lethal methods.

Alternative 4: Financial Reimbursement Assistance

Alternative 4 is for CEQA consideration only. Under Alternative 4, participating counties could establish an assistance program or cost-sharing initiative that provides monetary compensation to affected cooperators/requestors (producers), with a focus on funding improved protection from damaging wildlife (e.g., upgrade of fencing, acquisition of guard animals). This alternative would not include operational assistance provided by the CDFA/WS-California. This alternative would not preclude the right of private entities to conduct lethal WDM on their own in accordance with state and federal laws.

Alternative 5: No Action/Cessation of WS-California

Alternative 5 would not establish or formalize a CDFA WDM Program in California. Nor would any technical or operational assistance with WDM methods described under the Proposed Project/Project Action and Alternatives 1, 2, and 3 (and included as Appendix C) be conducted by WS-California. Furthermore, no provision of financial reimbursements as described in Alternative 4 would be provided. Under Alternative 5, potential WDM would be handled by other entities, including but not limited to tribes, the USFWS, the CDFW, Counties, private-resource owners and managers, private contractors, and/or other non-federal agencies.

Environmental Impacts/Effects

The California Environmental Quality Act (CEQA) requires that an EIR define a "threshold of significance" for each impact that may occur to the physical environment. A threshold of significance, or significance criterion, is an identifiable quantity, quality, or performance level of a particular environmental impact. In general, potential impacts are identified as either potentially significant (above threshold) or less than significant (below threshold).

For the purposes of the EIR, significance criteria were drawn from the CEQA Guidelines, Appendix G, Environmental Checklist Form (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387 et seq.). Several thresholds of significance were also developed in addition to the Appendix G thresholds of significance in an effort to fully analyze the impacts of the Proposed Project/Proposed Action on the identified resource topic areas.

The EIS considers the potential direct, indirect, and cumulative effects of WDM activities on the human environment. As defined by National Environmental Policy Act (NEPA) implementing regulations, the "human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment" (40 CFR 1508.14). Therefore, when a federal agency analyzes its potential impacts on the "human environment," it is reasonable for that agency to compare not only the effects of the proposed federal action, but also the potential effects that could or would occur from a non-federal entity conducting the action in the absence of the federal action.

The Proposed Project/Project Action and the five alternatives were compared as to the effects on seven issues. The issues were identified based on WS-California and the CDFA experience, agency and tribal outreach, and from public scoping. The issues are explained in more detail in Chapter 4. The issues included for comparative analysis are:

1. Agriculture and Forestry Resources (Section 4.2.1)
2. Biological Resources (Section 4.2.2)
3. Tribal Cultural Resources (Section 4.2.3)
4. Hazards and Hazardous Materials (Section 4.2.4)
5. Human and Companion Pet Health and Safety (Section 4.2.5)
6. Noise (Section 4.2.6)
7. Public Resources (Section 4.2.7)

Agricultural and Forestry Resources

The EIR/EIS identifies the following agricultural and forestry resources that could be affected by the Proposed Project/Proposed Action and Alternatives: croplands, rangelands, orchards, vineyards, nurseries, timberlands, and urban forests. Alternative 5 would have significant and unavoidable adverse impacts under CEQA and significant impacts under NEPA on the market value of agricultural and forestry resources sold in California, agricultural employment, and agricultural income/earnings due to increased wildlife damage. Other agricultural and forestry resources thresholds of significance would have less than significant impact under CEQA and not significant impacts under NEPA. The Proposed Project/Proposed Action would have beneficial impacts on the market value of agricultural and forestry resources sold in California, agricultural employment, and agricultural income/earnings due to decreased wildlife damage and no impacts under both CEQA and NEPA on other agricultural and forestry resources thresholds of significance. Alternatives 1, 2, 3, and 4 would have no impact or less than significant impacts under CEQA and no impact or not significant impacts under NEPA on agricultural and forestry resources thresholds of significance.

Biological Resources

The EIR/EIS identifies a number of native wildlife species that could potentially be impacted by the Proposed Project/Proposed Action. There are seven Appendix G thresholds for biological resources that cover the following topics: habitat modification and candidate, sensitive, and special status species; riparian habitats; protected wetlands; movements of migratory species; plans and ordinances protecting biological resources; habitat

conservation plans; and effects to populations of non-special status species and potential ecosystem changes. The Proposed Project/Proposed Action, Alternative 1 and 2 would have significant and unavoidable adverse impacts under CEQA in 16 counties if the mountain lion is listed under the California Endangered Species Act (see Section 4.2.2.3.1) for the threshold related to special status species under CEQA. There are seven mitigation measure that are described in Section 4.2.2.3.2. Other biological resources thresholds of significance would have no impact to less than significant impacts with mitigation (see Section 4.2.2.3.2) under CEQA and no impact to not significant impacts under NEPA as these measures are already incorporated into WS-California's WDM.

Tribal Cultural Resources

The EIR/EIS identifies the following tribal cultural resources that could be affected by the Proposed Project/Proposed Action and Alternatives: sites, features, places, cultural landscapes, sacred places, or objects that have cultural value to a Native American tribe. Based on the nature of the Proposed Project/Proposed Action and the proposed mitigation measures (see Section 4.2.3.4.2), the Proposed Project/Proposed Action and Alternatives 1-4 would have no impact or less than significant impacts with mitigation under CEQA and not significant impacts under NEPA to tribal cultural resources. Alternative 5 would also have less than significant impacts under CEQA and not significant impacts under NEPA. No mitigation measures were identified for Alternative 5.

Hazardous Materials

The EIR/EIS identifies the following methods and activities that are part of the existing WDM that include the use of hazardous materials or other potential hazards: pesticides, animal drugs, explosives, airports, and emergency response. This section also discusses risk assessments developed in support of WDM activities, WDM activities at contaminated sites, and the use of these materials around schools and sensitive receptors. There is one mitigation measure that is described in Section 4.2.4.4.2. Based on the nature of the Proposed Project/Proposed Action and the proposed mitigation measure (see Section 4.2.4.4.2), the Proposed Project/Proposed Action and Alternatives 1-5 would have no impact or less than significant impacts with mitigation under CEQA and not significant impacts under NEPA as these measures are already incorporated into WS-California's WDM.

Human and Companion Pet Health and Safety

There are no thresholds of significance for this topic in the CEQA Appendix G, therefore the impacts were analyzed under NEPA. The EIR/EIS identifies the use of various capture devices such as cage traps, snares, and foothold traps in the Proposed Project/Action. These devices could potentially harm humans and capture non-target species if used improperly. However, WS-California, the CDFA, and county wildlife specialists would use these devices in compliance with applicable laws and regulations to minimize risks. They would only provide operational assistance upon request and would use capture devices approved by the land or resource manager/owner. When placing capture devices on public lands, bilingual warning signs would be placed near trap sets to alert the public to potential hazards. On private lands, wildlife specialists would make reasonable efforts to obtain approval from adjacent landowners when setting capture devices under fence lines to avoid capturing domestic animals. The Proposed Project/Proposed Action, Alternatives 1–3 and 5 would have not significant impacts under NEPA. The Alternative 4 analysis is provided for informational purposes as financial reimbursement is not available to WS-California.

Noise

The EIR/EIS identifies the following noise methods that could cause impacts during WDM: indirect methods (electronic distress sounds, propane exploders, pyrotechnics, and chemical repellents), direct methods (trapping, rocket

nets/cannon nets, aerial shooting, and ground-based shooting), vibration potential, and airport noise exposure in the Proposed Project/Proposed Action. The Proposed Project/Proposed Action would have less than significant impacts with mitigation under CEQA and not significant impacts under NEPA for indirect methods, direct methods, vibration potential, and airport noise exposure. There are 16 mitigation measures that are described in Section 4.2.6.4.4. Alternative 1 would have no impacts on direct and indirect methods, vibrational potential, and airport noise exposure under CEQA and not significant impacts under NEPA. Alternatives 2 and 3 would have less than significant impacts with mitigation for indirect and direct methods and less than significant impacts for vibration potential under CEQA and not significant impacts under NEPA. Alternative 4 would have less than significant impacts for indirect and direct methods, vibration potential, and no impacts for airport noise under CEQA. The Alternative 4 analysis is provided for informational purposes as financial reimbursement is not available to WS-California. Alternative 5 would have less than significant impacts for direct and indirect methods, vibration potential, and airport noise exposure under CEQA and not significant impacts under NEPA.

Public Services

The EIR/EIS identifies the following public services that could be affected by the Proposed Project/Proposed Action: fire protection, police protection, schools, parks, and other public facilities. The Proposed Project/Proposed Action would have beneficial impacts on public services thresholds of significance due to reduced demand on emergency service providers to respond to calls for human and companion animal health and safety responses. Alternatives 1-5 would have no impact or less than significant impacts under CEQA and no impact or not significant impacts under NEPA to public services thresholds of significance.

1 Project Purpose, Need for Action, and Objectives

1.1 Introduction

Wildlife is an important public resource that can provide economic, recreational, emotional, and aesthetic benefits to many people. However, wildlife can cause damage to agricultural resources, natural resources, and property and threaten human safety. When people experience damage caused by wildlife or when wildlife threatens to cause damage, people may seek assistance from government and private entities. Wildlife damage management (WDM) is the process of reducing damage associated with wildlife. As land is increasingly used for human needs, wildlife habitats are increasingly altered and conflicts between human interests and wildlife arise. WDM needs also include the removal of wildlife that serve as disease vectors that can impact human and animal health. Lastly, the management of rare, threatened, and endangered (T&E) species sometimes requires WDM to protect and preserve habitats and extant populations.

Wildlife Services (WS-California), a state office within the U.S. Department of Agriculture's (USDA's) Animal and Plant Health Inspection Service (APHIS), and the California Department of Food and Agriculture (CDFA) have entered into a memorandum of understanding (MOU) to develop a joint environmental review of both agencies' roles in WDM in California. WS-California and the CDFA are cooperating as joint lead agencies to prepare this environmental impact report (EIR) and environmental impact statement (EIS) evaluating current and proposed WDM activities and potential alternatives for both agencies' involvement in managing wildlife damage and conflict in California. The EIR portion of the document was prepared to comply with the California Environmental Quality Act (CEQA) and the EIS was prepared to comply with the National Environmental Policy Act (NEPA).

1.2 Agencies, Authorities, and Roles

1.2.1 California Department of Food and Agriculture

The CDFA is mandated to "promote and protect the agricultural industry of the state."[1] This responsibility encompasses the prevention of wildlife damage to agriculture, including injury to or death of livestock; damage to row crops, orchards, forestry/timber plantations, or vineyards; and harm to the structural integrity of roads, buildings, irrigation and other water conveyance structures, and other agricultural infrastructure. As part of this mandate, the CDFA must prevent the introduction and spread of any insects or animals that are dangerous or detrimental to California's agricultural industry.[2] The CDFA is also authorized to employ "hunters and trappers" to manage and eradicate harmful predatory animals.[3]

In addition to the benefits provided to agriculture, WDM activities provide benefits to natural resources (including watercourses and rare, sensitive, and protected species), public infrastructure and private property, and public health and safety. The CDFA may also participate in "rapid response" activities, both independently and in collaboration with California Counties (Counties) and WS-California, to respond to high-risk wildlife damage

1 California Food and Agricultural Code (FAC) Section 401.
2 FAC Sections 403, 461, 5006.
3 FAC Section 11221.

scenarios to promptly abate and prevent harm to agricultural resources and property, human health and safety, and natural resources.[4]

Before 2003, the CDFA participated in WDM activities in cooperation with the Counties, WS-California, agricultural extension officers, and farmers, ranchers, and other agriculturalists.[5] In this EIR/EIS, the CDFA proposes a new WDM Program (Program) that would re-establish a statewide framework for managing wildlife damage. CEQA requires that an EIR identify the project sponsor's objectives, which are similar to the purpose required by NEPA (CEQA Guidelines; 14 CCR 15124[b]). The objectives provide benchmarks for selecting a reasonable range of alternatives for analysis, as required by CEQA. The objectives also aid decision makers in selecting a course of action and in preparing findings at the end of the CEQA process. The CDFA will serve as the lead agency for the EIR portion of the joint analysis, in compliance with CEQA (California Public Resources Code, Section 21000 et seq.).

1.2.2 U.S. Department of Agriculture Animal and Plant Health Inspection Service-Wildlife Services

WS-California is authorized and directed by Congress under the Animal Damage Control Act of March 2, 1931, as amended, (7 USC 8351–8353), to protect American agriculture and other resources from damage associated with wildlife. The act was amended in 1987 ([101 Stat. 1329-331, 7 USC 426[c]) to further provide the following: "On and after December 22, 1987, the Secretary of Agriculture is authorized, except for urban rodent control, to conduct activities and to enter into agreements with State, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of nuisance mammals and birds and those mammal and bird species that are reservoirs for zoonotic diseases, and to deposit any money collected under such agreement into the appropriation accounts that incur the costs to be available immediately and to remain available until expended for Animal Damage Control activities."

Under NEPA and the Council on Environmental Quality's (CEQ's) NEPA regulations (40 Code of Federal Regulations [CFR] Section 1500 et seq.), federal agencies are required to evaluate the potential for actions to significantly affect the quality of the human environment when they propose to carry out, approve, or fund a project. In part, the CEQ regulates federal activities affecting the physical and biological environment through regulations in 40 CFR 1500-1508. NEPA and the CEQ guidelines generally outline five broad types of activities that a federal agency must accomplish as part of projects they conduct. Those five types of activities are public involvement, analysis, documentation, implementation, and monitoring.

WS-California has determined that its involvement in carrying out existing WDM activities requires preparation of an EIS. Pursuant to NEPA and the CEQ regulations, this EIS will document the analyses associated with proposed federal actions and will inform decision makers and the public of reasonable alternatives capable of avoiding or minimizing adverse effects to the quality of the human environment. This EIS will proceed under the 1978 NEPA regulations and existing APHIS procedures since this document was initiated prior to the September 14, 2020, NEPA revisions. WS-California will serve as the lead agency for the EIS portion of the joint analysis, in compliance with NEPA (42 USC 4321 et seq.).

4 FAC Sections 403, 404, 2282.5.

5 The historic animal damage control program in California was accomplished under a master agreement between CDFA, the Counties, and the U.S. Bureau of Sports Fisheries and Wildlife (now Wildlife Services). Financing was also shared by county, state, and federal jurisdictions (State of California Agriculture and Services Agency Department of Agriculture and Human Relations Agency Department of Public Health 1971).

1.2.3 California County Agricultural Commissioners

The Counties have a unique system of County Agricultural Commissioners,[6] and the California Legislature has specified that where the CDFA and County Agricultural Commissioners have joint responsibilities, WDM is performed at a county level by County Agricultural Commissioners while the CDFA primarily serves in an oversight and support capacity by providing data and issuing recommendations and policies.[7] Counties may also work directly with WS-California, entering into a Cooperative Service Agreement (CSA).

Before 2003, the CDFA participated in WDM activities in cooperation with the Counties, WS-California, agricultural extension officers, and farmers, ranchers, and other agriculturalists.[8] Since that time, requests for WDM assistance from the public, other agencies and governmental bodies, and Native American tribes in California have been addressed by individual counties, WS-California, and private entities/firms or they have not been addressed.

1.2.4 Interagency Wildlife Damage Management

The CDFA, WS-California, and California Agricultural Commissioners have formally and informally coordinated WDM activities for over 100 years. The California legislation approved in May 1919 directed the State Commissioner of Horticulture (later replaced by the Director of the USDA) to investigate reports of agricultural damages or losses generated by predatory animals and to cooperate and contract with the Counties and the USDA and assist in instituting WDM control measures.

Since that time, the CDFA and WS-California have entered into many MOUs that have served state, federal, and county WDM goals. The most recent MOU was executed in April 2017 to facilitate the joint CEQA/NEPA environmental review process defined by this joint EIR/EIS document to serve the mutual interests of the CDFA, WS-California, Counties, local government, agriculture, and the public (CFDA-SOV and APHIS-WS 2017). The protection of public trust resources is also facilitated by the activities considered in this impact analysis.

The interactive WDM activities that are envisioned by these agencies would consist of both independent actions by the CDFA, WS-California, and Counties and collaborative actions between agencies. The CDFA's newly established Program would support the agency's mission while providing a programmatic framework for Counties to perform or contract with WS-California for WDM consistent with the practices defined in this document. Counties that contract with WS-California to perform WDM services are also addressed in the CEQA elements of this joint EIR/EIS document. When considering the activities of the CDFA, WS-California, and Counties together, the term "Proposed Project/Proposed Action" or shall be used.

1.3 Goals of Wildlife Damage Management

With new science and changing societal values, governmental policies have changed to the extent that native wildlife populations are no longer managed for population suppression or entire removal over large areas or regions, unless such management meets local objectives of protecting other valued or rare wildlife populations or for reducing the threat of the spread of disease. WDM focuses on addressing a specific situation, not broad-scale

6 FAC Section 2276.5; see generally FAC Division 2 (Local Administration) at Sections 2001–2344.

7 FAC Sections 2281, 2282.

8 The historic animal damage control program in California was accomplished under a master agreement between the CDFA, Counties, and the U.S. Bureau of Sports Fisheries and Wildlife (now WS-California). Financing was also shared by county, state, and federal jurisdictions (State of California Agriculture and Services Agency Department of Agriculture and Human Relations Agency Department of Public Health 1971).

population management. The Wildlife Society, a non-profit scientific and educational association that represents wildlife professionals, recognizes that WDM is a specialized field within the wildlife management profession and that responsible wildlife management, including WDM, requires adherence to professional standards.

The Wildlife Society has the following standing position on WDM (The Wildlife Society 2016):

> Wildlife sometimes causes significant damage to private and public property, other wildlife, habitats, agricultural crops, livestock, forests, pastures, and urban and rural structures. Some species may threaten human health and safety or be a nuisance. Prevention or control of wildlife damage, which often includes removal of the animals responsible for the damage, is an essential and responsible part of wildlife management. Before wildlife damage management programs are undertaken, careful assessment should be made of the problem, including the impact to individuals, the community, and other wildlife species. Selected techniques should be incorporated that will be efficacious, biologically selective, and socially appropriate.

1.4 CEQA Project Objectives

CEQA requires that an EIR identify the project sponsor's objectives, which are similar to the purpose required by NEPA (14 CCR 15124 [b]). The objectives provide benchmarks for selecting a reasonable range of alternatives for analysis, as required by CEQA. The objectives also aid decision makers in selecting a course of action and in preparing findings at the end of the CEQA process.

One of the main functions of the CDFA is to protect crops and livestock throughout the state. The California Food and Agricultural Code gives authority to the CDFA to abate "injurious" animal pests in the interest of protecting the agricultural industry and its resources.[9] The CDFA took part in protecting the state's agricultural industry from wildlife damage until lack of funding ended the program in 2003.

The objectives of the historic CDFA WDM program were as follows:

1. Provide leadership in addressing the impacts of wildlife on agriculture.
2. Increase the health and productivity of agricultural resources and, incidentally, natural resources.
3. Maintain the availability of wildlife pest control materials that are effective, humane, and environmentally safe.
4. Support improvement of current, and deployment of new, wildlife pest control materials and methods in response to ongoing research.
5. Promote broader understanding and awareness about wildlife pest identification, biology, life history, impacts and control activities.
6. Elicit cooperator and stakeholder participation in addressing wildlife pest impacts to agriculture and, incidentally, natural habitats and public health and safety.
7. Support development and implementation of measures to avoid, minimize and mitigate unintended impacts to watercourses and protected species and their habitats from wildlife pest control materials and methods.

[9] FAC Section 403

The purpose of the proposed Program is as follows:

- Generally align with the historic (i.e., pre-2003) CDFA program objectives
- Accomplish the following additional WDM Program objectives:
  - Inform the implementation of WDM activities conducted by state and local agencies throughout California.
  - Provide rapid response to high-risk wildlife damage scenarios in order to prevent harm to agricultural resources and property, human health and safety, and natural resources.
  - Support the development and implementation of measures to avoid, minimize, and mitigate unintended impacts to California's important natural resources from WDM materials and technologies.
  - Build upon existing resources, including WS-California's data reporting system, to develop a statewide information management, reporting, and data sharing system for wildlife damage incidents and management activities that will allow a robust evaluation of management activities to support an integrated and adaptive WDM[10] approach.
  - Establish an administrative mechanism for Counties that wish to participate in a statewide WDM Program to facilitate their environmental compliance.

1.5 NEPA Purpose and Need

NEPA requires that an EIS include the underlying purpose and need for the proposed action because this statement explains why the federal agency and proposed project proponents are undertaking the proposed action and what objectives they intend to achieve. The statement of purpose and need is also used to determine the appropriate range of alternatives to be evaluated in the EIS.

Purpose and need are closely linked but subtly different. The need describes the problem and the purpose is the intention to address the problem. Purpose describes why the sponsoring agency is proposing an action that may have environmental impacts and provides the basis for selecting reasonable and practicable alternatives for consideration, comparing the alternatives, and selecting the preferred alternative (40 CFR Section 1502.13: "The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action"; see also NEPA Section 102).

1.5.1 Purpose

The purpose of this EIS is to provide an analysis of direct, indirect, and cumulative impacts of Proposed Project/Proposed Action WDM activities in California and provide a clear and consistent statewide approach in collaboration with federal, state, and county partners to carry out integrated WDM activities. These activities are intended to protect human health and safety, T&E species, natural resources, agricultural resources, and property from damage and threats of damage associated with wildlife. This EIS will assist in determining if the proposed management of wildlife damage could have a significant impact on the quality of the human environment. This EIS will analyze five alternatives to the Proposed Project/Proposed Action to address the need for action and the identified issues and document the environmental consequences of the alternatives to comply with NEPA.

[10] Integrated WDM refers to an approach that incorporates biological, economic, environmental, legal, and other information into a transparent WDM decision-making process and includes many methods for managing wildlife damage, including non-lethal and lethal options.

WS-California previously prepared Environmental Assessments (EAs) and associated Finding of No Significant Impact (FONSI) documents for its WDM activities in five districts in California:[11]

- 1997 EA and 1997 Decision/FONSI for Wildlife Damage Management in the Sacramento District;
- 1997 EA and 1997 Decision/FONSI for Wildlife Damage Management in the Central District;
- 1997 EA and 1997 Decision/FONSI for Wildlife Damage Management in the North District; and
- 1997 EA and 1997 Decision/FONSI for Wildlife Damage Management in the South and San Luis Districts.

WS-California has decided that one EIS analyzing potential operational impacts for the entire State of California provides a more comprehensive and less redundant analysis than multiple documents covering smaller regions. This approach also provides a broader scope for the effective analysis of potential cumulative impacts and for using data and reports from state and federal wildlife management agencies. Upon public notification of the signed Record of Decision (ROD) for the EIS, these four regional WDM EAs and FONSIs will be superseded and replaced.

The mission of WS-California, developed through a strategic planning process (USDA APHIS 2019), is to:

> provide Federal leadership in managing problems caused by wildlife. Wildlife Services recognizes that wildlife is an important public resource greatly valued by the American people. By its very nature, however, wildlife is a highly dynamic and mobile resource that can damage agricultural and industrial resources, pose risks to human health and safety, and affect other natural resources. The Wildlife Services program carries out the Federal responsibility for helping to solve problems that occur when human activity and wildlife are in conflict with one another.

The goal of WS-California in relation to WDM activities is to meet the WS-California mission of professionally supporting the coexistence of humans and wildlife.

WS-California objectives are as follows:

1. Respond in a timely and appropriate way to all WDM requests for assistance, whether from private or public sources.
2. Implement an integrated WDM approach which incorporates biological, legal, economic, environmental, cumulative, and sociocultural factors (Figure 2-3 in Chapter 2).
3. Comply with all applicable federal, state, and local laws; Wildlife Services policies and directives; cooperative agreements; MOUs; and other legal requirements.
4. Develop and improve lethal and non-lethal strategies to promote the most effective, target-specific, and humane remedies available given legal, environmental, and other constraints.
5. Coordinate with the management goals and objectives of applicable WDM plans or guidance as determined by the jurisdictional state, tribal, or federal wildlife or land management agency.

[11] A FONSI is the public decision document required when preparing an EA that briefly describes why the project will not have a significant environmental impact under the chosen alternative. A ROD is the public decision document required when preparing an EIS that summarizes the findings and provides the basis for the decision.

Based on agency relationships, MOUs, and legislative authorities, WS-California is the lead federal agency for the EIS portion of this document, and therefore, responsible in part for the scope, content, and decisions made. Based on the scope of this EIS, the decisions to be made are as follows:

- Should WDM as currently implemented by WS-California be continued in California?
- If not, how should WS-California fulfill its legislative responsibilities for managing wildlife damage in California?

1.5.2 Need

Across the United States, wildlife habitat has been substantially changed as human populations expand and land is used for human needs. These human uses and needs often compete with the needs of wildlife, which increases the potential for conflict between humans and wildlife. With this continued and more intensive use of land by humans, introduction of domestic livestock, water resource management, urbanization, and other modern agricultural, cultural, and transportation practices associated with human development have caused substantial changes in the ways that humans and wildlife interact.

Human development and growth continue to put pressures on wildlife populations and their use of remaining habitat, and wildlife attempt to adapt to the changing circumstances. Some species have the ability to be more flexible and adaptable than others, with highly adaptable and flexible species often reaching unnaturally high populations and less adaptable species losing population numbers and distribution. Some animals and localized populations may adapt to change by using human infrastructure or concentrated agricultural practices for their life cycle needs, such as obtaining food and water, finding areas to breed or rest, and using human structures as shelter. Because humans tend to concentrate livestock, food crops, buildings, their pets, and even themselves in localized areas of intensive use, some wildlife species may find it easier to meet their life needs using human-subsidized assets. Where resources provided by humans overlap with occupied wildlife territory, the animals often learn to take advantage of those resources.

When this occurs, there are many situations when people, government agencies, or commercial interests request private companies or federal or state governments to stop or reduce the damage by removing or dispersing the individual animals or local groups of animals causing the problems. When damage or losses have previously occurred and can be expected to occur again, people or agencies may request that animals or groups of animals be removed or dispersed to avoid further losses, even before the damage or losses reoccur. Often, without outside help, people or entities will try to resolve the problems themselves, sometimes by attempting to prevent the damage from re-occurring, such as by building fences and other infrastructure or by killing animals that they perceive to be, and that may or may not be, causing the problem, using traps, firearms, or toxic chemicals.

The term "damage" in the case of WDM is consistently used to describe situations where the individual person or entity has determined that the losses caused by wildlife triggers their threshold for requesting assistance or attempting to take care of the problem themselves. "Damage" may be defined as economic losses to property or assets, threats to human or pet safety, a loss in the aesthetic value of property, and other situations where the behavior of wildlife is no longer tolerable to an individual person or entity. The threshold triggering a request for assistance in dealing with a particular damage situation is often unique to the individual person, entity, or agency requesting assistance. Therefore, what constitutes damage to one person or entity and is considered intolerable may not even be considered a problem by another individual or entity.

The need for action is based on damage to California's agricultural industry and requests for assistance for the protection of natural resources, property, and health and human safety from wildlife damage.

1.5.2.1 Requests for Assistance

Requests for assistance are an indication of the level of need for WDM, but these requests likely represent only a portion of the actual need. For example, Connolly (1992) determined that only a fraction of the total predation attributable to coyotes (*Canis latrans*) was reported to or verified by Wildlife Services nationally. Connolly (1992) also stated that, based on scientific studies and livestock loss surveys generated by the National Agricultural Statistics Survey (NASS), Wildlife Services only confirms about 19% of the total adult sheep and 23% of the lambs actually killed by predators.

When responding to a request for assistance, WS-California personnel record the species and resources that are in conflict. At the time of providing a response to an individual request for service, WS-California may provide a requester with information, demonstrations, recommendations for strategies that the landowner/manager may implement (technical assistance), and/or operational assistance in which the WS-California employee takes direct action to address the situation. The amount of time needed to complete each request serves as an index of the intensity of effort needed by WS-California personnel to address incidents involving the species in question.

From 2010 to 2019, WS-California personnel provided 1,039,368 hours of technical and operational assistance statewide (Table 1-1) (MIS 2019). WS-California personnel provided about 19 hours of operational assistance for every 1 hour of technical assistance to private citizens, counties under CSA agreements, and other non-T&E species/non-airport requests. During the analysis period, WS-California also provided 153,104 hours of airport wildlife hazard management operational assistance and 173,159 hours of T&E species protection operational assistance.

Table 1-1. Total WS-California Technical Assistance and Operational Assistance Hours for WDM from 2010 to 2019

Year	County WDM Hours		Airport WDM Hours		T&E Species WDM Hours		Total Hours	
	TA	OA	TA	OA	TA	OA	TA	OA
2010	3,769	78,396	54	13,805	21	18,080	3,844	110,280
2011	4,069	75,250	76	12,985	16	15,654	4,160	103,890
2012	4,107	77,240	69	13,856	17	13,245	4,192	104,341
2013	3,989	72,391	82	14,352	31	14,036	4,102	100,779
2014	3,599	70,159	84	14,440	51	16,531	3,734	101,130
2015	3,314	70,439	107	14,948	51	19,905	3,472	105,293
2016	3,166	70,431	56	17,981	42	19,416	3,263	107,828
2017	3,321	67,892	20	18,026	33	20,219	3,373	106,137
2018	3,767	68,101	5	17,129	30	19,731	3,802	104,962
2019	4,584	62,806	47	15,582	9	16,340	4,639	94,728
Total	**37,685**	**713,106**	**598**	**153,104**	**299**	**173,159**	**38,582**	**1,039,368**

Source: MIS 2019.
Notes: WS = Wildlife Services; WDM = wildlife damage management; T&E = rare, threatened, and endangered; TA = Technical Assistance; OA = Operational Assistance,

1.5.2.2 Wildlife Damage Management to Protect Human Health and Safety

WS-California, CDFA, and County wildlife specialists (hereafter referred to as "wildlife specialists") may conduct WDM activities in protection of human health and safety at the request of state, local, and federal agencies, law enforcement, public health agencies, and others. These activities include responding to wildlife that pose a direct human safety risk (e.g., wildlife attacks that result in injuries or death) or disease risk (e.g., disease threats from rabies and plague outbreaks where predators act as reservoirs, zoonotic diseases, and food contamination), as well as odor and noise nuisances. Human health and safety concerns may also include airstrike hazards from birds or mammals crossing runways at airports or airbases.

Wildlife and Bird Strikes at Airports

Reported bird strikes with aircraft at United States airports have increased from 1,850 in 1990 to a record high of 17,228 in 2019 (Dolbeer et al. 2021). A substantial rise in reporting of bird strikes by airports, a growth of urban-adapted bird populations, an increase in commercial flights, and the enhancement of commercial air carriers with quieter engines have all contributed in some part to this record in reported bird strikes (Dolbeer et al. 2021). From 1990 to 2020 in the United States, 608 species of birds and 52 species of terrestrial mammals were identified as struck by civil aircraft (Dolbeer et al. 2021). Strikes of waterfowl, raptors, deer, and coyotes typically result in the most damaging events (Dolbeer et al. 2021). Waterfowl (5% of strikes) and raptors (12% of strikes) are the not the most frequently struck bird groups, but they compose 28% and 23%, respectively, of all damaging strikes (Dolbeer et al. 2021).

In the United States, terrestrial mammals accounted for only 2% of wildlife-aircraft strikes reported in 2020 (Dolbeer et al. 2021). However, their presence on airport property can attract other species that pose higher risks of aircraft strikes. For example, a high density of rodents and cottontail rabbits on airport property are a food source and thus an attractant for many raptor species. Of the 35 civil aircraft fatalities caused by bird strikes from 1990 to 2020, at least 14 involved raptors (Dolbeer et al. 2021). Managing rodent and rabbit densities at airports can indirectly reduce risks to human safety.

In California, 9,091 wildlife strikes were reported to the Federal Aviation Administration (FAA) from 2010 to 2019 (FAA 2023). Of those, 8,765 strikes involved birds, 320 were from mammals, and 6 involved reptiles. About one third of strikes from this time frame involved birds that could not be identified (3,168 strikes). Of animals that could be identified, species most involved in strikes included American kestrel (Falco sparverius; 471 strikes), red-tailed hawk (*Buteo jamaicensis*; 420 strikes), barn owls (*Tyto alba*; 371 strikes), cliff swallows (*Petrochelidon pyrrhonota*; 350 strikes), and western meadowlarks (*Sturnella neglecta*; 314 strikes) (FAA 2023). The most struck mammals were Brazilian free-tailed bat and other free-tailed bats (*Tadarida brasiliensis*, *Nyctinomops* spp.; 108 strikes), striped skunk (*Mephitis mephitis*; 63 strikes), black-tailed jackrabbit (*Lepus californicus*; 53 strikes), and coyote (15 strikes) (FAA 2023). In four separate incidents in California from 2010 to 2019, strikes of a flock of snow geese (*Anser caerulescens*), a greater white-fronted goose (*Anser albifrons*), a flock of rock pigeons (*Columba livia*), and an unknown bird caused injuries to a total of five passengers (FAA 2023). In 2013, a small aircraft struck a turkey vulture (*Cathartes aura*) shortly after take-off, leading to the death of the pilot (FAA 2023).

Wildlife specialists may also provide wildlife hazard management to U.S. Armed Forces' air bases through the Air Force Bird Air Strike Hazard Program (BASH) and other Department of Defense programs at their request. From

fiscal year 2010 to 2019, 883 BASH mishaps were reported by the Air Force,[12] 14 of which were given a Class A BASH mishap determination (BASH 2020a).[13] In fiscal year 2014, a Class A BASH mishap resulted in four fatalities (BASH 2020a). From fiscal year 2000 to 2019, the most struck birds or bird groups at Air Force air bases were perching birds (9.43% of total strikes), horned larks (*Eremophila alpestris*; 5.55%), mourning doves (*Zenaida macroura*; 5.19%), and swallows (Hirundinidae; 5.12%) (BASH 2020b). The most struck non-avian wildlife was Brazilian free-tailed bat (2.36% of total strikes) (BASH 2020b).

Wildlife Attacks

Human encroachment into wildlife habitat and wildlife encroaching into human residential and other human-altered areas, often in response to available food, including pets, increases the likelihood of human-wildlife interactions. Those species that people are likely to encounter are those most likely to adapt to and thrive in human-altered habitats due to the ready availability of food, water, and shelter inadvertently provided by residents. As wildlife adapts to using human-altered habitats, many animals have lost their fear of people and become habituated to people, vehicles, and developed areas. With their natural fear of humans gone, some individual animals may exhibit bold and even aggressive behavior toward humans and pets. In addition to habituation, disease may also cause these behaviors, resulting in calls for assistance.

Although wildlife rarely attack people, the number of attacks appears to be increasing, especially near human residential areas. Baker and Timm (2016) defined a single "attack" as an incident in which physical contact between wildlife and one or more humans occurred at a single location at a point in time, when contact was not initiated by the person. Their database found 165 coyote attacks in California since the early 1970s, resulting in injuries to 121 individuals (78 adults and 64 children). At least 63 people have been killed by non-captive black bears (*Ursus americanus*) between 1900 and 2009, mostly in Alaska and Canada (49 fatal encounters), with 14 fatal encounters in the lower 48 states. In 38% of the incidents, the presence of food or garbage probably influenced the bear being in the location (Herrero et al. 2011). There have been 22 verified mountain lion (*Puma concolor*) attacks in California since 1986, 3 of which were fatal (CDFW 2022). Six of those attacks, all non-fatal, occurred in just 3 years from 2020 to 2022.

There are many preventive, non-lethal measures that the public can take to reduce the likelihood of violent conflicts with wildlife, including feeding pets inside, removing brush and wood piles, installing motion-activated lights, keeping a close eye on children and pets, and being aware when participating in outdoor recreational activities. When non-lethal methods are not effective or human health and safety is at imminent risk, lethal methods may be needed.

Zoonotic Diseases

Zoonotic diseases are diseases that are transmissible between animals and people. Pathogen transmission can occur through direct interactions between humans and animals, as well as indirect interactions with pets and livestock that had contact with wildlife. Diseases that can be transmitted from animals to humans may be bacterial, spirochetal, rickettsial, viral, fungal, prions, or parasites. The increasing connectedness of our world and the increasing use intensity of our landscape amplify the potential for spillover of emerging and re-emerging pathogens in wildlife, livestock, pets, and humans. This section includes brief descriptions of examples of zoonotic diseases

12 A "mishap" is defined as an "unintended occurrence in the Air or Space force that results in death, injury, illness, or property damage and requires an investigation" (U.S. Air Force 2023).

13 A Class A mishap is assigned when one or more of the following results: cost totaling $2,500,000 or more, a fatality or permanent total disability, destruction of Department of Defense aircraft, or permanent loss of primary mission capability of a space vehicle (U.S. Air Force 2023).

for which WS-California could provide surveillance or management assistance. This discussion is intended to briefly address the more commonly known zoonotic diseases associated with those species addressed in this EIR/EIS. It is not intended to be an exhaustive discussion of all potential zoonotic diseases.

Tularemia is a disease caused by the bacterium *Francisella tularensis* (CDC 2018). Usually, people become infected through the bite of infected ticks or flies, by handling infected animals or carcasses, by eating or drinking contaminated food or water, or by inhaling airborne bacteria. A total of 30 human cases of tularemia were reported in California from 2011 to 2020 (CDC 2022a). Most cases occur in the south and central states; however, cases have been reported in every state except Hawaii. Without treatment with appropriate antibiotics, tularemia can be fatal (CDC 2018). The causative agent of tularemia is one of the most infectious pathogenic bacteria known. Many wild animal species may be infected (lagomorphs, squirrels, muskrats, beavers), and occasionally certain domestic animals can also be infected (cats and hamsters).

Rabies is an acute, fatal viral disease of mammals most often transmitted through the bite of a rabid animal. Rabies is preventable, but it is fatal without prior vaccination or post-exposure treatment (CDC 2022b). All mammals, including humans, are susceptible to rabies. Before 1960, the majority of cases were reported in domestic dogs (*Canis lupus familiaris*). About 90% or greater of all animal cases reported annually to Centers for Disease Control and Prevention now occur in wildlife (CDC 2022b). The principal wildlife rabies hosts in the United States today include bats (Chiroptera), raccoons (*Procyon lotor*), skunks (Mephitidae), and foxes (*Urocyon* spp., *Vulpes* spp.). Modern-day treatment, which involves a series of injections given to people who have been or have potentially been exposed, has proven nearly 100% successful in preventing mortality when administered promptly (CDC 2022b). In the United States, human fatalities associated with rabies occur in people who fail to seek timely medical assistance, usually because they were unaware of their exposure to rabies. Although human rabies deaths are rare, the estimated public health costs associated with disease detection, prevention, and control in the United States are between $245 and $510 million annually. Those costs include the vaccination of companion animals, maintenance of rabies laboratories, medical costs such as those incurred for exposure case investigations, rabies post-exposure injections, and animal control programs (CDC 2022b). Wildlife Services involvement in rabies research and management is addressed in nationwide EAs on rabies management.

Wild and domestic waterfowl are acknowledged as natural reservoirs for a variety of avian influenza (AI) viruses (Pedersen et al. 2010). However, AI viruses can be found amongst a variety of other bird species (Alexander 2000). AI can circulate among domestic waterfowl without clinical signs and is not an important mortality factor in wild waterfowl (Davidson and Nettles 1997). Although AI is primarily a disease of birds, there can be concerns over the spread of the H5N1 highly pathogenic strain, which has the potential to be transmitted to humans and cause mortalities (Gauthier-Clerc et al. 2007; CDC 2023). Outbreaks of other AI strains have also shown the potential for transmission to people during severe outbreaks when people have handled infected poultry. A pandemic outbreak of AI could have large-scale impacts on human health and economies (WHO 2019; CDC 2023).

1.5.2.3 Wildlife Damage Management to Protect Livestock, Poultry, and Aquaculture

California's livestock industry exceeded $12.3 billion in 2019, producing 40.6 billion pounds of milk, 2.4 billion pounds of cattle and hogs, 2.4 million pounds of wool, and 3.9 billion eggs, amongst many other products (CDFA 2020). The NASS reported that in 2010 a total of 1,400 adult cattle and 8,200 calves were lost due to predation

in California,[14] resulting in a loss of about $4.1 million (NASS 2011). Predation of cattle and calves was reported to be caused by coyotes (57% of predation loss), mountain lions or bobcats (*Lynx rufus*) (32.5%), dogs (8.5%), bears (1%), and unknown animals (1%). Several cattle operations in California implemented nonlethal management strategies to minimize wildlife predation, such as guard animals (29.8% of operations), exclusionary fencing (74.6%), carcass removal (26.6%), frequent checks (20.3%), and other techniques (NASS 2011). In 2009, 6,800 adult sheep and 8,200 lambs were reported lost due to predation in California, resulting in a loss of about $1.4 million (NASS 2010). Though the animals responsible for sheep predation were not recorded for California, NASS has reported sheep losses from bears, bobcats, coyotes, dogs, mountain lions, foxes, wolves (*Canis lupus*), eagles, and ravens (*Corvus corax*) in nearby states (NASS 2021, 2022).

Predation

Predators prey upon a wide variety of livestock, including cattle, sheep, goats, swine, horses, and poultry. Sheep, goats, cattle, and poultry are highly susceptible to predation throughout the year (O'Gara et al. 1983; Bodenchuk et al. 2002). Cattle, calves, sheep, and goats are especially vulnerable to predation during calving, lambing, and kidding seasons in the late winter and spring (Sacks et al. 1999; Bodenchuk et al. 2002; Shwiff and Bodenchuk 2004; USDA 2017).

Not all producers suffer losses to predators; however, for those producers that do, those losses can be economically difficult and burdensome and may cause small producers to experience years of negative profits (Fritts et al. 1992; Mack et al. 1992; Shelton 2004; Rashford et al. 2010). Losses are not evenly distributed among producers and may be concentrated on some properties where predator territories overlap livestock occurrence and predators learn to deviate from their natural prey base to domestic livestock as an alternative food source (Shelton and Wade 1979; Shelton 2004). Therefore, predation can disproportionately affect certain properties and further increase a single producer's economic burden (Bodenchuk et al. 2002; Shelton 2004; Rashford et al. 2010). Shwiff and Bodenchuk (2004) state that profit margins in livestock production do not allow a 20% loss rate; in the absence of WDM, such losses would likely result in the loss of the livestock enterprise. Without effective methods of reducing predation rates, economic losses due to predation continue to increase (Bodenchuk et al. 2002).

From 2010–2019, a total of 18 mammal species, and 13 bird species were verified by WS-California to have predated on livestock, poultry, and aquaculture resources in California (Table 1-2) (MIS 2019). During that time frame, WS-California recorded about $5.5 million of verified losses to livestock from predation (MIS 2019). Approximately $4.2 million of those losses (77%) were due to predation of cattle, goats, and sheep by coyotes and mountain lions (MIS 2019). Verified losses are confirmed by WS-California specialists during a site visit and are not representative of actual damages, which are higher than those reported by WS-California. In reality, only a fraction of losses are reported by WS-California and there are limited data available for individual counties that do not maintain a CSA with WS-California.

Disease

Although the sources of disease outbreaks can be difficult to identify, a risk of pathogen transmission exists wherever wild or free ranging wildlife and livestock interact or use the same resources such as water or feed (Daniels et al. 2003). Diseases that can be transmitted from wildlife to livestock may be bacterial, spirochetal, rickettsial, viral, fungal, prions, or parasites. Livestock diseases cause loss through morbidity, mortality, decreased

[14] The NASS is a section of the USDA. It conducts the most comprehensive surveys of the status of agriculture in the United States. The results of NASS surveys used in this EIR/EIS are those that are pertinent to California, either nationally or statewide, and that are the most recent.

production, decreased feed efficiency, lower reproductive success, and the costs associated with veterinary diagnostics and treatment. Transmittable diseases to livestock and poultry include the rabies virus (mammals), leptospirosis (canines, raccoons, nutria, opossums), tularemia (rabbits, muskrats, beavers, rodents), brucellosis (elk, deer, bison, feral hogs), Newcastle Disease (pigeons and other birds), and AI (birds) (Miller et al. 2013).

1.5.2.4 Wildlife Damage Management to Protect Crops and Other Agricultural Resources

Other agricultural resources include commercial forestry products, fruit and nut crops, field crops, and range and pasture. California leads the United States in cash crop production, generating $50.1 billion in 2019 (CDFA 2020). The top crop commodities in California are almonds, grapes, strawberries, pistachios, and lettuce (CDFA 2020). NASS (1999) reported that in 1998, wildlife caused $19.7 million (about $35.4 million in 2022 dollars, adjusted for inflation) in damages just to California grape operations.

From 2010–2019, a total of 20 mammal species and 15 bird species were verified by WS-California to have caused damage to agricultural resources in California (Table 1-3) (MIS 2019). During that time frame, WS-California recorded about $17.1 million of verified losses in damage to forestry products, crops, fruits and nuts, and pastures (MIS 2019). About 79% of those verified losses were associated with three species: beaver (*Castor canadensis*), black bear, and feral swine (*Sus scrofa*). Approximately $5.3 million verified losses were due to damage to field crops, fruits and nuts, and pasture by feral swine (MIS 2019). Damage to agricultural resources associated with beavers and black bears resulted in losses of about $4.7 million and $3.4 million, respectively. The greatest amount of monetary loss for a single resource was about $3.5 million in damages to fruits and nuts by beavers (MIS 2019).

Damming by beavers can cause significant damage to crops and agricultural infrastructure (Taylor et al. 2017). Additionally, beavers dig burrows or networks of burrows, which can weaken structures such as dams, dikes or levees, or similar agricultural infrastructure. When these burrows collapse, they damage farming equipment or flood crops or property used for agriculture (Baker and Hill 2003; Taylor et al. 2017). Flooding can also prevent access of agricultural producers to crops or livestock to forage areas. Beaver dams across irrigation canals can prevent irrigation activities and flood surrounding cropland. Beavers will cut down trees for building material, but sometime will girdle trees or will leave felled trees where they lay (Taylor et al. 2017). Girdling tree trunks effectively stops the transfer of nutrients to all parts of the tree, eventually killing the tree. Sometimes beavers will fell large trees to access the smaller branches (Taylor et al. 2017). From 2010 to 2019, beavers damaged almond, walnut, apple, cherry, olive, peach, and pear trees, as well as grapes and blueberries (MIS 2019).

Seeds, nuts, and berries are an important component of black bear diets in California (Gradber and White 1983). Black bears are opportunists and will take advantage of food made available by humans (Taylor and Phillips 2020). From 2010 to 2019, black bears consumed or damaged apples, apricots, grapes, peaches, walnuts, almonds, cherries, olives, and pears (MIS 2019). Damage most often occurs to isolated orchards or fields near forests (Taylor and Phillips 2020).

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Table 1-2. Estimated Monetary Loss from Predation Verified by WS-California to Livestock, Poultry, and Aquaculture Resources from 2010 to 2019

	Cattle	Equine[a]	Goat	Sheep	Swine	Llama/Alpaca	Rabbit	Fowl[b]	Aquaculture[c]	Total
Mammals										
American badger	$0	$0	$0	$0	$0	$0	$0	$150.00	$0	**$150.00**
Black bear	$92,385.35	$1,200.00	$64,930.38	$56,938.64	$10,869.22	$26,885.11	$0	$124,575.44	$12,075.00	**$389,859.14**
Bobcat	$0	$0	$10,969.90	$5,881.12	$0	$0	$0	$90,603.10	$0	**$107,454.12**
Coyote	$1,779,439.86	$1,800.00	$276,619.62	$1,129,588.24	$2,887.27	$47,096.61	$0	$106,150.91	$0	**$3,343,582.51**
Gray fox	$0	$0	$510.81	$2,213.63	$0	$0	$0	$21,084.43	$0	**$23,808.87**
Kit fox	$0	$0	$0	$0	$0	$0	$0	$10.00	$0	**$10.00**
Red fox	$0	$0	$2,843.06	$7,077.48	$0	$0	$0	$12,506.21	$0	**$22,426.75**
Mountain lion	$87,659.17	$105,502.70	$611,523.25	$340,046.07	$10,190.68	$205,090.30	$0	$7,149.96	$0	**$1,367,162.13**
Pacific marten	$0	$0	$0	$0	$0	$0	$0	$35.74	$0	**$35.74**
Mink	$0	$0	$0	$0	$0	$0	$0	$811.25	$0	**$811.25**
Virginia opossum	$0	$6,000.00	$0	$0	$0	$0	$0	$1,336.40	$0	**$7,336.40**
River otter	$0	$0	$0	$0	$0	$0	$0	$42.80	$12,197.00	**$12,239.80**
Raccoon	$0	$0	$0	$675.00	$0	$0	$0	$54,412.18	$34,965.19	**$90,052.37**
Western spotted skunk	$0	$0	$0	$0	$0	$0	$0	$120.00	$0	**$120.00**
Striped skunk	$0	$0	$0	$0	$0	$0	$0	$16,633.94	$0	**$16,633.94**
Feral swine	$18,435.51	$0	$0	$4,319.89	$0	$0	$0	$0.00	$0	**$22,755.40**
Long-tailed weasel	$0	$0	$0	$0	$0	$0	$916.20	$1,011.43	$0	**$1,927.63**
Gray wolf	$12,133.50	$0	$0	$0	$0	$0	$0	$0	$0	**$12,133.50**
Birds										
Brewer's blackbird	$5,954.76	$0	$0	$0	$0	$0	$0	$0	$0	**$5,954.76**
Red-winged blackbird	$23,819.04	$0	$0	$0	$0	$0	$0	$0	$0	**$23,819.04**
American coot	$0	$0	$0	$0	$0	$0	$0	$0	$10,000.00	**$10,000.00**
Double-crested cormorant	$0	$0	$0	$0	$0	$0	$0	$0	$462.95	**$462.95**
American crow	$3,600.00	$0	$0	$0	$0	$0	$0	$0	$0	**$3,600.00**
Golden eagle	$800.00	$0	$0	$6,850.00	$0	$0	$0	$0	$0	**$7,650.00**
Canada goose	$0	$3,696.37	$0	$0	$0	$0	$0	$0	$0	**$3,696.37**
California gull	$0	$0	$0	$0	$0	$0	$0	$0	$5,000.00	**$5,000.00**
Western gull	$0	$0	$0	$0	$0	$0	$0	$0	$5,000.00	**$5,000.00**
Red-tailed hawk	$0	$0	$0	$0	$0	$0	$0	$393.37	$0	**$393.37**
Barn owl	$0	$0	$100.00	$0	$0	$0	$0	$0	$0	**$100.00**
Great horned owl	$0	$0	$0	$0	$0	$0	$0	$210.00	$0	**$210.00**
Common raven	$19,572.39	$0	$1,051.20	$12,162.30	$0	$0	$0	$1,315.50	$0	**$34,101.39**
Total	**$2,043,799.58**	**$118,199.07**	**$968,548.22**	**$1,565,752.37**	**$23,947.17**	**$279,072.02**	**$916.20**	**$438,552.66**	**$79,700.14**	**$5,518,487.43**

Source: MIS 2019.

Notes: Table does not include loss due to predation or damage associated with non-native species or feral/domestic animals, except feral swine. Table does not include loss due to other types of wildlife associated damage such as consumption/contamination of feed, disease threat, burrowing/digging, property damage, or flooding.

[a] Equine category includes donkeys/burros and horses.

[b] Fowl category includes chickens, ducks, geese, guineas, ostriches, emus, peafowl, pigeons, and turkeys.

[c] Aquaculture includes catfish, trout, shellfish, goldfish, ornamental, aquatic plants.

Table 1-3. Estimated Monetary Loss from Damage Verified by WS-California to Commercial Forestry, Field Crops, Fruit and Nuts, and Pasture Resources from 2010 to 2019

	Commercial Forestry and Nursery[a]	Field Crops[b]	Fruit and Nuts[c]	Range/Pasture	Total
Mammals					
American badger	$0	$35,551.03	$2,050.00	$6,872.75	**$44,473.78**
North American beaver	$992,281.82	$171,507.84	$3,557,740.55	$56,850.50	**$4,778,380.71**
Black bear	$523,000.00	$500.00	$2,910,657.85	$0	**$3,434,157.85**
Coyote	$0	$165,783.64	$33,115.00	$0	**$198,898.64**
Mule/black-tailed deer	$2,130.32	$94,491.80	$52,026.02	$0	**$248,648.14**
Gray fox	$50.00	$60.00	$2,525.00	$0	**$2,635.00**
Red fox	$0	$1,000.00	$0	$0	**$1,000.00**
Black-tailed jackrabbit	$250,000.00	$2,000.00	$200.00	$0	**$252,200.00**
Cottontails (*Sylvilagus* spp.)	$0.00	$2,925.00	$0	$200.00	**$3,125.00**
Mountain lion	$0	$0	$0	$8,500.00	**$8,500.00**
Muskrat	$0	$34,848.00	$0	$80,790.50	**$115,638.50**
North American porcupine	$4,000.00	$0	$0	$0	**$4,000.00**
Virginia opossum	$0	$175.00	$1,845.00	$0	**$2,020.00**
Raccoon	$100.00	$34,536.33	$99,783.98	$0	**$134,420.31**
Striped skunk	$1,330.00	$87,733.05	$390.00	$0	**$89,453.05**
Feral swine	$18,499.78	$2,151,969.43	$1,542,284.91	$1,603,549.11	**$5,316,303.23**
Botta's pocket gopher	$0	$100.00	$0	$0	**$100.00**
California ground squirrel	$0	$7,635.44	$8,625.00	$1,483.00	**$17,743.44**
Eastern fox squirrel	$0	$0	$365.00	$0	**$365.00**
Western gray squirrel	$0	$0	$151,790.88	$0	**$151,790.88**
Birds					
Brewer's blackbird	$0	$4,000.00	$2,200.00	$0	**$6,200.00**
Red-winged blackbird	$0	$337,194.11	$0	$0	**$337,194.11**
American coot	$0	$766,971.30	$231,752.00	$0	**$998,723.30**
Sandhill crane	$0	$50,325.75	$0	$0	**$50,325.75**
American crow	$0	$0	$2,800.00	$0	**$2,800.00**
Mallard	$0	$0	$25,000.00	$0	**$25,000.00**
Northern flicker	$10,450.00	$0	$0	$0	**$10,450.00**
Aleutian cackling goose	$0	$139,263.00	$0	$0	**$139,263.00**
Canada goose	$0	$109,280.08	$25,600.00	$2,285.50	**$137,165.58**
Lesser snow goose	$0	$67,855.00	$0	$0	**$67,855.00**
Greater white-fronted goose	$0	$110,748.58	$0	$55,520.00	**$166,268.58**
White-faced ibis	$0	$11,156.40	$0	$0	**$11,156.40**
California scrub jay	$0	$0	$100.00	$0	**$100.00**
Horned lark	$0	$107,424.00	$0	$0	**$107,424.00**
Common raven	$0	$0	$282,766.10	$0	**$282,766.10**
Total	**$1,801,841.92**	**$4,495,034.78**	**$9,033,617.29**	**$1,816,051.36**	**$17,146,545.35**

Source: MIS 2019.
Notes: Table does not include loss due to damage associated with non-native species or feral/domestic animals, except swine.
[a] Commercial Forestry and Nursery includes standing softwood.
[b] Field Crops includes lettuce, wild rice, corn, hayfields, carrots, rice, wheat, sod cucumbers, watermelons, melons, sunflowers, alfalfa, beans, broccoli, canola, barley, sweet corn, oats, cantaloupe, peas, sweet peppers, squash, and tomatoes.
[c] Fruits and Nuts includes avocados, blackberry/raspberry, apples, apricots, blueberries, cherries, citrus, grapes, peaches, pears, almonds, walnuts, strawberries, olives, and pistachio.

1.5.2.5 Wildlife Damage Management for the Protection of Property

From 2010 to 2019, a total of 32 mammal species or species groups and 29 bird species were verified by WS-California to have caused damage to property, resulting in about $34.9 million in damages (Table 1-4) (MIS 2019). Approximately $15 million of that damage (43.1% of verified property damage) was attributable to structure damage by beavers and common ravens (MIS 2019). Black bears, raccoons, and striped skunk were associated with about $4.7 million in damages to just residential buildings (13.5% of verified property damage) (MIS 2019). About $3.2 million in damages to just turf and landscaping was associated with feral swine and American coots (*Fulica americana*) (9.2% of verified property damage) (MIS 2019). Barn owls and great horned owls (*Bubo virginianus*) were associated with about $3.1 million in damages to just equipment (9% of verified property damage) (MIS 2019).

Beavers and muskrats (*Ondatra zibethicus*) can pose a threat to human health and safety by redirecting water, affecting structural foundations and leading to weakened dams and levees and increased flooding on lands, roads, and railways (Baker and Hill 2003; Taylor et al. 2017; Miller 2018). Debris from beaver and muskrat dams or dens can plug culverts that allow water to pass beneath a road or railway. Culverts and the surrounding infrastructure which support the road or railbed are not built to withstand the strong pressure of impounded water and this condition can lead to the washout or collapse of the road or railway bed. Some of the most damaged structures by wildlife in California are those associated with irrigation, such as impoundments, levees, dams, irrigation pipes and ditches (MIS 2019). Beavers, muskrats, and nutria (*Myocastor coypus*) can cause damage to waterways and irrigation structures, resulting in flooding of homes, agricultural fields, and low-lying areas (Campbell 1994; Taylor et al. 2017; Miller 2018; LeBlanc 1994). Burrowing activity can seriously weaken dams and levees causing them to leak or collapse. Entrances to burrows are normally underwater and may not be evident until serious damage has occurred. Associated burrows and dens can also erode along the shorelines of lakes and create washouts of associated properties when they collapse. Such incidents can threaten the safety of people on the dam or levee, as well as those people downstream from the dam or protected by the levee. The integrity of such dams and levees are especially important when California experiences major weather events.

Common ravens take advantage of human-made structures for roosting and nest building in California where availability of natural substrates (i.e., trees) may be limited. Damage to structures occurs to a high degree when common ravens roost in large numbers or build nests at problematic sites. Large groups of common ravens roosting at electrical plants and on powerlines may contaminate insulators and lead to power outages (Boarman and Heinrich 2020). Nesting material in satellite dishes or on cell phone towers may interfere with communications. Many types of damage management have been used by several groups to reduce property damage by common ravens including lethal management, taste-aversion treated egg baits, egg oiling, and habitat modification (Boarman and Heinrich 2020).

Property damage associated with black bears is often more difficult to resolve than conflicts with smaller damaging wildlife. The primary cause of black bear conflicts is improperly stored garbage as an attractant (Taylor and Phillips 2020). Black bears can cause major damage to buildings, cars, and other property in search of food (Hygnstrom 1994). Proactive management, including removing attractants and utilizing exclusionary devices, is the most effective management tool, but this relies on public participation (Taylor and Phillips 2020). When these efforts are unsuccessful, diversionary feeding, harassment, or lethal removal may be required to resolve the conflict (Taylor and Phillips 2020).

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Table 1-4. Estimated Monetary Loss from Damage Verified by WS-California to Property from 2010 to 2019

	Animals[a]	Turf/Landscaping[b]	Residential Building	Non-residential Building	Other Property	Equipment	Structures[c]	Total
Mammals								
American badger	$440.00	$3,275.00	$0.00	$0.00	$2,400.00	$1,400.00	$6,200.00	**$13,715.00**
Bats (all species)	$0	$0	$6,200.00	$1,500.00	$0	$0	$7,700.00	**$15,400.00**
Black bear	$88,323.00	$7,905.00	$1,100,264.00	$222,685.00	$290,760.00	$48,025.00	$34,805.00	**$1,792,767.00**
North American beaver	$0	$163,430.00	$7,000.00	$6,500.00	$53,375.00	$0	$7,495,569.00	**$7,725,874.00**
Bobcat	$22,639.00	$0	$750.00	$0	$100.00	$0	$0	**$23,489.00**
Coyote	$382,227.00	$2,345.00	$3,350.00	$380.00	$26,194.00	$20,400.00	$489,606.00	**$924,502.00**
Black-tailed/mule deer	$230.00	$52,850.00	$0.00	$0	$665.00	$2,050.00	$0	**$55,795.00**
Elk	$0	$0	$0	$0	$4,000.00	$0.00	$1,840.00	**$5,840.00**
Gray fox	$5,190.00	$1,570.00	$15,945.00	$20,486.00	$36,900.00	$5,005.00	$1,200.00	**$86,296.00**
Red fox	$2,050.00	$0	$8,040.00	$4,525.00	$2,740.00	$0.00	$2,100.00	**$19,455.00**
Black-tailed jackrabbit	$0	$25,085.00	$0	$0	$0	$0	$0	**$25,085.00**
Mountain lion	$114,338.58	$0	$550.00	$600.00	$0	$0	$50.00	**$115,538.58**
Yellow-bellied marmot	$0	$5,000.00	$0	$500.00	$0	$750.00	$14,000.00	**$20,250.00**
Pacific marten	$0	$0	$0	$125,000.00	$0	$0	$0	**$125,000.00**
Mink	$0	$0	$1,000.00	$0	$2,000.00	$0	$0	**$3,000.00**
Muskrat	$0	$0	$10,000.00	$0	$17,600.00	$0	$259,470.00	**$287,070.00**
Virginia opossum	$23,010.00	$12,425.00	$279,899.00	$26,677.00	$33,095.00	$1,200.00	$0	**$376,306.00**
River otter	$0	$0	$0	$0	$400.00	$0	$1,000.00	**$1,400.00**
Pocket gophers	$0	$2,585.00	$0	$0	$0	$0	$0	**$2,585.00**
North American porcupine	$5,900.00	$0	$500.00	$0	$0	$0	$0	**$6,400.00**
Cottontails (*Sylvilagus* spp.)	$0	$31,580.00	$0	$100.00	$150.00	$0	$3,500.00	**$35,330.00**
Raccoon	$102,151.00	$726,551.00	$1,594,809.00	$63,701.00	$217,683.00	$500.00	$13,640.00	**$2,719,035.00**
Ringtail	$0	$0	$2,450.00	$800.00	$0	$0	$5,000.00	**$8,250.00**
Western spotted skunk	$0	$0	$17,950.00	$100.00	$0	$0	$0	**$18,050.00**
Striped skunk	$32,130.00	$373,928.00	$2,035,265.00	$199,802.00	$171,825.00	$0	$3,870.00	**$2,816,820.00**
Ground squirrels	$0	$36,195.00	$10,955.00	$31,050.00	$1,750.00	$250.00	$5,550.00	**$85,750.00**
Douglas squirrel	$0	$0	$3,800.00	$0	$150.00	$0	$0	**$3,950.00**
Northern flying squirrel	$0	$0	$400.00	$0	$0	$0	$0	**$400.00**
Eastern fox squirrel	$0	$4,550.00	$11,630.00	$0	$8,624.00	$500.00	$65.00	**$25,369.00**
Western gray squirrel	$0	$5,910.00	$44,520.00	$0	$600.00	$0	$100.00	**$51,130.00**
Feral swine	$5,000.00	$1,006,570.00	$500.00	$75.00	$330,370.00	$0	$166,300.00	**$1,508,815.00**
Dusky-footed woodrat	$0	$0	$750.00	$400.00	$0	$1,050.00	$0	**$2,200.00**
Birds								
American coot	$0	$2,210,600.00	$0	$0	$2,000.00	$0	$2,500.00	**$2,215,100.00**
American crow	$0	$400.00	$150.00	$0	$5.00	$2,950.00	$0	**$3,505.00**

Table 1-4. Estimated Monetary Loss from Damage Verified by WS-California to Property from 2010 to 2019

	Animals[a]	Turf/Landscaping[b]	Residential Building	Non-residential Building	Other Property	Equipment	Structures[c]	Total
Mourning dove	$0	$0	$0	$0	$0	$12,800.00	$0	**$12,800.00**
Mallard	$0	$0	$50.00	$0	$200.00	$0	$15,670.00	**$15,920.00**
Cattle egret	$1,000.00	$0	$10,100.00	$0	$0	$0	$0	**$11,100.00**
Great egret	$0	$0	$5,000.00	$0	$0	$0	$0	**$5,000.00**
Snowy egret	$0	$0	$0	$10,000.00	$0	$0	$0	**$10,000.00**
House finch	$0	$0	$0	$0	$0	$12,500.00	$0	**$12,500.00**
Northern flicker	$0	$0	$18,670.00	$1,200.00	$0	$0	$0	**$19,870.00**
Canada goose	$0	$108,605.00	$3,796.00	$3,787.00	$102,300.00	$0	$1,000.00	**$219,488.00**
Lesser snow goose	$0	$50,000.00	$0	$0	$0	$0	$0	**$50,000.00**
Bonaparte's gull	$0	$0	$0	$0	$10,000.00	$0	$40,000.00	**$50,000.00**
California gull	$0	$0	$0	$250,000.00	$60,000.00	$25,000.00	$50,000.00	**$385,000.00**
Glaucous gull	$0	$0	$0	$0	$0	$0	$40,000.00	**$40,000.00**
Glaucous-winged gull	$0	$0	$0	$0	$10,000.00	$0	$0	**$10,000.00**
Heermann's gull	$0	$0	$0	$0	$10,000.00	$0	$40,000.00	**$50,000.00**
Mew gull	$0	$0	$0	$0	$10,000.00	$0	$40,000.00	**$50,000.00**
Ring-billed gull	$0	$0	$0	$0	$10,000.00	$0	$40,000.00	**$50,000.00**
Western gull	$20.00	$5,000.00	$23,500.00	$1,270,000.00	$59,000.00	$30,000.00	$55,100.00	**$1,442,620.00**
Red-tailed hawk	$1,000.00	$0	$0	$0	$0	$80,000.00	$0	**$81,000.00**
Black-crowned night heron	$1,000.00	$0	$15,000.00	$0	$0	$0	$0	**$16,000.00**
Barn owl	$0	$0	$0.00	$750.00	$0	$2,120,000.00	$0	**$2,120,750.00**
Great horned owl	$0	$0	$0	$0	$0	$1,000,000.00	$0	**$1,000,000.00**
Band-tailed pigeon	$0	$0	$0	$5,750.00	$0	$0	$0	**$5,750.00**
Common raven	$0	$0	$3,550.00	$9,100.00	$37,880.00	$331,000.00	$7,545,250.00	**$7,926,780.00**
Swallows	$0	$0	$14,250.00	$8,250.00	$0	$350.00	$0	**$22,850.00**
Wild turkey	$500.00	$16,375.00	$3,414.00	$1,000.00	$9,550.00	$27,435.00	$0	**$58,274.00**
Turkey vulture	$0	$4,000.00	$5,500.00	$0	$50.00	$0	$0	**$9,550.00**
Acorn woodpecker	$0	$0	$95,765.00	$11,500.00	$0	$0	$0	**$107,265.00**
Total	**$787,148.58**	**$4,888,314.00**	**$5,355,472.00**	**$2,276,418.00**	**$1,522,216.00**	**$3,723,165.00**	**$16,384,585.00**	**$34,937,318.58**

Source: MIS 2019.

Notes: Table does not include loss due to damage associated with non-native species or feral/domestic animals, except swine. Table does not include damage to airport property or aircraft.

[a] Animal category includes animal pets, ornamental fish, guard animals, and zoo animals.

[b] Turf/Landscaping category includes golf courses, turf/flowers, recreation areas, and gardens.

[c] Structures category includes irrigation/drainage ditches, utilities, fences, landfills, swimming pools, dikes/dams/impoundments, railroads/trestles, roads/bridges, irrigation pipes, irrigation drip line, and boat docks.

Aircraft

Wildlife strikes pose increasing risks and economic losses to the aviation industry worldwide. Direct costs include damage to aircraft, aircraft downtime, remediation costs of directly damaged property (i.e., falling debris from aircraft damages private property), and medical expenses of injured personnel and passengers. Indirect costs can include lost revenue from the flight, cost of housing delayed passengers, rescheduling aircraft flight times, and flight cancellations. Although the number of reported bird strikes has increased substantially since 2000, the reported number of damaging strikes has decreased slightly during the same time (Dolbeer et al. 2021).

From 1990 to 2019, FAA records indicate bird strikes cost the civil aviation industry over $774 million in monetary losses and 794,552 hours of aircraft downtime (Dolbeer et al. 2021). Birds can present a safety threat to aviation when they use habitat on and around airports. Large flocks or flight lines of birds entering or exiting a roost at or near airports or large flocks foraging on airport property can result in aircraft strikes involving several individuals of a bird species, which can increase damage and increase the risks of catastrophic failure of the aircraft. Also from 1990 to 2019, terrestrial mammal strikes damaged 1,195 aircraft in the United States, destroyed 31 aircraft, and caused 332,576 hours of aircraft downtime, resulting in $69 million in economic losses (Dolbeer et al. 2021). Mammals of all sizes can be involved in collisions. In 2006, a homebuilt aircraft was destroyed when landing in an airport in North Carolina due to an eastern cottontail rabbit (*Sylvilagus floridanus*) strike (FAA 2023).

Nationally, the resident Canada goose (*Branta canadensis*) population likely represents the most serious bird threat to aircraft safety (Alge 1999; Dolbeer and Seubert 2006; Dolbeer et al. 2021). Resident Canada geese are of concern to aviation safety because of their large body size (typically 8 to 15 pounds, far exceeding the 4-pound bird certification standard for engines and airframes), flocking behavior (which increases the likelihood of multiple bird strikes), attraction to airports for loafing and grazing, and year-round presence in urban environments near airports (Dolbeer and Seubert 2006). From 1990 through 2019, there were 1,854 reported strikes involving Canada geese in the United States, resulting in over $137 million in damages and associated costs to civil aircraft alone (Dolbeer et al. 2021). From 2010 to 2019, there were 56 reported strikes involving Canada geese in California (FAA 2023).

Raptors and vultures present a damage risk to aircraft because of their large body mass and slow-flying or soaring behavior. Raptors and vultures have a large body mass, making them capable of causing substantial damage to aircraft. On a national scale, vultures are one of the most hazardous bird groups for aircraft to strike based on the frequency of strikes, effect on flight, and amount of damage caused (DeVault et al. 2011). From 1990 through 2019, 901 turkey vultures were struck and 49.5% of the strikes caused damage, resulting in over $33 million in reported costs (Dolbeer et al. 2021).

From 2010 to 2019, three separate bird strike events required major repairs to aircraft in California.[15] In July 2011, a commercial aircraft struck a flock of 30 to 40 rock pigeons. Several of the birds were pulled into the engines, resulting in over $3.2 million in repair costs (FAA 2023). Also in 2011, a cargo aircraft struck a flock of 10 greater white-fronted geese, resulting in $3.23 million in repair costs (FAA 2023). In 2016, a commercial aircraft struck a western or Clark's grebe (*Aechmophorus* sp.) upon approaching the airport. The strike caused a large dent and a crack in the left wing, resulting in $1.5 million in repair costs (FAA 2023).

[15] Not all strike reports provide notation as to whether there was damage and some strike reports indicating an adverse impact on the aircraft from a given strike do not include a monetary estimate of the damage caused. Additionally, most reports indicating aircraft damaged report direct damages and do not include indirect damages, such as lost revenue, cost of putting passengers in hotels, rescheduling aircraft flight times, and flight cancellations.

1.5.2.6 Wildlife Damage Management for the Protection of Natural Resources

Natural resource protection can include protecting T&E or otherwise sensitive species or other natural resources from wildlife damage. Invasive or nuisance animals can damage landscapes and native plant communities or threaten critical habitat of certain species. Direct predation, especially on prey populations with few individuals and/or under resource constraints, can reduce the size and sustainability of populations. Wildlife specialists may work in collaboration with the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), tribal game and fish departments, conservation organizations, and other land/resource managers to protect T&E wildlife and plants from the impacts of predation, invasive species, and disease.

Threatened, Endangered, and Sensitive Species

Wildlife specialists may conduct WDM to protect T&E nesting birds and other T&E and sensitive species. From 2010 to 2019, WS-California conducted non-lethal and lethal WDM to protect snowy plover (*Charadrius nivosus*), California least tern (*Sternula antillarum browni*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), marbled murrelet (*Brachyramphus marmoratus*), desert tortoise (*Gopherus agassizii*), California condor (*Gymnogyps californianus*), and Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*) (MIS 2019). WDM activities were implemented to reduce predation and to protect bird nests from damage. The species most often associated with predation of T&E species include badger (*Taxidea taxus*), bobcat (*Lynx rufus*), feral cat (*Felis catus*), coyote, feral dog, foxes, mountain lion, Virginia opossum (*Didelphis virginiana*), hawks (Accipitridae), owls (Strigiformes), American crow (*Corvus brachyrhynchos*), and common raven (*Corvus corax*) (MIS 2019). Damage to bird nests was associated with feral cats, coyotes, feral dogs, black-tailed jackrabbits, Virginia opossums, raccoons, non-native rats (*Rattus* spp.), striped skunks, California ground squirrel, and feral swine (MIS 2019). WDM activities to protect nesting birds are typically of short duration and limited to just prior to and during the critical nesting periods when the eggs, chicks, and setting birds are most vulnerable.

Common raven populations have increased dramatically due to human subsidized water, food, and nesting substrate since the 1960s, leading to concerns regarding the sustainability of desert tortoise populations in California (Holcomb et al. 2021). The USFWS Recovery Plan for the Mojave Population of the Desert states that reducing predation of adult desert tortoises by coyotes and juvenile desert tortoises by common ravens is an essential recovery action for the population (USFWS 2011). Because desert tortoises reproduce very slowly (i.e., a desert tortoise can take 13 to 20 years to reach sexual maturity), survivorship of young desert tortoises is necessary for the recovery of this species (USFWS 2011).

Today, Sierra Nevada bighorn sheep occur exclusively in the Sierra Nevada Mountains of California. Major threats to the continuation of this species include disease from domestic sheep and goats, predation, and low genetic diversity leading to inbreeding. Predation by mountain lions is thought to be a major contribution to the decline of winter range use by Sierra Nevada bighorn sheep (USFWS 2007). Furthermore, extreme mountain lion predation from 1999 to 2019 rendered a source of translocation stock of Sierra Nevada bighorn sheep unviable (Gammons et al. 2021). Gammons et al. (2021) concluded that removal of mountain lions that prey on Sierra Nevada bighorn sheep would be necessary to improve recruitment rates and accelerate recovery.

Additional support may be given to these and other sensitive species should it be determined by an agency with management authority that predation has limited their viability.

Disease Surveillance

Because wildlife specialists have access to many animals either while still alive or shortly after death as an inherent component of their programs, they often request to opportunistically collect blood and tissue samples as an additional part of field operations. Most disease sampling would occur ancillary to other WDM activities (i.e., disease sampling occurs after wildlife have been captured or lethally taken for other purposes). Wildlife specialists may also sample wildlife captured or lethally taken by private or other government entities or dying from other causes (e.g., collisions with vehicles). These samples are used to test for several diseases including tularemia, raccoon roundworm (*Baylisascaris procyonis*), or rabies.

An active wildlife disease monitoring program provides wildlife managers and cooperators with valuable information on what wildlife species are being exposed to what pathogens and an index on the level of exposure. Changes in the wildlife species exposed to pathogens and/or the level of exposure within a species indicates a change in the pathogen, host, and environment triad. This information is crucial to making disease mitigation and response decisions. Disease surveillance and monitoring as a component of existing WDM activities reduces cost by eliminating a redundancy of effort in capturing wildlife to obtain samples. Further, under this opportunistic sampling method, wildlife captured as part of WDM activities may be sampled for pathogens, thus eliminating the additive wildlife mortality that would be incurred if the WDM and wildlife disease programs were separate. Without cooperation from wildlife specialists, it would be very difficult for wildlife management agencies to collect large numbers of fresh samples from around the state.

1.6 Scope of the EIR/EIS

1.6.1 Period for which this EIR/EIS is Valid

This EIR/EIS would remain valid until the CDFA or WS-California, as lead agencies, determines that new or additional needs for action, changed conditions, new issues, and/or new alternatives having different environmental impacts needs to be analyzed to keep the information and analyses current. At that time, this analysis and document would be reviewed and, if appropriate, supplemented if the changes would have "environmental relevance" (40 CFR 1502.9[c]), or a new EIR/EIS prepared pursuant to CEQA and NEPA. The CDFA and WS-California will monitor WDM activities conducted by their personnel and ensure that those activities and their impacts remain consistent with the activities and impacts analyzed in the EIR/EIS and selected as part of the decision. Counties will monitor WDM activities conducted by their personnel and ensure those activities and their impacts remain consistent with the activities and impacts analyzed in the EIR/EIS and selected as part of the County program. Monitoring will include review of adopted mitigation measures, target and non-target take reported, and associated impacts analyzed in the EIR/EIS. Monitoring will ensure that WDM activity effects are within the limits evaluated in the selected alternative. The CDFA WDM Program will track statewide WDM activities by combining county level annual monitoring reports into a statewide cumulative annual review with assistance from WS-California.

1.6.2 Utilization of the EIR/EIS by California Counties

The CDFA, WS-California, and the Counties are committed to conducting WDM activities in a stepwise and prescriptive manner that follows standardized protocols and informed decision making. The foundation of these activities, as conducted by the CDFA, WS-California, and the Counties, is an integrated decision-making approach for careful and organized analyses and natural resource management decision making. It is based in consideration of wildlife management theory and experience, as well as human and natural resources risk analyses. The Counties

rely on WDM provided by WS-California and may also rely on services and coordination to be provided by the CDFA under the Proposed Project/Proposed Action. Some counties may elect to conduct WDM activities independently.

1.6.2.1 Potential Use of the EIR by California Counties

The CEQA Guidelines allow and provide for streamlined environmental compliance to reduce project delays and avoid excessive and unnecessary paperwork. This eliminates repetitive analyses of issues, sometimes already addressed in an existing EIR, by referencing those prior analyses as applicable (incorporation by reference). The CDFA has designed the statewide WDM EIR to serve as the foundation for the Counties to use in their individual decision-making processes concerning WDM activities.

The WDM EIR is a "Program EIR" that provides robust environmental review for the various wildlife management activities to be conducted under the Program, including, to the extent feasible, activities performed by the Counties (CEQA Guidelines Section 15168.) This environmental review includes an in-depth evaluation of the potential environmental effects, including cumulative effects, of WDM activities conducted under the Program's framework; considers broad policy alternatives; and identifies Program-wide mitigation measures.

CEQA provides public agencies the opportunity to streamline the environmental review of later activities that implement a broader program for which a Program EIR has been prepared. In general, agencies are authorized to approve later activities that are "within the scope" of a Program EIR without preparing additional environmental documents so long as certain requirements are satisfied (CEQA Guidelines Sections 15168[c][2], 15162).

All Counties, despite their current WDM approach, could elect to rely on the WDM EIR to facilitate any future decisions regarding WDM activities. This includes counties that currently have no program but wish to participate in a statewide program, independent counties, or those that have existing CSAs with WS-California. Other subdivisions of the State of California (i.e., agencies) may also elect to tier from the WDM EIR.

The specific process for Counties to rely on the WDM EIR to facilitate their future decision making may consist of the following steps and actions:[16]

1. County reviews the WDM EIR to understand the project description, impact assessments, and mitigation measures adopted by the CDFA in the certified WDM EIR and its mitigation monitoring plan.
2. County (with CDFA guidance) reviews the individual County's proposed WDM activities for consistency (or inconsistency) with the WDM EIR.
3. If it is determined by the individual County that their proposed WDM activities are consistent with the WDM EIR and none of CEQA's provisions requiring additional environmental review apply, no additional CEQA documentation would be required. The County would make the appropriate findings and incorporate applicable mitigation measures and polices into its individual WDM program.
4. If the individual County's proposed WDM activities includes either of the following, the County may be required to prepare an addendum to the WDM EIR (CEQA Guidelines Section 15164):
    a. Minor technical changes to WDM activities included in the WDM EIR, or
    b. Additional WDM measures not contemplated by the WDM EIR but that do not trigger conditions described in CEQA Guidelines Section 15162.

[16] While any California agency may elect to tier from the CDFA's programmatic EIR, Counties are expected to be the predominant users of this document.

5. If the individual County's proposed WDM includes activities that fall outside the scope of the WDM EIR or would trigger any of the conditions identified by CEQA Guidelines Section 15162, the County may need to perform additional CEQA review.

The County would decide the appropriate CEQA document to evaluate those activities that are outside the scope of the WDM EIR. The potential forms of these documents include a:

a. negative declaration, or
b. mitigated negative declaration, or
c. environmental impact report.

The programmatic nature of the WDM EIR will allow Counties to facilitate their environmental review processes for future WDM activities and enable consistent implementation of WDM activities across the state. The CDFA is committed to working with Counties interested in relying on the WDM EIR. The CDFA will also assist Counties with coordination with other state agencies, as required.

1.6.2.2 Potential Use of the EIS by Counties and Other Entities

The EIS portion of this joint document is intended to address WDM activities in California, including WDM for Counties, airport wildlife hazard management, and T&E species protection. Cooperating agencies may adopt this EIS if the document satisfies the NEPA requirements for its proposed activities.

1.6.3 Other Federal and State Agencies, Authorities, and Roles

The CDFW (previously known as the California Department of Fish and Game) manages California's fish and wildlife populations, game refuges, ecological reserves, and other areas. The CDFW may authorize the removal of fish and wildlife under their jurisdiction through permits and licenses. Those conducting WDM under this EIR/EIS must acquire applicable permits from the CDFW before implementing certain WDM activities.

The California Department of Pesticide Regulation (CDPR) is responsible for regulating pesticide use in California. Pesticides that would be available to manage wildlife damage would be registered and approved for use through the California Department of Pesticide Regulation.

California Agricultural Commissioners and Sealers Association is a voluntary organization of California County Agricultural Commissioners and County Sealers of Weights and Measures. California Agricultural Commissioners and Sealers Association provides a unified and coordinated effort to address statewide agricultural, natural resource, marketing, food safety, equity, and public health issues.

The USFWS and National Oceanic and Atmospheric Administration (NOAA) are the primary federal agencies responsible for conserving, protecting, and enhancing the nation's fish and wildlife resources and their habitat. The National Marine Fisheries Service within the NOAA has stewardship of national marine resources, including most marine mammals under the Marine Mammal Protection Act of 1972. The USFWS has specific responsibilities for the protection of migratory birds, T&E species, inter-jurisdictional fish, and certain marine mammals, as well as for lands and waters managed by the agency in the National Wildlife Refuge System. The USFWS has statutory authority for enforcing the Fish and Wildlife Improvement Act of 1978, the Fish and Wildlife Act of 1956, the Migratory Bird Treaty Act, the Endangered Species Act, and the Bald and Golden Eagle Protection Act. Under Section 7 of the

Endangered Species Act, federal agencies must consult with the USFWS when any action the agency carries out, funds, or authorizes may affect a listed T&E species. Additionally, those conducting WDM under this EIR/EIS must acquire applicable permits (e.g., migratory bird depredation permit) before carrying out certain WDM activities.

The U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) manage federal lands under their jurisdiction for multiple uses, including recreation, wildlife habitat, livestock grazing, energy development, timber production, wilderness values, and cultural resources. Land management activities by the USFS and BLM are guided by Land Management or Land Use Plans, the development of which includes a public involvement and comment process. Wildlife Services maintains MOUs with BLM (Agreement No. 20-7100-0454-MU) and the USFS (Agreement No. 11-7100-0329-MU) to ensure WDM conducted on jurisdictional lands aligns with agreed upon goals.

The FAA and National Association of State Aviation Officials (NASAO) may request necessary resolution of wildlife hazard problems at airports to support aviation safety. This partnership supports the common mission to collaboratively advance and encourage aviation safety within their respective areas of responsibility and to reduce wildlife hazard risks. The end goal is to increase wildlife and bird strike reporting, provide operational and technical assistance, and deliver necessary training to the aviation community to ultimately reduce the risk of wildlife hazards in order to ensure safer operations at airports. Wildlife Services maintains MOUs with the FAA and NASAO that establish the partnership and cooperation of these organizations.

The U.S. Environmental Protection Agency (EPA) is responsible for implementing and enforcing the Federal Insecticide, Fungicide, and Rodenticide Act, which regulates the registration and use of pesticides, including repellents and pesticides available for use to manage damage associated with mammals. The EPA is also responsible for administering and enforcing Section 404 of the Clean Water Act along with the U.S. Army Corps of Engineers (USACE).

The U.S. Food and Drug Administration (FDA) is responsible for protecting the public health by assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, the nation's food supply, cosmetics, and products that emit radiation.

The U.S. Drug Enforcement Administration (DEA) is responsible for enforcing the Controlled Substance Act (1970). The DEA prevents the abuse and illegal use of controlled substances by regulating their production, distribution, and storage.

1.6.4 Cooperating Agencies, Participating Agencies, Responsible Agencies, and Trustee Agencies

Both CEQA and NEPA define several different categories of agencies in the environmental review process and give differing roles and responsibilities to each.

1.6.4.1 CEQA

The CEQA "lead agency" is the public agency that has the primary responsibility for carrying out and approving a project (14 CCR 15367). As previously described in Section 1.2.1, the CDFA is the CEQA lead agency.

"Responsible agencies" include all public agencies with some discretionary authority over a project or a portion of it other than the CEQA lead agency. If a project involves discretionary actions by more than one agency, one may

be selected as the lead agency pursuant to CEQA Guidelines Section 15051, and the others would become responsible agencies. There are no designated responsible agencies for the Proposed Project/Proposed Action.

"Trustee agencies" are agencies that hold certain resources in trust for the people of California. Trustee agencies are defined by the CEQA statute and include four agencies: the CDFW, the State Lands Commission, the State Department of Parks and Recreation, and the University of California (14 CCR 15386[a–d]). The CDFW is a trustee agency for projects that involve or could have an effect on the fish and wildlife of the state, including designated rare or endangered native plants, game, refuges, ecological reserves, and other areas it administers. The State Lands Commission is a trustee agency for projects that involve state-owned sovereign lands such as the beds of navigable waters and state school lands. The State Department of Parks and Recreation is a trustee agency for projects that involve or may have an effect on a property within the State Park System. The University of California is a trustee agency for projects that involve or may affect the Natural Land and Water Reserves System.

1.6.4.2 NEPA

The role of a federal agency in the NEPA process depends on the agency's expertise and relationship to the proposed action. In most cases, the federal agency carrying out the proposed action is the NEPA "lead agency" and is responsible for complying with the requirements of NEPA. As previously described in Section 1.2.2, WS-California is the NEPA lead agency.

"Cooperating agencies" refers to agencies invited by the NEPA lead agency to participate in the environmental process. Cooperating agencies include agencies with jurisdiction by law and/or permitting authority over the proposed action. Cooperating agencies share responsibility for the development of information and the preparation of environmental analyses at the request of the NEPA lead agency. To facilitate planning, efficiently use agency expertise, and promote interagency coordination with meeting the needs for action, WS-California and the CDFA are coordinating the preparation of this EIS with the following agencies who responded to invitations with confirmation of their interest in being cooperating agencies; the USFWS and Bureau of Indian Affairs.

"Participating agencies" refer to any federal, state, regional, local, or tribal government units with an interest in the project. The NEPA lead agency has the responsibility to identify and involve participating agencies. However, an agency can also make a request to become a participating agency. Participating agencies provide input on the environmental document and issues within their areas of expertise. WS-California and the CDFA recognize the sovereign rights of Native American tribes to manage wildlife on tribal properties and have invited all federally recognized tribes in California to cooperate or participate in the development of this document. The Tataviam Band of Mission Indians replied to the invitation by indicating their desire to be a participating agency.

1.7 Public Involvement

1.7.1 Scoping Process

Scoping is the formal CEQA and NEPA coordination and outreach process to determine the scope and content of issues to be addressed during the environmental review, including the range of actions, concerns, environmental impacts, mitigation measures, and potential alternatives to be evaluated in the EIR/EIS. Scoping may also be used to identify issues that need not be evaluated in detail in the EIR/EIS. Activities conducted during the scoping process include soliciting agency, organization, and public input to develop a complete draft purpose and need statement; identifying a preliminary range of alternatives; and discussing potentially significant environmental issues. The

scoping report is included as Appendix A to this EIR/EIS. As described in the report, the scoping period began on September 10, 2020, and ended on November 10, 2020.

Noticing

Pursuant to CEQA (14 CCR 15082), a Notice of Preparation for the EIR was submitted to the State Clearinghouse (SCH No. 2020099012), a division of the Governor's Office of Planning and Research that coordinates the state-level review of CEQA documents. The Notice of Preparation was distributed on September 10, 2020, to responsible, federal, and trustee agencies, Native American tribal representatives, representatives of interest groups and associations, and individual members of the public. The Notice of Preparation announced the intent of the CDFA to prepare an EIR/EIS for the CDFA's proposed Program and included a list of the potential environmental issues to be analyzed in the EIR/EIS. A press release in English and Spanish was published by the CDFA on September 10, 2020. This provided information about the Program and the associated Program EIR/EIS scoping process.

To comply with the CEQ regulations (40 CFR 1501.7) implementing NEPA, WS-California published a Notice of Intent to prepare an EIS in the Federal Register on September 10, 2020 (Federal Register no: 2020-19090). The Notice of Intent is the official regulatory notice indicating that a federal agency is commencing preparation of an EIS. The Notice of Intent states the intent of WS-California, in coordination with the CDFA, to prepare an EIR/EIS analyzing WDM activities and potential alternatives in California.

Public Scoping Webinars

To provide government agencies, Native American tribes, organizations, and the public with an opportunity to ask questions and provide comments on the scope of the EIR/EIS, two webinars (using Zoom) were held on two Tuesday evenings in October 2020 (October 13, 2020, and October 27, 2020). Over 30 attendees participated in each webinar. Potential stakeholders on the mailing list were sent e-mails inviting them to attend the webinars and register in advance online. The agenda, presentation slides, and recordings of the webinars were made available on the Proposed Project/Proposed Action website: www.CaliforniaWDM.org.

Ongoing Outreach

In addition to webinar scoping, the Proposed Project/Proposed Action has a mail address, website, and phone number for questions. Several biological experts were invited to provide comment and technical input during preparation of the EIR/EIS and biological reports.

Comment Summary

In addition to the oral comments received during the webinars, over 5,200 written comment letters were received via mail, email, and on the Federal Register website comment form. These are included in Appendix E of the Scoping Report, which is included as Appendix A to this EIR/EIS. Approximately 74 of the comment letters were determined to be unique, while the remaining comment letters were variations of a form letter. The identified key issues and themes are discussed in greater detail in the Scoping Report and are analyzed in EIR/EIS.

1.8 Tribal Involvement

Both CEQA and NEPA require engagement with Native American tribes that might attach religious and cultural significance to a resource that may be affected by an undertaking and inviting them to be consulting parties to

assist in the identification of resources in the study area. The CDFA and WS-California recognize the rights of sovereign tribal nations, the unique legal relationship between each tribe and the state/federal government, and the importance of strong partnerships with Native American communities. Native American tribes have rights to hunt, fish and gather, graze livestock, and exercise other traditional uses and practices on unoccupied federally managed lands within ceded territories defined in treaties between the U.S. government and the tribes. The United States and all its agencies, as fiduciaries, owe a trust duty to the Native American tribes. This duty includes a substantive duty to protect—to the fullest extent possible—the lands, assets, and resources on which the tribe's treaty-reserved rights depend and to manage habitat to support populations necessary to sustain species hunted and gathered by tribal members. The CDFA and WS-California are committed to respecting tribal heritage and cultural values when planning and initiating WDM programs as requested by tribal governments and/or residents or permittees. Timely and meaningful consultation and coordination with tribal governments, to the greatest extent practicable and permitted by law, are conducted consistent with the National Historic Preservation Act and Executive Order 13175, Consultation and Coordination with Indian Tribal Governments. The CDFA and WS-California offer early opportunities for formal government-to-government consultation on its proposed program to all tribes in California and have requested their involvement with this EIR/EIS through direct invitations and draft EIR/EIS review opportunities.

WDM activities are conducted on tribally managed lands only upon request from the tribal government, the tribal game and fish department, or other tribal authority. If a tribe requests WDM assistance on tribally managed lands, the wildlife specialist will consult with the tribe regarding when, where, and how WDM activities and strategies may be conducted.

The NEPA process requires that lead agencies for federal regulatory compliance make a reasonable and good faith effort to identify Native American tribes and Native Hawaiian organizations that might attach religious and cultural significance to a resource that may be affected by an undertaking and invite them to be consulting parties to assist in the identification of resources in the study area.

CEQA requires the lead agency to consult with California Native American tribes traditionally and culturally affiliated with a project area, pursuant to California Public Resources Code, Sections 21080.3.1–21080.3.2. This process is commonly known as the "Assembly Bill 52" consultation process, after the state legislation that enacted the requirement.

Tribal involvement in the scoping process and analysis of Tribal Cultural Resources (concerns of American tribes) is further described in Section 4.2.3, Tribal Cultural Resources, and Appendix E, Tribal Outreach, of this EIR/EIS.

1.9 Organization of EIR/EIS

This EIR/EIS is organized as follows:

Chapter 1, Project Purpose, Need for Action, and Objectives: This chapter discusses the purpose and need of the Proposed Project/Proposed Action, as required by NEPA, and the Proposed Project/Proposed Action objectives, as required by CEQA. This chapter also includes a summary of agency involvement, Proposed Project/Proposed Action scoping, and an overview of the organization of the EIR/EIS.

Chapter 2, Project Description: This chapter describes the components of the Proposed Project/Proposed Action.

Chapter 3, Alternatives: This chapter provides an in-depth discussion of alternatives to the Proposed Project/ Proposed Action.

Chapter 4, Environmental Setting/Affected Environment: This chapter presents the environmental setting/affected environment and the potential impacts of the Proposed Project/Proposed Action and its alternatives. Applicable regulatory setting information for these environmental topics is included in Appendix B. The chapter includes the following sections:

Section 4, Environmental Setting/Affected Environment

Section 4.1, Introduction

Section 4.2, Environmental Resources

Section 4.2.1, Agricultural and Forestry Resources

Section 4.2.2, Biological Resources

Section 4.2.3, Tribal Cultural Resources

Section 4.2.4, Hazards and Hazardous Materials

Section 4.2.5, Human and Companion Animal Health and Safety

Section 4.2.6, Noise

Section 4.2.7, Public Services

Section 4.3, Environmental Resource Topics Eliminated from Further Analysis

Chapter 5, Other CEQA/NEPA Considerations: This chapter includes a summary of impacts resulting from the Proposed Project, including any significant and irreversible environmental changes or unavoidable adverse effects.

Chapter 6, Agencies, Organizations, and Persons Consulted: This chapter lists the agencies, organizations, and persons consulted when preparing the EIR/EIS.

Chapter 7, List of Preparers: This chapter lists the agencies and firms that were involved with the preparation of this EIR/EIS.

Chapter 8, Acronyms: This chapter provides a list of acronyms used in this EIR/EIS.

Chapter 9, References: This chapter provides a bibliography of printed references, websites, and personal communications used in preparing the EIR/EIS.

Appendices: The appendices include a comprehensive description of the proposed Program methods and applicable directives/policies and best practices, as well as applicable technical reports. Revisions made to the EIR/EIS, as well as responses to public comments received during the Draft EIR/EIS public review period, are included within Appendix G, Response to Comments.

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2 Project Description

2.1 Introduction

The California Department of Food and Agriculture (CDFA) and Wildlife Services-California (WS-California), a state office within the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS), are preparing a joint Environmental Impact Report (EIR) and Environmental Impact Statement (EIS) to provide a robust and comprehensive environmental analysis of current and proposed wildlife damage management (WDM) activities performed in California by CDFA and California Counties (Counties), as required by the California Environmental Quality Act (CEQA), and by WS-California, as required by the National Environmental Policy Act (NEPA). These activities would be undertaken in a coordinated effort to protect agricultural and natural resources, to protect property and infrastructure, and to promote human and pet health and safety.

The CDFA's proposed WDM Program (Program) describes and formalizes a framework for managing damage caused by wildlife determined to be injurious to California's agricultural industry. The WDM EIR/EIS provides a statewide environmental analysis of the framework to inform decision makers and the general public about the potential impacts of existing and future WDM activities that would be considered under the Program. Activities within this framework would be carried out in a collaborative effort by the CDFA, Counties, and WS-California, in collaboration and consultation with other federal, state, and local agencies as appropriate (refer to Figure 2-1). All WDM activities to be conducted under the framework will be analyzed in and informed by the EIR/EIS.

WS-California provides federal leadership and expertise in managing wildlife conflicts in California.[1] WS-California uses an integrated approach to recommend and apply a comprehensive range of legally available non-lethal and lethal techniques for reducing wildlife damage and conflicts. This includes providing advice on wildlife damage prevention and management, information on sources of WDM materials, depredation investigations, equipment loans, training on the use of WDM methods, and assistance with implementation of WDM methods. WS-California conducts these activities both independently and jointly with federal and state agencies, counties, municipalities, Native American tribes, and private land and resource owners/managers.

When considering the activities of the CDFA, Counties, and WS-California together, the term "Proposed Project/Proposed Action" shall be used. This EIR/EIS analyzes the Proposed Project/Proposed Action framework and activities undertaken to manage damage caused by wildlife throughout California by WS-California, the CDFA, and the Counties as depicted in Figure 2-1.

The nature of these independent and collaborative activities is not a finite set of predictable actions in specific locations, but rather, a process of responding to and minimizing damage caused by wildlife, which is inherently unpredictable both spatially and temporally. For each reported incident of wildlife damage, this process involves investigation of the damage, review of available methods, implementation of chosen methods, monitoring effectiveness of the methods, and adaptive management as necessary. The CDFA and WS-California share a commitment to a common decision-making process, which is generally depicted and described in Figures 2-2 and 2-3. This decision-making process protects the public's safety, upholds the Public Trust Doctrine,[2] prioritizes non-lethal methods to minimize or resolve wildlife conflicts when possible, protects natural resources, and

1 There are Wildlife Services (WS) offices representing all 50 states, the District of Columbia, Guam, and the Virgin Islands.

2 *Martin v. Waddell*, 41 U.S. 367 (1842) – this Supreme Court decision serves as the groundwork in U.S. common law that wildlife resources are owned by no one, to be held in trust by government for the benefit of present and future generations.

humanely dispatches animals that are lethally taken. Figure 2-2 depicts the proposed WDM response process and Figure 2-3 provides more detailed information on the decision-making process used in designing and conducting wildlife damage responses.

WDM has been a cooperative activity between the federal government and the Counties since 1919 and between the State of California and the USDA since 1921. Between 1921 and 2003, WS-California (and its predecessor agencies within the federal government) and the CDFA (and its predecessor the California Department of Agriculture) partnered with the Counties, agricultural extension offices, farmers, ranchers, and other agriculturalists to jointly conduct WDM activities and/or share the cost of WDM activities.[3]

In 2003, the CDFA ceased to fund and actively conduct WDM activities. Since that time, requests for WDM assistance from the public (primarily land and resource owners/managers), other agencies and governmental bodies, and Native American tribes in California have been addressed by the individual counties, WS-California, or private entities/firms or have not been addressed.

The current range of WDM approaches that the Counties may take include the following:

- **No County-Provided WDM** - No WDM activities are provided by these counties. Some of these counties have historically contracted with WS-California to provide WDM (and historic data are available) and some have expressed interest in participating in a statewide WDM program if it were available.
- **County-Led WDM** – These counties include a variety of WDM approach types including but not limited to the following: (1) An approach that focuses on addressing agricultural damage (e.g., activities including technical assistance up to operational support), preventing property damage, and securing public safety; (2) an approach where WDM responsibilities are coordinated/shared with animal control and/or other county departments; (3) a grant-based approach that focuses on non-lethal pest management practices, including reimbursement; and (4) an approach where counties contract directly with private entities/firms for WDM.
- **WS/County Cooperative WDM** – Many counties in California have an existing Cooperative Service Agreement (CSA) with WS-California to conduct WDM activities on individual counties' behalf.

Figure 2-4 provides an overview of the 2023 WDM approach of the Counties, which can change over time.

2.2 CDFA's Wildlife Damage Management Program

2.2.1 Background

The CDFA is mandated to "promote and protect the agricultural industry of the state."[4] This responsibility encompasses the prevention of wildlife damage to agriculture, including crops, livestock, and various agricultural and public infrastructure (e.g., roads, water conveyance structures, and buildings). As part of this mandate, the CDFA must prevent the introduction and spread of any insects or animals that are dangerous or detrimental to

3 The historic animal damage control program in California was accomplished under a master agreement between CDFA, Counties, and the U.S. Bureau of Sports Fisheries and Wildlife (now Wildlife Services). Financing was also shared by county, state, and federal jurisdictions (State of California Agriculture and Services Agency Department of Agriculture and Human Relations Agency Department of Public Health 1971).

4 California Food and Agriculture Code (FAC) Section 401.

California's agricultural industry.[5] The CDFA is also authorized to employ "hunters and trappers" to manage and eradicate harmful predatory animals.[6]

The CDFA's responsibilities encompass the prevention of wildlife damage to agriculture, including injury to or death of livestock; damage to row crops, orchards, forestry/timber plantations, or vineyards; and harm to the structural integrity of roads, buildings, irrigation and other water conveyance structures, and other agricultural infrastructure. In addition to the benefits provided to agriculture, WDM activities provide benefits to natural resources (including watercourses and rare, sensitive, and protected species), public infrastructure and private property, and public health and safety. Injurious wildlife include mammal, bird, reptile, amphibian, and fish species.

California has a unique system of County Agricultural Commissioners,[7] and the State Legislature has specified that where the CDFA and County Agricultural Commissioners have joint responsibilities, WDM is performed at the county level by County Agricultural Commissioners while the CDFA primarily serves in an oversight and support capacity by providing data and issuing recommendations and policies.[8] Counties may also work directly with WS-California through a CSA. The CDFA may also participate in "rapid response" activities, both independently and in collaboration with the Counties and/or WS-California, to respond to high-risk wildlife damage scenarios (e.g., introduction and spread of injurious animal pests, need to exclude high-risk pests) to promptly abate and prevent harm to agricultural and natural resources, to protect property and infrastructure, and to ensure human health and safety.[9]

CEQA and NEPA have similar goals regarding projects that may affect the environment, and CEQA is generally recognized as having a broader reach and impact than NEPA. CEQA requires CDFA and participating counties to assess the potential environmental impacts of their WDM activities and to mitigate significant impacts, as practicable. NEPA requires WS-California to consider the potential environmental impacts of its WDM activities and to identify feasible alternatives, but mitigation measures are not required.

In compliance with CEQA and NEPA, this EIR/EIS will provide state and federal environmental review for WDM activities conducted in California by the CDFA, the Counties, and WS-California. This will include a description of the process for consideration of future WDM activities (that have not been included in this EIR/EIS). The CDFA will also monitor the subsequent use of this EIR/EIS by Counties or other state agencies to ensure consistency with the impact conclusions and mitigation measures defined herein.

The CDFA will not need new legislation to formalize and implement the Program; its existing authorities are sufficient. The Program would establish a statewide framework for managing wildlife determined to be injurious to California's agricultural resources and property, natural resources, and/or human health and safety. The activities to be conducted under the Program framework are well established and historically have been carried out by CDFA, the Counties, and WS-California. This framework would be refined through ongoing coordination to improve its efficacy, particularly with respect to interagency coordination, data collection and processing, information sharing, and education. The Program's elements are described below.

The Program framework would preserve and enhance the Counties' historical roles in carrying out WDM activities at the local level, with CDFA primarily serving in an oversight and support capacity. CDFA would also coordinate with the Counties, WS-California, and other state agencies to undertake rapid responses to high-risk wildlife damage

5 FAC Sections 403, 461, 5006.
6 FAC Section 11221.
7 FAC Section 2276.5; see generally FAC Division 2 (Local Administration) at Sections 2001–2344.
8 FAC Sections 2281, 2282.
9 FAC Sections 403, 404, 2282.5.

threats. In undertaking these rapid response activities, CDFA recognizes that the Counties are well equipped to act quickly in response to damage, conflicts, or threats by wildlife to agricultural and natural resources.[10] Nonetheless, in situations where a wildlife species can quickly cause severe and extensive damage, CDFA must have the ability to provide the rapid regional response needed to effectively manage, remove, and/or eradicate such a threat.

This imperative was struck in bold relief when, in 2017, a pregnant female nutria (*Myocastor coypus*) was captured in Merced County by a WS-California employee. A semi-aquatic rodent native to South America, nutria consume up to 25% of their body weight in aboveground and belowground plant material each day, causing extensive damage to native plant communities, soil structures, and agricultural crops. Aside from damaging agriculture, nutria impact public infrastructure by burrowing into banks and levees, causing streambank erosion, sedimentation, levee failures, and roadbed collapses that threaten public safety. Nutria were last detected in California in the early 1970s, which prompted the initiation of a joint program among CDFA, the California Department of Fish and Wildlife (CDFW), WS-California, and the Counties to eradicate the species because of its devastating impacts on agriculture, wetlands, and water infrastructure.

A comprehensive statewide environmental analysis of the Program will improve the efficacy of WDM and rapid response (e.g., targeted removal of invasive species, like nutria) in California.

2.2.2 CDFA WDM Program Description

The proposed Program would be consistent with CDFA's legislative mandates and would reestablish the framework for undertaking WDM activities that protect California's agricultural resources and property, promote human health and safety, and protect natural resources. The framework for the Program is provided by existing law, and two of the three principal governmental entities operating within this framework—the Counties and WS-California—have worked together continuously for many decades and enjoy well-developed administrative practices for coordination and collaboration. The CDFA's reengagement with those entities, as well as other state and local agencies, through the Program would involve reestablishing lines of communication needed for coordination and collaboration among all parties. An overview of the Program, objectives, and architecture (functional elements, involving both intra- and intergovernmental coordination and cooperation) is provided below.

Program Components

Two broad categories of WDM activities compose the Program:

- CDFA-Led Activities
- CDFA/County Activities

The CDFA-Led Activities are those WDM activities over which the CDFA exercises primary responsibility. Operationally, this would include emergency/rapid response activities such as responding to an invasive species. Administratively, this would include any statewide administrative activities, such as data collection, maintenance of the CEQA document, and development of statewide WDM recommendations (in collaboration with WS-California, the CDFW and/or other state agencies as applicable). In addition, this may include creation and administration of statewide advisory groups and support of additional county CEQA compliance. This is especially helpful in situations

[10] FAC Section 2276.5.

where there is a need for consistent guidance applicable to more than one county (e.g., to address a regional issue that may span several counties).

The CDFA would coordinate and partner with the California Agricultural Commissioners and Sealers Association to ensure coordinated and complete communications with all California County Agricultural Commissioners.

The CDFA/County Activities are those WDM activities primarily executed or organized by participating counties. These would be conducted in coordination with the CDFA. Most WDM activities would continue to fall into this broad category. Within this category of activities, participating counties may carry out WDM activities on their own (County-Led WDM)[11] or enter into a CSA with WS-California (WS/County Cooperative WDM).

A description of WDM activities and methods proposed in the Program and carried out by the CDFA is included in Appendix C of this EIR/EIS. The Counties would typically have a role in both CDFA-Led Activities and CDFA/County Activities, whereas other state and local agencies would sometimes be involved in one or both, to a greater or lesser degree. There would also be situations in which a county could take WDM action on its own, independent of either the CDFA or WS-California. Additionally, and in concert with ongoing CDFA and WS-California WDM activities conducted by their personnel, annual monitoring is undertaken to ensure that those activities and their impacts remain consistent with the activities and impacts analyzed in the EIR/EIS and selected as part of the decision. Counties will monitor WDM activities conducted by their personnel and ensure those activities and their impacts remain consistent with the activities and impacts analyzed in the EIR/EIS and selected as part of the County program. Monitoring will include review of adopted mitigation measures, target and non-target take reported, and associated impacts analyzed in the EIR/EIS. Monitoring will ensure that WDM activity effects are within the limits evaluated in the selected alternative. The CDFA WDM Program will track statewide WDM activities by combining county level annual monitoring reports into a statewide cumulative annual review with assistance from WS-California.

It is not the CDFA's intention that the Program's formalization of the existing framework for WDM would give rise to any new interactions between or situations involving the CDFA, WS-California, and/or the Counties that did not occur prior to 2003, when the CDFA's role in WDM lapsed.[12] Activities within this framework would be carried out in a coordinated effort with the Counties and WS-California, with collaboration and consultation from other federal, state, and local agencies as appropriate. The CDFA and WS-California would follow the historic division of labor and responsibility with respect to WDM by conducting independent, parallel activities within each agency, usually in collaboration with the Counties, as well as coordinating and collaborating with each other on common or joint activities.

Activities undertaken by WS-California independently or in coordination with Counties are described in Section 2.3, WS-California Wildlife Damage Management.

Program Objectives

The Program is intended to accomplish the following:

1. Provide statewide leadership in addressing the impacts of wildlife on agriculture.
2. Increase the health and productivity of agricultural resources (and, incidentally, natural resources).
3. Maintain the availability of information materials that support effective, humane, and environmentally safe WDM.

11 County-Led WDM may include contracting WDM to a private, duly licensed wildlife damage services provider.

12 Under the Proposed Project, Counties would have the opportunity to partner with the CDFA and/or WS-California, as well as carry out WDM on their own (County-Led WDM).

4. Support improvement of current, and deployment of new, WDM materials and methods in response to ongoing research.
5. Promote broader understanding and awareness about wildlife damage identification, biology, life history, impacts, and damage management activities.
6. Elicit stakeholder participation in addressing wildlife damage to agriculture and, incidentally, natural habitats and public health and safety.
7. Support development and implementation of measures to avoid, minimize, and mitigate unintended impacts to watercourses and protected species and their habitats from WDM materials and methods.
8. Inform the implementation of WDM activities conducted by state and local agencies throughout California.
9. Provide rapid response to high-risk wildlife damage scenarios in order to prevent harm to agricultural and natural resources, protect property/infrastructure, and ensure human health and safety.
10. Support the development and implementation of measures to avoid, minimize, and mitigate unintended impacts to California's important natural resources from WDM materials and technologies.
11. Build upon existing resources, including WS-California's data reporting system, to develop a statewide information management, reporting, and data sharing system for wildlife damage incidents and management activities that will allow a robust evaluation of management activities to support an integrated and adaptive WDM approach.

Program Functional Elements

The Program's primary function will include the following elements. Implementation will be informed by the analysis included in the EIR/EIS.

- **Administrative Activities.** The CDFA will maintain the statewide Program EIR. This includes updating the Program EIR; updating the data the Program EIR relies upon; updating filings, technical appendices, and other related documentation; and coordinating with WS-California on the EIS. Project administration will be conducted in coordination with the Legal Office, Animal Health and Food Safety Services, and Plant Health and Pest Prevention Services.
- **Statewide Wildlife Damage Management Activities.** The CDFA will conduct a review of existing WDM activities as needed to support an integrated and adaptive WDM approach.
- **Coordination of Program Activities.** The locus of WDM will continue to be participating counties. Participating counties' Agricultural Commissioner Offices will continue to carry out WDM activities on their own,[13] contract with WS-California, or delegate to a private, duly licensed wildlife damage services provider.
- **Rapid Response.** The Program will utilize an integrated WDM approach to address high-risk wildlife damage situations calling for immediate treatment activities (e.g., to address the introduction or spread of invasive species, zoonotic diseases, or food-borne pathogens). This will be conducted in coordination and collaboration with the Counties, WS-California, and other state and federal agencies.
- **Education and Outreach.** The Program will promote broader understanding and awareness about wildlife identification, biology, life history, damage, and best management practices (VPCRAC 2023). CDFA will undertake additional CEQA review as needed to support future discrete WDM actions or activities outside of the analyses in this EIR/EIS undertaken by CDFA or the Counties, including materials and methods identified through the information sharing and adaptive management processes. Potential audiences for education and outreach may include but are not limited to local government, landowners, University of

[13] Similar to WS-California, trained personnel, referred to as "wildlife specialists" will carry out WDM, as described in Appendix C.

California Cooperative Extension, agricultural associations, state agencies (e.g., Department of Water Resources, State Parks, Division of Boating and Waterways), municipalities, non-governmental organizations, and interested public. Educational and outreach material for health and safety, agricultural, and regulatory information is available in English and Spanish to assist with training and outreach.

- **Reporting.** The Program's collected data will be available for review by responsible and trustee agencies and the governor's office. The data will be analyzed and summarized, and findings will be made publicly available on an annual basis. Key reporting areas will include but not be limited to the following activities:

Information Processing

- Will include compilation/collection of WDM activity data transmitted by California Agricultural Commissioners or their contractors
- Reporting data points will align with WS-California reporting (USDA Management Information System) or alternate data management system
- Counties conducting WDM individually or in partnership with WS-California (via a CSA) will report wildlife disease surveillance data through an annual report, the Animal Health and Food Safety Services Management database, or an appropriate similar animal health or one-health portal.

Adaptive Management

- Analysis of trends
  - Efficacy of activities
  - Effects on natural resources and the environment
  - Management activity challenges
- Evaluation of new management practices and activities, and, if appropriate and needed, proposal of recommendations regarding EIR/EIS maintenance and update
  - Update of mitigation monitoring measures
  - Management of information filings
  - Review for accuracy/efficacy of technical reports
  - Periodic evaluation of resource needs and gaps

2.3 WS-California Wildlife Damage Management

2.3.1 Background

Wildlife Services is authorized and directed by law to protect American agriculture and other resources from damage associated with wildlife. As stated under the Acts of March 2, 1931 (7 USC 8351–8352), as amended, and December 22, 1987 (7 USC 8351-8353), the U.S. Secretary of Agriculture (Secretary) is authorized to "conduct a program of wildlife services with respect to injurious animal species and take any action the Secretary deems necessary in conducting the program." The Secretary has delegated this authority to Wildlife Services. The Secretary is further authorized to enter into agreements with states, local jurisdictions, individuals, and public and private organizations and institutions for the damage management of wildlife, except for urban rodents, and those species that are reservoirs of zoonotic diseases.

WS-California performs the functions delegated to Wildlife Services within the State of California. WS-California is authorized to enter into CSAs with county, state, tribal, local, and federal agencies; environmental groups; and private and public groups to perform WDM activities for the protection of agriculture, property, natural resources, and human health and safety.

2.3.2 Overview

WS-California provides federal leadership and expertise in managing wildlife conflicts in California to allow people and wildlife to coexist. WS-California currently uses an integrated approach to recommend and apply a range of legally available nonlethal and lethal techniques for reducing wildlife damage and conflicts.

WS-California provides information, guidance, training, and operational assistance on wildlife damage prevention and management. WS-California receives requests for assistance from the public, private entities, other agencies or governmental bodies, and Native American tribes. Assistance may include demonstrations on the proper use of damage management devices and technical assistance. Wildlife specialists may also provide direct operational assistance to resolve wildlife conflicts. Part of the decision-making process may include an on-site visit or verbal consultation with the land or resource owner/manager. Potential methods used as part of WDM can include physical exclusion, harassment and deterrence, capture devices, and lethal techniques.

A description of WDM activities and methods currently used and carried out by WS-California is included in Appendix C of this EIR/EIS.

No new authorities are needed for WS-California to carry out the activities described herein. WS-California's WDM activities are authorized and coordinated pursuant to federal law, as well as memoranda of understanding and agreements with various federal, state, tribal, and local agencies and other governmental bodies. WS-California conducts its actions in accordance with applicable federal, state, local, and tribal laws, regulations, species management plans, and land management plans.

Components of WS-California Wildlife Damage Management

WS-California conducts three broad categories of WDM activities:

- WS-California-Only Activities
- WS-California/CDFA Activities
- WS-California/CDFA/County Activities

WS-California-Only Activities are those WDM activities that WS-California carries out independent of CDFA or county involvement. Examples of such activities include airport wildlife hazard management (WHM) and threatened and endangered species protection, described in the subsection Functional Elements of WS-California's Activities.

WS-California/CDFA Activities are those where coordinated and collaborative action by WS-California, as the responsible federal agency, and the CDFA, as the responsible state agency, is called for. An example of these shared activities is the recent nutria abatement program, which includes infestation monitoring by the CDFA and abatement activities conducted by WS-California.

WS-California/CDFA/County Activities are those WDM activities conducted by WS-California in coordination with both the CDFA and individual counties within California. These activities are generally conducted under a CSA.[14]

It is not anticipated that the three broad categories of WS-California's current WDM activities would change as a result of the preparation of this EIR/EIS. However, the environmental analysis of the Proposed Project/Proposed Action, the CDFA WDM Program, and WS-California WDM activities that occur within these categories and are described in this EIR/EIS will inform and guide the implementation of future WDM activities conducted in California. Additionally, and in concert with ongoing WS-California WDM activities conducted by their personnel, annual monitoring is undertaken to ensure that those activities and their impacts remain consistent with the activities and impacts analyzed in the EIR/EIS and selected as part of the decision. Monitoring will include review of adopted mitigation measures, target and non-target take reported, and associated impacts analyzed in the EIR/EIS. Monitoring will ensure that WDM activity effects are within the limits evaluated in the selected alternative. The CDFA WDM Program will track statewide WDM activities by combining county level annual monitoring reports into a statewide cumulative annual review with assistance from WS-California.

WS-California Wildlife Damage Management Approach

WS-California uses an integrated WDM approach that is intended to accomplish the following:

- Implement standardized procedures for evaluating complaints of wildlife damage, implementing management strategies, and conducting monitoring to evaluate the effectiveness of management strategies.
- Utilize Wildlife Services national directives, U.S. Fish and Wildlife Service (USFWS) Biological Opinions of Wildlife Services actions, and WS-California policies to support the development and implementation of measures to avoid, minimize, and mitigate impacts to California's wildlife, natural resources, property, human life, threatened and endangered species, and natural habitats from WDM materials, technologies, and methods.
- Build upon existing resources, including WS-California's data reporting system, to develop a statewide information management, reporting, and data sharing system for wildlife damage incidents and management recommendations that will allow a robust evaluation of all WDM activities to support an integrated and adaptive management approach.

Functional Elements of WS-California's Activities

WS-California's WDM activities include the following functional elements in support of Wildlife Services' mission to protect agricultural and natural resources, protect property/infrastructure, and ensure human health and safety:

- **Cooperative Resource Protection.** WS-California is authorized to enter into CSAs with individual counties and land and resource owners/managers to implement activities that resolve or minimize wildlife damage impacting agriculture and property (including infrastructure). WS-California provides WDM services under these agreements, including technical assistance (including education and advice) and implementation of WDM methods (including the deployment of wildlife specialists and specialized equipment, as described in Appendix C). Educational, training, and outreach materials and signage are available in English and Spanish. Translation services are also available if necessary to communicate with cooperators.

[14] WS-California may conduct WDM in non-CSA counties at the behest of another regulatory agency (e.g., for threatened and endangered species protection) or in an emergency/rapid response situation.

- **Airport Wildlife Hazard Management (WHM).** WS-California conducts WHM as part of APHIS' Airport Wildlife Hazards Program to resolve wildlife conflicts that threaten the flying public's health and safety. WS-California employs a network of trained and certified biologists and technicians that provide site visits and consultations, develop wildlife hazard assessments and WHM plans, and conduct operational WHM on airfields. This work helps airport managers maintain a safe environment and meet Federal Aviation Administration regulatory requirements and Department of Defense instructions.
- **Threatened and Endangered Species Protection.** WS-California works in collaboration with the USFWS, the CDFW, conservation organizations, and other land/resource managers to protect threatened and endangered wildlife and plants from the impacts of predation, destruction, invasive species, and disease.
- **Human and Pet Health and Safety.** WS-California conducts WDM activities in protection of human and pet health and safety at the request of CDFW, law enforcement, and/or public health agencies. These activities include responding to wildlife bite/attack incidents and situations that pose a disease risk to humans (e.g., zoonotic diseases and food contamination).
- **Invasive Species.** WS-California collaborates with the USFWS, the CDFA, the CDFW, conservation organizations, and other land/resource owners to implement WDM activities to prevent the spread of invasive species and mitigate the impacts to California's ecosystems, native wildlife, and other resources.

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Proposed Project: WS-California, CDFA, and California Counties

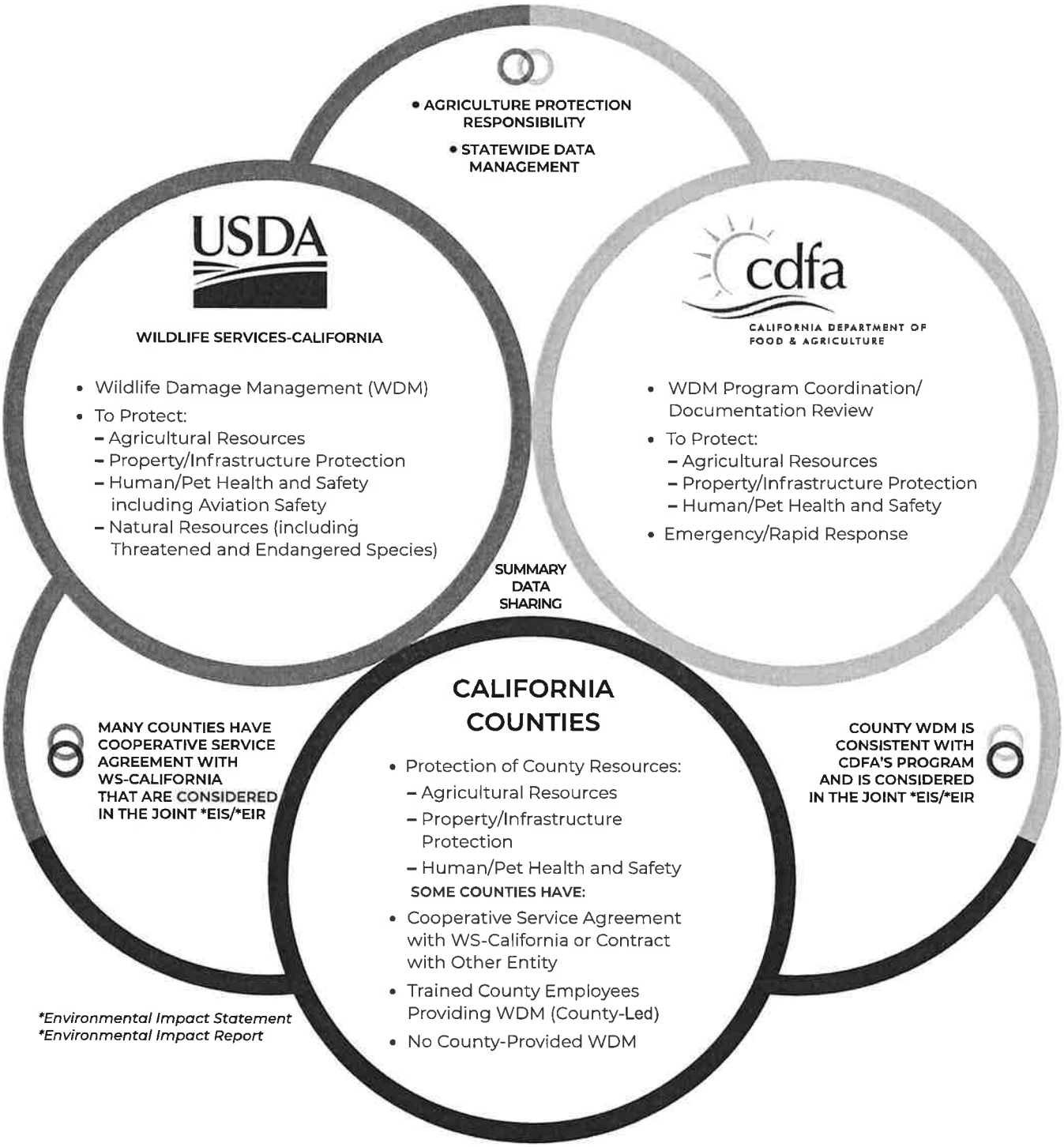


Figure 2-1

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Wildlife Damage Management Response Model

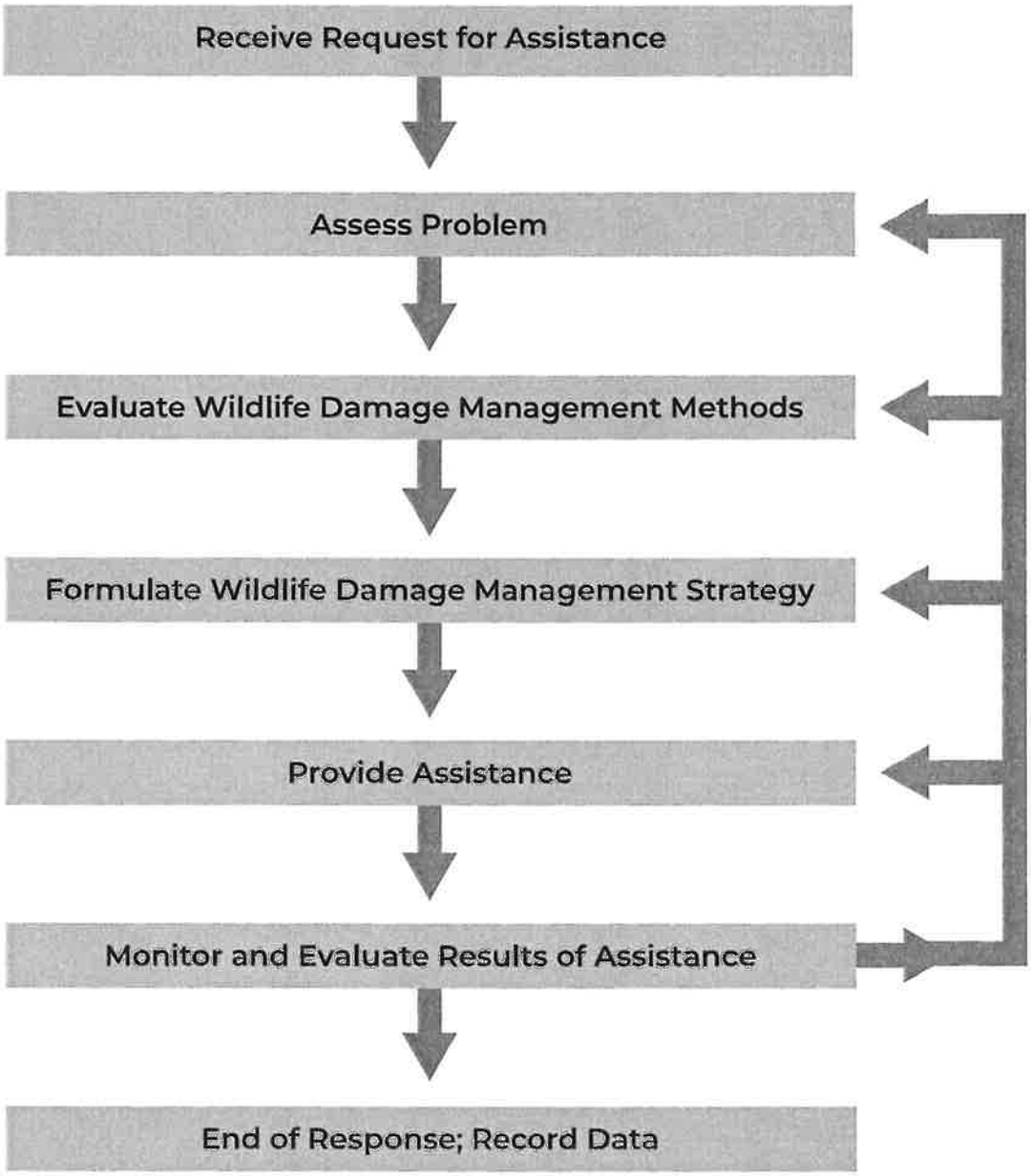


Figure 2-2

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Wildlife Services Decision Model

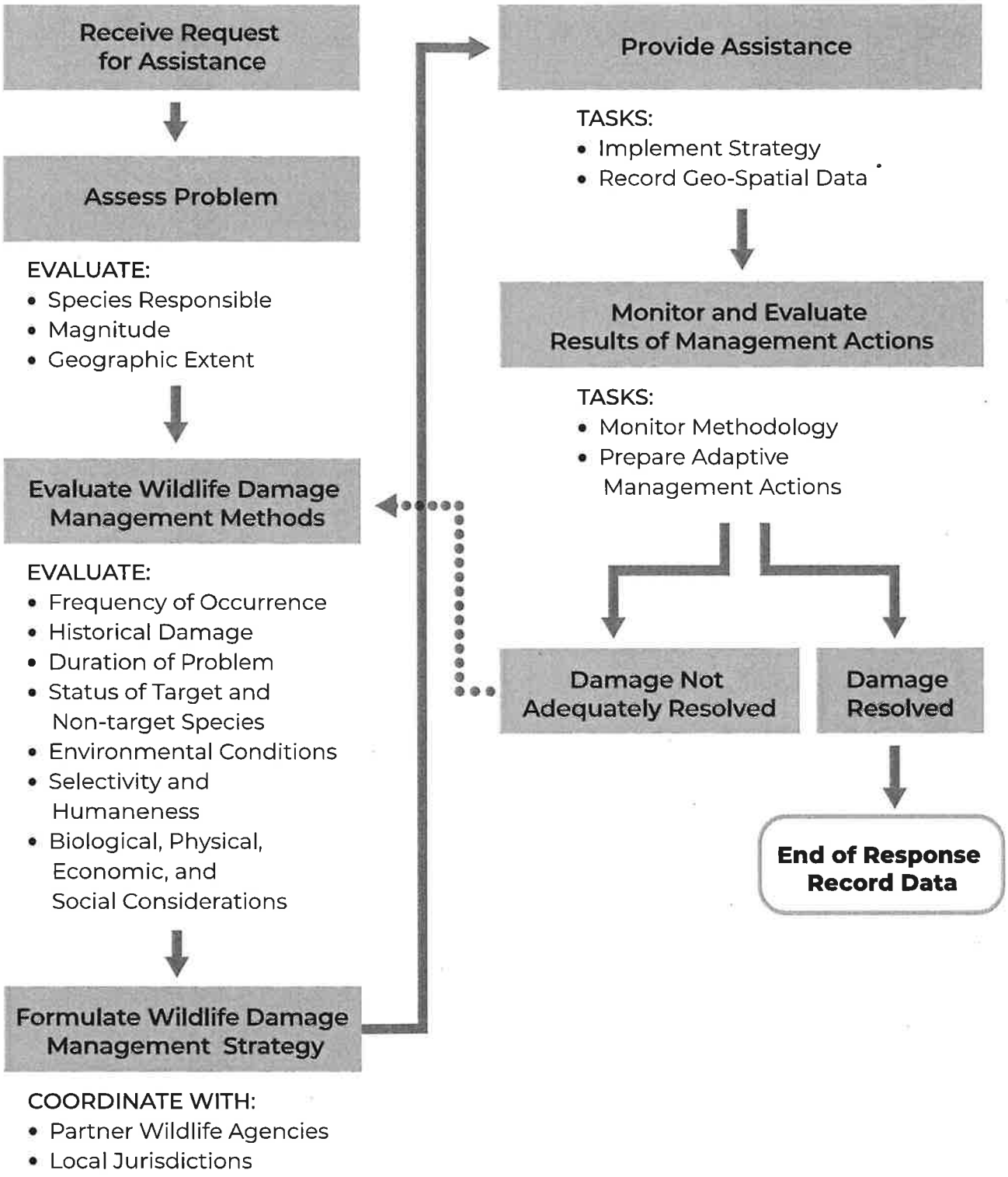


Figure 2-3

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Wildlife Damage Management Approaches by County

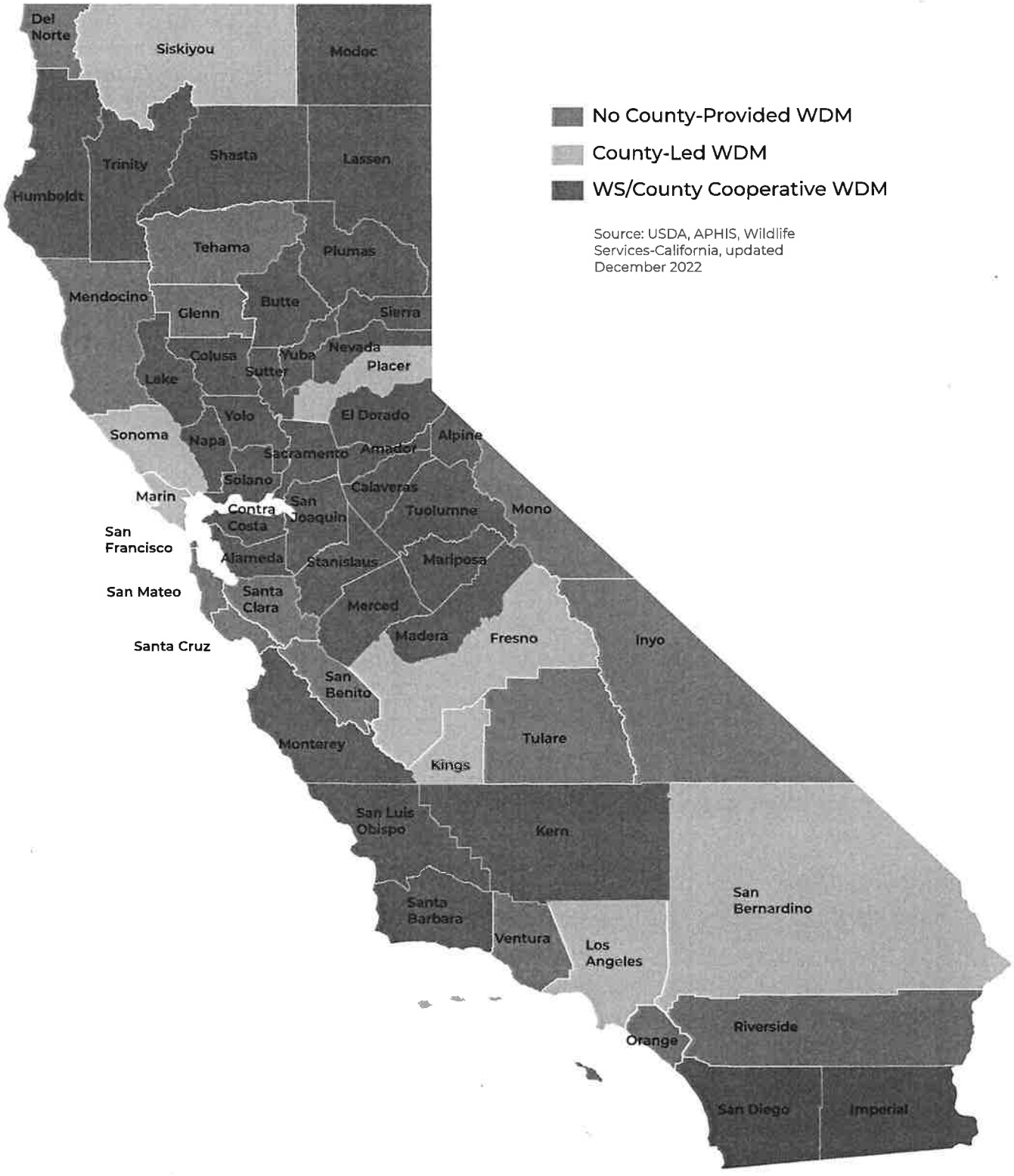


Figure 2-4

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3 Alternatives

3.1 Introduction

This chapter of the environmental impact report (EIR)/environmental impact statement (EIS) describes the methodology used to identify and screen alternatives to the Proposed Project and compares the environmental impacts of the alternatives.

This chapter also presents a summary of the impact findings presented in the environmental analysis in Chapter 4 of this EIR/EIS. The information is organized by alternative rather than by environmental resource category to facilitate an evaluation of the comparative merits of the Proposed Project, the CEQA alternatives evaluated in this EIR/EIS, and the NEPA alternatives considered under the federal Proposed Action.

This chapter is organized as follows:

- Section 3.2 describes the regulatory requirements for the alternatives comparison.
- Section 3.3 presents a discussion of the differences between alternatives requirements of CEQA and NEPA.
- Section 3.4 outlines the criteria used for the alternatives and the Proposed Project/Proposed Action for CEQA and NEPA.
- Section 3.5 describes the process used to identify issues and screen alternatives.
- Section 3.6 discusses Proposed Project objectives, purpose, and need.
- Section 3.7 describes the Proposed Project/Proposed Action.
- Section 3.8 presents an overview of the alternatives considered.
- Section 3.9 defines the alternatives that were considered but dismissed from detailed analysis.
- Section 3.10 presents a summary of the alternatives impact analysis.

The alternatives discussed in detail in Section 3.8, include the following:

- Alternative 1: No Project/Continuation of WS-California
- Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM
- Alternative 3: Non-Lethal Operational WDM
- Alternative 4: Financial Reimbursement Assistance
- Alternative 5: No Project/Cessation of WS-California

3.2 CEQA and NEPA Alternatives Requirements

California Environmental Quality Act

Under CEQA, the alternatives analysis is required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the

comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the Proposed Project, the significant effects of the alternative shall be discussed. If the environmentally superior alternative is the No Project Alternative, CEQA requires identification of an environmentally superior alternative among the other alternatives (14 CCR 15126.6[e][2]).

The comparison of alternatives is designed to satisfy the requirements of CEQA Guidelines Section 15126.6(d), Evaluation of Alternatives (14 CCR 15000 et seq.). This comparison focuses on the significant adverse impacts of the Proposed Project as compared to the alternatives rather than on the beneficial impacts of any alternative above and beyond its ability to reduce or avoid significant effects of the Proposed Project. This is consistent with the constitutional requirement that there be "rough proportionality" between the impacts of the project and the measures identified to reduce or avoid those impacts (*Dolan v. City of Tigard*, 512 U.S. 374 [1994]), as well as the constitutional requirement that there be an essential nexus (i.e., connection) between a legitimate governmental interest and the measures identified to further that interest (*Nollan v. California Coastal Commission*, 483 U.S. 825 [1987]). These requirements are also set forth in CEQA Guidelines Section 15126.4(a)(4).

Therefore, the environmental superiority of alternatives under CEQA is based on a comparison of significant impacts that would result from the Proposed Project and the alternatives identified in this EIR/EIS. Issue areas that are generally given more weight in comparing alternatives are those with long-term impacts (e.g., permanent losses of resources or land use conflicts). Impacts associated with a single event occurring in different locations (i.e., temporary or short-term) that are mitigable to less-than-significant levels are given less weight. The environmental superiority of alternatives does not consider whether the Proposed Project or an alternative would improve existing environmental conditions. These benefits, summarized in this section and in Sections 4.2.1 through 4.2.7 of this EIR/EIS, will be considered by the California Department of Food and Agriculture (CDFA) in its final decision about whether to approve the Proposed Project or an alternative.

Furthermore, it is important to note that it is not the purpose of the EIR to promote a particular alternative or resolve issues of ethics or humaneness (as they relate to use of lethal WDM) or to debate the costs and benefits of specific wildlife damage management (WDM) activities or methods of WDM.

National Environmental Policy Act

Under Council on Environmental Quality (CEQ) regulations implementing NEPA, an EIS must present the environmental impacts of the proposed action (Proposed Action) and the alternatives in comparative form, sharply defining the issues and providing a clear basis of choice among options (40 CFR 1502.14). The regulations direct that an EIS "identify the agency's preferred alternative or alternatives, if one exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference" (40 CFR 1502.14[e]).

The "agency's preferred alternative" is the alternative that the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors including ethics and humaneness (as they relate to lethal WDM). The concept of the "agency's preferred alternative" is different from the "environmentally preferable alternative," although in some cases one alternative may be both. It is identified so that agencies and the public can understand the lead agency's orientation (see CEQ 40 Most Asked Questions, Question 4a [CEQ 1986]). The identification of a preferred alternative may take into consideration whether the proposed action or an alternative would improve existing environmental conditions and does not constitute a commitment or decision principle, and there is no requirement to select the preferred alternative in the Record of Decision. The identification of the preferred alternative may change between a draft EIS and final EIS. Various parts

of separate alternatives that are analyzed in the draft can also be combined to develop a complete alternative in the final EIS if the reasons for doing so are explained.

Under the NEPA regulations, the Record of Decision must identify the environmentally preferred alternative. The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources. Although not required, agencies are encouraged to identify the environmentally preferred alternative in the EIS (see CEQ 40 Most Asked Questions, Question 6b [CEQ 1986]).

3.3 Differences Between CEQA and NEPA Alternatives Requirements

CEQA and NEPA requirements for the analysis of alternatives are similar, but each statute requires slightly different approaches and processes.

CEQA requires that an EIR consider alternatives that would avoid or reduce one or more of the significant impacts identified for the Proposed Project. The CEQA Guidelines specify that the EIR does not need to consider all possible alternatives; rather, the alternatives considered should be limited to a reasonable range of potentially feasible alternatives that would meet the Proposed Project objectives and would avoid or substantially lessen at least one of the Proposed Project's significant environmental effects. CEQA requires analysis of a No Project Alternative to allow decision makers to assess the effects of not moving forward with the Proposed Project. CEQA does not require the alternatives to be evaluated in the same level of detail as the Proposed Project. However, EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project (14 CCR 15126[d], 15126.6[a], 15126.6[f]).

NEPA and its implementing regulations require that an EIS evaluate a reasonable range of feasible alternatives to the proposed action. "No Action" has two interpretations within NEPA; 1) no change from a current management direction, or 2) if a new project is proposed, no project will be implemented. Although the No Action Alternative is not the baseline for evaluating environmental effects, the EIS must also evaluate a No Action Alternative, to allow decision makers to compare the effects of approving the proposed action with the effects of not approving it. Alternatives must be evaluated in the same level of detail provided for the proposed action (40 CFR 1502.14).

3.4 CEQA and NEPA Criteria for the Proposed Actions

California Environmental Quality Act

CEQA requires that an EIR identify and describe a "reasonable range of alternatives" to the Proposed Project. Beyond the required No Project Alternative, the alternatives selected for comparison would feasibly attain most of the basic objectives of the project and avoid or substantially lessen one or more significant effects of the Proposed Project (CEQA Guidelines Section 15126.6). The "range of alternatives" is governed by the "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit an informed and reasoned choice by the decision-making body and informed public participation (14 CCR 15126.6[f]).

The CEQA Guidelines (Section 15364) defines *feasible* as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological

factors." The final decision regarding the feasibility of alternatives lies with the decision maker for a given project, who must make the necessary findings addressing the potential feasibility of reducing the severity of significant environmental effects (California Public Resources Code, Section 21081; 14 CCR 15091).

The alternatives considered in this EIR were selected based on the following factors:

1. The extent to which the alternative would accomplish most of the basic objectives of the Proposed Project (identified in Chapter 2, Project Description);
2. The extent to which the alternative would avoid or lessen any of the identified significant environmental effects of the Proposed Project (discussed in Sections 4.2.1 through 4.2.7);
3. The feasibility of the alternative, taking the statewide suitability of different types of WDM activities and methods throughout California, availability and management of materials needed for WDM activities, and consistency with applicable plans and regulatory limitations;
4. The extent to which an alternative contributes to a "reasonable range" of alternatives necessary to permit a reasoned choice; and
5. The CEQA Guidelines requirement to consider a no project alternative and to identify an environmentally superior alternative in addition to the no-project alternative (14 CCR 15126.6[e]).

National Environmental Policy Act

NEPA alternatives explore other ways of meeting the purpose and need statement (discussed in Chapter 1, Project Purpose, Need for Action, and Objectives) in ways that differ from CEQA. The CEQ's regulations implementing NEPA (40 CFR Section 1502.14) provide for a rigorous analysis and comparison of alternatives to the proposed action to provide a clear basis for choice among options by decision makers and the public. The CEQ guidance states that agencies will do the following:

- Rigorously explore and objectively evaluate all reasonable alternatives, and, for alternatives that were eliminated from detailed study, briefly discuss the reasons for being eliminated;
- Devote substantial treatment to each alternative considered in detail, including the proposed action, so that reviewers may evaluate their comparative merits;
- Include reasonable alternatives not within the jurisdiction of Wildlife Services (WS-California), a state office within the U.S. Department of Agriculture's Animal Plant and Health Inspection Service (APHIS) (i.e., the NEPA lead agency).
- Include the alternative of no action;
- Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference; and
- Include appropriate mitigation measures not already included in the proposed action or alternatives.

The CEQA and NEPA guidance for alternatives development and analysis has been used in the alternatives development, screening, and analysis presented in the rest of this chapter.

3.5 Alternatives Identification and Screening Process

According to the CEQ, NEPA documents should evaluate "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural,

economic, social, [and] health" effects. The analyses should also consider "direct, indirect, [and] cumulative" effects, as well as "both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial" (40 CFR 1508.8).

Alternatives analyzed in this document were developed considering the goals of the CDFA and WS-California. The potential significant environmental impacts of the proposed actions listed below were identified during the public scoping process (see Scoping Report in Appendix A for details). The feasibility of potential alternatives and input received during the public scoping process was also considered when preparing the analysis within this document. The issues are discussed here to provide context for the analyses. The issues are as follows:

- **Issue A:** Impacts/Effects on Biological Resources including Target Species, Non-Target Species, and Ecosystem Function (Section 4.2.2 and Appendix D)
- **Issue B:** Impacts/Effects on Human and Companion Animal Health and Safety (Section 4.2.5)
- **Issue C:** Impacts/Effects on Use of Public Lands including Special Designation Areas (Chapter 5)
- **Issue D:** Impacts/Effects on Other Sociocultural Issues including Humaneness and Ethics (Chapter 5)
- **Issue E:** Impacts on Socioeconomics including Environmental Justice (Section 4.3)
- **Issue F:** Impacts to Tribal Cultural Resources (Sections 4.2.3 and 4.3 and Appendix E)

3.5.1 Issue A: Impacts/Effects on Biological Resources

Target Species

Estimating wildlife population sizes over large areas can be extremely difficult, labor intensive, and expensive. State and federal wildlife management agencies have limited resources to conduct wildlife population surveys and monitor trends. States may monitor the status of wildlife populations by assessing sex ratios and age distribution. Indices of relative abundance or data on catch-per-fee effort from hunter surveys also serve as relative measures of population size and status. In accordance with CEQ regulations and to preserve the professional and scientific integrity of the analysis, this EIR/EIS uses reliable existing data and resources provided by jurisdictional agencies and peer reviewed literature in order to estimate wildlife populations and status.

The analysis in Chapter 4 found that the Proposed Project/Proposed Action and Alternative 1, with the inclusion of protective measures to minimize risk, would result in the greatest lethal removal of predators by the CDFA and WS-California, but they would not adversely affect any target species populations. Alternative 2 would result in less take of target species, as it is limited to lethal operational WDM for human and pet health and safety, threatened and endangered (T&E) species protection, and airport wildlife hazard management. Alternatives 3, 4, and 5 would not have a significant adverse effect on target species as no lethal operational WDM would occur; refer to Section 4.2.2, Biological Resources, for more detailed analysis. Under the alternatives where the CDFA and WS-California are unable to provide assistance, it is possible that another entity capable of providing assistance with WDM may conduct the action in place of the CDFA and/or WS-California. Examples of benefits of CDFA and WS-California involvement include standardized training and procedures, documented compliance with environmental laws, and public involvement.

Non-Target Species

Impacts/effects on non-target species are divided into two categories—Endangered Species Act (ESA)/T&E species and other unintentional take. Refer to Section 4.2.2 for more detailed analysis of potential impacts to

non-target species. Laws, policies, and legislation regulating the protection of T&E and other special status species are provided in Appendix B.

Endangered Species Act/Threatened and Endangered Species

It is not anticipated that any of the Proposed Project WDM activities will result in jeopardy to any ESA/T&E species. It is anticipated that the Proposed Project/Proposed Action and Alternative 1 will result in the highest amount of WDM (followed by Alternative 2) but minimal risk to ESA/T&E species. Alternatives 3, 4, and 5 may increase the amount of WDM conducted by other entities, which could result in an increased threat to ESA/T&E species. A more detailed analysis of impacts to ESA/T&E species is located in Chapter 4.

Other Unintentional Take

It is anticipated that the Proposed Project/Proposed Action and Alternative 1, followed by Alternative 2, would result in the highest potential for unintentional take because there would be more take occurring. Alternatives 3, 4, and 5 may increase the amount of WDM conducted by other entities and land owners, resulting in an increase in unintentional take by land owners; however, it would still be less unintentional take than the Proposed Project/Proposed Action, Alternative 1, and Alternative 2 due to less take occurring.

Ecosystem Function

This section briefly summarizes ecological concepts relevant to ecosystem functions potentially affected by WDM activities. Biodiversity refers to the variety of species within an ecosystem. Ecosystem resilience refers to the magnitude of disturbance that can be absorbed before the system redefines its structure by changing the variables and processes that control behavior. Predators, particularly apex predators can have a pronounced impact on biodiversity and ecosystem resilience. In diverse ecosystems, there is a degree of redundancy in the roles species play within the different trophic levels (e.g., apex predators, mesopredators, herbivores, plants, decomposers). Less complex ecosystems have lower ecosystem resilience and are sensitive to disruptions, including those caused by humans.

Predators directly affect ecosystems through predation and indirectly through exclusion/reduction in populations of other predators/mesopredators and alteration of prey behavior and habitat use. These impacts, both direct and indirect, affect the abundance of prey species and alter impacts these species have on other levels of the food web. The complete loss of apex predators from an ecosystem can reduce biodiversity and shorten the food web length in the system, which may alter the presence and abundance of mesopredators, increase the intensity of herbivory, and ultimately impact the abundance and composition of plant communities, soil structure, nutrients, and even physical characteristics of the environment. The presence of native predators in a healthy ecosystem may also improve the ability of the system to resist adverse impacts of invasive species.

A trophic cascade is an indirect ecological effect that occurs when one trophic level is modified to an extent that it affects other trophic levels in a food chain or web. In a simple example, predators, their herbivore prey, and plants that provide food for the herbivores are three trophic levels that interact in a food chain. The presence of the predator causes reductions in prey populations or causes the prey population to alter its use of habitat, which, in turn, impacts plant community composition and health. Removal of large mammalian predators such as mountain lions or wolves has the potential to change the behavior of more generalist predators like black bears and can affect behavior and density of wild ungulates such as deer or elk. Increased herbivory of these wild ungulates can substantially affect plant communities and the habitats that are created by those plant communities. Trophic

cascade effects from the removal of smaller predators (e.g., coyote, fox, bobcat) can also occur, increasing abundance of prey mammals such as voles, ground squirrels, and others. Removal of larger predator species also has the potential to allow increased abundance of mesopredators (mid-ranking predator in a trophic level that typically preys on smaller animals) such as raccoons and opossums.

As it relates to trophic cascade (where removal of apex predators results in changes in the density/behavior of prey), it is not anticipated that the Proposed Project/Proposed Action, Alternative 1, or Alternative 2 would reduce the number of native predators on a scale to induce extirpation or long-term/cumulative population; thus, the potential for any of the alternatives (including Alternatives 3, 4, or 5) to cause trophic cascade is low or less than significant.

3.5.2 Issue B: Impacts/Effects on Human and Companion Animal Health and Safety

Sections 4.2.1 through 4.2.7 analyze potential impacts from implementation of the Proposed Project/Proposed Action on ESA/T&E species, other aquatic and terrestrial vertebrates and invertebrates, members of the public, recreationists, hunters/trappers, WDM employees, and companion animals (pets). Specifically, concerns were raised during the scoping period by commenters in regard to potential impacts on humans and companion animals. This included potential for exposure of humans/companion animals to hazards and hazardous materials (related to application of pesticides and/or wildlife carcasses that may contain toxins and contaminate water sources). In particular, sensitive populations including the elderly, children, and immunocompromised were mentioned. In addition, the potential for humans/companion animals to be exposed to potential hazards associated with WDM activities and methods (e.g., exposure to getting caught in traps and snares) was raised.

As described in Chapter 2, Project Description, and Section 4.2.4, Hazards and Hazardous Materials, the amount and types of specific chemicals used as part of the Proposed Project would be minimal. No pesticides would be used under any circumstances, with the exception of DRC-1339 (avicide). Chemical usage would be limited to immobilization and euthanasia drugs. Furthermore, DRC-1339 use is restricted to trained WS-California personnel only and all wildlife specialists conducting WDM under the Proposed Project/Proposed Action would be required to undergo training prior to use of any immobilization and euthanasia drugs (refer to Mitigation Measure [MM] HAZ-2b). Furthermore, all wildlife specialists would be required to adhere to best management practices and applicable directions and to comply with state and federal laws and regulations. For these reasons, the potential for impacts/effects on humans or companion animals related to exposure of hazards and hazardous materials (and specifically to chemicals/toxics) used during WDM activities is low.

This topic also includes consideration of human-wildlife conflicts, particularly those that may result in human injury (e.g., encounters with mountain lions). Regardless of if there is a Cooperative Service Agreement (CSA) in place with an individual county, there is a process to protect public safety from wildlife attack, where local law enforcement provides initial response after an incident is reported and then coordination occurs. It should be noted that without a formal CSA, additional administrative actions would need to occur and incidence response could be delayed (trained WS-California staff may not be immediately available).

Given the protective measures and best management practices included under the Proposed Project/Proposed Action and Alternatives 1 and 2, risks from implementation of the Proposed Project/Proposed Action are overall very low. Alternatives 3, 4, and 5 may increase the amount of WDM conducted by other entities and lengthen the

time for CDFA/WS-California personnel to respond, which could result in an increased risk to human and companion animal health and safety.

3.5.3 Issue C: Impacts/Effects on Use of Public Lands

Special Designation Areas (SDAs) are units of land managed by state and federal agencies for the protection and enhancement of scientific resource values that are unique to that area and require more intensive management emphasis than is applied to surrounding public lands. SDAs may be Congressionally, or agency designated. Congressional designated SDAs can include national wildlife refuges, national monuments, national recreation area, wilderness areas, wilderness study areas, wild and scenic rivers, national conservation areas, national/state scenic byways and backways, national historic landmarks and districts, and other special designation areas (state wildlife management areas, other recreation areas). Agency designated SDAs include Bureau of Land Management Areas of Critical Environmental Concern and U.S. Forest Service Inventoried Roadless Areas and Unroaded/Undeveloped Areas. As discussed in Chapter 5, all of these SDAs exist in California; however, requests to conduct WDM in SDAs are relatively infrequent as conflicts between humans and wildlife are less likely to occur in low density areas.

California military installations including military airbases and joint civilian-military airports rely on wildlife hazard management (WHM) carried out by WS-California to address aviation hazards. In 2018, WS-California provided assistance to 19 civil airports, 20 joint-use airports, and 11 military airports and collectively trained over 368 airport staff (USDA 2022). The Proposed Project/Proposed Action and Alternatives 1 and 2 include the widest range of WHM activities available for implementation; however, potential impacts/effects of WHM on SDAs and military installations are negligible. Alternatives 3, 4, and 5 may increase the amount of time that it would take for WHM activities to be carried out, which could potentially increase the impacts/effects on SDAs and at military airbases.

3.5.4 Issue D: Impacts/Effects on Other Sociocultural Issues

Potential sociocultural impacts/effects include consideration of humaneness and ethics. These are societal issues of public concern and can elicit strong feelings and distinct perspectives. WDM as proposed can include directly capturing, handling, marking, taking samples from, and, when non-lethal options are exhausted, lethal removal of free-ranging animals. Certain organizations and people consider this to be inhumane (and unethical); others consider allowing a predator to harm livestock to be equally inhumane and societally unacceptable. Others feel that lethal response in emergency/rapid response situations (e.g., wildlife attack on humans or companion animals) is a justified and appropriate response. This analysis is not intended to determine the correctness of one of these perspectives but instead to examine the science related to issues of humaneness and ethics that are a part of the CDFA/WS-California's WDM activities and is further discussed in Chapter 5.

Under the Proposed Project/Proposed Action and Alternatives 1, 2, and 3, WDM would be carried out by the CDFA and WS-California. WDM activities as part of the Proposed Project would be performed in accordance with applicable local and state laws, directives, best management practices, and ethical policies to maintain the highest level of humaneness in the course of conducting WDM. Other entities conducting WDM would not be required to follow similar practices and thus the level of humaneness followed would be uncertain.

3.5.5 Issue E: Impacts/Effects to Socioeconomics

WS-California responds to all requests for assistance, regardless of race or level of income, and the contribution of federal funds can further assist such populations in addressing health and safety threats caused by predators and economic impacts from depredation and damage. WS-California personnel use damage management methods as selectively as possible. All chemicals used by Wildlife Services are regulated by the U.S. Environmental Protection Agency through Federal Insecticide Fungicide Rodenticide Act by memoranda of understanding with federal land managing agencies, and by Wildlife Services Directives. Disposal of carcasses and handling, use, and disposal of hazardous materials and chemicals are conducted per agency policy and federal and state law and regulations. Risks to human health and safety are discussed in Section 4.2.5. It is not anticipated that the proposed actions would result in any adverse or disproportionate environmental impacts to minority or low-income persons or populations. Under the Proposed Project/Proposed Action and Alternatives 1, 2, and 3, WDM would be carried out by the CDFA and WS-California. WDM activities as part of the Proposed Project would be performed in accordance with applicable local and state laws, directives, best management practices, and as equitably as possible in the course of conducting WDM. Other entities conducting WDM would not be required to follow similar practices and thus the level of equitableness followed would be uncertain.

3.5.6 Issue F: Impacts/Effects to Tribal Cultural Resources (Concerns of Indian Tribes)

The analysis in Section 4.2.3, Tribal Cultural Resources, considers the potential for WDM to interfere with Native American tribe cultural uses and concerns. Native American tribes have unique cultural and traditional religious/spiritual relationships with wildlife and native ecosystems, which vary among tribes, groups, and families individuals within tribes. Tribes in California use natural resources (plants and animals) for food, income, and cultural practices. Actions that could impact wildlife species population density and distribution (and have secondary ecosystem impacts) have the potential to adversely affect tribal members spiritually, culturally, and economically. As described, no earth disturbing activities or permanent installation of equipment is proposed or permitted under the Proposed Project/Proposed Action. Thus, potential for affecting cultural resources/historic properties (archaeological or historic built environment resources) is low; the Proposed Project/Proposed Action as designed appears to have no adverse effects to resources of traditional Native American cultural values and does not have potential to impact tribal cultural resources (TCRs)/tribal cultural property . Furthermore, MM-TCR-1 would require that an annual summary of WDM activities that occurred within a county identified as a tribe's TCR/TCP be provided to consulting tribes that request it.

The analysis in this EIR/EIS determined that WDM activities included in the Proposed Project/Proposed Action and Alternatives 1 and 2 would have low or negligible impacts/effects on target species populations, T&E species populations, non-target species, trophic cascades, humaneness/ethical behavior, the environment, humans and companion animals, domestic animals, and public lands. As such, it is unlikely that there would be opportunities for impacts/effects on TCRs/Tribal Cultural Properties. Alternatives 3, 4, and 5 may increase the amount of WDM conducted by other entities, which could result in WDM activities occurring without coordination with Native American tribes and therefore may increase the potential for impacts to TCRs/Tribal Cultural Properties.

3.6 Project Objectives

As described in Chapter 1, the CDFA has identified the following objectives for the proposed Program:

- Generally align with the historic (i.e., pre-2003) CDFA program objectives.

- Accomplish the following additional WDM Program objectives:
  - Inform the implementation of WDM activities conducted by state and local agencies throughout California.
  - Provide rapid response to high-risk wildlife damage scenarios in order to prevent harm to agricultural resources and property, human health and safety, and natural resources.
  - Support the development and implementation of measures to avoid, minimize, and mitigate unintended impacts to California's important natural resources from WDM materials and technologies.
  - Build upon existing resources, including WS-California's data reporting system, to develop a statewide information management, reporting, and data sharing system for wildlife damage incidents and management activities that will allow a robust evaluation of management activities to support an integrated and adaptive WDM approach.
  - Establish an administrative mechanism for California Counties (Counties) that wish to participate in a statewide WDM Program to streamline their environmental compliance.

In addition, WS-California have identified the following purpose and needs:

The purpose of the Proposed Project is to provide a clear and consistent statewide approach in collaboration with federal, state, and county partners to carry out integrated WDM activities. These activities are intended to protect human health and safety, T&E species, natural resources, agricultural resources, and property from damage and threats of damage associated with wildlife.

WS-California uses an integrated WDM approach that is intended to accomplish the following objectives:

1. Respond in a timely and appropriate way to all WDM requests for technical and/or operational assistance, whether from private or public sources.
2. Implement an integrated WDM approach which incorporates biological, legal, economic, environmental, cumulative, and sociocultural factors.
3. Comply with all applicable federal, state, and local laws; Wildlife Services policies and directives; cooperative agreements; MOUs; and other legal requirements, as feasible.
4. Develop and improve lethal and non-lethal strategies to promote the most effective, target-specific, and humane remedies available given legal, environmental, and other constraints.
5. Coordinate with the management goals and objectives of applicable WDM plans or guidance as determined by the jurisdictional state, tribal, or federal wildlife or land management agency.

Need

The WS-California need for action is based on damage to California's agricultural industry and requests for assistance for the protection of natural resources, property, and health and human safety from wildlife damage. WS-California has identified four areas of need (refer to Chapter 1 for additional detail).

Wildlife Damage Management to Protect Agriculture – WDM is needed to address loss of agricultural resources, including crops, livestock, poultry, and other animal products. Typically, the loss is in the form of predation of livestock and damage to agricultural crops.

Wildlife Damage Management to Protect Human Health and Safety – WS-California conducts WDM activities for the protection of human health and safety. These activities include responding to wildlife that pose a direct safety risk

(e.g., wildlife attacks on humans that result in injuries or death) or disease risk to humans (e.g., disease threats from rabies and plague outbreaks where predators act as reservoirs, zoonotic diseases, and food contamination), as well as odor and noise nuisances.

Wildlife Damage Management for the Protection of Property – WS-California activities protect urban property including buildings, landscaping, companion animals, schools, golf courses, apartment complexes, city parks, levees or canals, irrigation structures, airports, and roads from wildlife damage. WS-California personnel respond to requests from agencies or landowners to alleviate property damage and remove or prevent the wildlife causing damage.

Wildlife Damage Management for the Protection of Natural Resources – Natural resource protection can include protecting T&E or otherwise sensitive species or other natural resources from wildlife damage. Invasive or nuisance animals can damage landscapes and native plant communities or threaten critical habitat of certain species. Direct predation, especially on prey populations with few individuals and/or under resource constraints, can reduce the size and sustainability of populations. Wildlife specialist may work in collaboration with the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), conservation organizations, and other land/resource managers to protect T&E wildlife and plants from the impacts of predation, invasive species, and disease.

3.7 Proposed Project/Proposed Action

3.7.1 CDFA WDM Program/Continuation of WS-California including Emergency/Rapid Response

Under the Proposed Project as described in Chapter 2, the CDFA would have a new role in statewide activities, formalizing a program that provides an adaptive and integrated approach, cooperator/requestor participation, technical assistance on lethal and non-lethal techniques, and/or lethal and non-lethal operational WDM assistance that is similar to WS-California's existing WDM activities. As part of the Proposed Project, the CDFA would also be a centralized data repository for integrated WDM activities (coordination and documentation review), participate in education and outreach, enact a rapid response plan for emergency WDM incidents and/or infestations, and conduct analysis of independent County integrated WDM programs (note that WDM activities of more limited scope could be delegated to individual counties by the CDFA, responding to their specific needs).

Under the Proposed Project/Proposed Action, WS-California would continue to provide technical assistance on lethal and non-lethal WDM techniques and/or provide lethal and non-lethal operational WDM assistance as described in their CSA model in Section 3.6. Similarly, the Proposed Project/Proposed Action would include WS-California T&E species protection and airport work.

Under the Proposed Project/Proposed Action, the CDFA, participating Counties, and WS-California (in consultation with the CDFW, the USFWS, and other regulatory agencies as appropriate), would respond to calls for service by:

- Taking no action;
- Providing non-lethal and/or lethal technical assistance to property owners/managers on actions they could take to reduce wildlife damage; or
- Building upon the non-lethal and/or lethal technical assistance by providing non-lethal and/or lethal operational assistance to property owners/managers.

Under the Proposed Project/Proposed Action, the CDFA, participating Counties, and WS-California would consider implementation of effective non-lethal operational WDM assistance before implementing lethal operational WDM assistance as feasible. It is anticipated that under the Proposed Project/Proposed Action, the majority of WDM in California would continue to be performed by WS-California.

3.7.1.1 Proposed Project/Proposed Action Components

The Proposed Project/Proposed Action would establish a framework for undertaking WDM activities across California to protect agriculture, promote human health and safety, and protect natural resources. The scope is dynamic and will evolve with need and resource availability, initially focusing on activities that are consistent with WS-California's existing WDM protocols.

The Proposed Project/Proposed Action would establish an integrated and adaptive WDM approach (see Appendix C) that outlines effective and environmentally sound practices and methodologies and includes activities to be implemented by the CDFA, Counties, and/or WS-California (current conditions). Under the Proposed Project/Proposed Action, the CDFA and/or Counties would adopt the WS-California suite of WDM response practices.

Administrative Activities

The CDFA will maintain the statewide program EIR. This includes updating the program EIR; updating the data the program EIR relies upon; updating filings, technical appendices, and other related documentation; and coordinating with WS-California on the EIS. Project administration will be conducted in coordination with the Legal Office, Animal Health and Food Safety Services, and Plant Health and Pest Prevention Services.

Implementation of the Proposed Project/Proposed Action will rely on existing CDFA resources and specifically include assignment of at least one staff-person in the Animal Health Branch to the Proposed Project/Proposed Action. This staff-person would assist with developing CDFA directives and guidelines developed as part of the EIR/EIS process, as well as compiling, reviewing, and reporting data. Quarterly or annual reports collected from participating counties and WS-California will be shared with the Animal Health Branch staff-person.

Statewide Wildlife Damage Management Activities

The CDFA staff-person will supervise a review of historic (existing) WDM activities, as needed, to support an integrated and adaptive WDM approach in California. This will include review and potential ongoing updates to the Vertebrate Pest Handbook and consideration of the administrative roles/responsibilities of the CDFA, as well as what WDM information resources are made available.

Coordination of Proposed Project/Proposed Action Activities

The locus of WDM activities will continue to be participating counties. Participating counties' Agricultural Commissioner Offices will continue to carry out WDM activities on their own (county-led), participate in CSA contracts with WS-California, or delegate to private, duly licensed wildlife damage services providers.

Rapid Response

The Proposed Project/Proposed Action will utilize an integrated WDM approach to address high-risk wildlife damage situations calling for immediate treatment activities (e.g., to address the introduction or spread of invasive species,

zoonotic diseases, or food-borne pathogens). Rapid response protocols will be developed by the CDFA staff-person in the Animal Health Branch and will build upon existing emergency-response processes already established by WS-California and within the CDFA. This will be conducted in coordination and collaboration with the Counties, WS-California, and other state and federal agencies.

Education and Outreach

The Proposed Project/Proposed Action will promote broader understanding and awareness about wildlife identification, biology, life history, damage, and best management practices. The CDFA will undertake additional CEQA review as needed to support future discrete WDM actions or activities outside of the analyses in this EIR/EIS undertaken by the CDFA or the Counties, including materials and methods identified through the information sharing and adaptive management processes. Potential audiences for education and outreach may include but are not limited to local governments, landowners, University of California Cooperative Extension, agricultural associations, state agencies (e.g., Department of Water Resources, State Parks, Division of Boating and Waterways), municipalities, non-governmental organizations, and interested public.

Reporting

As previously described, the Proposed Project/Proposed Action recommendations may be set forth in periodic amendments to the Vertebrate Pest Control Handbook, as needed, or result in the development of similar resources modelled on WS-California practices and maintained by the CDFA. The Proposed Project/Proposed Action would also create an advisory group of technical experts to ensure access to the best available science.

The CDFA would maintain the Proposed Project/Proposed Action by periodically updating WDM mitigation monitoring measures; aggregating and reviewing CDFA, county, and WS-California WDM information filings; evaluating the accuracy and efficacy of supporting technical reports; and reviewing and updating other related documentation data and reports that may affect the Proposed Project/Proposed Action. These activities are especially helpful in situations where there is a need for consistent guidance applicable to more than one county (e.g., to address regional issues).

The CDFA will use this process to conduct periodic reviews of the EIR/EIS, considering any new and evolving best management practices and resulting adaptive management planning options, for Proposed Project/Proposed Action implementation. Should the reviews of current information and practices prompt potential modifications of the Proposed Project/Proposed Action, the CDFA, in cooperation with WS-California, would conduct an analysis to determine if potential modifications would require additional or subsequent CEQA or NEPA analysis, documentation, public coordination, and CDFA/WS-California decision making.

3.8 Overview of Alternatives Considered

3.8.1 Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or county WDM would be established. This alternative would not include any CDFA or county-led emergency/rapid response activities.

Under this alternative, WS-California would continue to operate WDM as described in their CSA model. WS-California would continue to provide technical assistance on lethal and non-lethal techniques and/or provide lethal and non-

lethal operational WDM assistance. This would include T&E species protection and airport work. Components of this alternative include collaboration and identification, education and training, technical assistance, non-lethal and lethal operational WDM, and monitoring. WS-California could also loan equipment to cooperators/requestors for WDM activities.

A comprehensive description of the WDM activities and methods carried out by WS-California is included in Appendix C.

For all alternatives in which WS-California provides WDM, the APHIS-WS Decision Model (Figure 2-3, WS Directive 2.201) is a tool for evaluation of the specific situation. It outlines the process for determining the most effective approach to address the individual situation.

The APHIS-WS Decision Model requires wildlife specialists to go through a problem-solving exercise to address the wildlife damage problem. The analogy often used to describe WDM is the way a fire department responds to an emergency situation. When a fire department responds to a call for service, based on the information available (including biological, economic, and social considerations), the fire personnel make a determination about the most effective and safe response to resolve the emergency. WS-California wildlife specialists are trained in WDM and respond to calls for service using the APHIS-WS Decision Model.

Following the wildlife specialist's initial response, additional WDM methods are incorporated in a management strategy to be monitored and evaluated by the property owner. If needed, the approach can be modified, adjusted, or discontinued based on the effectiveness of the activity.

Under Alternative 1, WS-California would continue ongoing WDM work in California, with no changes in the scope of management and sharing of WDM responsibilities (not sharing responsibilities with the CDFA and participating counties). In comparison, Alternatives 2 through 5 would add, reduce, or modify the actions that are described in this Proposed Project.

Under Alternative 1, WS-California, in consultation with the CDFW, the USFWS, and other regulatory agencies as appropriate, would continue to respond to calls for service by:

- Taking no action;
- Providing non-lethal and/or lethal technical assistance to property owners/managers on actions they could take to reduce wildlife damage; or
- Building upon the non-lethal and/or lethal technical assistance by providing non-lethal and/or lethal operational assistance to a property owners/managers.

WS-California would continue to consider implementation of effective non-lethal operational WDM assistance before implementing lethal operational WDM assistance. All WDM activities taken will be consistent with federal and state laws and regulations.

3.8.1.1 Alternative 1 Components

Alternative 1 would continue the current WS-California WDM activities as requested and would include the following general activities.

Collaboration and Project Identification

WS-California enters cooperative partnerships in all aspects of operational WDM when requested by agency partners, tribes, and private entities. Cooperative partnerships may be developed to implement predator damage management activities in targeted areas and for targeted resource protection, such as agricultural areas, areas with T&E species and other natural resources, urban/suburban areas to reduce property damage, or to protect human health and safety.

Education and Training

WS-California provides training to agencies, organizations, the public, property owners and managers, and cooperators upon request on wildlife management and biology, WDM, and non-lethal and lethal techniques for managing the risk of wildlife damage to encourage co-existence. Many APHIS, Wildlife Services, and WS-California personnel, including scientists at the National Wildlife Research Center in Fort Collins, Colorado, publish professional papers and speak at conferences and meetings to further the science and application of WDM.

Technical Assistance

Property owners or managers requesting assistance from WS-California are provided with information on non-lethal and lethal techniques and/or WDM strategies, including advice, training, and, to a limited degree, loan of equipment. Technical assistance can be provided over the phone, on site, or in instructional meetings. WS-California provides training on depredation investigations related to human health and safety to the CDFW, jurisdictions, and other officials, depending on the topic. Additionally, WS-California provides training to the public on how to avoid wildlife conflict and conducts workshops on non-lethal methods for producers and resource owners (WS-California 2023). Technical assistance is described in greater detail in Appendix C.

Operational Assistance

WS-California WDM activities involve an integrated approach using a range of non-lethal and lethal techniques that can be used singly or as part of an integrated approach. Property owners or managers may choose to take lethal management action themselves when authorized by law without consulting another private or governmental agency recommendations. They can also contract with private businesses, use volunteer services of private organizations, request assistance from the CDFW and/or its agents, request the services of WS-California (direct operational assistance), or take no action.

Preventative Damage Management

Proactive (preventive) damage management involves applying management strategies before damage occurs, based on historical problems and data. Many resource management strategies and physical exclusion methods are intended to prevent damage from occurring, and therefore fall under this category of WDM methods. For example, in addition to keeping livestock in, fencing is often used to keep predators out of livestock pastures to prevent predation. When requested, Wildlife Services personnel provide information and conduct demonstrations or take action to prevent future losses from recurring.

For example, in areas where substantial livestock depredations have occurred on lambing or calving grounds in the past, WS-California may provide technical assistance in the form of information about livestock guarding animals, fencing, or other husbandry techniques for producers to improve their proactive measures to protect their livestock. Additionally, if

requested and appropriate, WS-California may conduct lethal predator management by removing coyotes in a specific area before lambing or calving begins in an attempt to preemptively prevent continued depredation.

The rationale for conducting proactive damage management differs little in principle from holding controlled hunts for deer or elk in areas where agricultural damage has been a historical problem. By reducing the number of predators, specifically coyotes, operating in a territory near livestock, the risk of damage at the time is potentially reduced. For example, where coyote denning overlaps with lambing pastures, selectively removing the alpha pair may effectively decrease lamb depredation. Rather than requesting assistance from WS-California, property owners may request that the CDFW and/or its agents or CDFW-certified commercial companies conduct such activities.

Reactive Damage Management

Reactive (corrective) damage management involves applying management strategies to stop or reduce current losses. As requested and appropriate, Wildlife Services personnel provide information, conduct demonstrations, or take action to prevent future additional losses. Corrective actions may include a combination of WDM approaches, technical assistance, and operational damage management assistance.

When appropriate, WS-California also provides damage management assistance (operational assistance) using lethal and non-lethal methods within an WDM strategy. Resource managers and others requesting operational assistance are provided with information regarding the use of effective non-lethal and lethal techniques, including recommendations as to effective long-term strategies for reducing risk of wildlife damage.

For example, in areas where verified livestock depredations are occurring, WS-California field employees may provide information about livestock guarding animals, fencing, or husbandry techniques and/or conduct operational, often lethal, damage management activities to stop the losses.

When deployed, many lethal and non-lethal methods are intended to be short-term or long-term attempts at reducing damage currently occurring. They can also be used to prevent damage from reoccurring in areas with historical losses. However, these methods cannot ensure predators do not return once those methods are discontinued. Property owners may request assistance from the CDFW and/or its agents or CDFW-certified commercial companies, and/or they may conduct such activities themselves rather than requesting assistance from WS-California.

Carcass Disposal

Unless otherwise regulated by California law, WS-California properly disposes of carcasses to make them less accessible to scavengers by putting them into brush, placing them in existing carcass pits on private property, disposing of them in designated landfills, or rendering or incineration where feasible. Animals taken during aerial operations are seldom if ever recovered because it is not always safe to land aircraft in the field and it is seldom cost- or time-effective to make multiple landings during a flight. Also, aircraft have weight restrictions that control transportation of extra cargo for safety reasons, which is especially critical for low-level flights.

Monitoring

WS-California, in coordination with the CDFW when appropriate, monitors the results and impacts of its activities. The impacts discussed in this EIS are monitored and evaluated in the following two ways:

- WS-California will determine if any additional information that arises after the NEPA decision from this EIS would trigger the need for additional NEPA analysis. WS-California will review implementation results and the related NEPA documents as needed to ensure that the need for action, issues identified, alternatives, regulatory framework, and environmental consequences are consistent with those identified.
- WS-California, in coordination with CDFW when appropriate, will monitor impacts on target and non-target predator populations through its Management Information System database. The Management Information System information is used to assess the localized and cumulative impacts of WS-California activities on specific target predator and non-target wildlife populations. WS-California will provide detailed information on animals removed, as appropriate, to the CDFW to assist with managing species and resources under their jurisdiction.

In addition to sharing information with the CDFW as indicated above, WS-California also coordinates actions conducted in wilderness areas with the Bureau of Land Management and USFS Wilderness leads during the annual work plan process. WS-California also provides detailed information on animals removed on an annual basis.

Depredation Investigations

WS-California, in coordination with the CDFW when appropriate, assists with depredation investigations on suspected wildlife predation on livestock. The CDFW, WS-California employees, and the livestock producer work cooperatively to determine the appropriate response, including non-lethal techniques (if warranted), to prevent further loss of livestock.

When a livestock owner suspects wildlife-livestock depredation has occurred and requests an investigation, WS-California and or the CDFW can initiate the investigation.

Capturing and Collaring

WS-California can assist with capturing and collaring operations for specific wildlife species. Historically this work has included mountain lion, bobcat, feral swine, and mule deer upon request from the CDFW, but it could include other species if requested. GPS and very high frequency (VHF) collars are used in guiding management decisions by providing information regarding important population parameters such as target animal pack distribution (if applicable), mortality, dispersal, population trends, den locations, rendezvous sites, winter use areas, and territory boundaries.

3.8.1.2 Alternative 1 Existing Activities

Under Alternative 1, the system currently in place, WS-California WDM activities have varied in terms of the frequency, location, cooperators, type of WDM, and number of target and non-target animals taken. In part, this has been based on the number of counties that have engaged in CSAs and special project activity (i.e., T&E species protection projects).

WS-California expects that WDM activities will continue to vary in the future and, for the purpose of analyzing impacts in this EIR/EIS, sets reasonable parameters for continuing current WDM. WS-California employees are experienced wildlife specialists and will use the APHIS-WS Decision model to determine if and what response is appropriate. This alternative includes WDM activities in areas and locations where WS-California has operated or would foreseeably operate, even if those areas are not currently under CSAs. Unforeseen/unanticipated areas where emergency response is required will be addressed on a case-by-case basis in coordination with other state

and federal regulatory agencies. Figure 2-4 shows areas within California where WS-California currently holds a CSA and where WS-California led WDM activities are likely to occur.

3.8.2 Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and Airport WHM

Under Alternative 2, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques and/or provide non-lethal operational WDM assistance, but would not provide lethal WDM assistance, except for cases of human health and safety, companion animal health and safety, T&E species protection, and airport WHM.

As described in the Scoping Report prepared for the Proposed Project/Proposed Action (Appendix A), comments received included concerns regarding potential impacts on pets and/or companion animals. Specifically, this included requests related to community (feral) cats. A request for evaluation of the risk that lethal activities/methods could pose to the physical and psychological wellbeing of humans and companion animals was also received.

Under Alternative 2, the CDFA, participating counties, and WS-California (in consultation with the CDFW, the USFWS, and other regulatory agencies as appropriate), would respond to calls for service by:

- Taking no action;
- Providing lethal technical and operational WDM only in the case of human or companion animals health and safety, T&E species protection, and airport work; or
- Providing non-lethal technical and operational assistance.

3.8.2.1 Alternative 2 Components

Components of Alternative 2 include collaboration and identification, education and training, technical assistance, non-lethal operational WDM, and monitoring. The CDFA/Counties/WS-California could also loan equipment used for non-lethal techniques and/or other WDM activities. Alternative 2 could include CDFA/County/WS-California emergency/rapid response activities.

Non-lethal and lethal technical assistance would continue to be provided to cooperators/requestors as described in Alternative 1. Non-lethal technical assistance includes collecting information about the species involved, the nature and extent of the damage, and previous methods that the cooperator/requestor had used to alleviate the problem. The CDFA/Counties/WS-California would then provide the cooperator/requestor with information on appropriate non-lethal and lethal ways to alleviate the damage themselves. Types of technical and direct non-lethal assistance projects may include a visit to the affected property, written communication, telephone conversations, or presentations to groups.

While Alternative 2 would provide technical assistance on lethal and non-lethal techniques and/or provide non-lethal operational WDM assistance for specific situations, it would not provide comprehensive WDM in support of the CDFA's Proposed Project objectives or WS-California's. It would not provide comprehensive WDM in support of agricultural resources (and thus natural resources) and would limit the potential WDM methods used. Alternative 2 would be inconsistent with WS-California's mission to protect agricultural (and natural) resources and property/infrastructure.

3.8.3 Alternative 3: Non-Lethal Operational WDM

Under Alternative 3, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques and provide only non-lethal operational WDM assistance. No lethal operational WDM assistance would be provided.

3.8.3.1 Alternative 3 Components

Components of Alternative 3 include collaboration and identification, education and training, technical assistance, non-lethal operational WDM, and monitoring. The CDFA/Counties/WS-California could also loan equipment used for non-lethal techniques and/or other WDM activities. Alternative 3 could include CDFA/County/WS-California emergency/rapid response activities, but no lethal methods.

Non-lethal and lethal technical assistance would continue to be provided to cooperators/requestors as described in Alternative 2. Non-lethal technical assistance includes collecting information about the species involved, the nature and extent of the damage, and previous methods that the cooperator/requestor had used to alleviate the problem. The CDFA/Counties/WS-California would then provide the cooperator/requestor with information on appropriate non-lethal and lethal ways to alleviate the damage themselves. Types of technical and direct non-lethal assistance projects may include a visit to the affected property, written communication, telephone conversations, or presentations to groups.

In some cases, the CDFA/Counties/WS-California may provide supplies or materials for non-lethal methods that are of limited availability for use by private entities. Generally, the CDFA/Counties/WS-California could describe several non-lethal management strategies to the cooperator/requestor for short- and long-term solutions to managing damage, as well as recommending and providing training on lethal techniques.

Persons receiving technical assistance from the CDFA/Counties/WS-California could implement those methods, could seek assistance from other entities, or take no further action. The CDFA/Counties/WS-California would only loan out equipment or implement non-lethal methods legally available to the cooperator/requestor and advise them of any necessary permits.

3.8.4 Alternative 4: Financial Reimbursement Assistance

Alternative 4 is for CEQA consideration only. Under Alternative 4, participating counties could establish an assistance program or cost-sharing initiative that provides monetary compensation to affected cooperators/requestors (producers), with a focus on funding improved protection from damaging wildlife (e.g., upgrade of fencing, acquisition of guard animals). This alternative would not include operational assistance provided by the CDFA/WS-California. This alternative would not preclude the right of private entities to conduct lethal WDM on their own in accordance with state and federal laws.

Alternative 4 would require identification of an ongoing financial source (e.g., county-provided, private grants) and management of that reimbursement budget at a county-level. This would require establishment of a protocol to determine what WDM cases would be eligible for funding (e.g., livestock or poultry type), appropriate disbursement of funds (e.g., determination if funds are for discretionary uses or for specific measures such as purchase of fencing, purchase of livestock protection animals, scare devices) and amounts and type of reimbursement (e.g., cost-share). It would likely require new personnel to establish program/initiative guidelines,

conduct site visits, evaluate claims, and monitor ongoing WDM situations. As part of this alternative, education and WDM resources related to best management practices for managing nuisance animals, excluding predators, and preventing predation could be provided.

This alternative would require administrative support and extensive data collection and tracking, which would include but not be limited to the following:

- Establishment of a program/initiative with geographic/target recipients and affected animals/resources
- Tracking of requests for financial reimbursement assistance
- Investigation of request (efficacy of claim)
- Tracking of disbursements (recipients) and disbursement value
- Collection of other inputs for program evaluation (geographic extent, by county, by agricultural type, etc.)

Implementation of Alternative 4 is not available to WS-California because they are directed by law to protect American agriculture, and a compensation/reimbursement program has not been legally authorized or funded at a state or federal level.

Under Alternative 4, potential operational WDM would be handled by other entities, including but not limited to tribes, the USFWS, the CDFW, Counties, private resource owners and managers, private contractors, or other non-federal agencies. Requests for WDM information directed to the CDFA would be redirected to these entities.

3.8.5 Alternative 5: No Project/Cessation of WS-California

Alternative 5 would not establish or formalize a CDFA WDM Program in California. Nor would any technical or operational assistance with WDM methods described under the Proposed Project/Project Action and Alternatives 1, 2, and 3 (and included as Appendix C) be conducted by WS-California. Furthermore, no provision of financial reimbursements as described in Alternative 4 would be provided. Under Alternative 5, potential WDM would be handled by other entities, including but not limited to tribes, the USFWS, the CDFW, Counties, private-resource owners and managers, private contractors, and/or other non-federal agencies.

Information about future developments in non-lethal and lethal management techniques that result from the National Wildlife Research Center's ongoing research would also not be available to private-resource owners or managers.

Other entities and organizations conducting WDM would likely increase their efforts in proportion to the reduction of federal (WS-California) services. Requests for WDM information directed to WS-California would be redirected to these entities. Response times for WDM would likely increase and some calls for assistance would be left unaddressed.

3.9 Alternatives Considered and Dismissed from Detailed Analysis

Bounty System for Reducing Animals Causing Damage - Bounty systems involve a payment of funds for killing of animals considered "undesirable," and they are usually proposed as a means of reducing or eliminating any species causing damage to human valued assets, especially predators. An example of an active bounty system on predators (i.e., coyotes) is an experimental mule deer protection program taking place in Utah.

WS-California has no authority to establish a bounty system; that authority falls to the states. Over half the states have outlawed bounties or repealed bounty laws. Bounties can become a costly endeavor. The use of bounties is arbitrary because it is difficult to ensure animals claimed for bounty are from the geographic area within which the damage is occurring. Therefore, a bounty system alternative was not considered further.

Use of Only Non-lethal WDM Technical Assistance – Under a non-lethal WDM technical assistance alternative, the CDFA/Counties/WS-California would provide only non-lethal technical WDM assistance. They would not implement or advise others on the use of lethal methods. Non-lethal technical assistance is included in Alternatives 1 through 4. If the requestor has taken all reasonable non-lethal actions and the wildlife damage problem still persists, the CDFA/County/WS-California WDM specialist would not be able to offer additional WDM methods. This would not meet the Proposed Project's purpose and need or objectives; therefore, the non-lethal WDM technical assistance alternative was not considered further.

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3.10 Alternatives Impact Analysis

Table 3-1. Comparison of Impacts from the Proposed Project/Proposed Action and Alternatives

Environmental Topic	Proposed Project		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA
Agricultural and Forestry Resources												
AG-1: Convert Prime Farmland, Unique Farmland, or Statewide Importance Farmland to non-agricultural use?	NI	NI	= NI	= NI	▲ LTS	= NI	▲ LTS	▲ NS	▲ LTS	NA		
AG-4: Loss of forest or conversion of forest to non-forest use?	NI	NI	= NI	= NI	▲ LTS	▲ NS	▲ LTS	▲ NS	▲ LTS	NA	▲ LTS	▲ NS
AG-5: Involve other changes in the existing environment, which could result in conversion of Farmland to non-agricultural use?	NI	NI	= NI	= NI	▲ LTS	= NI	▲ LTS	= NI	▲ LTS	NA	▲ LTS	▲ NS
AG-6: Result in the loss of market value of agricultural products sold in California, agricultural employment, and agricultural income/earnings?	B	NI	= NI	= NI	▲ LTS	▲ NS	▲ LTS	▲ NS	▲ LTS	NA		
Biological Resources												
BIO-1: Substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species? * Mountain Lion if listed under California Endangered Species Act (16 Counties – See Section 4.2.2-10).	LTS	NS	= NI	= NS	▲ LTS + mitigation	= NS	▲ LTS + mitigation	= NS	= LTS	NA	▼ NI	▼ NI
BIO-2: Substantial adverse effect on any riparian habitat or other sensitive natural community?	LTS	NS	▼ NI	▼ NI	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
BIO-3: Substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means?	LTS + mitigation	NS	▼ NI	= NS	= LTS + mitigation	= NS	= LTS + mitigation	= NS	▼ NI	NA	▼ NI	▼ NI
BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native migratory wildlife corridors, or impede the use of native wildlife nursery sites?	LTS + mitigation	NS	= LTS + mitigation	= NS	= LTS + mitigation	= NS	= LTS + mitigation	= NS	▼ LTS	NA	▼ LTS	▼ NI
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	LTS + mitigation	NI	▼ NI	= NI	= LTS + mitigation	= NI	= LTS + mitigation	= NI	▼ NI	NA	▼ NI	= NI
BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan?	LTS + mitigation	NI	▼ NI	= NI	= LTS + mitigation	= NI	= LTS + mitigation	= NI	▼ NI	NA	▼ NI	= NI
BIO-7: Cause a substantial adverse effect to populations of non-special status wildlife or plant species, especially if those could result in substantial ecosystem changes?	LTS + mitigation	NS	▼ NI	= NS	▼ LTS	= NS	▼ LTS	= NS	▼ LTS	NA	▼ LTS	= NS

Table 3-1. Comparison of Impacts from the Proposed Project/Proposed Action and Alternatives

Environmental Topic	Proposed Project		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA
Tribal Cultural Resources												
TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource?	LTS + mitigation	NS	▼ NI	= NS	= LTS + mitigation	= NS	= LTS + mitigation	= NS	= LTS + mitigation	NA	▼ LTS	= NS
TCR-2: Cause an adverse effect to a traditional cultural property, landscape, or other resource of Native American traditional religious or cultural importance?	LTS + mitigation	NS	▼ NI	= NS	= LTS + mitigation	= NS	= LTS + mitigation	= NS	= LTS + mitigation	NA	▼ LTS	= NS
Hazardous Materials												
HAZ-1: Expose the public or the environment to significant hazards through the transport, use, or disposal of hazardous materials?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
HAZ-2: Expose the public or the environment to significant hazards through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school?	LTS + mitigation	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
HAZ-4: Be located on a site that is included on a list of hazardous materials sites and, as a result, would create a significant hazard to the public or the environment?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
HAZ-5: For projects located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or within the vicinity of a private airstrip, would it result in a safety hazard or excessive noise for people residing or working in the project area?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
HAZ-6: Impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
HAZ-8: Expose physiologically sensitive populations to human health hazards?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
HAZ-9: Impact human health of the environment in such a manner that it would disproportionately effect minority and/or low-income communities?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
Human and Pet Health and Safety												
HHPS-1: Directly, indirectly, or cumulatively result in adverse effects on human or companion animal health and safety?		NS		= NS		= NS		= NS		NA		= NS

Table 3-1. Comparison of Impacts from the Proposed Project/Proposed Action and Alternatives

Environmental Topic	Proposed Project		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA
Noise												
NOI-1: Result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of local general plan or noise ordinance, or applicable standards?	LTS + mitigation	NS	▼ NI	= NS	= LTS + mitigation	= NS	= LTS + mitigation	= NS	▼ LTS	NA	▼ LTS	= NS
NOI-2: Result in the generation of excessive groundbourne vibration or groundbourne noise levels?	LTS	NS	▼ NI	= NS	= LTS	= NS	= LTS	= NS	= LTS	NA	= LTS	= NS
NOI-3: For projects located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or within the vicinity of a private airstrip, would it expose people residing or working in the project area to excessive noise levels?	LTS + mitigation	NS	▼ NI	= NS	= LTS + mitigation	= NS	= LTS + mitigation	= NS	▼ NI	NA	▼ LTS	= NS
Public Services												
PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times, or other performance objectives?	B	NI	▲ NI	= NI	▲ NI	= NI	▲ LTS	▲ NS	▲ LTS	NA	▲ LTS	▲ NS

Notes: NEPA: NA = not applicable; NI = No Impact; NS = Not Significant; S = Significant; CEQA: B = Beneficial impact; NI = no impact; LTS = less than significant; SU = significant and unavoidable; LTS + mitigation = less than significant with mitigation incorporated, Green = No impact or less than significant; Yellow = less than significant with mitigation incorporated; ■ = significant and unavoidable.

▲ Impacts would be greater than those of the Proposed Project.
= Impacts would be comparable to those of the Proposed Project
▼ Impacts would be reduced when compared to those of the Proposed Project.

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3.11 References

CEQ (Council on Environmental Quality). 1986. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. March 23, 1981. Amended in 1986. https://www.energy.gov/nepa/articles/forty-most-asked-questions-concerning-ceqs-national-environmental-policy-act.

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4 Environmental Setting/ Affected Environment

4.1 Introduction

This chapter provides information related to the evaluation of environmental impacts associated with the California Department of Food and Agriculture and Wildlife Services (WS) California's Wildlife Damage Management Program (Proposed Project/Proposed Action). The chapter introduces the overall approach to the environmental setting and impacts analysis, describes how the significance of environmental impacts is evaluated, and discusses resource topics eliminated from detailed analysis in this environmental impact report/environmental impact statement (EIR/EIS).

4.1.1 Organization of Environmental Resource Topics

Seven topical sections (Sections 4.2.1 through 4.2.7) are presented that describe the environmental resources and potential environmental impacts and effects of the Proposed Project/Proposed Action. Each section contains the following information about its resource topic:

- a description of the environmental baseline, environmental setting,[1] and background information related to the resource topic to illustrate to the reader the resources that could be affected by the Proposed Project/Proposed Action;
- a discussion of the thresholds used in determining the significance of the Proposed Project/Proposed Action's potential environmental impacts and effects; and
- a discussion of the potential environmental impacts and effects of the Proposed Project/Proposed Action on the resource (the change in environmental conditions between the baseline condition and after Proposed Project/Proposed Action implementation), including the significance of each potential impact or effect, and, if applicable, measures that would avoid, minimize, mitigate, and/or compensate for any potentially significant impacts and/or adverse effects.

4.1.2 Environmental Baseline of Analysis

Wildlife damage management (WDM) activities described as part of the Proposed Project/Proposed Action (refer to Appendix A, Scoping Report) are already ongoing in California. Therefore, the impacts/effects analysis presented in this EIR/EIS considers these ongoing activities to be a part of the baseline environmental conditions.

In a California Environmental Quality Act (CEQA) analysis, the baseline condition is typically defined as the existing physical conditions in the affected area as they existed at the time the Notice of Preparation (NOP) was published (CEQA Guidelines Section 15126.2[a]). The NOP for the Proposed Project/Proposed Action was published on September 10, 2020. Thus, conditions existing at that time are considered the baseline against which the Proposed Project/Proposed Action's impacts/effects to the physical environment are evaluated.[2] Similarly for the National

1 Relevant Laws, Policies, and Ordinances are included in Appendix B.
2 The baseline period excludes 2020 and 2021, which were confounded by behavioral changes due to COVID-19.

Environmental Policy Act (NEPA), the baseline condition can be defined as the existing physical conditions in the affected area as they existed at the time the Notice of Intent was published (40 Code of Federal Regulations [CFR] 1502.15). The Notice of Intent for the Proposed Project/Proposed Action was posted to the Federal Register on September 10, 2020.

Under the Proposed Project/Proposed Action, WDM activities could be carried out in any participating California County, and activities would typically be carried out upon request. As such, the exact location of where WDM activities would occur (both historically and under the Proposed Project/Proposed Action) is not predefined. As an example, noise-generating WDM activities are already occurring in California, but WDM activities under the Proposed Project/Proposed Action may occur in *new* locations where WDM activities may not have previously been conducted.

The 2020 conditions will be used as the baseline for all environmental topic areas except for biological resources (take of target species).

A departure from a single-year baseline approach is the discussion of biological resources, specifically as it relates to take of target species. At the time of the NOP, 38 counties in California had Cooperative Service Agreements (CSAs) with WS-California for WS-California to conduct WDM activities on behalf of the individual county. Some of these CSAs date back to before the 1990s, and the number of counties with CSAs has fluctuated over time (e.g., California Counties can choose to enter into new CSAs or suspend their existing CSAs) and could fluctuate in the future. Furthermore, some WDM activities are conducted by WS-California outside of CSAs, such as airport work (to protect the flying public and aviation property) and rare, threatened, and endangered species work (to protect rare, threatened, and endangered species). In addition to counties with CSAs (WS/County Cooperative WDM), in 2020, six other counties directed their own WDM programs (County-Led WDM) and 14 counties provided no WDM (No-County-Provided WDM).

The existing conditions surrounding California's wildlife populations reflect the WDM activities historically performed in California.[3] However, WDM activities tend to vary from year to year based on a variety of factors, such as geography, population dynamics, weather patterns, and prey availability. As such, selecting a single year of data (e.g., 2019, the last year of complete data prior to the release of the NOP) as the baseline condition may not accurately reflect existing conditions because there has been (and will continue to be) variation in the types and number of target species affected by WDM activities.

Therefore, for the purposes of this evaluation, the biological resources baseline for take of target species was defined as follows:

1. Comprises a 10-year period beginning in 2010 and ending in 2019 and looks at the average (mean).
2. To account for variations in WDM activities that could occur over a period of time, the baseline also includes a 99% confidence interval to disclose a high and low value for target species take in a given year (refer to Section 4.2.2, Biological Resources, for additional discussion of the baseline condition methodology).

[3] Given the absence of comprehensive data for county-led WDM counties, lethal take in those counties was estimated based on the amount of suitable habitat for each target species. For No County-Provided WDM Counties, the absence of county-led WDM activities does not suggest no WDM activities are or were occurring in those counties. Rather, WDM activities were likely conducted by private persons independently or with the assistance of service providers. Given the absence of comprehensive data for private WDM activities occurring in No County-Provided WDM Counties, lethal take in those counties was also estimated based on the amount of suitable habitat for each target species.

This same approach is used to identify the baseline conditions used in the cumulative analysis. Using a 10-year average and a 99% confidence interval for high and low annual values helps to ensure that baseline conditions are accurately described, and allows for a fulsome analysis of the Proposed Project/Proposed Action's impacts/effects.

4.1.3 Environmental Impacts/Effects

4.1.3.1 California Environmental Quality Act

CEQA requires that an EIR define a "threshold of significance" for each impact that may occur to the physical environment. A threshold of significance, or significance criterion, is an identifiable quantity, quality, or performance level of a particular environmental impact. In general, potential impacts are identified as either potentially significant (above threshold) or less than significant (below threshold).

Under CEQA, impacts of a proposed project are assessed relative to an environmental baseline, which is defined as the existing physical conditions in the affected area as they existed at the time the NOP was published (see Section 4.1.2, Environmental Baseline of Analysis, for a discussion of the environmental baseline as it relates to the analysis in the EIR). Impacts of a proposed project are limited to changes to the baseline physical conditions of the environment that would result directly, indirectly, or cumulatively from a proposed project. CEQA does not require the lead agency to consider impacts that are speculative (CEQA Guidelines Section 15145).

For the purposes of the EIR, significance criteria were drawn from the CEQA Guidelines, Appendix G, Environmental Checklist Form (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387 et seq.). Each environmental resource topic is evaluated in sections within this chapter. The sections contain impact statements that identify the mechanism of impact of Proposed Project/Proposed Action activities on a specific environmental attribute. Each impact statement is tied to one or more significance criteria. Each impact statement is followed by an analysis that characterizes the potential physical change as a result of Proposed Project/Proposed Action activities compared to the environmental baseline, relative to one or more significance criteria.

If a potentially significant impact is identified, mitigation measures are included that, if feasible, would be implemented to avoid, minimize, rectify, reduce, eliminate, and/or compensate for the significant or potentially significant environmental impact.

If the impact would likely remain significant after application of all feasible mitigation measures or if no feasible mitigation measures exist, it may be identified as significant and unavoidable.

4.1.3.2 National Environmental Policy Act

The EIS considers the potential direct, indirect, and cumulative effects of WDM activities on the human environment. As defined by NEPA implementing regulations, the "human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment" (40 CFR 1508.14). Therefore, when a federal agency analyzes its potential impacts on the "human environment," it is reasonable for that agency to compare not only the effects of the proposed federal action, but also the potential effects that could or would occur from a non-federal entity conducting the action in the absence of the federal action. Under such circumstances, the environmental baseline or status quo must be viewed as the environment that includes those resources as they are managed or impacted by non-federal entities in the absence of the federal action being proposed. This concept is applicable to situations involving federal assistance in

managing damage associated with resident wildlife species managed by the state Natural Resources Agency, invasive species, or unprotected species. Therefore, in those situations in which a non-federal entity has decided that a management action should occur and even the particular methods that should be used, WS-California involvement in the action would not affect the environmental status quo because a non-WS entity could take the action in the absence of WS–California involvement.

A cumulative effect can result when a change in the environment results from the incremental effect of the Proposed Project/Proposed Action when added to similar effects of other related past, present, or probable future projects or programs. Significant cumulative effects may result from individually minor but collectively significant interactions among projects. The cumulative effects analysis in this EIR/EIS focuses on whether the Proposed Project/Proposed Action's incremental contribution to identified cumulatively significant effects caused by past, present, or probable future projects and programs (including past, present, and future statewide activities) is considerable (i.e., significant).

4.1.4 Impact/Effect Terminology

This EIR/EIS uses the following terminology to describe the environmental impacts/effects of the Proposed Project/Proposed Action. The impact/effect determinations in Sections 4.2.1 through 4.2.7 provide a CEQA and NEPA conclusion and use the following terminology, where appropriate.

4.1.4.1 California Environmental Quality Act

- **No Impact:** The Proposed Project/Proposed Action would not affect the resource or topic and would not change the environmental baseline. (NI)
- **Less than Significant:** The Proposed Project/Proposed Action would not result in a substantial adverse change in the resource or topic, and no mitigation is needed. (LTS)
- **Less than Significant with Mitigation:** The Proposed Project/Proposed Action would not result in a substantial adverse change in the resource or topic if mitigation is incorporated. (LTS/M)
- **Significant and Unavoidable:** The Proposed Project/Proposed Action could result in a substantial adverse impact on the resource or topic and the impact would remain significant after application of all feasible mitigation measures. (SU)
- **Less than Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is not considered cumulative and significant. (LCC)
- **Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is considered cumulative and significant. (CC)
- **Beneficial:** The Proposed Project/Proposed Action would result in an increase in the quality of the resource. (B)

4.1.4.2 National Environmental Policy Act

- **No Impact:** The Proposed Project/Proposed Action would not affect ecological aspects of the human environment. (NI)
- **Not Significant:** The Proposed Project/Proposed Action would not substantially affect ecological aspects of the human environment. (NS)
- **Significant:** The Proposed Project/Proposed Action would substantially affect ecological aspects of the human environment. (S)

4.1.5 Environmental Resource Topics Eliminated from Further Analysis

Resource topics that have been eliminated from further analysis are discussed in Section 4.3, Environmental Resource Topics Eliminated from Further Analysis. These topics have been eliminated because little or no potential exists for Proposed Project/Proposed Action WDM activities to have a physical impact or effect on the specified environmental resources.

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4.2 Environmental Resource Topics

4.2.1 Agricultural and Forestry Resources

This section presents the environmental setting and potential impacts of the Proposed Project/Proposed Action related to agricultural and forestry resources. As part of this section, a discussion of agricultural economic information is included to show the relationship affecting agricultural resources and the agricultural industry's effects on the physical environment, as well as to illustrate the importance of the agricultural industry to local economies and California. The California Environmental Quality Act (CEQA) states that "economic or social effects shall not be treated as significant effects on the environment" (14 CCR 15131). However, economic effects may be considered environmental impacts for the purposes of CEQA to the extent they result in impacts on the physical environment. This section discusses available economic information to determine whether such a nexus exists. Information regarding agricultural resources presented in this section is based on the California Farmland Mapping and Monitoring Project (FMMP) and data from the WS-California Management Information System database.

4.2.1.1 Existing Conditions

The following discussion describes agricultural and forestry resources and economics related to the Proposed Project/Proposed Action. Economic impacts are evaluated under CEQA only when such impacts may result in a change in the physical environment. In this context, economic information is provided to support the evaluation of the potential physical changes to the environment that may occur as a result of economic impacts to agricultural landowners or uses (e.g., conversion of agricultural land to another use) from the Proposed Project/Proposed Action. The Proposed Project/Proposed Action area is defined as the State of California.

Agricultural Land

The FMMP, part of the Division of Land Resource Protection, California Department of Conservation (DOC), uses soil agricultural productivity information from U.S. Department of Agriculture's Natural Resources Conservation Service to create maps illustrating the types of farmland present in California. The California DOC classifies lands into seven agriculture-related categories: Prime Farmland, Farmland of Statewide Importance (Statewide Farmland), Unique Farmland, Farmland of Local Importance (Local Farmland), Grazing Land, Urban and Built-up Land (Urban Land), and Other Land. The first four types listed are collectively designated by the State as Important Farmlands. Each of the seven farmland types are summarized as follows, based on California DOC's A Guide to the Farmland Mapping and Monitoring Program (DOC 2004).

Prime Farmland

Prime Farmland is land with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has sufficient soil quality, growing season, and moisture supply needed to produce sustained high yields. This land must have been used for the production of irrigated crops at some time during the 4 years prior to the mapping date.

Farmland of Statewide Importance

Statewide Farmland is land similar to Prime Farmland but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. This land must have been used for the production of irrigated crops at some time during the 4 years prior to the mapping date.

Unique Farmland

Unique Farmland is land of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards. This land must have been cultivated at some time during the 4 years prior to the mapping date.

Farmland of Local Importance

Local Farmland is land of importance to the local agricultural economy, as determined by each County's Board of Supervisors and a local advisory committee. This may include lands that would meet the Prime or Statewide designation, which have been improved for irrigation but are now idle, or lands that currently support confined livestock, poultry operations and/or aquaculture.

Grazing Land

Grazing Land is land on which the existing vegetation, whether grown naturally or through management, is suited to the grazing of livestock. The minimum mapping unit for Grazing Land is 40 acres.

Urban and Built-up Land

Urban Land is land occupied by structures with a building density of at least 1 unit per 1.5 acres, or approximately 6 structures per 10-acre parcel. Uses may include, but are not limited to, residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other developed purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit, if they are part of a surrounding urban area.

Other Land

Other Land is land that is not included in any other mapping category. This category may include low-density rural development, brush, timber, wetland, riparian areas not suitable for livestock grazing, confined livestock or poultry, aquaculture, strip mines, borrow pits, and a variety of other rural land uses.

Figure 4.2.1-1 shows the distribution of agricultural land categories in California based on 2016 FMMP data.[1] The figure reflects the distribution of areas most conducive to agricultural production within the State. Most of the Important Farmland in California is in the Central Valley, which consists of the Sacramento and San Joaquin Valleys. The Central Valley averages about 50 miles in width and extends approximately 400 miles from Shasta County to the north and Kern County to the south. The total acreages of each type of Important Farmland are listed in Table 4.2.1-1.

Table 4.2.1-1. Agricultural Land Acreage in California

Land Use Category	Total Acreage Inventoried in 2016
Prime Farmland	5,031,474
Farmland of Statewide Importance	2,544,481
Unique Farmland	1,404,240

1 FMMP information from 2016 was used to provide statewide information; limited information for 2018 is also available depending on county.

Table 4.2.1-1. Agricultural Land Acreage in California

Land Use Category	Total Acreage Inventoried in 2016
Farmland of Local Importance	3,215,425
Important Farmland Total	**12,195,620**
Grazing Land	19,155,570
Agricultural Land Total	**31,351,190**

Source: DOC 2016.

Approximately one-third of California's 31 million acres of farmlands are enrolled in the Williamson Act as of 2021 (DOC 2022). The Williamson Act allows private landowners to contract with Counties and cities to voluntarily restrict land for agricultural and open space uses; restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value. Of the land enrolled in the Williamson Act, 3.4 million acres are considered Prime Farmland. In 2021, the region with the greatest acreage enrolled in the Williamson Act was the San Joaquin Valley region, with 4.1 million acres, followed by the Central Coast region, with 2.8 million acres (DOC 2022).

Agricultural Economics

This section includes a discussion of agricultural statistics in California. California leads the nation in total market value of agricultural products sold with over 70,000 farms and 24 million acres of active farm operations, including crops and livestock. According to the most recent Census of Agriculture in 2017, the total market value of agricultural products sold in California was more than $45.1 billion, with approximately $33.3 billion from crops and $11.8 billion from livestock, poultry, and other animal products (NASS 2017).

Employment and Earnings

As noted, economic impacts from the Proposed Project/Proposed Action may result in changes to agricultural production and farm-level expenditures, which in turn may result in effects on the physical environment. Following is an overview of earnings by industry, which represents the income to employees and proprietors (or businesses). Evaluating how the Proposed Project/Proposed Action may affect these earnings is one way to estimate how economic impacts could result in effects on the physical environment due to changes in agricultural production and farm-level expenditures.

Based on the American Community Survey 5-year data (data collected from 2015 to 2019), statewide farm and agricultural employment was estimated at 415,545 jobs, or 2.2% of all jobs in California. Farm employment was highest in the San Joaquin Valley region, with approximately 181,037 jobs representing 44% of total statewide farm employment. The regions with the next highest numbers of farm employment were Southern California and Central Coast, respectively (U.S. Census Bureau 2019).

Table 4.2.1-2 presents compensation of employees by industry in 2016, 2018, and 2020 for California. Compensation of employees includes wages and salaries, and supplements to wages and salaries (employer contributions for pension and insurance funds and government social insurance). Farm compensation accounted for 0.4% of total statewide earnings, although other industries and sectors may have a relationship to agriculture (e.g., support activities or retail trade of agricultural products).

Table 4.2.1-2. Compensation of Employees by Industry in California

Description	Compensation of Employees by Year (thousands of dollars)		
	2016	2018	2020
Farm Compensation[1]			
Farm Compensation	6,428,646	6,579,677	8,265,521
Nonfarm Compensation[2]			
Forestry, Fishing, and Related Activities			
Forestry and Logging	152,272	181,914	199,164
Fishing, Hunting and Trapping	46,896	45,204	39,993
Support Activities for Agriculture and Forestry[3]	8,852,170	9,647,769	11,193,775
Total Nonfarm Compensation	**9,051,338**	**9,874,887**	**11,432,932**

Source: BEA 2021.
Notes: The estimates for 2016 are based on the 2012 North American Industry Classification System (NAICS). The estimates for 2017 forward are based on the 2017 NAICS. All dollar estimates are in thousands of current dollars (not adjusted for inflation).
1 Farm compensation is the sum of farm wages and salaries and farm supplements to wages and salaries.
2 Nonfarm compensation is the sum of wages and salaries and supplements to wages and salaries for all industries, excluding farms.
3 Agricultural support activities include establishments that perform one or more activities associated with farm operation, such as soil preparation, planting, harvesting, and management, on a contract or fee basis. Establishments that primarily perform these activities independent of the agriculture or forestry producing establishment are in this subsector.

Damages to Agriculture

From 2010 to 2019, Wildlife Services-California (WS-California) recorded over $25.4 million of confirmed losses to agriculture from wildlife damage (WS-California 2021). Approximately $7.73 million of that damage was to livestock and rangeland. These damages come from predation of livestock by species such as coyotes and mountain lions, and damage to agricultural crops from species such as feral swine, black bears, and avian species. Confirmed losses are verified by WS-California specialists during a site visit and do not reflect actual damages, which are higher than those reported by WS-California. In reality, only a fraction of losses are reported by WS-California, and there is limited data available for Counties that do not maintain a Cooperative Service Agreement with WS-California.

Forest Land

According to the U.S. Forest Service (USFS), California contains the third largest area of forest land in the nation, with approximately 32 million acres of forest land. Table 4.2.1-3 summarizes forestry resources in the state in 2012 from the USFS 10-Year Forest Inventory and Analysis Report (2006–2015) (USFS 2020).

Table 4.2.1-3. Forestry Resources in California (2012)

Total Area (thousand acres)	Total Forest Land (thousand acres)	Timberland		
		Area	Net Volume Timber (million square feet)	Total Above Ground Biomass (million dry tons)
99,699	32,057	16,991	71,791	1,396

Source: USFS 2020.

4.2.1.2 Relevant Laws, Policies, and Ordinances

Relevant laws, policies, ordinances, plans, and executive orders related to agricultural resources are located in Appendix B.

4.2.1.3 Adverse Effects/Thresholds of Significance

Under the National Environmental Policy Act (NEPA), the level of an effect must consider the context and intensity of the environmental effect and if the corresponding impact results in an adverse effect. For the purposes of the analysis, an adverse effect under NEPA would occur if the Proposed Project/Proposed Action would:

> Directly, indirectly, or cumulatively result in adverse effects on agricultural and forestry resources.

The significance criteria used to evaluate the project impacts to agricultural resources are based on Appendix G of the CEQA Guidelines and USDA-APHIS Implementing NEPA Procedures (7 CFR Part 372), and consideration of the Proposed Project/Proposed Action's objectives and purpose and need. According to Appendix G of the CEQA Guidelines, a significant impact related to agricultural resources or forestry resources would occur if the Proposed Project/Proposed Action would:

1. Convert Prime Farmland, Unique Farmland, or Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Project of the California Resources Agency, to non-agricultural use.
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract;
3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));
4. Result in the loss of forest land or conversion of forest land to non-forest use; or
5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use.

The Proposed Project/Proposed Action would not include any changes to existing zoning designations in California, and all activities would be conducted in a manner consistent with local laws and regulations, including existing zoning for agricultural use. In addition, while components of the Proposed Project/Proposed Action could be implemented on properties that are currently under Williamson Act contracts, it would not conflict with ongoing agricultural uses. Therefore, no impact would occur related to rezoning or conflicts with existing zoning for agricultural use or forest land, timberland, or timberland zoned for Timberland Production, or Williamson Act contracts. Thus, impacts described under thresholds 2 and 3 listed above are not further analyzed or discussed in this environmental impact report/environmental impact statement (EIR/EIS).

The Proposed Project/Proposed Action does not involve permanently converting the land use of farmland or forest land. Wildlife damage management (WDM) activities are conducted on farmland, forest land, or any other unique area when requested by the landowner or land manager. WDM actions implemented are temporary and do not involve any permanent conversion of land. Rather, the implementation of WDM activities is intended to reduce wildlife damage to these lands and prevent loss or conversion of farm- and forestland to non-agricultural or non-forest use. Therefore, and as explained in more detail below, no adverse impact would occur related to the conversion of prime farmland, unique farmland, or statewide importance farmland to non-agricultural use, the loss

of forest land or conversion of forest land to non-forest use, or other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use.

Finally, potential impacts to agricultural economics are discussed as it relates to the Proposed Project's purpose and need. In accordance with Section 15064.7 of the CEQA Guidelines, lead agencies may develop thresholds of significance that the agency uses in the determination of the significance of environmental effects. While impacts to agricultural economics are not considered impacts to the environment under CEQA, the following threshold is included in the analysis for informational purposes:

6. Result in the loss of market value of agricultural products sold in California, agricultural employment, and agricultural income/earnings.

4.2.1.4 Impacts Analysis

This section uses the below terminology adapted from Section 4.1.4 (Impact/Effect Terminology) to describe the effects of the Proposed Project/Proposed Action on biological resources under CEQA (i.e., CEQA Conclusion) and on the ecological aspects of the human environment (i.e., natural resources and components, structures, and functioning of affected ecosystems) under NEPA (i.e., NEPA Conclusion).

CEQA Conclusions

- **No Impact:** The Proposed Project/Proposed Action would not affect the resource or topic and would not change the environmental baseline. (NI)
- **Less than Significant:** The Proposed Project/Proposed Action would not result in a substantial adverse change in the resource or topic, and no mitigation is needed. (LTS)
- **Less than Significant with Mitigation:** The Proposed Project/Proposed Action would not result in a substantial adverse change in the resource or topic if mitigation is incorporated. (LTS/M)
- **Significant and Unavoidable:** The Proposed Project/Proposed Action could result in a substantial adverse impact on the resource or topic and the impact would remain significant after application of all feasible mitigation measures. (SU)
- **Less than Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is not considered cumulative and significant. (LCC)
- **Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is considered cumulative and significant. (CC)
- **Beneficial:** The Proposed Project/Proposed Action would result in an increase in the quality of the resource. (B)

NEPA Conclusions

- **No Impact:** The Proposed Project/Proposed Action would not affect the resource or topic or ecological aspects of the human environment. (NI)
- **Not Significant:** The Proposed Project/Proposed Action would not substantially affect ecological aspects of the human environment. (NS)
- **Significant**: The Proposed Project would substantially affect ecological aspects of the human environment. (S)

Proposed Project/Proposed Action impacts associated with each of the significance criteria are discussed first, followed by discussions of cumulative impacts and a comparison of impacts under each of the Proposed Project/ Proposed Action alternatives.

4.2.1.4.1 Proposed Project/Proposed Action Impacts

AG-1: Would the Proposed Project/Proposed Action convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Project of the California Resources Agency, to non-agricultural use?

The Proposed Project/Proposed Action would formalize a framework for managing wildlife that is injurious to California's agricultural industry. WDM activities would be conducted in response to requests for assistance (to address depredation and/or property damage) and in response to high-risk wildlife damage scenarios. Therefore, WDM activities may be conducted in areas designated as Farmland if assistance is requested from the landowner(s) or if there is an emergency situation in which rapid response is needed to minimize agricultural loss or property damage. Examples of wildlife damage to agricultural resources include predation of livestock from species such as coyotes and mountain lions, damage to crops from species such as feral swine and black bears, and damage to infrastructure that supports agricultural uses (e.g., levees, dams and canals). The Proposed Project/Proposed Action would include physical activities, including the deployment of trained personnel and specialized equipment, in order to address wildlife damage issues. However, these activities are intended to support existing agricultural uses and minimize the potential for agricultural loss and the conversion of Farmland that could occur in the absence of WDM activities. In addition, the footprint of any WDM activity included in the Proposed Project/Proposed Action would be conducted with the knowledge and at the request of the landowner(s). WDM activities would be limited in area, would be short-lived and/or temporary, and would not involve any permanent conversion of land, agricultural or otherwise. Therefore, no impact would occur regarding the conversion of Farmland to non-agricultural use under CEQA and NEPA.

CEQA Conclusion: *No impact*

NEPA Conclusion: *No impact.*

AG-4: Would the Proposed Project/Proposed Action result in the loss of forest land or conversion of forest land to non-forest use?

As noted previously, the WDM activities associated with the Proposed Project/Proposed Action would be implemented in response to requests for assistance (such as from the USFS) or in response to high-risk scenarios in which rapid response is needed to minimize or prevent loss from wildlife damage. An example of wildlife damage to forest land is bear damage, which typically involves the removal of bark and damage to the cambial layer of trees. As such, the Proposed Project/Proposed Action could involve implementation of control methods on forest land to protect forestry and timber resources. These activities would not involve or result in the conversion of any forest land. Rather, the implementation of these activities are intended to protect forest land and prevent loss or conversion of forest land to non-forest use. Therefore, no impact would occur under CEQA and NEPA.

CEQA Conclusion: *No impact*

NEPA Conclusion: *No impact.*

AG-5: Would the Proposed Project/Proposed Action involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

As discussed above, the Proposed Project/Proposed Action may include WDM activities performed on agricultural or forest land, including protected farmland. Any WDM activities would be conducted in compliance with applicable laws and regulations, with the knowledge and at the request of the landowner, limited in size, short-lived and/or temporary, and would be performed in support of existing agricultural uses and to prevent loss of agricultural or forest resources. The Proposed Project/Proposed Action would not involve changes in the existing environment that, due to their location or nature, would result in the conversion of Farmland to non-agricultural use. Therefore, no impact would occur under CEQA and NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

AG-6: Would the Proposed Project/Proposed Action result in the loss of market value of agricultural products sold in California, agricultural employment, and agricultural income/earnings?

As stated in Section 1.3, the objective of the Proposed Project/Proposed Action is the protection of California agriculture from wildlife damage. Implementing the Proposed Project/Proposed Action's WDM activities throughout California would have no impact/beneficial impact to agricultural economics by reducing damage to agricultural products (crops, livestock, and animal products). Reducing damage and loss to agricultural products, even incrementally, would improve total market value for California agricultural products, which would preserve or improve existing agricultural employment and income/earnings for agricultural workers.

In conclusion, the Proposed Project/Proposed Action would have no significant adverse direct, indirect, or cumulative impacts on agricultural or forestry resources under CEQA and NEPA.

CEQA Conclusion: *No impact/beneficial.*

NEPA Conclusion: *No impact.*

4.2.1.4.2 Mitigation Measures

No mitigation measures are required.

4.2.1.4.3 Cumulative Impacts

The geographic scope for the evaluation of potential cumulative impacts on agricultural and forestry resources consists of all agricultural and forest lands within California. As concluded in the impact analyses above, the Proposed Project/Proposed Action would have no impact regarding the conversion of land to non-agricultural or non-forest uses and would not conflict with existing zoning for agricultural or forest lands. Implementation of the Proposed Project/Proposed Action would result in an incremental reduction in damage and loss of agricultural products, preserving or improving agricultural products, agricultural employment, and income/earnings. Given there would be no impact or an incremental beneficial impact, the Proposed Project/Proposed Action's contribution to a cumulative effect would not be considerable. No cumulative impacts are expected to occur.

CEQA Conclusion: *Less than cumulatively considerable/beneficial.*

NEPA Conclusion: *Not significant.*

4.2.1.4.4 Alternatives Impacts

AG-1: Would the Proposed Project/Proposed Action convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Project of the California Resources Agency, to non-agricultural use?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new California Department of Food and Agriculture (CDFA) or County WDM would be established, and no CDFA or County-led Emergency/Rapid Response activities would occur. Under Alternative 1, WS-California personnel would continue to carry out WDM activities as described in their Cooperative Service Agreement model.

Under current conditions, WDM activities are conducted by WS-California in response to requests for assistance. These activities may be conducted in areas designated as Farmland if assistance is requested from the landowner(s). One of the main purposes of WDM is to minimize agricultural loss and the conversion of Farmland that could occur in the absence of WDM activities. These activities are limited in area, short-lived and/or temporary, and do not involve any permanent conversion of land, agricultural or otherwise. As Alternative 1 represents current conditions, there would be no impact relative to the project baseline. Under the Proposed Project/Proposed Action, the CDFA/Counties could potentially carry out operational assistance (i.e., Rapid Response activities), but these activities would be limited in scope (geographically and species specific). Thus, while Alternative 1 would not include proposed CDFA/County operational WDM activities, there would be no substantive difference in impact severity compared to the Proposed Project/Proposed Action related to the conversion of Farmland to non-agricultural use. There would be no change from the baseline condition and therefore no impact under CEQA or NEPA would occur.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Alternative 2 would be similar to the Proposed Project/Proposed Action; however, operational WDM would only occur in cases to protect human (including airport work) and companion animal health and safety, and for rare, threatened, and endangered (T&E) species protection. The CDFA/Counties/WS-California would not use lethal methods to respond to other WDM requests (e.g., agricultural damage, property damage, and for game species). Lethal operational WDM could be handled by other entities (including, but not limited to, tribes; the U.S. Fish and Wildlife Service; the California Department of Fish and Wildlife; and private-resource owners, managers, and their private contractors). These entities may or may not adhere to safety precautions, best management practices, or federal, state, and/or local laws. Implementation of Alternative 2 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, immobilization and euthanasia [I&E] drugs, aircraft), or authorization to carry out WDM activities like WS-California.

Because this alternative would limit the ability of CDFA, Counties, and WS-California to control wildlife damage to agriculture, there could be an increase in the potential for loss of agricultural resources and the subsequent

conversion of Farmland to non-agricultural use. However, the CDFA/Counties/WS-California would continue to provide technical assistance (for both lethal and non-lethal WDM techniques), and non-lethal operational WDM assistance in response to wildlife damage to agriculture. Impacts from Alternative 2 would be less than significant under CEQA, representing a slightly greater impact to Farmland compared to the Proposed Project/Proposed Action and no impact under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *No impact.*

Alternative 3. Non-Lethal Operational WDM

Alternative 3 would be similar to the Proposed Project/Proposed Action; however, only non-lethal operational WDM would be carried out by the CDFA/Counties/WS-California. Any lethal operational WDM activity would be handled by other entities. Implementation of Alternative 3 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM activities like WS-California.

Similar to the discussion under Alternative 2, Alternative 3 would limit the ability of the CDFA, the Counties, and WS-California to control wildlife damage to agriculture, which may result in an increase of the potential for agricultural loss and the subsequent conversion of Farmland to non-agricultural use. While impacts from Alternative 3 would be greater compared to the Proposed Project/Proposed Action, the CDFA/Counties/WS-California would still provide technical assistance and non-lethal operational assistance, ensuring that impacts to Farmland would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative. No WDM activities would be carried out by the CDFA/Counties/WS-California. All WDM would be handled by other governmental entities. Alternative 4 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Implementation of Alternative 4 is not available to WS-California, therefore NEPA based analysis and impact determination is not warranted (see Chapter 3 Section 3.8.4: Financial Reimbursement Assistance).

The addition of a financial reimbursement program would support existing eligible ranchers/livestock owners/agricultural operations, etc. with cost-share funds for infrastructure improvements and livestock protection animals to offset maintenance costs of protection animals and for purchase of non-lethal WDM devices (e.g., alarms, lights, decoys). The efficacy of a financial reimbursement program would be limited by the individual program's scope and funding (which are unknown at this time). Other entities, including private landowners, would likely not have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California, and it is likely that calls for service would go unaddressed, resulting in a greater impact compared to the Proposed Project/Proposed Action. However, this is speculative and this alternative would still not result in the direct loss of Farmland or conversion of Farmland. As such, impacts would be considered less than significant under CEQA.

CEQA Conclusion: *Less than significant.*

Alternative 5. No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM activities by the CDFA or the Counties. WDM activities could still be implemented by other agencies and entities; however, these groups would need a substantial amount of time, potentially years, to establish the resources, staff, and training required to provide the same level of WDM currently offered to California agricultural producers. During this transitional time, California agricultural producers could experience economic and revenue losses from crop damage and predation (see Section 1.5, NEPA Purpose and Need, of this EIR/EIS). Not all producers suffer losses; however, for those producers that do, those losses can be economically difficult and burdensome, and may cause small producers that are affected to experience years of negative profits (Bodenchuk et al. 2000; Shelton 2004). Rashford et al. (2010) further state that predation can reduce ranch profitability by increasing livestock death loss, reducing livestock weaning weights, and increasing ranch labor and management costs. Without effective methods of reducing predation and crop damage, such as those currently provided by WS-California, loss of market value of agricultural products sold in California, agricultural employment, and agricultural income/earnings could be significant under NEPA until replacement WDM mechanisms are in place. Additionally, other agencies and entities may or may not adhere to safety precautions, best management practices, or federal, state, and/or local laws. Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM activities like WS-California, and it is likely that calls for service would go unaddressed.

Resource or land managers/owners requesting WDM assistance would be referred to other entities. This alternative would place the immediate burden of WDM on the resource owner, other governmental agencies, private businesses and/or private individuals. The absence of WDM activities provided by WS-California, CDFA, or county wildlife specialists would increase the risk of wildlife damage to agricultural products. In the absence of technical and operational WDM assistance by WS-California and the CDFA, wildlife damage to agriculture could result in a substantial loss of market value and subsequently agricultural employment/earnings. However, the quantification of the corresponding market value or agricultural employment/earning is speculative. Historical data demonstrates a continued need for the program. Due to the absence of a CDFA program and cessation of WS-California, no feasible mitigation could be implemented by the lead agencies that would address this impact. Therefore, impacts under Alternative 5 would be significant and unavoidable under CEQA and significant under NEPA.

CEQA Conclusion: *Significant and unavoidable.*

NEPA Conclusion: Significant.

AG-4: Would the Proposed Project/Proposed Action result in the loss of forest land or conversion of forest land to non-forest use?

Alternative 1: No Project/Continuation of WS-California

As previously discussed, WS-California WDM activities under Alternative 1 would continue to be implemented in response to requests for assistance (such as from the USFS) to minimize or prevent loss from wildlife damage. Alternative 1 could involve implementation of control methods on forest land to protect forestry and timber resources. These activities would not involve or result in the conversion of any forest land. Rather, the implementation of these activities would be intended to protect forest land and prevent loss or conversion of forest land to non-forest use. As Alternative 1 represents current conditions, there would be no impact relative to the

project baseline. Alternative 1 would not include the proposed CDFA or County Emergency/Rapid Response activities; however, those activities are not anticipated to occur regularly on forest lands, would be limited to emergency or high-risk wildlife damage situations, and would not require the conversion of forest land. Therefore, Alternative 1 would be similar to the Proposed Project/Proposed Action regarding impact to loss or conversion of forest land. There would be no change from the baseline condition and therefore no impact under CEQA or NEPA would occur.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Under Alternative 2, the CDFA/Counties/WS-California lethal operational activities would only occur in cases involving human or companion animal health and safety, T&E species protection, and airport work. Lethal control would not be implemented in cases of wildlife damage to forests unless the cases involve one or more of the above topics in which lethal operational assistance would be allowed. Because this alternative would limit the ability of the CDFA, Counties, and WS-California to control wildlife damage to forest lands, there may be a slight increase in the potential for loss of forest land compared to the Proposed Project/Proposed Action. However, the CDFA/Counties/WS-California would continue to provide technical assistance (for both lethal and non-lethal techniques), and non-lethal operational assistance in response to wildlife damage to forests. While this alternative may have a slightly greater impact compared to the Proposed Project/Proposed Action, impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 3. Non-Lethal Operational WDM

Similar to the discussion under Alternative 2, Alternative 3 would limit the ability of the CDFA, the Counties, and WS-California to control wildlife damage to forest lands, which may result in an increase of the potential for loss of forest lands. This alternative may have a slightly greater impact compared to the Proposed Project/Proposed Action, but impacts would remain less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Under Alternative 4, no WDM activities would be carried out by the CDFA/Counties/WS-California. All WDM would be handled by other entities. Alternative 4 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Implementation of Alternative 4 is not available to WS-California, therefore NEPA based analysis and impact determination is not warranted (see Chapter 3 Section 3.8.4: Financial Reimbursement Assistance).

Financial reimbursement would allow landowners to recoup their losses and/or implement methods to control wildlife damage to forest land (e.g., fencing, livestock protection animals, scare devices). As discussed previously, the efficacy of a financial reimbursement program would be limited by the individual program's scope and funding (which are unknown at this time). However, Alternative 4 would still not result in the direct loss of forest lands or conversion of forest land to non-forest use. While there may be greater impacts compared to the Proposed Project/Proposed Action, this quantification of impacts is speculative and this alternative would not involve any physical development or physical activities that would be substantially more intense than existing conditions. As such, the impacts from this alternative would also be less than significant under CEQA.

CEQA Conclusion: *Less than significant.*

Alternative 5. No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM activities by the CDFA or the Counties. WDM activities would still be implemented by other agencies and entities. Alternative 5 would mean any WDM activities would be handled by other entities, who may or may not adhere to safety precautions, best management practices, or federal, state, and/or local laws. Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM activities like WS-California, and it is likely that calls for service would go unaddressed.

The absence of WDM activities performed by WS-California and CDFA (including technical and operational assistance) would potentially increase the risk of forest loss from wildlife damage compared to the Proposed Project/Proposed Action. However, the quantification of an increase in impacts to agricultural resources is speculative and while potentially more severe than the Proposed Project/Proposed Action and other alternatives, Alternative 5 would still not result in the direct loss of forest lands or conversion of forest land to non-forest use and would be not significant. This alternative, similar to the Proposed Project/Proposed Action and the remaining alternatives, would not involve any physical development or physical activities that would be substantially more intense than existing conditions. As such, the impacts from this alternative would also be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

AG-5: Would the Proposed Project/Proposed Action involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

Alternative 1: No Project/Continuation of WS-California

Consistent with current conditions, any WDM activities under Alternative 1 would be conducted in compliance with applicable laws and regulations at the request of the landowner, would be limited in size, short-lived and/or temporary, and would be performed in support of existing agricultural uses and to prevent loss of agricultural or forest resources. Alternative 1 would not involve changes in the existing environment which due to their location or nature, would result in the conversion of Farmland to non-agricultural use. Therefore, there would be no impact

under Alternative 1, similar to the Proposed Project/Proposed Action. There would be no change from the baseline condition and therefore no impact under CEQA or NEPA would occur.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

As previously discussed, this alternative would limit the ability of the CDFA, the Counties, and WS-California to perform lethal control methods for wildlife damage to agriculture, which may result in a slight increase in the potential for loss of Farmland compared to the Proposed Project/Proposed Action. However, the CDFA/Counties/WS-California would continue to provide technical assistance (for both lethal and non-lethal techniques), and non-lethal operational assistance in response to wildlife damage, and no activities are proposed that would involve direct changes to Farmland. While this alternative may have a slightly greater impact compared to the Proposed Project/Proposed Action, impacts would be less than significant under CEQA and no impact under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *No impact.*

Alternative 3. Non-Lethal Operational WDM

Similar to the discussion above, limiting the ability of the CDFA, the Counties, and WS-California to perform non-lethal control methods may result in a slight increase in the potential for loss of Farmland compared to the Proposed Project/Proposed Action. However, continued technical assistance and non-lethal operational assistance would still be available, and there would be no direct changes to Farmland as part of Alternative 3. Under this alternative, impacts would be less than significant under CEQA and no impact under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *No impact.*

Alternative 4. Financial Reimbursement Assistance

Under Alternative 4, no WDM activities would be carried out by the CDFA/Counties/WS-California. All WDM would be handled by other entities. Alternative 4 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Implementation of Alternative 4 is not available to WS-California, therefore NEPA based analysis and impact determination is not warranted (see Chapter 3 Section 3.8.4: Financial Reimbursement Assistance).

As previously discussed, financial reimbursement may allow landowners to recoup their losses and/or implement methods to control wildlife damage to Farmland. The efficacy of a financial reimbursement program would be limited by the individual program's scope and funding (which are unknown at this time). However, Alternative 4 would still not result in the direct loss of Farmland or conversion of Farmland. As such, while there may be greater impacts compared to the Proposed Project/Proposed Action, impacts would still be considered less than significant under CEQA.

CEQA Conclusion: *Less than significant.*

Alternative 5. No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM activities by the CDFA or the Counties. WDM activities would still be implemented by other agencies and entities. Alternative 5 would mean any WDM activities would be handled by other entities, who may or may not adhere to safety precautions, best management practices, or federal, state, and/or local laws. Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM activities like WS-California, and it is likely that calls for service would go unaddressed.

The absence of WDM activities performed by WS-California and CDFA would potentially increase the risk of loss of Farmland from wildlife damage compared to the Proposed Project/Proposed Action. However, the quantification of an increase in impacts to agricultural resources is speculative and while more severe than the Proposed Project and other alternatives, would be not significant. Alternative 5 would not result in the direct loss of Farmland or conversion of Farmland to non-agricultural use. As such, the impacts from this alternative would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

AG-6: Would the Proposed Project/Proposed Action result in the loss of market value of agricultural products sold in California, agricultural employment, and agricultural income/earnings?

Alternative 1: No Project/Continuation of WS-California

Implementing the Proposed Project/Proposed Action's WDM activities throughout California would have a beneficial impact to agricultural economics by reducing wildlife damage to agricultural products such as crops and livestock. Reducing wildlife damage would preserve or improve existing agricultural employment and income/earnings for agricultural workers. Under Alternative 1, current WDM activities performed by WS-California would remain unchanged, and WS-California would continue to protect agriculture as directed by law. This alternative would not include any new CDFA- or County-provided Emergency/Rapid Response activities, which would not allow the CDFA and the Counties to further prevent detrimental impacts to California's agricultural economy. Refer to Section 3.8.1 for a description of activities proposed under Alternative 1. Continued implementation and performance of existing WDM activities would result in no impact on agricultural economics. There would be no change from the baseline condition and therefore no impact under CEQA or NEPA would occur.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Under Alternative 2, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques, and/or provide non-lethal operational WDM assistance, but would not provide lethal WDM operational assistance, except for cases of human and companion animal health and safety, T&E species protection, and wildlife hazard management at airports. Refer to Section 3.8.2 for a description of activities proposed under Alternative 2. Lethal control would not be implemented in cases of wildlife damage to Farmland unless the cases involve one or more of the above topics in which lethal operational assistance would be allowed. Because this alternative would limit the ability of the CDFA, the Counties, and WS-California to manage wildlife damage to Farmland, there may be increased damage to agricultural products, market value, and agricultural employment/earnings. However, the CDFA/Counties/WS-California would provide technical assistance (for both lethal and non-lethal techniques) and non-lethal operational assistance in response to wildlife damage to Farmland. Landowners and/or land managers requesting lethal operational assistance would be referred to other entities. This alternative would place the immediate burden of lethal operational damage management on the other governmental agencies, private businesses and/or private individuals. Alternative 2 may result in greater economic loss of agricultural products sold in California due to the lack of lethal operational assistance provided by WS-California, CDFA, or county wildlife specialists in response to wildlife damage.

The lack of lethal operational assistance in response to wildlife damage may result in a slightly greater impact compared to the Proposed Project/Proposed Action, but impacts would be less than significant due to continued technical assistance and non-lethal operational assistance from WS-California and new CDFA WDM activities under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 3. Non-Lethal Operational WDM

Under Alternative 3, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques and provide only non-lethal operational WDM assistance. No lethal operational WDM assistance would be provided. Refer to Section 3.8.3 for a description of activities proposed under Alternative 3. Under Alternative 3, resource or land managers/owners requesting lethal operational assistance would be referred to other entities, including those requesting assistance for T&E species protection, human and companion animal health and safety, or wildlife hazard management at airports. This alternative would place the immediate burden of lethal operational damage management on other governmental agencies, private businesses and/or private individuals. Similar to the discussion above, limiting the ability of CDFA, Counties, and WS-California to implement WDM methods may result in a slight increase in the potential for loss of agricultural resources to wildlife damage compared to the Proposed Project/Proposed Action. However, continued technical assistance and non-lethal operational assistance would still be available, and there would be no direct changes to Farmland as part of Alternative 3. Under this alternative, impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Under Alternative 4, participating counties or other governmental agencies could establish an assistance program or cost-sharing initiative that provides monetary compensation to affected cooperators with a focus on funding improved protection from damaging wildlife. This alternative would not include technical assistance or operational assistance provided by WS-California, the CDFA, or county wildlife specialists. Implementation of Alternative 4 is not available to WS-California or the CDFA. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

Alternative 4 is a financial reimbursement assistance alternative to fund nonlethal WDM methods, such as fencing, guard animals, or scare devices. Establishing non-lethal methods over large areas of agricultural land would be expensive to implement and an assistance program may not have the appropriate funds to meet all requests for assistance. This may result in an increase in the potential for loss of agricultural resources to wildlife damage. Resource or land managers/owners requesting operational assistance would be referred to other entities. This alternative would place the immediate burden of operational damage management on the resource owner/manager, other governmental agencies, private businesses and/or private individuals.

There is no potential for a direct adverse impact from WS-California or CDFA actions because implementation of this alternative is not available to WS-California or the CDFA at this time. County-provided reimbursement assistance programs under Alternative 4 could protect agricultural resources and be beneficial to the market value of agricultural products sold in California, agricultural employment, and agricultural income/earnings. However, the efficacy of a financial reimbursement program would be limited by the individual program's scope and funding (which are unknown at this time). Still, Alternative 4 is not anticipated to result in the direct loss of market value of agricultural products. As such, while impacts may be greater than the Proposed Project/Proposed Action, it is anticipated that impacts would be less than significant under CEQA.

CEQA Conclusion: *Less than significant.*

Alternative 5. No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM activities by the CDFA or the Counties. WDM activities would still be implemented by other agencies and entities. Alternative 5 would mean any WDM activities would be handled by other entities, who may or may not adhere to safety precautions, best management practices, or federal, state, and/or local laws. Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM activities like WS-California, and it is likely that calls for service would go unaddressed.

Resource or land managers/owners requesting WDM assistance would be referred to other entities. This alternative would place the immediate burden of WDM on the resource owner, other governmental agencies, private businesses and/or private individuals. The absence of WDM activities provided by WS-California, CDFA, or county wildlife specialists would increase the risk of wildlife damage to agricultural products. In the absence of technical and operational WDM assistance by WS-California and the CDFA, wildlife damage to agriculture could result in a substantial loss of market value and subsequently agricultural employment/earnings. However, the quantification of the corresponding market value or agricultural employment/earning is speculative. Historical data demonstrates a continued need for the program. Due to the absence of a CDFA program and cessation of WS-California, no

feasible mitigation could be implemented by the lead agencies that would address this impact. Therefore, impacts under Alternative 5 would be significant and unavoidable under CEQA and significant under NEPA.

CEQA Conclusion: *Significant and unavoidable.*

NEPA Conclusion: *Significant.*

4.2.1.4.5 Alternatives Impacts - Cumulative

Implementation of Alternatives 1, 2, 3, and 4, in combination with past, present, and reasonably foreseeable future development, would not result in cumulatively considerable impacts related to agricultural or forestry resources. As previously described, the absence of certain components of CDFA-, WS-California-, and County-provided WDM in Alternatives 1–3 may result in a slight increase in the potential for loss of agricultural resources and market value compared to the Proposed Project/Proposed Action. However, continued technical assistance and/or non-lethal operational assistance would still be available, ensuring that there would be less-than-significant project-level impacts and no cumulatively considerable contribution to cumulative impacts. Under Alternative 4, the efficacy of a financial reimbursement program would be limited by the individual program's scope and funding (which are unknown at this time), but this would also not be anticipated to have a cumulatively considerable impact.

Under Alternative 5, there would be a cessation of WDM activities by WS-California and no new WDM by the CDFA or the Counties. This would place additional burdens on resource owners, other governmental agencies, private businesses and/or private individuals, and may lead to increased wildlife damage to agricultural products. This would be considered a cumulatively considerable impact.

Impact Conclusions for thresholds 1, 4, and 5

CEQA Conclusion (Alternatives 1–4): *Less than cumulatively considerable/beneficial.*

CEQA Conclusion (Alternative 5): *Less than cumulatively considerable.*

NEPA Conclusion (Alternatives 1 – 3): *Not Significant*

NEPA Conclusion (Alternative 5): *Not Significant.*

Impact Conclusions for threshold 6

CEQA Conclusion (Alternatives 1–4): *Less than cumulatively considerable/beneficial.*

CEQA Conclusion (Alternative 5): *Cumulatively considerable.*

NEPA Conclusion (Alternatives 1 – 3): *Not Significant*

NEPA Conclusion (Alternative 5): *Significant.*

4.2.1.5 References

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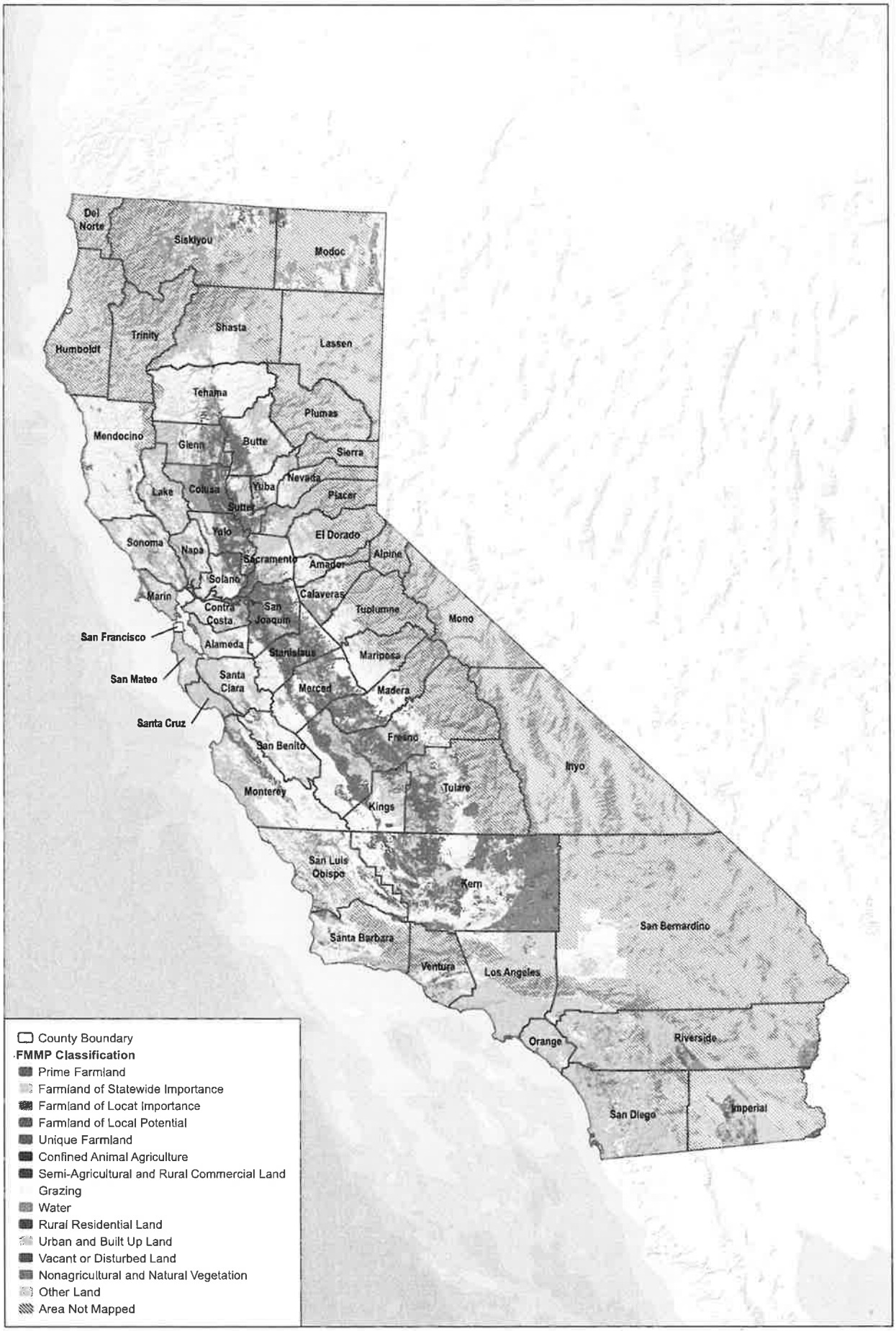
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SOURCE: CA Dept. of Conservation 2016

DUDEK

Miles

FIGURE 4.2.1-1

California Important Farmlands

California Wildlife Damage Management EIR/EIS

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4.2.2 Biological Resources

This section provides a general overview of existing biological resources in the State of California and evaluates potential impacts of the Proposed Project/Proposed Action and its alternatives, and identifies mitigation measures related to implementation of the Proposed Project/Proposed Action. The Wildlife Damage Management (WDM) Project Biological Technical Report (BTR) (Appendix D of this environmental impact report [EIR]/environmental impact statement [EIS]) provides additional technical details on wildlife species and methods used to estimate impacts on their populations at the state and county level, and serves as the primary source for relevant topics in this analysis.

This section does not address topics outside the scope of evaluating impacts on plant, fish, and wildlife populations, their habitat, and other resources such as wetlands and vegetation communities. For example, the ethics and humaneness of the capture and removal of individual animals are human values that are beyond the scope of this section and are discussed in Chapter 5. Similarly, potential impacts of the Proposed Project/Proposed Action on the health and safety of humans and their companion animals, as well as on tribal cultural resources, are outside the scope of this analysis and are discussed in Sections 4.2.5 and 4.2.3, respectively.

4.2.2.1 Existing Conditions

Details on existing conditions relevant to biological resources are provided in the BTR (Appendix D).

The target mammal species identified in Table 4.2.2-1 were analyzed individually to determine Proposed Project/Proposed Action effects on populations at both a county and state level.

Table 4.2.2-1. Target Mammal Species with Expanded Analysis

Category	Common Name	Scientific Name
Carnivores	black bear	*Ursus americanus*
	bobcat	*Lynx rufus*
	coyote	*Canis latrans*
	gray fox	*Urocyon cinereoargenteus*
	red fox	*Vulpes vulpes*
	long-tailed weasel	*Mustela frenata*
	American mink	*Mustela vison*
	raccoon	*Procyon lotor*
	river otter	*Lontra canadensis*
	western spotted skunk	*Spilogale gracilis*
	striped skunk	*Mephitis mephitis*
	mountain lion[a]	*Puma concolor*
Rodents/Lagomorphs	North American beaver	*Castor canadensis*
	North American porcupine	*Erethizon dorsatum*
	yellow-bellied marmot	*Marmota flaviventris*
	big-eared woodrat	*Neotoma macrotis*
	dusky-footed woodrat	*Neotoma fuscipes*
	black-tailed jackrabbit	*Lepus californicus*
	desert cottontail rabbit	*Sylvilagus audubonii*

Table 4.2.2-1. Target Mammal Species with Expanded Analysis

Category	Common Name	Scientific Name
	brush rabbit	*Sylvilagus bachmani*
	California ground squirrel	*Otospermophilus beecheyi*
	western gray squirrel	*Sciurus griseus*
	deer mouse	*Peromyscus maniculatus*
Ungulates	mule deer	*Odocoileus hemionus*
Special-Status Species	American badger	*Taxidea taxus*
	mountain lion[a]	*Puma concolor*
	ringtail	*Bassariscus astutus*

[a] Mountain lion is considered both special-status and non-special-status depending on the population locality as it is a candidate for listing under the California Endangered Species Act in only some counties. It is discussed in both contexts within this document.

The target bird species analyzed in this report are identified in Table 4.2.2-2.

Table 4.2.2-2. Target Bird Species with Expanded Analysis

Category	Species Common Name	Species Scientific Name
Corvids	American crow	*Corvus brachyrhynchos*
	common raven	*Corvus corax*
	California scrub-jay	*Aphelocoma californica*
Raptors	ferruginous hawk	*Buteo regalis*
	red-tailed hawk	*Buteo jamaicensis*
	barn owl	*Tyto alba*
	peregrine falcon	*Falco peregrinus anatum*
Granivores	Brewer's blackbird	*Euphagus cyanocephalus*
	red-winged blackbird	*Agelaius phoeniceus*
	yellow-headed blackbird	*Xanthocephalus xanthocephalus*
Waterfowl	Canada goose	*Branta canadensis*
Water-Associated Non-Game Birds	California gull	*Larus californicus*
	black-crowned night heron	*Nycticorax nycticorax*
	California brown pelican	*Pelecanus occidentalis californicus*
Insectivores	acorn woodpecker	*Melanerpes formicivorus*
	northern flicker	*Colaptes auratus*
Special-Status Species[a]	tricolored blackbird	*Agelaius tricolor*
	sandhill crane	*Antigone canadensis*
	bald eagle	*Haliaeetus leucocephalus*
	golden eagle	*Aquila chrysaetos*
	Swainson's hawk	*Buteo swainsoni*
	white-tailed kite	*Elanus leucurus*
	northern harrier	*Circus hudsonius*
	western snowy plover	*Charadrius nivosus nivosus*
	California least tern	*Sternula antillarum browni*

[a] Peregrine falcon (*Falco peregrinus anatum*) and California brown pelican (*Pelecanus occidentalis californicus*) were removed from California Fully Protected status pursuant to California Senate Bill 147 (July 10, 2023).

4.2.2.2 Relevant Laws, Policies, and Ordinances

Relevant laws, policies, ordinances, plans, and executive orders related to biological resources are located in Appendix B.

4.2.2.3 Adverse Effects/Thresholds of Significance

The following significance thresholds are used to evaluate the impacts of the Proposed Project/Proposed Action and its alternative on biological resources. These thresholds are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (thresholds 1–6) and NEPA (40 CFR 1508.1[g][4]) (threshold 7). For purposes of this analysis, an impact is considered significant 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
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. Cause a substantial adverse effect to populations of non-special status wildlife or plant species, especially if those effects could result in substantial ecosystem changes.

4.2.2.4 Impacts Analysis

This section discusses the potential impacts and effects of the Proposed Project/Proposed Action and its alternatives on biological resources based on the above significance criteria. The BTR (Appendix D) analyzes in detail the potential effects of ongoing WDM activities on target species populations in California and whether the continuation of these activities could cause population effects at a statewide or county level, as applicable. The BTR provides the bulk of the rationale supporting the target species analyses under significance criteria 1 and 7 and also informs analysis under other significance criteria.

This section uses the below terminology adapted from Section 4.1.4, Impact/Effect Terminology, to describe the effects of the Proposed Project/Proposed Action on biological resources under CEQA (i.e., CEQA Conclusion) and on the ecological aspects of the human environment (i.e., natural resources and components, structures, and functioning of affected ecosystems) under NEPA (NEPA Conclusion).

CEQA Conclusions

- **No Impact:** The Proposed Project/Proposed Action or its alternative would not affect the resource or topic and would not change the environmental baseline. (NI)
- **Less than Significant:** The Proposed Project/Proposed Action or its alternative would not result in a substantial adverse change in the resource or topic, and no mitigation is needed. (LTS)
- **Less than Significant with Mitigation:** The Proposed Project/Proposed Action or its alternative would not result in a substantial adverse change in the resource or topic if mitigation is incorporated. (LTS/M)
- **Significant and Unavoidable:** The Proposed Project/Proposed Action or its alternative could result in a substantial adverse impact on the resource or topic and the impact would remain significant after application of all feasible mitigation measures. (SU)
- **Less than Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action or its alternative, in combination with other cumulative development effects, is not considered significant. (LCC)
- **Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action or its alternative, in combination with other cumulative development effects, is considered significant. (CC)
- **Beneficial:** The Proposed Project/Proposed Action or its alternative would result in an increase in the quality of the resource. (B)

NEPA Conclusions

- **No Impact:** The Proposed Project/Proposed Action would not affect ecological aspects of the human environment. (NI)
- **Not Significant:** The Proposed Project/Proposed Action or its alternative would not substantially affect ecological aspects of the human environment. (NS)
- **Significant:** The Proposed Project/Proposed Action or its alternative would substantially affect ecological aspects of the human environment. (S)

Impacts associated with each of the significance criteria are discussed for the Proposed Project/Proposed Action first, followed by discussions of cumulative impacts and a comparison of impacts under each of the alternatives.

4.2.2.4.1 Proposed Project/Proposed Action Impacts

This section focuses on analyzing potential impacts of the Proposed Project/Proposed Action based on the significance thresholds in Section 4.2.2.2. As noted earlier, it does not analyze the following topics, which are addressed in other sections of the EIR/EIS:

- Agricultural and Forestry Resources (Section 4.2.1)
- Tribal Cultural Resources (Section 4.2.3)
- Hazards and Hazardous Materials (Section 4.2.4)
- Human/Companion Animal Health and Safety (Section 4.2.5)
- Noise (Section 4.2.6)
- Humaneness and Ethics (Chapter 5)

Effects on target special-status and non-special-status mammal and bird species are analyzed for each species under significance thresholds 1 and 7, respectively. Both non-lethal and lethal WDM activities are discussed, but quantitative analyses are based on lethal take only to determine potential effects on species populations. The quantities of non-lethal WDM activities do not necessarily indicate the existence or intensity of an effect on target or non-target species, and it makes greater sense to discuss those effects in a qualitative manner. Further, since the data do not distinguish between individuals, the totals of non-lethal WDM activities likely include duplicate recordings of the same individual. Future WDM take of target species under the Proposed Project/Proposed Action is assumed to be similar to baseline levels on average; however, due to annual variations in WDM, some years might have higher take than others. The analysis of potential effects considers the 99% upper confidence interval for lethal take to ensure effects are not underestimated.

Additional details on population estimate methodology and assumptions for target mammal species are provided in Appendices C1–C29 of the BTR (Appendix D). County-level effects analyses for bird species were not conducted for two reasons: (1) county-level data for bird populations generally does not exist and cannot be reliably estimated, and (2) bird species' range and seasonal movements make such estimates not especially meaningful. In an effort to avoid minimizing any potential impacts in this analysis, the lowest population estimates calculated in these appendices was used to assess the significance of potential impacts on target species populations.

BIO-1: Would the Proposed Project/Proposed Action 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

This section discusses the effects of the Proposed Project/Proposed Action on special-status target species taken intentionally and unintentionally. Special-status species are defined as those that are federally or state listed or that receive special protections as candidates for listing under FESA and/or CESA, vertebrates designated as state Fully Protected species, and state Species of Special Concern (SSC). Beneficial effects are described first, followed by adverse effects on special-status target wildlife species and a general discussion of potential effects on special-status plant species.

WS-California works in collaboration with the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), conservation organizations, and other land/resource managers to protect threatened and endangered (T&E) wildlife and plants from the effects of predation, invasive species, and disease. WDM activities benefit several special-status species by removing target species that would otherwise prey upon them. The species listed in Table 4.2.2-3 are intended beneficiaries of WS-California WDM.

Table 4.2.2-3. Threatened and Endangered Bird, Reptile, and Mammal Species Intended as Beneficiaries of WS-California Activities (2010–2019)

Species Protected	Federal/State Status	Counties Involved
Salt marsh harvest mouse (*Reithrodontomys raviventris*)	Endangered/Endangered, FP	Solano, Marin, Contra Costa, Alameda, Santa Clara, San Mateo
Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*)	Endangered/Endangered, FP	Inyo, Mono
California Ridgway's rail (*Rallus obsoletus obsoletus*)	Endangered/Endangered, FP	Solano, Contra Costa, Alameda, Santa Clara, San Mateo, Marin
Light-footed Ridgway's rail	Endangered/Endangered, FP	Ventura, San Diego

Table 4.2.2-3. Threatened and Endangered Bird, Reptile, and Mammal Species Intended as Beneficiaries of WS-California Activities (2010–2019)

Species Protected	Federal/State Status	Counties Involved
(*Rallus obsoletus levipes*)		
Western snowy plover (*Charadrius nivosus nivosus*)	Threatened/SSC	Marin, Alameda, Contra Costa, Santa Clara, San Mateo, Monterey, Santa Cruz, San Luis Obispo, Santa Barbara, Ventura, San Diego
California least tern (*Sternula antillarum browni*)	Endangered/Endangered, FP	Alameda, Contra Costa, San Luis Obispo, Ventura, San Diego
California condor (*Gymnogyps californianus*)	Endangered/Endangered, FP	Kern
Marbled murrelet (*Brachyramphus marmoratus*)	Threatened/Endangered	Santa Cruz
Desert tortoise (*Gopherus agassizii*)	Threatened/Threatened	Kern, San Bernardino, Riverside, Los Angeles

Notes: FP = Fully Protected; SSC = Species of Special Concern.

Other special-status species that could benefit from removal of target species by the Proposed Project/Proposed Action include a wide variety of species ranging from smaller species such as kangaroo rats (*Dipodomys* sp.), arroyo toads (*Anaxyrus californicus*), Mohave ground squirrel (Xerospermophilus mohavensis), and Tehachapi slender salamanders (*Batrachoseps stebbinsi*), to medium-sized carnivores such as San Joaquin kit fox (*Vulpes macrotis mutica*) and bird species such as burrowing owl (*Athene cunicularia*).

Table 4.2.2-4 summarizes the California population estimates for the special-status target bird and mammal species. Potential Proposed Project/Proposed Action impacts on each of these species are discussed below.

Table 4.2.2-4. Special-Status Bird and Mammal Species Population Estimates

Species Name	Common Name	Special-Status[1]	California Population Estimate[2]
Agelaius tricolor	Tricolored blackbird	State Threatened	210,042
Antigone canadensis tabida	Sandhill crane	State Threatened, Fully Protected	41,788
Haliaeetus leucocephalus	Bald eagle	State Endangered, Fully Protected	10,953
Aquila chrysaetos	Golden eagle	Fully Protected	3,801
Buteo swainsoni	Swainson's hawk	State Threatened	44,000
Elanus leucurus	White-tailed kite	Fully Protected	9,700
Circus hudsonius	Northern harrier	Species of Special Concern	24,000
Charadrius nivosus nivosus	Western snowy plover	Federally Threatened	1,738
Sternula antillarum browni	California least tern	Federally and State Endangered, Fully Protected	8,190
Puma concolor	Mountain lion	State Candidate	2,530
Bassariscus astutus	Ringtail	Fully Protected	389,236

Table 4.2.2-4. Special-Status Bird and Mammal Species Population Estimates

Species Name	Common Name	Special-Status[1]	California Population Estimate[2]
Taxidea taxus	American badger	Species of Special Concern	74,683
Xerospermophilus mohavensis	Mohave ground squirrel	State Threatened	468[3]

Notes:

1 Special-status species are defined in this document as those with federal or state listing status (i.e., threatened, endangered, federally proposed listed species, state and federal candidate species, fully protected species, and California species of special concern).

2 Population estimates for special-status bird species, except for sandhill crane, Swainson's hawk, white-tailed kite, western snowy plover and California least tern, are based on USGS North American Breeding Bird Survey population estimates for the target special-status bird species within the State of California, which is based on the average of survey years 2015 through 2019. The population estimate for sandhill crane is from the Pacific Flyway Databook 2021 (Olson 2021). The population estimates for Swainson's hawk and white-tailed kite are from the Avian Conservation Assessment and Population Estimates Database (PIF 2022). The population estimate for western snowy plover is based on the 2019 totals reported for the recovery units occurring in California (USFWS 2019). The population estimate for California least tern is based on the number of breeding pairs (4,095) reported from 2017 (USFWS 2020). Population estimates for special-status mammal species are based on the species-specific population model estimates (Appendices C1–C29 to the BTR).

3 Population estimate for Mohave ground squirrel based on Leitner (2020).

Tricolored Blackbird

The statewide population estimate for tricolored blackbird is based on the average U.S. Geological Survey (USGS) North American Breeding Bird Survey data for survey years 2015 through 2019, which is approximately 210,042 individuals (Sauer et al. 2019). No lethal WDM by WS-California occurred during the baseline period (2010–2019) and approximately 1.84% (3,865.4 individuals) of the statewide population was dispersed annually (Appendix D, Section 3.4.1). Future WDM under the Proposed Project/Proposed Action is expected to have similar effects, including a lack of lethal WDM. Because the percentage of the statewide tricolored blackbird population affected by WDM activities on an annual basis is very low and only involves non-lethal methods, continued WDM activities under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and not significant impact under NEPA on tricolored blackbird.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Sandhill Crane

The statewide population estimate sandhill crane based on the Pacific Flyway Data Book 2021 (Olson 2021) is approximately 41,788 individuals. No lethal WDM of sandhill crane by WS-California occurred during the baseline period and approximately 1.06% (444.0 individuals) of the statewide population was dispersed annually. Because only 1.06% of the estimated population is expected to be impacted by non-lethal WDM under the Proposed Project/Proposed Action, the Proposed Project/Proposed Action would not have a significant effect on sandhill crane populations (Appendix D, Section 3.4.2). Further, given the greater populations of the unlisted lesser sandhill cranes relative to populations of the greater sandhill cranes, it is highly likely that some or many of the individuals subject to WDM were lesser sandhill cranes, rather than the listed greater sandhill crane. Continued WDM activities under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and not significant impact under NEPA on Sandhill Crane.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Bald Eagle

The statewide population estimate for bald eagle based on the average USGS North American Breeding Bird Survey data for survey years 2015 through 2019 is approximately 10,953 individuals (Sauer et al. 2019). No lethal WDM of bald eagle by WS-California occurred during the baseline period and approximately 0.06% (6.8 individuals) of the statewide population was dispersed annually (Appendix D, Section 3.4.3). This species is protected under the Bald and Golden Eagle Protection Act, requiring any entity seeking to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" the species to obtain a permit from USFWS.[1] Because the percentage of the statewide bald eagle population affected by WDM activities on an annual basis is very low and has historically been entirely non-lethal, future WDM activities under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and a not significant impact under NEPA on bald eagle populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Golden Eagle

The statewide population estimate for golden eagle based on the average USGS North American Breeding Bird Survey data for survey years 2015 through 2019 is approximately 3,801 individuals (Sauer et al. 2019). No lethal WDM of golden eagle by WS-California occurred during the baseline period and approximately 1.40% (53.4 individuals) of the statewide population was dispersed, freed from traps, or transferred to another agency's custody annually (Appendix D, Section 3.4.3). This species is protected under the Bald and Golden Eagle Protection Act, requiring any entity seeking to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" the species to obtain a permit from USFWS. Because only 1.40% of the estimated population is expected to be impacted by non-lethal WDM under the Proposed Project/Proposed Action. Because the percentage of the statewide golden eagle population affected by WDM on an annual basis is very low and has historically been entirely non-lethal, future WDM activities under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and a not significant impact under NEPA on golden eagle populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Swainson's Hawk

The statewide population estimate for Swainson's hawk based on the Avian Conservation Assessment and Population Estimates Database (PIF 2022) is approximately 44,000 individuals. Less than 0.01% (3.1 individuals) of the statewide population was lethally taken annually during the baseline period, and all lethal take of this species

[1] The Bald and Golden Eagle Protection Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Regulations further define "disturb" as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 CFR 22.6).

was by WS-California at airports. The BTR (Appendix D, Section 3.4.7) analysis also recognizes that some years may have lethal WDM that exceeds the annual average, and estimates the highest potential lethal take that may occur in a single year as 17 individuals. Even if that number of Swainson's hawks were taken in the future under the Proposed Project/Proposed Action, which is unlikely in most years, it would represent 0.04% of the statewide population. Approximately 1.1% (493.5 individuals) of the statewide population is expected to be dispersed annually by WS-California and other entities. Because the percentage of the statewide Swainson's hawk population affected by lethal WDM on an annual basis has historically been very low (99% of WDM for Swainson's hawk was non-lethal WDM), future WDM activities under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and a not significant impact under NEPA on Swainson's hawk populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

White-Tailed Kite

The statewide population estimate for white-tailed kite based on the Avian Conservation Assessment and Population Estimates Database (PIF 2022) is approximately 9,700 individuals. Under previous WS-California efforts, on average approximately 115.1 individuals per year (approximately 1.2% of the statewide population) was affected by WDM. Non-lethal WDM consisting of dispersing or relocating white-tailed kites accounted for >99.99% (114.7 individuals per year) and lethal take accounted for <0.01% (0.4 individuals per year) of white-tailed kite WDM by WS-California. All lethal WDM of white-tailed kite was conducted at airports in three counties (Alameda, Los Angeles, and Yuba). The BTR (Appendix D, Section 3.4.8) analysis also recognizes that some years may have lethal WDM that exceeds the annual average, and estimates the highest potential lethal take that may occur in a single year as 4 individuals. Even if that number of white-tailed kites were taken in the future under the Proposed Project/Proposed Action, which is unlikely in most years, it would represent 0.04% of the statewide population. Because the percentage of the statewide white-tailed kite population affected by WDM activities on an annual basis has historically been very low and because 99% of WDM are non-lethal, future WDM under the Proposed Project/Proposed Action would not have a significant effect on white-tailed kite populations. If lethal WDM of this species were to occur in the future, it would likely be at an airport where it is taken to address imminent threats to human health and safety. However, in nearly all cases including airports the species would be subject to non-lethal WDM. To address the potential for impacts under CEQA to this Fully Protected species, Mitigation Measure (MM)-BIO-1 shall be implemented (see Section 4.2.2.4.2, Mitigation Measures). With implementation of MM-BIO-1, impacts would be less than significant with mitigation under CEQA and not significant under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation*

NEPA Conclusion: *Not significant.*

Northern Harrier

The statewide population estimate for Northern harrier based on the Avian Conservation Assessment and Population Estimates Database (PIF 2022) is approximately 24,000 individuals. Under previous WS-California efforts, approximately 282.0 northern harrier individuals were affected by WDM activities annually. Of those, non-lethal activities consisting of dispersing, relocating or transferring to another agency's custody accounted for approximately 98% of the WDM, or 275.8 individuals, and lethal activities accounted for approximately 2%, or 5.9 individuals per year. Estimated lethal WDM by individuals or entities other than WS-California totaled approximately

1.9 individuals per year, or <0.01% of the statewide population. Therefore, approximately 0.03% (7.8 individuals) of the statewide population was lethally taken annually (i.e., MIS data and non-MIS estimates). The BTR (Appendix D, Section 3.4.6) analysis also recognizes that some years may have lethal WDM that exceeds the annual average, and estimates the highest potential lethal take that may occur in a single year as 24 individuals. Even if that number of northern harriers were taken in the future under the Proposed Project/Proposed Action, which is unlikely in most years, it would represent 0.1% of the statewide population. Because the percentage of the statewide northern harrier population affected by lethal WDM on an annual basis would be very low, continued WDM under the Proposed Project/Proposed Action would a less than significant impact under CEQA and a not significant impact under NEPA on northern harrier populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Western Snowy Plover

The statewide population estimate for western snowy plover based on the average USGS North American Breeding Bird Survey data for survey years 2015 through 2019 is approximately 1,738 individuals (Sauer et al. 2019). During the 10-year baseline, an average of 0.1 individuals were dispersed from an airport in one county: San Diego. Therefore, approximately 0.01% (0.1 individuals) of the statewide population was affected by non-lethal WDM activities annually. However, no lethal WDM was conducted for western snowy plover. Because the percentage of the statewide western snowy plover population affected by WDM on an annual basis would be very low and due to the type of activities conducted (i.e., non-lethal WDM), continued WDM activities under the Proposed Project/Proposed Action would a less than significant impact under CEQA and a not significant impact under NEPA on western snowy plover populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

California Least Tern

The statewide population estimate for California least tern based on the average USGS North American Breeding Bird Survey data for survey years 2015 through 2019 is approximately 8,190 individuals (Sauer et al. 2019). During the 10-year baseline, an average of 32.7 individuals (0.40% of the statewide population) were dispersed from airports in one county (San Diego). However, no lethal WDM was conducted for California least tern. Because the percentage of the statewide California least tern population affected by WDM on an annual basis is very low and due to the type of activities conducted (i.e., non-lethal WDM), continued WDM activities under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and a not significant impact under NEPA on California least tern populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

American Badger

The statewide population estimate for American badger is 74,683 individuals, based on the CDFW habitat modeling for American badger provided in Appendix C1 of the BTR (Appendix D). During the baseline period, an average of 27.1 American badgers were killed and 0.8 individuals were freed from traps per year. The maximum lethal take of American badger considered reasonably likely in any given year is 184 badgers, which represents 0.2% of the population. This level of take would be well below the sustainable mortality threshold for this species at a statewide and county level populations. Continued WDM activities under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and a not significant impact under NEPA on American badger populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Mountain Lion

Mountain lion is a candidate for state-listing under CESA in 16 counties (i.e., Alameda, Contra Costa, Imperial, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernardino, San Diego, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura). The population estimate for mountain lion in those counties is approximately 1,454 individuals, based on the distribution and occurrence modeling for mountain lion provided in Appendix C27 of Appendix D. Approximately 1.91% (13.0 individuals) of the special-status population was lethally taken annually.

Two scenarios for mountain lion were evaluated in the BTR (Appendix D): (1) the species does become listed under CESA, and (2) the species does not become listed under CESA. In Scenario 1, lethal take of mountain lion under the Proposed Project/Proposed Action would not be conducted by the CDFA or the counties in the candidate counties; however, WS-California might occasionally lethally take a mountain lion if they determine it to be a threat to federally listed species or human health and safety and they receive approval from an authority (e.g., sheriff). Additionally, in Scenario 1, future WDM for mountain lion under the Proposed Project/Proposed Action would be the same for non-candidate counties as elsewhere in the state as described in Threshold BIO-7 (pp. 4.2.2-25 and 4.2.2-26). Scenario 1 (i.e., the mountain lion is listed under CESA in candidate counties) is analyzed below and the analysis conclusion for Scenario 2 (i.e., the mountain lion is not listed) is presented in Threshold BIO-7. Under Scenario 1, the Proposed Project/Proposed Action Maximum Lethal Take Estimate across all the 16 candidate counties would be 1.6 mountain lions per year (0.11% of the combined candidate county mountain lion population), or less than 0.1 mountain lion per year per candidate county (i.e., less than one mountain lion in 10 years; 0.05% to 0.67% of the county populations). Under Scenario 2, the total Proposed Project/Proposed Action Maximum Lethal Take Estimate for the 16 candidate counties would be 11.4 mountain lions (0.77% of the candidate county mountain lion population), ranging from 0 to 1.6 mountain lions per year by county (0 to 1.43% of the county mountain lion populations).

This analysis assumes that lethal WDM of mountain lions would be half or less as compared to activities occurring in the baseline period and that lethal WDM of mountain lion under the Proposed Project/Proposed Action would only occur with a CDFW depredation permit or if lethal removal is required for public safety. This assumption reflects recent changes in how CDFW issues depredation permits for mountain lion as set forth in CDFW Policy 2017-07, which requires a stepwise approach whereby only non-lethal depredation permits are issued for mountain lion until it can be demonstrated non-lethal WDM is not sufficient. In the event that mountain lion is listed under CESA, lethal

WDM of mountain lion in those counties where the species is listed would be even further restricted as compared to baseline conditions. Regardless of the scenario that applies, measures would be implemented to ensure effects on the candidate species would be minimized to the extent feasible consistent with CDFW guidance and standards for issuance of depredation permits and impacts would be not significant under NEPA as these measures are already incorporated into WS-California's WDM. However, because the Proposed Project/Proposed Action under Scenario 1 includes intentional take of a CESA candidate species, it is considered significant and unavoidable under CEQA even after implementation of MM-BIO-7 (see Section 4.2.2.4.2). However, in the event that the mountain lion is not state-listed, this impact conclusion would not apply and impacts to mountain lion would be as described for the non-special-status mountain lion populations under Threshold BIO-7.

CEQA Conclusion: *Significant and unavoidable (if listed).*

NEPA Conclusion: *Not significant.*

Ringtail

The statewide modeled population estimate for ringtail is approximately 389,236 individuals, based on the distribution and occurrence modeling for ringtail provided in Appendix C27 of Appendix D. During the 10-year baseline period, an average of 0.6 ringtails were freed from traps, 0.5 individuals were relocated, and 0.1 individual underwent a transfer of custody to another agency per year. The statewide ringtail population was not affected by lethal WDM activities annually. Because ringtail was not subject to lethal WDM during the baseline period, continuation of existing WDM under the Proposed Project/Proposed Action would not result in substantial effects to ringtail populations at the state-scale or county-scale. However, because of its State Fully Protected status, MM-BIO-1 shall be implemented (see Section 4.2.2.4.2) to ensure impacts remain less than significant under CEQA. Impacts would be not significant under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Special-Status Plants

Although WDM activities generally have no effect on special-status plant species, there would be minor potential for some effect in the event these plants grow where WDM activities are conducted. Additionally, many special-status plants look similar to other plants in their respective families or genera and are only identifiable during the limited flowering stage, and therefore can be difficult to correctly identify to determine effects. However, wildlife specialists are expected to understand potential impacts to special-status plant species and WS-California wildlife specialists are required to be aware of the federally listed species that occur in their area of work. Most activities involve no ground disturbance, and if there is some disturbance, soil disturbance from activities is minor (e.g., a wildlife specialist may clear a site of ground litter to make a space for a cage trap). WDM activities are pre-planned and are site-specific, enhancing the ability of wildlife specialists to avoid special-status plants or areas where they are more likely to occur.

Despite all such efforts, it is anticipated that some minor ground or plant disturbance may occasionally occur. MM-BIO-3 (see Section 4.2.2.4.2) would be implemented to minimize unnecessary disturbance of habitat, which would minimize potential for take of special-status plants and ensure impacts are less than significant under CEQA. Impacts would be not significant under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

BIO-2: Would the Proposed Project/Proposed Action have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

This section discusses the effects of the Proposed Project/Proposed Action on riparian habitat or other natural communities designated as sensitive by CDFW (2022). Proposed Project/Proposed Action activities would be conducted across the entire state in many different vegetation communities. The WDM services that would continue to be provided to requestors under the Proposed Project/Proposed Action could cause minor ground disturbance from off-road vehicle use or minor vegetation removal for placement of traps, but these direct impacts would be temporary and are typically planned to avoid sensitive habitats. Therefore, the following discussion focuses on potential indirect effects of WDM activities on vegetation communities.

If WDM were to substantially reduce beaver populations at a local level, stream hydrology and associated riparian habitat could potentially be affected. Fewer in-stream wetlands would be created, which would reduce riparian habitat quality for species such as salmon (Pollock et al. 2004), turtles, amphibians, and songbirds (Dalbeck et al. 2020; Stringer and Gaywood 2016; Willby et al. 2018). Because beaver dams reduce water flows and create conditions for the growth of aquatic vegetation, their removal could reduce biofiltration and cause adverse effects on downstream water quality. Finally, removal of beaver dams could cause greater incision of stream channels and erosion of shorelines due to increased water velocity. However, as described in Section 3.2.12 of the BTR (Appendix D), the percentage of the statewide beaver population taken by lethal WDM activities on an annual basis would be low (no more than 1,829 individuals, 1.1% of the statewide population), and due to the expansive range of this species throughout the state, continued WDM activities would not substantially affect beaver populations at a state level. Furthermore, most lethal removal of beaver in California is to minimize damage to levees and other water management systems in urban, suburban, or agricultural areas (USDA 2022), limiting the potential to disrupt high-quality riparian habitat. At the local level, lethal take of beaver does not exceed identified thresholds that could cause significant impacts to populations of beaver (Refer to Section 3.2.12 of the BTR and Threshold BIO-7 of the EIR/EIS). Finally, these levels of lethal and non-lethal WDM of beaver would be the same as under baseline conditions, resulting in a less than significant impact under CEQA and a not significant impact under NEPA.

Grazing ungulates such as mule deer can affect the structure of vegetation communities through herbivory. As described in Section 3.2.23 of the BTR (Appendix D), an average of less than 0.01% of the statewide mule deer population has historically been lethally taken annually. Lethal and non-lethal WDM of mule deer would be the same as under baseline conditions and Alternative 1, resulting in a less than significant impact under CEQA and a not significant impact under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

BIO-3: Would the Proposed Project/Proposed Action 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?

WS-California and county wildlife specialists are not authorized to, nor do they, conduct activities such as land development, construction, or soil vegetation removal. Minor disturbance of vegetation communities from off-road vehicle use or placement of traps would be temporary and sited outside of state and federally protected wetlands when feasible. Non-lethal WDM of beaver would affect a very small proportion of the total statewide populations and would therefore not substantially interfere with the current ecosystem services provided by these species related to state and federally protected wetlands. Therefore, the Proposed Project/Proposed Action would not have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act, the Porter-Cologne Water Quality Control Act, or Section 1602 of the California Fish and Game Code through direct removal, filling, hydrological interruption, or other means. MM-BIO-3 (Section 4.2.2.3.2) would ensure that WDM activities under the Proposed Project/Proposed Action avoid wetlands to the extent feasible and would reduce the impact under CEQA to less than significant with mitigation, and impacts would be not significant under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

BIO-4: Would the Proposed Project/Proposed Action 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?

Barrier fencing is typically used to prevent access to areas containing infrastructure (including road structures and bridges) and valued property such as, gardens, fishponds, trees, orchards, dwellings, livestock or poultry pens, as well as for T&E species protection (Appendix C, WDM Methods, of this EIR/EIS). Selection of a barrier system depends on the wildlife species being excluded, expected duration of damage, size of the area or facility to be excluded, compatibility of the barrier with other operations (e.g., feeding, cleaning, harvesting, recreational activity), possible damage from severe weather, and effect on site aesthetics. The barrier system also depends on the resource being protected and its value. Systems can range from relatively simple systems such as metal flashing and hardware cloth to highly complex mesh and grid systems and electric fencing. Barrier systems can initially be very costly to erect and expensive to maintain, but can provide a long-term, highly effective solution to some damage problems.

Electric fencing could be used to alleviate damage caused by wildlife. The application of electrified fencing would generally be limited to site-specific application where predation is occurring in a very limited geographic scale. Limits of this application arise where there are multiple landowners along a wetland, pond, or lake, the size of the area is relatively large, or where the area is in proximity to bodies of water. Predator exclusion through judicious use and placement of electric fences and other barriers, as well as by trapping efforts, have reduced losses of adults, eggs, and/or young (USFWS 1985a). While electric fencing may be effective in repelling predators in some urban settings, its use is often prohibited in many municipalities for human safety reasons. Problems that typically reduce the effectiveness of electric fences include vegetation on fence, flight capable birds, fencing knocked down by other animals (e.g., white-tailed deer and dogs), and poor or intermittent power sources.

Drift fencing acts as a vertical barrier that blocks the movement of animals across the landscape. There are multiple variations dependent on habitat and target species; however, WS-California typically uses plastic mesh attached to

wooden stakes driven into the ground. Drift fencing typically guides animals toward a pitfall bucket, funnel trap, or other capture device. Drift fencing is effective at aiding in capturing snakes. Drift fencing could be used on the outside of a colony or nest area to intercept reptilian predators attempting to access the area.

As noted above, small-scale fencing can be used by WS-California and other wildlife specialists in response to a request for assistance. Large-scale fence installation of the type that could interfere with wildlife movement (e.g., extending more than 1,000 linear feet) is typically done by private entities or land managers rather than as a WS-California action. Similarly, CDFA personnel or county wildlife specialists conducting WDM under the Proposed Project/Proposed Action would likely only provide technical assistance related to fencing and installation would be a private activity or conducted by others. MM-BIO-4 would ensure that the Proposed Project/Proposed Action would minimize the installation of fencing that could substantially inhibit movement of native wildlife through migratory corridors. Therefore, effects on wildlife movement related to the Proposed Project/Proposed Action would be less than significant with mitigation under CEQA. Impacts would be not significant under NEPA as these measures are already incorporated into WS-California's WDM.

Some WDM activities generate noise that could disturb non-target wildlife. Both lethal (i.e., discharge of firearms) and non-lethal (i.e., distress/predator calls, propane exploders/cannons, and pyrotechnics) activities generate intermittent and sudden sounds that could be perceived as a threat by non-target wildlife (Francis and Barber 2013). If conducted near active nest sites, such disturbance could cause breeding birds to abandon eggs or recently hatched young, resulting in decreased survival and reproduction. Noise generated from low-level flights and gunshots during aerial operations to remove coyotes or feral pigs could disturb non-target wildlife co-occurring in the same area. The likelihood of such impacts would increase when such noises are frequent and occur over many days, leading to "chronic exposure" to noise disturbance. However, these activities are infrequent, of short duration, and occur in a small proportion of the total geographic area involved. WS-California aerial operations only occur on a small fraction of the total land area in the state and therefore have limited potential to impact non-target wildlife. WS-California also does not work continuously throughout the year on these properties, and generally spends only a few hours or days on any specific property resolving wildlife damage issues. During the 2010–2019 baseline period, WS-California flew an average of 45 hours per year of aerial operations. Therefore, these activities are not expected to result in chronic exposure of non-target wildlife to noise disturbance. Moreover, after reviewing available literature on the impacts of aircraft noise on wildlife, WS-Colorado (USDA-APHIS 2018) concluded that most bird and mammal species are relatively tolerant of aircraft overflights. Even then, many wildlife species become habituated to frequent overflights.

Noise from WDM activities is also unlikely to disturb non-target wildlife to the extent that it would result in population declines. While there is widespread acknowledgment that noise and other "sensory pollutants" (e.g., artificial light, chemical agents) from human activities can impact the behavior, physiology, and fitness of individual animals, there is a lack of clear evidence that such impacts lead to population declines and extinction risk (Dominoni et al. 2020). Therefore, noise effects of the Proposed Project/Proposed Action on wildlife nursery sites would not be substantial. Additional analyses on the potential impacts of noise are provided in Section 4.2.6 of the EIR/EIS. Mitigation to reduce noise as described in Section 4.2.6 (MM-NOISE-1 through MM-NOISE-16) would ensure that noise impacts on wildlife species are less than significant under CEQA. Impacts related to noise would be not significant under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

BIO-5: Would the Proposed Project/Proposed Action conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Proposed Project/Proposed Action would not result in removal of trees. WDM under the Proposed Project/Proposed Action would be in response to a local request, and the entity conducting WDM (WS-California, Counties) would verify through the requesting entity that all local policies and ordinances are being complied with, as directed by MM- BIO-5. Implementation of MM-BIO-5 (Section 4.2.2.4.2) would ensure that WDM activities under the Proposed Project/Proposed Action follow local policies and ordinances and would reduce the impacts under CEQA to less than significant with mitigation. No impact would occur under NEPA as these measures are already incorporated into WS-California's WDM and directives.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *No impact.*

BIO-6: Would the Proposed Project/Proposed Action conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Habitat Conservation Plans (HCPs) and other approved local, regional, and state conservation plans are in place throughout California. WDM activities could be a part of an approved conservation plan, depending on target species. For example, WDM activities can include damage management of ravens to protect desert tortoise or western snowy plover, or removal of feral pigs for overall habitat quality. Any potential conflicts with HCPs, Natural Community Conservation Plans, or other approved conservation plans related to WDM activities would be determined by the entity conducting WDM (e.g., WS-California, Counties) on a project level when relying on this EIR/EIS according to the requirements of MM-BIO-6.

WS-California would also continue to work within Special Designation Areas (SDAs)(Chapter 2). WDM in SDAs ranges from no activity to seasonal predator damage management activities, based upon requests for assistance from the federal entities managing the SDA (e.g., BLM, USFS). While requests for service in SDAs occur on an infrequent basis, the potential exists that WS-California may be requested to work in any type of land class or SDA, as described in Section 4.2.2.1. When responding to a request, WS-California would be guided by all applicable laws, APHIS policies, memoranda of understanding, regulations, management plans, and land management agency policies. WS-California coordinates all activities in SDAs with the appropriate land management agencies in Annual Work Plans. By complying with these laws, plans, and policies, WDM activities are conducted in a manner that avoids and/or minimizes adverse effects within SDAs. For example, WS-California work in Wilderness Areas (WAs) can be conducted only after the land management agency determines the work to be consistent with (a) the Wilderness Act, (b) each area's wilderness management plan, (c) the land management agency's wilderness management policies, (d) each area's individual wilderness legislation (which might contain special provisions applicable only to that particular wilderness area), and (e) Integrated Wildlife Damage Management memoranda of understanding between APHIS and the wilderness management agency. Proposed activities in Wilderness Study Areas (WSAs) must be determined to be consistent with BLM policy and management plans, in which WSAs are managed to preserve wilderness characteristics so as not to impair their suitability for possible future wilderness designations.

The Proposed Project/Proposed Action includes continuation of WDM activities that are part of the baseline condition and would also occur under Alternative 1. It is likely that the improved tracking by CDFA under the Proposed Project/Proposed Action would provide a beneficial effect to consistency with the provisions of these plans as compared to existing conditions. Any potential for conflict would be further reduced by the implementation

of MM-BIO-6, as noted above, resulting in a less than significant impact with mitigation under CEQA. No impact would occur under NEPA as these measures are already incorporated into WS-California's WDM and directives.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *No impact.*

BIO-7: Would the Proposed Project/Proposed Action cause a substantial adverse effect to populations of non-special status wildlife or plant species, especially if those effects could result in substantial ecosystem changes?

The impact discussion below describes the potential impacts of the Proposed Project/Proposed Action on each target species population.

Effects to Non-Special-Status Plants and Vegetation Communities

WDM under the Proposed Project/Proposed Action does not include habitat management. Ungulates such as mule deer can influence vegetation communities by browsing and seed distribution, and general habitat connectivity by blazing trails through dense habitat. Removing ungulates could result in localized shifts in vegetation communities; however, the level of lethal WDM of mule deer would be very low statewide (<0.01% of statewide population) and on a county-level (ranging from <0.01%% to 0.09% of county populations). Based on this very low level of lethal WDM and CDFW's careful management of this species through tracking and adjusting legal hunting levels, Proposed Project/Proposed Action WDM of mule deer is expected to have less than significant impacts under CEQA and not significant impacts under NEPA on vegetation communities or non-special-status plants.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Effects to Non-Special-Status Fish and Invertebrate Species

If WDM activities were to substantially reduce beaver populations at a local level, stream habitat and hydrology could potentially be affected. Fewer in-stream wetlands would be created, which would reduce habitat capacity for species such as salmon (Pollock et al. 2004), other fish, and invertebrates (Brazier et al. 2021). Because water movement is slowed by beaver dams and exposure time to aquatic vegetation is increased, beaver dams can improve downstream water quality. Removal of beaver dams through physical removal or lethal WDM of beavers could cause reduced biofiltration and adverse effects on downstream water quality (Dewey et al. 2022). Finally, removal of beaver dams could cause greater incision of stream channels and erosion of shorelines due to increased downstream water velocity. However, as discussed under "Effects to Non-Special-Status Wildlife" below, lethal take of beavers under the Proposed Project/Proposed Action is expected to be low statewide (0.33% of the statewide population), and generally low on a county level (ranging from 0.02% to 10.4% of county populations under a maximum scenario, with only Sacramento and Yolo counties exceeding 5%). Based on this generally low level of lethal beaver WDM, which are below sustainable mortality thresholds, the Proposed Project/Proposed Action is expected to have less than significant impacts under CEQA and not significant impacts under NEPA on non-special-status fish and invertebrate species.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Effects to Non-Special-Status Wildlife Species

Effects on each of the analyzed non-special-status target wildlife species are discussed below.

Non-Special-Status Mammal Species

Black Bear

The statewide modeled population estimate for black bear is approximately 20,446 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 298 black bears taken annually, which represents 1.5% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0% (several counties) to 1.8% (38 individuals of 2,062 estimated county population; Siskiyou County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action is not expected to reach this level of take in most years. As described in the BTR, the sustainable mortality threshold for black bear used in this analysis is 14.2% of the total population (Appendix D).

Black bear is considered an omnivorous apex predator (Prugh et al. 2009) with wide ranging effects on food webs (Levi et al. 2020). Predators, particularly apex predators, can have a pronounced impact on biodiversity and ecosystem resilience (Estes et al. 2011). Furthermore, high species diversity of apex predators, mesopredators, and prey species in an ecosystem can make mesopredator release less likely to occur (Brashares et al. 2010). Harvest of large apex carnivores such as black bears can cause changes to their social structure, the space use of survivors, and population growth rate (Frank et al. 2017). However, effects are complicated to predict; studies of hunted versus non-hunted populations of black bear suggested that hunted populations did not show an adverse effect on infanticide or social structure, and that elevated population density had a greater effect on these factors (Czetwertynski et al. 2007). Ecosystem-level impacts resulting from the Proposed Project/Proposed Action's lethal impacts to black bears are not anticipated due to the low percentage of black bears impacted by the Proposed Project/Proposed Action regionally and statewide. The greatest percentage of the population annually taken under the Proposed Project/Proposed Action is 1.8% in Siskiyou County, which is highly unlikely to result in ecosystem-level effects in context with other sources of mortality including hunting, roadkill, and disease (refer to Section 4.2.2.3.3).

The annual level of lethal WDM by the Proposed Project/Proposed Action (1.5% of the statewide population and 0% to 1.8% of county populations) would not exceed the sustainable harvest rate of 14.2%. Because the percentage of the statewide and county-level black bear populations taken by lethal WDM activities on an annual basis is low, and due to the expansive range of this species throughout forested areas of the state, the Proposed Project/Proposed Action would not substantially affect statewide or regional populations, and no ecosystem effects are anticipated. Therefore, the Proposed Project/Proposed Action is expected to have less than significant impacts under CEQA and not significant impacts under NEPA on black bear populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Bobcat

The statewide modeled population estimate for bobcat is approximately 51,088 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 210 bobcats taken annually, which represents 0.4% of

the population, well below the sustainable mortality threshold of 17% (Section 3.3.2 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (0 individuals of 5 individuals estimated for the San Francisco County population) to 4.8% (23 individuals of 482 individuals estimated for the Sonoma County population). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year.

In general, bobcats are considered mesopredators (Prugh et al. 2009) and are known to coexist with apex predators such as mountain lions, as well as other mesopredators such as coyotes (CWHR 2022). Mesopredators can fulfill an important role in ecosystem function, structure, and dynamics (e.g., trophic cascade) (Roemer et al. 2009). In areas where apex predators such as wolves and mountain lions are no longer present, bobcats and other mesopredators can occupy much the same role as an apex predator. In such a circumstance, removal of bobcats could result in increased populations of mesopredators according to the theory of mesopredator release. High species diversity of apex predators, mesopredators, and prey species in an ecosystem can make mesopredator release less likely to occur when apex predators are removed from an ecosystem (Brashares et al. 2010). Indirect impacts to ecosystem function, structure, or dynamics resulting from the Proposed Project/Proposed Action's lethal WDM of bobcats are not anticipated due to the low percentage of bobcats impacted by the Proposed Project/Proposed Action regionally or statewide.

California Assembly Bill 1254 (2019) modified the California Fish and Game Code to limit bobcat hunting and require that any entity conducting WDM of bobcat obtain a CDFW depredation permit. Implementation of that bill may result in reduced WDM activity of the species; however, the effects are speculative at this time and future WDM take of the species is assumed to be consistent with that during the baseline period. Regardless, the annual level of lethal WDM by the Proposed Project/Proposed Action (0.4% of the statewide population and 0% to 4.8% of county populations) would not exceed the sustainable mortality threshold of 17%. Because the percentage of the statewide and county-level bobcat populations lethally taken by WDM activities on an annual basis is low, and due to the expansive range of this species throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or regional populations, and no ecosystem effects are anticipated. Therefore, the Proposed Project/Proposed Action is expected to have less than significant impacts under CEQA and not significant impacts under NEPA on bobcat populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Coyote

The statewide modeled population estimate for coyote is approximately 227,394 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 12,655 coyotes taken annually, which represents 5.6% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0.1% (3 individuals of 4,802 individuals within the estimated Trinity County population) to 25.5% (433 individuals of 1,700 individuals within the estimated Colusa County population). After Colusa County, the next highest Proposed Project/Proposed Action Maximum Lethal Take Estimate by county population is Sacramento County with 14.1% (183 individuals of 1,301 estimated county population). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action is not expected to reach this level of take in most years. For the purposes of this analysis, a 50% sustainable mortality threshold was used, which is supported by the available science as described in detail in Appendix D.

Coyotes are considered mesopredators in most ecosystems but may be considered an apex predator in others where larger predators have been extirpated (e.g., wolves, mountain lions) (Crooks and Soulé 1999; Roemer et al. 2009). Mesopredators can fulfill an important role in ecosystem function, structure, and dynamics (e.g., trophic cascade) (Roemer et al. 2009). For example, coyotes can influence the abundance and distribution of other mesopredators such as raccoons, skunks, bobcats, and foxes, as well as deer activity and plant community composition (Berger et al. 2001; Waser et al. 2014). However, some studies suggest that changes to lagomorph abundance is unrelated to short-term coyote removal (Gese 2005; Henke 1995). Regardless, high species diversity of apex predators, mesopredators, and prey species in an ecosystem can make mesopredator release less likely to occur (Brashares et al. 2010). Indirect impacts to ecosystem function, structure, or dynamics resulting from the Proposed Project/Proposed Action's lethal impacts to coyotes are not anticipated due to the percentage of coyotes impacted by the Proposed Project/Proposed Action regionally and statewide being below the sustainable mortality threshold of 50%.

The annual level of lethal WDM by the Proposed Project/Proposed Action (5.6% of the statewide population and 0.1% to 25.5% of county populations) would not exceed the sustainable mortality threshold of 50%. Because the percentage of the statewide and regional coyote populations lethally taken by WDM activities on an annual basis is low, and due to the expansive range of this species throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or regional populations, and no ecosystem effects are anticipated. Therefore, the Proposed Project/Proposed Action is expected to have less than significant impacts under CEQA and not significant impacts under NEPA on coyote populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Gray Fox

The statewide modeled low population estimate for gray fox is approximately 240,202 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 411 gray foxes taken annually, which represents 0.2% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 4.4% (19 individuals of 436 estimated county population; Alameda County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of gray foxes are discussed in Appendix D, Section 3.2.4.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.2% of the statewide population and 0% to 4.4% of county populations) would not exceed the sustainable harvest rate of 20% (Section 3.2.4 of Appendix D). Because the percentage of the statewide gray fox population lethally taken by WDM activities on an annual basis is very low, and due to the expansive statewide range of this species, the Proposed Project/Proposed Action would not substantially affect statewide or regional populations. This would result in a less than significant impact under CEQA and a not significant impact under NEPA on gray fox populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Sacramento Valley_Red Fox

California is home to two native red fox subspecies, the Sierra Nevada red fox (*Vulpes vulpes necator*) and the Sacramento Valley red fox (*Vulpes vulpes patwin*), as well as the non-native red fox (*Vulpes vulpes*). The non-native red fox populations are not part of the natural fauna of California and are therefore not considered in this analysis. Lethal WDM of non-native red fox does not have the potential to negatively impact native wildlife species in California.

The Sierra Nevada red fox population consists of two Distinct Population Segments (DPS); the Sierra Nevada DPS is estimated to be approximately 18 to 39 individuals (USFWS 2021) and the Southern Cascades DPS is estimated to be approximately 42 adults (USFWS 2015). While WDM activities have the potential to incidentally capture a non-target Sierra Nevada red fox of either DPS occurring within the subspecies' range (Felix, pers. comm. 2022; CDFG 2005), the subspecies is not targeted for WDM due to its protected status (State Threatened and/or Federal Endangered [86 FR 41743; CDFW 2022a]) and limitations placed on WDM methods by CDFW and USFWS within the range of this subspecies of either DPS_render incidental take extremely unlikely (e.g., 14 CCR 465.5, CDFG 2005; CDFW 2016; USFWS 2022). No Sierra Nevada red fox has even been taken by WS-California for WDM, and there appears to be little potential for future lethal take of Sierra Nevada red fox from WDM. However, to ensure that there is no potential for impact to this subspecies from WDM in California by CDFA or Counties, MM-BIO-7 would be implemented (refer to Section 4.2.2.3.2). Impacts under CEQA would be less than significant with mitigation. Impacts under NEPA would be not significant as these measures are already incorporated into WS-California's WDM.

The Sacramento Valley subspecies currently has no legal protection under state or federal law, and therefore WDM activities do not distinguish between the Sacramento Valley red fox and the non-native species (CDFW 2022a). The genetic effective population size of the Sacramento Valley red fox is estimated to be between 50 and 80 breeding individuals and evidence suggests that the population is declining (Sacks et al. 2010a; Sacks et al. 2010b). Based on the CDFW habitat modeling for red fox, the estimated population size for the counties where the Sacramento Valley red fox could occur (i.e., Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Solano, and Yolo) is 228 individuals. However, this population estimate may include both Sacramento Valley red fox individuals and non-native red fox individuals since there is known geographical overlap between the non-native and native subspecies. To conservatively estimate the Sacramento Valley red fox populations, non-native red fox home range and density estimates are not used in the Sacramento Valley red fox population calculation (See Appendix C6 of the BTR).

The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 9 red foxes taken annually within the range of the Sacramento Valley red fox, which represents 4.0% of the Sacramento Valley red fox population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 13.5% (5 of 37 individuals estimated in the Colusa County population). These numbers represent the highest take expected within the range of the Sacramento Valley red fox under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years.

Red foxes are considered mesopredators (Prugh et al. 2009) and are known to coexist with other mesopredators such as gray foxes, kit foxes, and coyotes in lowland California (CWHR 2022). Mesopredators can fulfill an important role in ecosystem function, structure, and dynamics (e.g., trophic cascade) (Roemer et al. 2009). For example, high species diversity of apex predators, mesopredators, and prey species in an ecosystem can make mesopredator release less likely to occur (Brashares et al. 2010). Indirect impacts to ecosystem function, structure, or dynamics resulting from the Proposed Project/Proposed Action's lethal WDM to Sacramento Valley red foxes are not

anticipated due to the percentage of Sacramento Valley red foxes impacted by the Proposed Project/Proposed Action regionally, statewide, and cumulatively is below the sustainable mortality threshold of 25%.

The annual level of lethal WDM within the range of the Sacramento Valley red fox by the Proposed Project/Proposed Action (4.0% of the statewide population and 0% to 13.5% of county populations) would not exceed the sustainable harvest rate of 25% (Section 3.2.5 of Appendix D). Furthermore, it was assumed that all WDM take occurred to the Sacramento Valley subspecies; however, it is likely that at least some or potentially all of the foxes killed would be non-native red fox. Subspecies-level identification, which requires genetic analysis, was not conducted. Because the percentage of the red fox population annually lethally taken within the range of the Sacramento Valley red fox by WDM activities within the counties in which it occurs is low, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations, and no ecosystem-level effects are anticipated. This would result in a less than significant impact under CEQA and a not significant impact under NEPA on Sacramento Valley red fox populations.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Long-Tailed Weasel

The statewide modeled low population estimate for long-tailed weasel is 95,685 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 71 long-tailed weasels taken annually, which represents 0.07% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0.02% (several counties) to 2.55% (1 individual of 39 estimated county population; San Francisco County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of long-tailed weasel are discussed in Appendix D, Section 3.2.6.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.07% of the statewide population and 0.02% to 2.55% of county populations) would not exceed the sustainable harvest rate of 10% (Section 3.2.6 of Appendix D). Because the percentage of the long-tailed weasel population taken by lethal WDM activities within the state and individual counties on an annual basis is low and due to the dispersed range of this species within California, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in a less than significant impact under CEQA and a not significant impact under NEPA on long-tailed weasel populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

American Mink

The statewide modeled population estimate for American mink is approximately 2,383 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 39 American mink individuals taken annually, which represents 1.64% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 12.4% (1 individual

of 8 estimated county population; Lake County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of American mink are discussed in Appendix D, Section 3.2.7.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (1.64% of the statewide population and 0% to 12.4% of county populations) would not exceed the sustainable harvest rate of 25% (Section 3.2.7 of Appendix D). Because the percentage of the American mink population taken by lethal WDM activities within the state and individual counties on an annual basis is low and due to the dispersed range of this species within California, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in a less than significant impact under CEQA and a not significant impact under NEPA on American mink populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Raccoon

The statewide population estimate for North American raccoon is approximately 2,557,065 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 5,892 raccoons taken annually, which represents 0.2% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0.01% (several counties) to 1.4% (607 individuals of 43,252 estimated county population; San Luis Obispo County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of raccoon are discussed in Appendix D, Section 3.2.8.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.2% of the statewide population and 0.01% to 1.4% of county populations) would not exceed the sustainable harvest rate of 49% (Section 3.2.8 of Appendix D). Because the percentage of the raccoon population taken by lethal WDM activities within the state and individual counties on an annual basis would be very low and the species has an expansive range throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or countywide raccoon populations. This would result in a less than significant impact under CEQA and a not significant impact under NEPA on raccoon populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

River Otter

The statewide population estimate for river otter is approximately 896 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 15.2 river otter taken annually, which represents 1.7% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 13.0% (0.4 individuals of 3 estimated county population; Lake County). However, the low population estimate for river otter in Lake County is only 3 individuals,

which is not consistent with local reports that include them occupying boat docks around the Clear Lake shoreline, with up to 11 otters described on a single dock.[2] Similarly, the low population estimate for river otter in Marin County based on the analysis presented in Appendix D using CDFW habitat suitability modeling is 0 individuals, whereas data suggests a recovering population of at least 73 individuals across 14 sites (Carroll et al. 2020). The next highest Proposed Project/Proposed Action Maximum Lethal Take Estimate by estimated county population is Yuba County with 9.2% (1.6 individuals of 17 estimated county population). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years.

River otters are apex predators in many aquatic systems (Lariviere and Walton 1998), preying on mollusks, crayfish, amphibians, birds, fish eggs, and small mammals including muskrats and small beavers. Removal of an apex predator can potentially affect ecosystem function, structure, and dynamics (e.g., mesopredator release, trophic cascade) (Roemer et al. 2009). However, indirect impacts to ecosystem function, structure, or dynamics resulting from the Proposed Project/Proposed Action's lethal WDM of river otter are not anticipated due to the percentage of river otters impacted by the Proposed Project/Proposed Action regionally or statewide being below the sustainable mortality threshold of 20% (Appendix D, Section 3.2.9.2).

The annual level of lethal WDM by the Proposed Project/Proposed Action (1.7% of the statewide population and 0% to 13.0% of county populations) would not exceed the sustainable harvest rate of 20% (Section 3.2.9 of Appendix D). Because the percentage of the river otter population taken by lethal WDM activities within the state and individual counties on an annual basis would be below the sustainable harvest rate, the Proposed Project/Proposed Action would not substantially affect statewide or countywide river otter populations, and no ecosystem-level effects are anticipated. This would result in a less than significant impact under CEQA and a not significant impact under NEPA on river otter populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Western Spotted Skunk

The statewide population estimate for western spotted skunk is approximately 497,414 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 63 western spotted skunks taken annually, which represents 0.01% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 0.45% (1 individual of 222 estimated county population; San Francisco County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of western spotted skunk are discussed in Appendix D, Section 3.2.10.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.01% of the statewide population and 0% to 0.45% of county populations) would not exceed the sustainable harvest rate of 10% (Section 3.2.10 of Appendix D). Because the percentage of the western spotted skunk population taken by lethal WDM activities within the state and individual counties on an annual basis would be very low, the Proposed Project/Proposed Action would not substantially affect statewide or countywide western spotted skunk populations. This would result in a

[2] https://www.record-bee.com/2016/02/24/otters-a-common-sight-at-clear-lake/

less than significant impact under CEQA and a not significant impact under NEPA on western spotted skunk populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Striped Skunk

The statewide population estimate for striped skunk is approximately 1,830,939 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 7,932 striped skunks taken annually, which represents 0.4% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0.02% (several counties) to 4.5% (757 individuals of 16,680 estimated county population; Sacramento County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of striped skunk are discussed in Appendix D, Section 3.2.11.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.4% of the statewide population and 0.02% to 4.5% of county populations) would not exceed the sustainable harvest rate of 10% (Section 3.2.11 of Appendix D). Because the percentage of the striped skunk population taken by lethal WDM activities within the state and individual counties on an annual basis would be low and due to the expansive range of this species in California, the Proposed Project/Proposed Action would not substantially affect statewide or countywide striped skunk populations. This would result in a less than significant impact under CEQA and a not significant impact under NEPA on striped skunk populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Mountain Lion (Non-CESA Candidate Counties)

The statewide population estimate for mountain lion is approximately 5,062 individuals. Future WDM take of mountain lion under the Proposed Project/Proposed Action would likely be substantially lower than previous WDM take estimated above due to changes in the management of the species by CDFW (CDFW 2017, 2021). The Proposed Project/Proposed Action Maximum Lethal Take Estimate is 57 mountain lions statewide (1.1% of the population), and ranges from 0 to 5.6 per year by county (0 to 5.1% of the county populations) (Appendix D). The counties with the highest Proposed Project/Proposed Action Maximum Lethal Take Estimate by percentage of the county populations are El Dorado at 5.1% (5.6 individuals per year of 108 estimated county population) and Yuba at 3.7% (0.8 individuals per year of 21 estimated county population). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not be expected to reach this level of take in most years.

Mountain lion densities are expected to remain stable with anthropogenic (i.e., human caused) mortality rates up to 11% and total mortality (including all sources of mortality, human-caused and natural) up to 14% (Logan 2019; Robinson et al. 2008; Cooley et al. 2009; Beausoleil et al. 2013). For the analyses in this report, this 11% threshold was used for anthropogenic mortality. Anthropogenic mortality is likely to be partially compensatory and partially additive (Robinson et

al. 2008; Cooley et al. 2009; Beausoleil et al. 2013), as suggested by the difference between the total sustainable mortality threshold (14%) and the anthropogenic mortality threshold (11%) (Beausoleil et al. 2013).

Mountain lion is considered an apex predator and a keystone species (Prugh et al. 2009). Predators, particularly apex predators, can have a pronounced impact on biodiversity and ecosystem resilience (Estes et al. 2011). Large-scale or complete removal of apex predators from an ecosystem has the potential to result in trophic cascade and mesopredator release (Ritchie and Johnson 2009; Estes et al. 2011; Miller et al. 2012; Wallach et al. 2015). Mountain lions compete with other California predators, bobcats, coyotes, black bears, and wolverines, though they prey primarily on mule deer, which limits competition with most small and medium-sized predators (CWHR 2022). They are also considered subordinate competitors to wolves and black bears (Elbroch and Kusler 2018) but can predate on coyotes (CWHR 2022). They have the ability to affect populations of some ungulates like bighorn sheep (CDFW 2022b; USFWS 2000). High species diversity of apex predators, mesopredators, and prey species in an ecosystem can make mesopredator release less likely to occur (Brashares et al. 2010). The complex social system of mountain lions responds differently to large-scale removal of individuals depending on the amount of habitat available, seasonal timing of removal, and the sex and age of the population that is removed (Logan 2019).

The annual level of lethal WDM by the Proposed Project/Proposed Action (1.1% of the statewide population and 0% to 5.1% of county populations) would be well below the anthropogenic mortality threshold of 11% (Appendix D). Indirect impacts to ecosystem-level function and structure resulting from the Proposed Project/Proposed Action's lethal impacts to mountain lion are not anticipated within counties where the species is not a CESA candidate for listing due to the low percentage of mountain lions killed by the Proposed Project/Proposed Action in those regions. Because the percentage of the mountain lion population lethally taken by Proposed Project/Proposed Action WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations where the species is not a CESA candidate for listing. This would result in a less than significant impact under CEQA and not significant impact under NEPA on mountain lion populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

North American Beaver

The statewide modeled population estimate for North American beaver is approximately 556,612 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 1,829 North American beaver taken annually, which represents 1.1% of the population (Section 3.2.12 in Appendix D). This analysis uses a sustainable cumulative harvest level of 20% (Runge 1999), which was derived through modeling that suggested any removal below that level created space for dispersing individuals rather than causing population decline. The annual level of lethal WDM by the Proposed Project/Proposed Action (1.1% of the statewide population) would not exceed the sustainable harvest rate and would not constitute substantial effects at a statewide level.

It is important to note that the CDFW habitat model used for this analysis likely underestimates North American beaver populations in California, as WS-California has lethally taken several North American beavers during the 10-year MIS baseline outside of the suitable habitat defined by the CDFW habitat model. For example, in Sonoma County, 1.8 North American beavers were killed during WDM activities, but the county population estimate using the CDFW habitat model is 0 North American beavers. The CDFW habitat model is still the best available method for estimating North American beaver populations in California; however, North American beaver have likely expanded

out from neighboring counties into suitable habitat not captured by the model. Therefore, regional analyses will be done to examine counties with Proposed Project/Proposed Action Maximum Lethal Take Estimates greater than 20% of the county-estimated population–Sonoma and Yolo. When Proposed Project/Proposed Action Maximum Lethal Take Estimate of North American beaver is considered for Sonoma County and its adjacent counties (Marin, Napa, Lake, and Mendocino), 1.2% of North American beavers (7 individuals of 590 estimated regional population) could be taken per year during WDM activities in this region. When Proposed Project/Proposed Action Maximum Lethal Take Estimate of North American beaver is considered for Yolo County and its adjacent counties (Colusa, Sutter, Sacramento, Solano, Napa, and Lake), 11.6% of North American beavers (786 individuals of 6,795 estimated regional population) could be taken per year during WDM activities in this region. These numbers are all below the sustainable mortality threshold of 20% (Section 3.2.12 in Appendix D) and represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years.

North American beaver is a keystone species of the aquatic ecosystem, altering the environment to create habitat for a wide variety of plants, fish, and wildlife, as well as improving water quality (Pollock et al. 2018). Beaver dams impound water, and these impoundments slow the flow of the stream and trap sediment helping create diverse and productive wetlands (Pollock et al. 2003). If WDM activities were to substantially reduce North American beaver populations at a local level, stream habitat and hydrology could be affected. Fewer in-stream wetlands would be created, which would reduce habitat capacity for species such as salmon (Pollock et al. 2004), turtles, frogs, and songbirds (Dalbeck et al. 2020; Stringer and Gaywood 2016; Willby et al. 2018). Because water movement is slowed by North American beaver dams and exposure time to aquatic vegetation is increased, removal of North American beaver dams could cause reduced biofiltration and adverse effects on downstream water quality (Pollock et al. 2004). Finally, removal of North American beaver dams could cause greater incision of stream channels, bank erosion, and transport power (Pollock et al. 2003; Pollock et al. 2004; Pollock et al. 2018). Indirect impacts to ecosystem function, structure, or dynamics resulting from the Proposed Project/Proposed Action's lethal impacts to North American beavers are not anticipated due to the percentage of North American beavers impacted by the Proposed Project/Proposed Action regionally or statewide being below the sustainable mortality threshold of 20%.

The annual level of lethal WDM by the Proposed Project/Proposed Action (1.1% of the statewide population) would not exceed the sustainable harvest rate of 20%. Lethal WDM at the regional level around Sonoma and Yolo counties (1.2% and 11.6% of regional populations, respectively) would also remain below the sustainable harvest rate. Because the percentage of the beaver population lethally taken by Proposed Project/Proposed Action WDM activities within the state on an annual basis would be low and due to the expansive range of this species throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or regional populations, and no ecosystem-level effects are anticipated. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on North American beaver populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

North American Porcupine

The statewide modeled population estimate for North American porcupine is approximately 314,017 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 52 porcupines taken annually, which represents 0.01% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 0.3% (1

individual of 341 estimated county population; Santa Clara County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of North American porcupine are discussed in Appendix D, Section 3.2.13.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.01% of the statewide population and 0% to 0.3% of county populations) would not exceed the sustainable harvest rate of 20% (Section 3.2.13 in Appendix D). Because the percentage of the porcupine population taken by lethal WDM activities within the state on an annual basis would be very low and due to the dispersed range of this species within mountainous California, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on North American porcupine populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Yellow-Bellied Marmot

The statewide modeled population estimate for yellow-bellied marmot is approximately 348,034 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 270 marmots taken annually, which represents 0.08% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 0.2% (115 individuals of 61,813 estimated county population; Lassen County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of yellow-bellied marmot are discussed in Appendix D, Section 3.2.14.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.08% of the statewide population and 0% to 0.2% of county populations) would not exceed the sustainable harvest rate of 20% (Section 3.2.14 in Appendix D). Because the percentage of the yellow-bellied marmot population taken by lethal WDM activities within the state on an annual basis would be very low, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on yellow-bellied marmot populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Big-Eared Woodrat

The statewide modeled population estimate for big-eared woodrat is approximately 44,017,269 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 290 big-eared woodrats taken annually, which represents less than 0.1% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 5.5% (10 individuals of 181 estimated county population; Santa Cruz County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not

be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of big-eared woodrat are discussed in Appendix D, Section 3.2.15.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (less than 0.1% of the statewide population and 0% to 5.5% of county populations) would be well below the sustainable harvest rate of 60% (Section 3.2.15 in Appendix D). Because the percentage of the big-eared woodrat population taken by lethal WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in woodlands and chaparral throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on big-eared woodrat populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Dusky-Footed Woodrat

The statewide low population estimate for dusky-footed woodrat is approximately 80,987,432 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 410 dusky-footed woodrats taken annually, which represents less than 0.01% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 0.19% (10 individuals of 2,130 estimated county population; San Francisco County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of dusky-footed woodrat are discussed in Appendix D, Section 3.2.16.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (less than 0.01% of the statewide population and 0% to 0.19% of county populations) would be well below the sustainable harvest rate of 60% (Section 3.2.16 in Appendix D). Because the percentage of the dusky-footed woodrat population taken by lethal WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in woodlands and chaparral throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on dusky-footed woodrat populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Black-Tailed Jackrabbit

The statewide population estimate for black-tailed jackrabbit is approximately 7,236,205 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 2,587 black-tailed jackrabbits taken annually, which represents 0.04% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 1.92% (680 individuals of 35,473 estimated county population; Alameda County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not

be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of black-tailed jackrabbit are discussed in Appendix D, Section 3.2.17.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.04% of the statewide population and 0% to 1.92% of county populations) would not exceed the sustainable harvest rate of 20% (Section 3.2.16 in Appendix D). Because the percentage of the black-tailed jackrabbit population lethally taken by WDM activities within the state on an annual basis would be very low and due to the high reproductive capacity of this species, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on black-eared jackrabbit populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Desert Cottontail Rabbit

The statewide population estimate for desert cottontail rabbit is approximately 25,644,085 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 68,111 desert cottontail rabbits taken annually, which represents 0.3% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 0.4% (525 individual of 120,208 estimated county population; Yuba County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of desert cottontail rabbit are discussed in Appendix D, Section 3.2.18.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.3% of the statewide population and 0% to 0.4% of county populations) would be well below the sustainable harvest rate of 40% (Section 3.2.18 in Appendix D). Because the percentage of the desert cottontail rabbit population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species within California, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on desert cottontail rabbit populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Brush Rabbit

The statewide population estimate for brush rabbit is approximately 11,508,386 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 37,957 brush rabbits taken annually, which represents 0.3% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 1.12% (295 individual of 26,379 estimated county population; Kings County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year; the Proposed Project/Proposed Action would not be expected to reach this level of take in most years. None of the existing WDM activities occurred within the range of the federally and state-listed

endangered riparian brush rabbit (*Sylvilagus bachmani riparius*). Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of brush rabbit are discussed in Appendix D, Section 3.2.19.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.3% of the statewide population and 0% to 1.12% of county populations) would be well below the sustainable harvest rate of 40% (Section 3.2.19 in Appendix D). Because the percentage of the brush rabbit population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species within California, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. Impacts under NEPA be not significant as these measures are already incorporated into WS-California's WDM. Implementation of MM-BIO-7 (Section 4.2.2.3.2) would ensure that activities conducted by CDFA or California counties would implement the same measures as WS-California to avoid adverse effects on riparian brush rabbit, and impacts would be less than significant with mitigation under CEQA.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

California Ground Squirrel

The statewide population estimate for California ground squirrel is approximately 138,496,766 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 31,801 California ground squirrel taken annually, which represents 0.01% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (Mono County) to 0.15% (3,077 individuals of 947,980 estimated county population; Contra Costa County). The Proposed Project/Proposed Action is not expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of California ground squirrel are discussed in Appendix D, Section 3.2.20.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.01% of the statewide population and 0% to 0.15% of county populations) would be well below the sustainable harvest rate of 40% (Section 3.2.20 in Appendix D). Because the percentage of the California ground squirrel population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in most habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on California ground squirrel populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Western Gray Squirrel

The statewide population estimate for western gray squirrel is approximately 6,335,022 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 22,309 western gray squirrels taken annually, which represents 0.4% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 2.1% (326 individuals of 15,590 estimated county population; Alpine County). The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of western gray squirrel are discussed in Appendix D, Section 3.2.21.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.01% of the statewide population and 0% to 2.1% of county populations) would be well below the sustainable harvest rate of 40% (Section 3.2.21 in Appendix D). Because the percentage of the western gray squirrel population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on western gray squirrel populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Deer Mouse

The statewide population estimate for deer mouse is approximately 819,674,844 individuals. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 207,124 deer mice taken annually, which represents 0.03% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0.01% or less (several counties) to 0.7% (3,570 individuals of 514,002 estimated county population; San Francisco County). The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of deer mouse are discussed in Appendix D, Section 3.2.22.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (0.03% of the statewide population and 0.01% to 0.7% of county populations) would be well below the sustainable harvest rate of 40% (Section 3.2.22 in Appendix D). Because the percentage of the deer mouse population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on deer mouse populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Mule Deer

The statewide population estimate for mule deer is approximately 562,237 individuals, which encompasses all members of *Odocoileus hemionus*, including mule deer and all six subspecies. The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 64 mule deer taken annually, which represents less than 0.01% of the population (Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate in proportion to county estimated population ranges from 0% (several counties) to 0.09% (1 individual of 406 estimated county population; Sutter County). The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Ecosystem effects related to Proposed Project/Proposed Action lethal WDM of mule deer are discussed in Appendix D, Section 3.2.23.2.

The annual level of lethal WDM by the Proposed Project/Proposed Action (less than 0.01% of the statewide population and 0% to 0.09% of county populations) would be well below the sustainable harvest rate of 5.6% (Section 3.2.23 in Appendix D). Because the percentage of the mule deer population lethally taken by WDM

activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide or countywide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on mule deer populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Non-Native Feral and Domesticated Mammal Species

Several species of non-native feral and domesticated mammals were taken by WS-California during the baseline period (Table 3-1 in Appendix D). These include species that are invasive (e.g., feral swine [*Sus scrofa*], nutria [*Myocastor coypus*]), as well as feral cats, dogs, and livestock. Potential impacts of WDM on non-native species' populations were not analyzed because they are generally considered to have a negative impact on native wildlife and plant populations. The low level of lethal WDM for these species during the baseline period suggests that the Proposed Project/Proposed Action would not have a significant impact under NEPA on populations of these species regardless.

CEQA Conclusion: *Not applicable.*

NEPA Conclusion: *Not significant.*

Non-Special-Status Bird Species

American Crow

The statewide population of American crow is estimated at 480,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 1,418 American crows taken annually, which represents 0.3% of the statewide population, well below the sustainable mortality threshold of 68% (Section 3.3.1 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (a few counties) to 504 individuals (San Diego County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the American crow population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on American crow populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Common Raven

The statewide population of common raven is estimated at 330,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 742 common ravens taken annually, which represents 0.2% of the population, well below the sustainable mortality threshold of 125% (Section 3.3.2 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from to 2 (several counties) to

155 individuals (San Diego County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the common raven population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on common raven populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

California Scrub-Jay

The statewide population of California scrub-jay is estimated at 1,200,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 113 California scrub jays taken annually, which represents 0.01% of the population, well below the sustainable mortality threshold of 45% (Section 3.3.3 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (several counties) to 3 individuals (several counties). These numbers represent the highest take of this species expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the California scrub-jay population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on California scrub-jay populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Red-Tailed Hawk

The statewide population of red-tailed hawks is estimated at 230,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 594 taken annually, which represents 0.26% of the population, well below the 50% sustainable mortality threshold (Section 3.3.4 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 1 (several counties) to 143 individuals (Los Angeles County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the red-tailed hawk population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on red-tailed hawk populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Ferruginous Hawk

The statewide population of ferruginous hawk is estimated at 220 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 10 taken annually, which represents 4.5% of the population, well below the 45% sustainable mortality threshold (Section 3.3.5 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (several counties) to 3 individuals (several counties). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the ferruginous hawk population lethally taken by WDM activities within the state on an annual basis would be low, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on ferruginous hawk populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Peregrine Falcon

The statewide population estimate for peregrine falcon based on the average USGS North American Breeding Bird Survey data for survey years 2015 through 2019 is approximately 2,432 individuals (Sauer et al. 2019). Approximately 2.0% (48.2 individuals) of the statewide population was dispersed, relocated, or transferred to the custody of another agency annually during the baseline period, and that WDM activity is expected to continue under the Proposed Project/Proposed Action. Less than 0.01% (0.3 individuals) of the statewide population was lethally taken annually. The BTR (Appendix D) analysis recognizes that lethal WDM of peregrine falcon could include up to 1 individual statewide in a particular year, which would be 0.04% of the statewide population. Because the percentage of the statewide peregrine falcon population affected by lethal WDM on an annual basis has historically been very low and is projected to remain low (99% of WDM for peregrine falcon during the baseline period was non-lethal WDM), future WDM activities under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and not significant impact under NEPA on peregrine falcon populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Barn Owl

The statewide population of barn owl is estimated at 24,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 35 barn owls taken annually, which represents 0.15% of the population, well below the sustainable mortality threshold of 119% (Section 3.3.6 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (several counties) to 8 individuals (San Diego County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the barn owl population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on barn owl populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Red-Winged Blackbird

The statewide population of red-winged blackbird is estimated at 14,000,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 37,127 red-winged blackbird taken annually, which represents 0.3% of the population, well below the 115.7% sustainable mortality threshold (Section 3.3.7 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 288 (several counties) to 12,729 individuals (Shasta County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the red-winged blackbird population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on red-winged blackbird populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Brewer's Blackbird

The statewide population of Brewer's blackbird is estimated at 4,200,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 22,146 Brewer's blackbirds taken annually, which represents 0.53% of the population, well below the 68.5% sustainable mortality threshold (Section 3.3.8 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 46 (Riverside County) to 1,992 individuals (Siskiyou County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the Brewer's blackbird population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on Brewer's blackbird populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Yellow-Headed Blackbird

The statewide population of red-winged blackbird is estimated at 530,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 1,762 yellow-headed blackbirds taken annually, which represents 0.33% of the population, well below the 50% sustainable mortality threshold (Section 3.3.9 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (several counties) to 449 individuals (Shasta County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected

to reach this level of take in most years. Because the percentage of the yellow-headed blackbird population lethally taken by WDM activities within the state on an annual basis would be very low, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on yellow-headed blackbird populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Canada Goose

The statewide resident population of Canada goose (which is distinct from the statewide migratory population) is estimated at 51,148 (Brady and Weaver 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 781 Canada geese taken annually, which represents 1.5% of the population, well below the 76% sustainable mortality threshold (Section 3.3.10 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (several counties) to 390 individuals (Alameda County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the Canada goose population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on Canada goose populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

California Gull

The statewide population of California gull is estimated at 112,601 (Sauer et al. 2019). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 610 California gull taken annually, which represents 0.54% of the population, well below the 46.5% sustainable mortality threshold (Section 3.3.11 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 1 (several counties) to 267 individuals (Alameda County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the California gull population lethally taken by WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on California gull populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Black-Crowned Night-Heron

The statewide population of black-crowned night-heron is estimated at 15,740 (Sauer et al. 2019). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 70 black-crowned night-heron taken annually, which represents 0.4% of the population, well below the 76.6% sustainable mortality threshold (Section 3.3.12 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (several counties) to 34 individuals (Alameda County). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the black-crowned night-heron population lethally taken by WDM activities within the state on an annual basis would be very low and due to the wide range of this species in aquatic habitats throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on black-crowned night-heron populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

California Brown Pelican

The statewide population estimate for California brown pelican based on the average USGS North American Breeding Bird Survey data for survey years 2015 through 2019 is approximately 6,481 individuals (Sauer et al. 2019). Under previous WS-California efforts during the baseline period, an average of 999.5 individuals were dispersed, 0.1 individuals were relocated, 0.5 individuals underwent a transfer of custody, and 0.1 individuals were killed per year. The maximum lethal take of California brown pelican under the Proposed Project/Proposed Action is estimated to be 1 per year, approximately 0.02% of the statewide population. Because the percentage of the statewide brown pelican population affected by lethal WDM on an annual basis is very low, it can be concluded that continued WDM under the Proposed Project/Proposed Action would have a less than significant impact under CEQA and a not significant impact under NEPA on brown pelican populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Acorn Woodpecker

The statewide population of acorn woodpecker is estimated at 1,900,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 492 acorn woodpeckers taken annually, which represents 0.03% of the population, well below the 80.7% sustainable mortality threshold (Section 3.3.13 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (several counties) to 11 individuals (several counties). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the acorn woodpecker population taken by lethal WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in woodlands and chaparral throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on acorn woodpecker populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Northern Flicker

The statewide population of northern flicker is estimated at 430,000 (PIF 2022). The total Proposed Project/Proposed Action Maximum Lethal Take Estimate is 582 northern flickers taken annually, which represents 0.03% of the population, well below the 215% sustainable mortality threshold (Section 3.3.14 in Appendix D). The Proposed Project/Proposed Action Maximum Lethal Take Estimate by county ranges from 0 (several counties) to 11 individuals (several counties). These numbers represent the highest take expected under the Proposed Project/Proposed Action in any year. The Proposed Project/Proposed Action would not be expected to reach this level of take in most years. Because the percentage of the northern flicker population taken by lethal WDM activities within the state on an annual basis would be very low and due to the expansive range of this species in forests and chaparral throughout the state, the Proposed Project/Proposed Action would not substantially affect statewide populations. This would result in less than significant impacts under CEQA and not significant impacts under NEPA on northern flicker populations.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Non-Native Feral and Domesticated Bird Species

Several species of non-native feral and domesticated bird species were taken by WS-California during the baseline period (Table 3-1 in Appendix D). These include species that are invasive (e.g., brown-headed cowbird [*Molothrus ater*], European starling [*Sturnus vulgaris*]), as well as feral waterfowl and poultry. WS-California average annual WDM was less than 1% of the estimated statewide population (where estimates are available). Potential impacts of WDM on non-native species' populations were not analyzed because they are generally considered to have a negative impact on native wildlife and plant populations. Removal of non-native species would likely be beneficial to native ecosystems. The low level of WDM for these species during the baseline period suggests that the Proposed Project/Proposed Action would not have a significant impact under NEPA on populations of these species regardless.

CEQA Conclusion: *Not applicable.*

NEPA Conclusion: *Not significant.*

Other Non-Special-Status Species

In addition to the species listed in this EIR/EIS, other target non-special-status species could be removed in small numbers by WS-California, the CDFA, or county wildlife specialists in support of damage management activities. Any take of these species would be conducted in compliance with all applicable federal, state and local regulations. Historically, these other target species have been taken by WS-California and county wildlife specialists in small but varying numbers depending on local conditions, requests for assistance, changes in agriculture and land uses, and other factors. No increase in take of these target species is anticipated following approval of the Proposed Project/Proposed Action. Furthermore, future take of these other target species is not expected to materially

change species populations given the small amount of annual take in relation to statewide and regional populations. Therefore, impacts from take of other target species would be less than significant.

Furthermore, counties with no estimated take of a species during the baseline period may receive a request to lethally remove a damaging individual of that species in the future. Reasons for this could include the following: (1) a county may have historically conducted WDM for a species, but this was not captured within the baseline period of BTR and this EIR/EIS; (2) changes in agriculture (e.g., planting of different crops, the addition or altering of livestock composition, introduction of different agricultural practices) may attract different damaging wildlife; (3) requests typically resolved by private or other entities may be redirected to WS-California, the CDFA, or county wildlife specialists; and (4) changes to climate, land use, or other factors may cause the movement of wildlife into different areas. Where feasible, the BTR analysis (and by extension this EIR/EIS) accounted for these possibilities by including one or more individuals of species that could reasonably be expected to be taken in the future. For example, Table 5-3 in the BTR (Appendix D) includes a County Program Proposed Project/Proposed Action Max Lethal Take Estimate for bobcat of 1 per year, when none was recorded as taken during the baseline period. For other target species for which take was not specifically assumed in the BTR analysis, the EIR/EIS analysis assumes that WS California, the CDFA, or county wildlife specialists could lethally remove up to 1% of the estimated population annually of any species in California, except those species considered special-status or otherwise discussed in this EIR/EIS. Impacts from this level of removal to wildlife populations would be minimal and would have no significant adverse impact on the quality of the human environment. This would result in less than significant impacts under CEQA and not significant impacts under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Summary of Impacts to Ecosystem Functions

Predators, particularly apex predators, can have a pronounced impact on biodiversity and ecosystem resilience (Estes et al. 2011). The loss of apex predators from an ecosystem can reduce biodiversity and result in mesopredator release, a type of trophic cascade. Large-scale removal of prey species (e.g., porcupine, black-tailed jackrabbit, yellow-bellied marmot) could also potentially cause unpredictable changes to affected ecosystems and reduce prey availability for special-status species (e.g., California ground squirrel prey for golden eagles). Lethal removal of apex predators and their prey from WDM activities could therefore indirectly affect biodiversity and resilience of ecosystems supporting non-target special-status species.

Most studies that have documented impacts of predator management on biodiversity involve complete removal over many years (Berger et al. 2008; Ripple and Beschta 2006). WS-California does not intend to eliminate or extirpate native predators from any area on a long-term basis. When direct removal of individual predatory animals is deemed legal, necessary, and desirable, efforts focus on managing the individual animal or local group of animals. WS-California also operates on relatively small portions of properties over relatively short periods. Take of predators occurs in relatively small or isolated geographic areas compared to the extent of the statewide population. Therefore, no predators or prey would be completely extirpated from a local ecosystem and none would be introduced into an ecosystem.

The CDFA and WS-California acknowledge that some scientists, researchers, and wildlife protection organizations believe that removing predators (e.g., bobcat, bear, coyote, mountain lion) would result in mesopredator release and potential trophic cascade 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 herbivorous mammals such as rabbits and hares would also increase vegetation removal, which can result in widespread effects. Some researchers suggest that another potential unintended consequence of predator removal is a reduction in other species' diversity and native ecosystem changes.

However, as shown in the BTR (Appendix D), the numbers of predators such as bear, coyote, and mountain lion removed over the baseline period was small, and the percentage of removals was also small relative to County and statewide low population estimates. It is reasonable to assume there would be little change in the numbers of predators removed under the Proposed Project/Proposed Action as compared to baseline conditions because no changes to existing WDM activities are proposed. For most WDM, once a damage situation is resolved, WS-California field specialists do not continue to remove additional animals unless a problem reoccurs, there are historical problems, and/or an additional request for assistance is made. As with other cooperative agreements, WS-California targets specific individuals causing damage in response to requests for assistance, and lethal methods are only used when other methods of control are not practical or have not been successful.

After having thoroughly reviewed and considered information in commonly referenced peer-reviewed studies on this topic cited in the BTR (Appendix D), in conjunction with the low numbers of predators such as bear, coyote, and mountain lion removed as well as the low percentage of Proposed Project/Proposed Action take relative to cumulative take and statewide or county population estimates for those species, Proposed Project/Proposed Action effect to ecosystem functions are determined to be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

4.2.2.4.2 Mitigation Measures

NEPA does not impose a substantive duty on agencies to mitigate adverse environmental effects; however, federal agencies typically develop mitigation as a component of a proposed action. Protective measures are already incorporated into the current WS-California WDM via WS Directives or federal mandates and would continue to be implemented in the Proposed Project/Proposed Action. Protective measures are discussed alongside the applicable issue or species in this EIR/EIS and a list of WS-California Section 7 consultations are provided in Appendix A of the BTR. CEQA requires public agencies to consider feasible mitigation measures that could minimize each significant adverse impact (CEQA Guidelines Section 15126.4[a][1]). CEQA does not require mitigation measures for effects that are not found to be significant (CEQA Guidelines Section 15126.4[a][3]). To satisfy this CEQA requirement, the CDFA and California Counties will implement following mitigation measures.

MM-BIO-1. Wildlife species designated as "Fully Protected" under California Fish and Game Code Sections 3511, 4700, 5050, and 5515 shall not be taken or possessed unless authorized by the CDFW. This exclusion does not apply when such species pose an imminent threat to human health and safety (e.g., potential collision with aircraft); however, non-lethal measures shall be considered before selecting the option of lethal WDM for Fully Protected species.

MM-BIO-2. Lethal removal of mountain lion in counties where the species is listed under the California Endangered Species Act would only occur under the following circumstances:

- The subject mountain lion has been designated by a law enforcement official as an imminent threat to public health or safety.
- A depredation permit has been issued by CDFW

MM-BIO-3. Minimize the activity area of WDM to the extent feasible by coordinating with land managers and landowners, placing equipment primarily on previously disturbed sites, using vehicles on existing roads and trails to the extent practicable, and avoiding entering wetland areas when the wildlife conflict does not occur in the wetland.

MM-BIO-4. Proposed Project/Proposed Action installation of electrified fencing and other fencing shall be limited to site-specific applications and shall avoid impeding movement through wildlife migration corridors to the extent feasible.

MM-BIO-5. Prior to conducting WDM, the entity responsible for conducting the WDM activity shall ensure that the planned WDM activities do not violate any local policies or ordinances protecting biological resources.

MM-BIO-6. If WDM activities under the Proposed Project/Proposed Action receive coverage from an Implementing Entity of an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) for take of species covered under those plans, the entity conducting the WDM activity shall ensure that the WDM activity is conducted in accordance with all requirements and conditions of the Incidental Take Permits, HCP/NCCP, and Implementing Agreement (if applicable) for those plans.

MM-BIO-7. Entities conducting WDM shall follow the protective measures in WS-California ESA Section 7 compliance.

4.2.2.4.3 Cumulative Impacts

This section considers cumulative impacts on biological resources under CEQA and NEPA. "Cumulative impacts" under CEQA refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines Section 15355). Consistent with Section 15130(b) of the CEQA Guidelines, the discussion reflects the severity of the impacts and the likelihood of their occurrence but does not provide as much detail as is provided under project-level impacts. Under NEPA (40 CFR Section 1508.7), cumulative effects refer to the incremental impact of the project, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes other actions. The project-level impact analysis in Section 4.2.2.4.1 demonstrates that the Proposed Project/Proposed Action would not affect wetlands (Threshold BIO-3), local policies or ordinances protecting biological resources (Threshold BIO-5) or adopted HCPs or Natural Community Conservation Plans (Threshold BIO-6). Therefore, no cumulative impact analysis for these topics is required.

For analysis under CEQA, only Proposed Project/Proposed Action impacts from WDM activities conducted by WS-California as part of a CSA or by a County as part of their own WDM program are considered Proposed Project/Proposed Action effects. All other activities, including WS-California WDM at airports or as part of T&E species protection programs, are considered cumulative activities. For analysis under NEPA, WDM activities conducted by WS-California or County entities at airports or as part of T&E species protection programs are also

considered Proposed Project/Proposed Action activities. For both CEQA and NEPA analysis, other human activities including but not limited to hunting, trapping, poisoning, and collisions with vehicles and structures are considered cumulative effects.

The geographic area considered for the cumulative analysis of biological resources comprises the state of California. The Proposed Project/Proposed Action would be implemented across the state and activities could include use of lethal and non-lethal WDM methods.

Sources of data for cumulative impacts to biological resources vary by species, but include hunting and trapping records, data and studies related to collisions with vehicles and structures, and data and studies on intentional and incidental poisoning. Refer to the individual species accounts in Sections 3.2–3.4 of the BTR (Appendix D) for detailed descriptions of cumulative data.

CU-BIO-1: Would the Proposed Project/Proposed Action make a considerable contribution, either directly or through habitat modifications, to cumulatively significant effects on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Tricolored Blackbird

Cumulative effects on tricolored blackbird come from several sources; key factors include incidental killing by non-WS-California entities (e.g., private pest control companies or individuals) when mixed flocks are shot or poisoned foraging on crops, loss of wetland breeding habitats from development and climate change, and reductions in abundance of large insect prey they rely on to feed their young. There are an estimated 210,042 tricolored blackbirds in California (Table 4.2.2-4), with a small breeding population in Oregon. Tricolored blackbird populations are trending downward at an estimated -2% per year in California and -1.9% per year in the United States overall between 1966 and 2019 (Sauer et al. 2019). Recent trends show more stability, with -0.1% per year in California and 0.16% per year in the United States overall (Sauer et al. 2019). The Proposed Project/Proposed Action would not target tricolored blackbirds for lethal WDM, and it would not affect habitat or large insect populations. Therefore, the Proposed Project/Proposed Action would not substantially contribute to cumulative effects on tricolored blackbird.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Sandhill Crane

As a state threatened (and Fully Protected) species, there is no legal harvest of greater sandhill crane in California. At the species level, sandhill crane populations are trending upward in the United States overall, with estimated yearly increases of 3.5% between 1966 and 2019 and more moderate yearly increases of 1.7% when considering only the years between 2010 and 2019 (Sauer et al. 2019). In California, recent population trends (2010 to 2019) indicate decreases of -2.2% per year but show stable populations when considered over a longer time frame (1966 to 2019) (Sauer et al. 2019). The primary threat to sandhill cranes of all subspecies is habitat loss, whether from direct changes to the habitat or disturbances that prevent cranes from using otherwise suitable habitat (Gerber et al. 2020). Direct changes may be caused by expansion of agricultural areas (Gilmer et al. 1982), changes in water availability (Gilmer et al. 1982), spread of invasive plants such as common reed (*Phragmites australis*) (Kessler et al. 2011), or changes in food availability, particularly agricultural waste grains (Gilmer et al. 1982; Littlefield 2002).

Disturbances to otherwise suitable habitat may be caused by the presence of power lines, wind turbines, or hunters in other parts of the species' range (Gerber et al. 2020). Sandhill cranes can also be affected by diseases such as botulism and avian cholera, parasites, and exposure to extreme weather conditions such as blizzards, hail, and lightning (Gerber et al. 2020). No lethal WDM for sandhill crane would be anticipated under the Proposed Project/Proposed Action, and non-lethal WDM would be expected to be implemented on a small percentage of the population. Therefore, the Proposed Project/Proposed Action has no potential to contribute to cumulative effects on sandhill crane, whether greater sandhill crane or lesser sandhill crane.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Bald Eagle

As a federal- and state-protected species, there is no legal harvest of bald eagle in California. Bald eagle populations have been increasing dramatically across the United States, with estimated increases of 5.3% per year between 1966 and 2019 and 8.02% per year when considering only the recent years of 2010 to 2019 (Sauer et al. 2019). Within California, populations increased by 6.4% per year from 1966 to 2019 and 5.3% per year when considering only recent trends (2010 to 2019) (Sauer et al. 2019). Humans are the primary threat to bald eagles, either directly or indirectly (Buehler 2022; Russell and Franson 2014). The leading causes of mortality for bald eagles submitted to the National Wildlife Health Center in Wisconsin were poisonings (from lead, organophosphates, famphur, and fenthion) and trauma (impacts with vehicles and structures), although this method of assessing mortality is biased by the methods of collection (Russell and Franson 2014). Human development and activity also contribute to habitat loss, especially along shorelines where eagles forage (Buehler 2022; Fraser et al. 1996). Both bald and golden eagles are also susceptible to collisions with wind turbines and other electrical infrastructure, although bald eagles have a lower risk of collision than do golden eagles (Nasman et al. 2021). Lead poisoning, despite bans on its use for hunting, continues to affect eagles (Kramer and Redig 1997; Slabe et al. 2022). To further combat this, effective July 1, 2015, California state law (Assembly Bill 711) and subsequent regulations promulgated by the California Fish and Game Commission required the use of nonlead ammunition in a phased approach when taking wildlife for recreation or depredation purposes. Effective July 1, 2019, nonlead ammunition was required for the taking of any wildlife for any reason. As such, the Proposed Project/Proposed Action would not result in additional lead added to the environment.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Golden Eagle

As a federal- and state-protected species, there is no legal harvest of golden eagle in California. Population trends are imprecise for golden eagle, but populations in the United States overall appear stable, increasing by 0.2% per year between 1966 and 2019 and by 0.46% per year when considering only 2010 to 2019 (Sauer et al. 2019). In California, estimates are similarly imprecise due to lack of data, but populations appear to be trending slightly downward, with -0.2% decreases yearly between 1966 to 2019 and -0.29% decreases yearly when considering only recent data from 2010 to 2019 (Sauer et al. 2019). While non-anthropogenic starvation and/or disease are a major cause of mortality, especially for hatch year golden eagles, most mortality of adult golden eagles are human caused (USFWS 2016). One study found 56% of eagle mortality was caused by anthropogenic causes, accounting for 34%

of hatch year mortality and 63% of adult mortality (USFWS 2016). Similarly, the leading causes of mortality for golden eagles submitted to the National Wildlife Health Center in Wisconsin were trauma, electrocution, gunshot woods, and poisoning, primarily from lead, although this method of assessing mortality is biased by the methods of collection (Russell and Franson 2014). Lead poisoning, despite bans on its use for hunting, continues to affect eagles (Kramer and Redig 1997; Slabe et al. 2022). To further combat this, effective July 1, 2015, California state law (Assembly Bill 711) and subsequent regulations promulgated by the California Fish and Game Commission required the use of nonlead ammunition in a phased approach when taking wildlife for recreation or depredation purposes. Effective July 1, 2019, nonlead ammunition was required for the taking of any wildlife for any reason. WS-California wildlife specialists comply with federal, state, and local laws and regulations in accordance with APHIS-WS Directive 2.210. As such, the Proposed Project/Proposed Action would not result in additional lead added to the environment. As noted above for bald eagle, golden eagles are susceptible to collisions with wind turbines and other electrical infrastructure (Nasman et al. 2021). Golden eagles are also affected by habitat loss, which may result from climate-change driven vegetation changes, energy development, and urbanization (Katzner et al. 2020). However, no lethal WDM would be anticipated for golden eagle under the Proposed Project/Proposed Action, and the non-lethal WDM would be limited in scope (1.40% of the population). It is possible that WS-California could use lethal WDM at an airport to ensure public safety, but based on activity during the baseline period this remains unlikely. Therefore, the Proposed Project/Proposed Action would have no potential to contribute to cumulative effects of golden eagle populations.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Swainson's Hawk

As a state-threatened species, there is no legal harvest of Swainson's hawk in California. Within the United States overall, estimated population trends indicate recent increases of 1.8% per year from 2010 to 2019, and long-term increases of 1.2% per year from 1966 to 2019 (Sauer et al. 2019). In California, estimated population trends indicate recent increases of 0.81% per year from 2010 to 2019, and long-term increases of 5.1% per year from 1966 to 2019 (Sauer et al. 2019). Swainson's hawk populations are primarily threatened by loss or alteration of habitat (Bechard et al. 2020; CWHR 2022). This species preferentially nests in solitary trees along riparian corridors, shelterbelts, or homesteads, and loss of such nest sites from changing land uses reduces available nesting habitat (Bechard et al. 2020). Swainson's hawks can nest in certain urban areas within their range, preferring neighborhoods with mature trees (England et al. 1995). However, urbanized areas that lack nearby foraging habitat (within 5-8 km) are not suitable, indicating vulnerability to rapid urbanization that separates suitable nesting sites from foraging habitat (England et al. 1995). In their wintering range in South America, Swainson's hawks are threatened by shooting by local farmers and poisoning from organophosphate insecticides (Bechard et al. 2020; Goldstein et al. 1999), as well as loss of wintering habitat from intensification of agricultural land uses (Bechard et al. 2020). Other potential threats are from collisions with vehicles and structures, human disturbance at nest sites during nest-building and incubation, and storms and weather exposure during migration (Bechard et al. 2020). Quantitative data on cumulative anthropogenic mortality is sparse; however, because lethal WDM for Swainson's hawks under the Proposed Project/Proposed Action is generally only conducted to ensure public safety (e.g., at airports) and only on a very small percentage of the population (0.04%), and populations are stable or increasing in California (Sauer et al. 2019), the Proposed Project/Proposed Action has limited potential to contribute to cumulative effects on Swainson's hawk.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

White-Tailed Kite

As a state Fully Protected species, there is no legal harvest of white-tailed kite in California. Populations are trending downward in the United States overall, with estimated declines of -4.75% per year from 2010 to 2019 and long-term declines of -1.2% per year from 1966 to 2019 (Sauer et al. 2019). Within California, declines are more precipitous, with an estimated -7.06% yearly decrease from 2010 to 2019 and long-term -2% yearly decreases from 1966 to 2019 (Sauer et al. 2019). Threats to white-tailed kites are not well studied. The primary known threat is loss of nest trees and foraging habitat due to human development and other causes (Dunk 2020). Populations are known to change predictably in response to fluctuating abundance of California voles (*Microtus californicus*), a primary prey species in California (Dunk and Cooper 1994). Thus, habitat changes that adversely affect vole populations such as land use changes or urbanization likely have detrimental effects on white-tailed kite populations. Reliance on rodent prey may potentially expose white-tailed kites to secondary poisoning from rodenticides, but no data was found to support this. Quantitative data on anthropogenic mortality is sparse; however, because lethal WDM under the Proposed Project/Proposed Action is generally only conducted to ensure public safety (e.g., at airports) and only on a very small percentage of the population (0.04%), the Proposed Project/Proposed Action would have limited potential to contribute to cumulative effects on white-tailed kite.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Northern Harrier

Cumulative effects on populations of northern harrier may occur as a result of effects on individuals or effects from human development on habitat. Since the Proposed Project/Proposed Action would not disturb habitat, the proposed WDM activities would not affect habitat supporting raptors; however, lethal WDM of raptors would contribute to cumulative effects on the species. Population trends of northern harrier show declines in recent years (2010–2019), both in California (−2.91% per year) and in the United States overall (−0.28% per year) (Sauer et al. 2019). This is echoed by long-term trends (1966–2019), which show declines of −1.7% per year in California and -0.4% per year in the United States overall (Sauer et al. 2019). The primary contributor to rangewide declines in northern harrier populations is loss or fragmentation of wetland and open grassland habitats, both in their breeding and wintering ranges (Smith et al. 2020). Other sources of mortality for northern harrier include poaching, incidental poisoning through consumption of rodenticides or pesticides, collisions with structures, and human disturbance at nest or roost sites (Smith et al. 2020). The level of mortality associated with these other sources is speculative but based on the very low level of expected lethal take (0.1% of the population) from the Proposed Project/Proposed Action relative to California and rangewide populations of these species (PIF 2022), the Proposed Project/Proposed Action's incremental contribution is not cumulatively considerable because the Proposed Project/Proposed Action would not result in the exceedance of sustainable mortality levels at a statewide level

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Western Snowy Plover

Due to their protected status, no western snowy plovers are legally harvested by hunters or trappers. The overall population of snowy plovers on the Pacific Coast has increased gradually between 2005 and 2019, but notable population decreases were noted in 2007–2008, 2012, and 2016–2018 in one or more localized population recovery units that affected overall population trends (USFWS 2019). The primary threats to western snowy plover are from human use, disturbance, and degradation of beach nesting habitat (Page et al. 2020; USFWS 2019). This species nests in relatively unprotected areas and is vulnerable to direct and indirect disturbances (e.g., humans, horses, dogs) that cause it to flush the nest and waste energy (Page et al. 2020; USFWS 2019). This species is also highly vulnerable to various nest predators, including bird species (e.g., American crow, common raven) and mammalian predators (e.g., coyote, red fox, striped skunk) that have been expanding in range (Page et al. 2020; USFWS 2019). Habitat degradation may be caused by exotic beach grass (*Ammophila arenaria*) and mechanical raking of beaches (Page et al. 2020; USFWS 2019). Adults and chicks alike are vulnerable to being crushed or run over by off-road vehicles or while crossing highways (Page et al. 2020). Adult snowy plover mortality may be additionally caused by entanglement in fishing gear, colliding with nest protection structures, and oiling, although these are less significant mortality factors (Page et al. 2020). Additional threats are likely to arise from climate change related factors, especially sea level rise affecting coastal habitat quality, nest success, and survivorship of wintering birds (USFWS 2019).

No lethal WDM of this species would be expected to occur under the Proposed Project/Proposed Action, and only limited non-lethal WDM would occur for the protection of human safety at airports. The Proposed Project/Proposed Action would provide beneficial effects for western snowy plover through non-lethal and lethal WDM of nest predators. The Proposed Project/Proposed Action would also benefit the species by preventing collisions with aircraft, which generally result in the death of the bird. Given that only non-lethal WDM is anticipated to be conducted for this species, the Proposed Project/Proposed Action is unlikely to contribute to cumulative effects on western snowy plover populations.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

California Least Tern

Due to their protected status, no California least tern are legally harvested by hunters or trappers. Population trends have been increasing slowly since listing in 1970, with faster rates of increase in the late 1980s, presumably from more intensive management of nesting areas and naturally occurring food abundance during this time (USFWS 2020b). However, more recent trends (2009 to 2017) show a steady decline in California least tern with accompanying shifts in demographics showing older breeding birds and less juvenile recruitment (USFWS 2020b). Threats to California least tern, like those described for western snowy plover, primarily involve human use, disturbance, and degradation of beach nesting habitat (USFWS 2020b). Urban development reduces habitat availability, concentrating breeding terns onto fewer, larger tern colonies, potentially exposing nests to higher predation risk (USFWS 2020b). Predation is a significant threat to nests and chicks, primarily from birds (e.g., American kestrel, American crow, peregrine falcon, gull-billed tern) and mammals (e.g., coyote, red fox, domestic cat, rats), and predator presence can reduce egg-laying, chick feeding, and fledging success (USFWS 2020b). Human disturbance is also a major factor affecting California least tern nesting colonies, with tern eggs and chicks killed by mechanical grooming/raking activities, off-road vehicles, or simply being stepped on by pedestrians (USFWS 2020b). This species is also threatened by the encroachment of vegetation at nesting sites,

bioaccumulation of pesticides and other contaminants, and climate change effects such as sea level rise and fluctuations in prey availability due to changes in ENSO, although there is insufficient data to determine the extent of this connection at this time (Gergis and Fowler 2009; Thompson et al. 2020; USFWS 2020b).

Given their federal- and state-listed status, no lethal WDM of this species would be expected to occur under the Proposed Project/Proposed Action, and only limited non-lethal WDM would occur for the protection of human safety at airports. The Proposed Project/Proposed Action would provide beneficial effects for this species through non-lethal and lethal WDM of nest predators. The Proposed Project/Proposed Action would also benefit the species by preventing collisions with aircraft, which generally result in the death of the bird. Given that only non-lethal WDM is anticipated to be conducted for this species, the Proposed Project/Proposed Action has no potential to contribute to cumulative effects on California least tern populations.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

American Badger

Cumulative (i.e., total) anthropogenic mortality was estimated from all potential causes, including vehicle collisions (roadkill), legal hunting and trapping, and various other sources (e.g., illegal harvest, accidental poisoning). These are analyzed in Section 3.4.12.4 of the BTR. Cumulative anthropogenic mortality was calculated by adding all of these other sources to maximum lethal WDM under the Proposed Project/Proposed Action and rounding this number up to the next integer (see Table 3-42 of the BTR). Lethal removal of American badger for WDM may be compensatory rather than additive to natural causes of mortality; however, because no data could be located to support this speculation, the analysis assumes that all mortality is additive.

Cumulative anthropogenic mortality is estimated at 2,995 individuals statewide (4.0% of the statewide population). Maximum lethal WDM under the Proposed Project/Proposed Action would contribute 4.9% of that cumulative mortality (148 of 2,995 individuals). At the county level, cumulative mortality ranged from 3.8% to 7.4% of the county populations. The lowest cumulative mortality estimates are equal to the estimated roadkill and "other" mortality estimates, equaling 3.8% of the population. The highest cumulative mortality under the Proposed Project/Proposed Action is in San Bernardino County, which includes up to 525 badgers or 4.0% of the population. Maximum lethal WDM under the Proposed Project/Proposed Action would contribute only 5.0% of that cumulative mortality (26 of 525 individuals). The highest cumulative mortality as a percentage of the population is in Siskiyou County: 129 individuals or 7.4% of the population. This county also has the highest estimate of maximum lethal WDM under the Proposed Project/Proposed Action, which would contribute 48% of that cumulative mortality (62 of 129 individuals). All of these numbers are well below the conservative cumulative sustainable mortality threshold of 10% (Banci and Proulx 1999).

Future WDM activities under the Proposed Project/Proposed Action might expand to include WDM by WS-California and/or counties in counties without a current county-led WDM program, depending on the alternative chosen. However, the likely WDM take in these counties was estimated, and any future expansion of federal, state, or county involvement in WDM under the Proposed Project/Proposed Action would not be expected to exceed the estimates provided in this EIR/EIS. Future WDM activities are expected to provide the same services as those occurring under baseline conditions; no changes are proposed that would significantly increase the number of American badger individuals lethally taken at any level. Future WDM under the Proposed

Project/Proposed Action would not affect badger habitat, restrict badger range, or add to any mortality in American badger populations beyond sustainable levels statewide or within any county.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Mountain Lion (CESA-Candidate Counties)

Habitat loss affects mountain lion, especially in Southern California where development is more extensive and results in more conflicts with humans (Benson 2023). This extensive habitat loss coupled with other anthropogenic effects led to the proposed listing of some populations of mountain lion under CESA. The Proposed Project/Proposed Action would not affect habitat, so it would not contribute to habitat loss. However, there is a potential for lethal WDM to add to other losses and threats. Other anthropogenic mortality for mountain lion consists of illegal harvest and vehicle collisions. These were evaluated in Section 3.2.24 of the BTR to represent losses of approximately 3.2% of the mountain lion population annually. Cumulative anthropogenic mortality includes these losses as well as lethal WDM. Lethal removal of mountain lion for WDM may be compensatory rather than additive to natural causes of mortality; however, because data to support this speculation were not available, the analysis assumed that all mortality would be additive.

Two scenarios for mountain lion were evaluated in the BTR (Appendix D): (1) the species does become listed under CESA and (2) the species does not become listed under CESA. In Scenario 2, future WDM for mountain lion under the Proposed Project/Proposed Action would be the same for candidate counties as elsewhere in the state, as described in Threshold BIO-7. However, even under Scenario 2, due to changes in how CDFW issues depredation permits for mountain lion, the analysis assumes that lethal WDM of mountain lions would be half or less as compared to baseline conditions.

In the event that mountain lion is listed under CESA (Scenario 1), lethal WDM of mountain lion in those counties where the species is listed would be even further restricted as compared to baseline conditions. Under Scenario 1, cumulative mortality under the Proposed Project/Proposed Action is estimated at 3.30% of the CESA-listed population. Lethal WDM would be responsible for 0.1% of that 3.30% mortality, adding a small amount to the low cumulative mortality of mountain lions, whose population would typically be expected to be increasing due to the low level of harvest (i.e., well below the cumulative sustainable mortality threshold of 11%). However, if mountain lions become state-listed in this area, the decision to list this population is a likely indication that these other mortality factors and threats to survival are higher in this population than in other more stable mountain lion populations, and that the population might be declining. Small incremental additional losses like those from lethal WDM might have a higher potential for impacting such populations. The specific determinations that would be expected to accompany listing of these populations of mountain lion in select counties (i.e., population growth status, annual mortality, annual fecundity, available habitat, and carrying capacity) would be useful in assessing the likelihood of such an impact but are not available at the time of EIR/EIS preparation. Nonetheless, if the species is determined to be at risk of extirpation in these counties the analysis must conclude that incremental contribution to population mortality is cumulatively considerable. It is expected that any depredation of listed mountain lions would only be for the purposes of protecting human health and safety, making the cumulative impact unavoidable. However, in the event that the mountain lion is not state listed, this impact conclusion would not apply and impacts to mountain lion would be as described for the non-special-status mountain lion populations in Threshold CU-BIO-4.

CEQA Conclusion: *Cumulatively considerable (if listed).*

NEPA Conclusion: *Not significant.*

Ringtail

Given their Fully Protected status and the lack of previous lethal WDM, no lethal WDM of ringtail is expected to occur under the Proposed Project/Proposed Action, and only limited non-lethal WDM would occur. Therefore, the Proposed Project/Proposed Action has no potential to add to any cumulative negative impact on the species.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

CU-BIO-2: Would the Proposed Project/Proposed Action make a considerable contribution to cumulatively significant effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The Proposed Project/Proposed Action could potentially affect riparian habitat or other sensitive natural communities through removal of beaver dams and individual beavers, as noted in Threshold BIO-2. WDM activities could also require use of ATVs or other vehicle travel through riparian areas or other sensitive habitat (e.g., to set traps in remote locations). Analysis of hazardous materials usage under the Proposed Project/Proposed Action concluded that the Proposed Project/Proposed Action would not have a substantial impact on the environment (Section 4.2.4.3.1). Cumulative projects that could interact with these Proposed Project/Proposed Action effects to result in cumulative effects include various stream maintenance projects conducted by various flood control districts, statewide authorities such as the California Department of Water Resources, or the federal Bureau of Reclamation. Those cumulative projects could result in temporary or long-term changes in streamflow volume, increased downstream sedimentation and short-term degradation of water quality, and removal of emergent aquatic vegetation that provides habitat value. Given the unpredictable nature of these projects in riparian areas and the statewide scope of the Proposed Project/Proposed Action, it is not feasible to predict precisely how these various projects might interact to cause cumulative effects. WDM of beaver dams or individual beavers could potentially act cumulatively with those project effects noted above. However, given the low level of WDM of beavers statewide and regionally (refer to Threshold BIO-7), it is not expected that this effect would be a considerable contribution to cumulative effects on riparian habitat.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

CU-BIO-3: Would the Proposed Project/Proposed Action make a considerable contribution to cumulatively significant effects related to interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or use of native wildlife nursery sites?

As noted under Threshold BIO-4, the Proposed Project/Proposed Action includes primarily technical assistance to private property owners and other entities who may install fencing of various types to minimize human-wildlife conflict. It is possible that the fencing installed by others could interfere with wildlife movement, and if that interference occurs in an area that is critical for species connectivity as identified through various studies including the California Essential Habitat Connectivity Project,[3] the interference could be cumulatively significant. However, the Proposed Project/Proposed Action includes very little installation of fencing by WS-California of county-level

[3] https://wildlife.ca.gov/Conservation/Planning/Connectivity/CEHC.

entities under CDFA oversight, especially with implementation of MM-BIO-4 (Section 4.2.2.4.2) and that limited amount of fencing installation would not be cumulatively considerable.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

CU-BIO-4: Would the Proposed Project/Proposed Action make a considerable contribution to cumulatively significant effects on populations of non-special status wildlife or plant species, especially if those effects could result in substantial ecosystem changes?

Similar to project-level impacts, the impact discussion below describes the potential cumulative impacts on each target species population.

Black Bear

Cumulative mortality of black bear from vehicle collisions (roadkill), legal hunting, illegal harvest (poaching) and lethal WDM under the Proposed Project/Proposed Action would average 2,375.1 black bears, or 11.6% of the statewide population per year (Appendix D). This is below the sustainable mortality threshold of 14.2% for black bear (Section 3.2.1 of Appendix D). At the county level, analysis of cumulative black bear mortality is complex and illustrates the difficulty of estimating mortality of wide-ranging species at too fine a scale and relying on modeling of suitable habitat. One of the most obvious examples of this is Yolo County, where the estimated population is one individual, because the vast majority of the county is outside of the species' top two-thirds of suitable habitat as estimated by CDFW (CDFW 2016a). However, the CDFW Central California Black Bear Hunt Zone (CDFW 2019b) includes all of Yolo County, and bears are regularly taken by hunters in this county. The estimated cumulative mortality of black bears in Yolo County, 3.3 individuals per year, is entirely due to hunter harvest, and comprises 330% of the estimated population.

Based on these and other factors, black bear cumulative mortality is best estimated according to CDFW Hunt Zones rather than by county. For each of the Hunt Zones, cumulative mortality was estimated to be below the 14.2% cumulative sustainable mortality threshold, and ranged from 7.3% in the Southern California Black Bear Hunt Zone to 13.3% in the Central California Black Bear Hunt Zone. Lethal WDM under the Proposed Project/Proposed Action would contribute between 11% and 16% of the cumulative mortality in each Hunt Zone.

The counties with the highest Maximum Lethal WDM under the Proposed Project/Proposed Action would also be those with high hunter harvest, which suggests that these counties have the highest populations of bears (hunter success is generally a reflection of the population of the prey species, available hunting area, and weather conditions during the hunting season because hunter effort is not expected to change considerably by county). For instance, maximum lethal WDM under the Proposed Project/Proposed Action would be highest in Shasta County at 33 black bears, where an average of 142.9 black bears are killed annually from legal hunting. The levels of cumulative mortality considered under the Proposed Project/Proposed Action are not anticipated to be considerably higher on average than those which have existed during the baseline period of 2010 through 2019. Black bear populations have increased or remained stable in California throughout this period (CDFW 2022c). Therefore, this level of harvest appears to be sustainable and has been determined to be sustainable by CDFW (2022f).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Bobcat

Cumulative anthropogenic mortality of bobcat was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter and trapper harvest (from CDFW reports), roadkill, and rodenticides (Appendix D). Cumulative mortality for bobcat was estimated to be 4.8% statewide and ranged from 4.0% to 8.9% by county. These maximum cumulative mortality estimates for bobcat statewide and in each county are all well below the 17% sustainable mortality threshold for bobcats derived in Appendix D (Section 3.2.2). In addition, lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.4% of the 4.8% mortality statewide, which would be 8% of the cumulative anthropogenic mortality for bobcats.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Coyote

Cumulative anthropogenic mortality of coyote was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter and trapper harvest (from CDFW reports), roadkill, and rodenticides (Appendix D). Cumulative anthropogenic mortality is estimated at 55,387 individuals statewide (24.4% of the statewide population). Maximum lethal WDM under the Proposed Project/Proposed Action would contribute 23% of that cumulative mortality (12,655 of 55,387 individuals). At the county level, cumulative mortality ranged from 18.8% to 44.2% of the county populations. The highest cumulative mortality under the Proposed Project/Proposed Action is in San Bernardino County, which includes up to 7,208 coyotes or 24.2% of the population. Maximum lethal WDM under the Proposed Project/Proposed Action would contribute only 23% of that cumulative mortality (1,634 of 7,208 individuals). The highest cumulative mortality as a percentage of the population is in Colusa County: 44.2% of the population (752 individuals). This county also has the highest estimate of maximum lethal WDM under the Proposed Project/Proposed Action, which would contribute 58% of that cumulative mortality (433 of 751 individuals). Cumulative coyote mortality including maximum potential lethal WDM under the Proposed Project/Proposed Action would be below the 50% sustainable mortality estimate derived in Appendix D (Section 3.2.3) for coyotes statewide and within each county.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Gray Fox

Cumulative anthropogenic mortality of gray fox was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter and trapper harvest (from CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 6.0% statewide and ranged from 5.7% to 9.9% by county. Lethal WDM under the Proposed Project/Proposed Action would be responsible for only 2.8% (411 of 14,505 individuals) of cumulative anthropogenic mortality statewide. The county with the highest percentage of cumulative mortality is Alameda: 9.9% of the population (43 individuals). Maximum

lethal WDM under the Proposed Project/Proposed Action contributed 44% of this cumulative mortality (19 of 43 individuals). Cumulative mortality ranged from 1 to 2,566 by county. The county with the highest cumulative mortality estimate is San Bernardino: 2,566 individuals (5.8% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 1.7% of this cumulative mortality (44 of 2,566 individuals). Maximum cumulative mortality estimates for gray fox statewide and in each county are all well below the conservative 20% sustainable mortality threshold derived in Appendix D (Section 3.2.4).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Sacramento Valley_Red Fox

Cumulative anthropogenic mortality of red fox was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter and trapper harvest (from CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). When all values are rounded up to provide a conservative estimate, cumulative mortality was estimated to be 12.7% statewide and ranged from 7.7% to 21.6% by county. Lethal WDM under the Proposed Project/Proposed Action would be responsible for a maximum of 31% (9 of 29 individuals) of cumulative anthropogenic mortality statewide in a year of maximum take. The county with the highest cumulative mortality and highest percentage of cumulative mortality is Colusa County (8 individuals, 21.6% of the county population). Maximum lethal WDM under the Proposed Project/Proposed Action would contribute 63% of this cumulative mortality (5 of 8 individuals). Maximum cumulative mortality estimates for Sacramento Valley_red fox statewide and in each county are all below the conservative 25% sustainable mortality threshold derived in Appendix D (Section 3.2.5).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Long-Tailed Weasel

Cumulative anthropogenic mortality of long-tailed weasel was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter and trapper harvest (from CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 3.8% statewide and ranged from 3.8% to 5.1% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.5% (18 of 3,655 individuals) of estimated cumulative anthropogenic mortality statewide. Maximum cumulative mortality estimates for long-tailed weasel statewide and in each county all well below the conservative 10% sustainable mortality threshold derived in Appendix D (Section 3.2.6).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

American Mink

Cumulative anthropogenic mortality of American mink was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter and trapper harvest (from

CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). Maximum lethal WDM under the Proposed Project/Proposed Action would contribute 2.0% of that cumulative mortality (2 of 101 individuals). At the county level, cumulative mortality ranged from 0 to 13.2% of the county populations. The highest cumulative mortality under the Proposed Project/Proposed Action is in Merced County, which includes up to 14 mink or 4.2% of the population. Maximum lethal WDM under the Proposed Project/Proposed Action would contribute only 7% of that cumulative mortality (1 of 14 individuals). The highest cumulative mortality as a percentage of the population is in Shasta County: 6 individuals or 13.2% of the population. Lethal WDM under the Proposed Project/Proposed Action would contribute 17% of that cumulative mortality (1 of 6 individuals). Maximum cumulative mortality estimates of American mink statewide and in each county would be well below the sustainable mortality threshold of 25% derived in Appendix D (Section 3.2.7).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Raccoon

Cumulative anthropogenic mortality or raccoon was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter and trapper harvest (from CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). Estimated cumulative mortality was 4% statewide and ranged from 3.8% to 5.2% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 5.7% (5,892 of 103,343 individuals) of cumulative anthropogenic mortality statewide. The county with the highest percentage of cumulative mortality is San Luis Obispo County with a total of 2,251 individuals (5.2% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 27% of this cumulative mortality (607 of 2,251 individuals). Maximum cumulative mortality estimates for raccoon statewide and in each county are all well below the conservative 49% sustainable mortality threshold derived in Appendix D (Section 3.2.8).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

River Otter

Cumulative anthropogenic mortality of river otter was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter and trapper harvest (from CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was estimated at 5.5% statewide and ranged from 0 to 13.4% by county (some county estimates are for regions; see below). Lethal WDM under the Proposed Project/Proposed Action would contribute very little to these cumulative mortality estimates; maximum lethal WDM under the Proposed Project/Proposed Action would contribute 31% (15.2 of 49.3 individuals) of cumulative anthropogenic mortality statewide at the most. As for all species analyzed, maximum lethal WDM is not likely in most years; this number is a function of the past variation in damage from the species. This is especially true for river otter, which are lethally removed for WDM only occasionally.

As explained in Appendix D (Section 3.2.9.4), a regional analysis of cumulative river otter mortality is provided for Napa County including all abutting counties (i.e., Lake, Solano, Sonoma, and Yolo) because the estimated WDM

take for Napa County (maximum of 2.8 per year) is higher than the county's population estimate (0). All of the other county cumulative mortality estimates (except for Napa County) and the statewide estimate are below the sustainable mortality threshold of 20% for river otter. The regional estimate for cumulative mortality in the Napa County region, when all bordering counties (Lake, Solano, Sonoma, and Yolo) are included, is 5.7% based on the maximum Proposed Project/Proposed Action lethal WDM.

The county with the highest cumulative mortality is Butte: 8.2 individuals (8.9% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 57% of this cumulative mortality (4.7 of 8.2 individuals). The highest percentage of cumulative mortality is in Yuba County: 13.4% of the population (2.3 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 70% of this cumulative mortality (1.6 of 2.3 individuals). Maximum cumulative mortality estimates for river otter statewide and in each county (based on county and regional analyses) are all below the conservative 20% sustainable mortality threshold derived in Appendix D (Section 3.2.9).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Western Spotted Skunk

Cumulative anthropogenic mortality of western spotted skunk was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, trapper harvest (from CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 3.8% statewide and ranged from 3.8% to 4.1% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.3% (63 of 18,929 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Kern County with 1,002 individuals (3.8% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 0.1% of this cumulative mortality (1 of 1,002 individuals). The county with the highest percentage of cumulative mortality is San Francisco County: 4.1% of the population (9 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 11% of this cumulative mortality (1 of 9 individuals). Maximum cumulative mortality estimates for western spotted skunk statewide and in each county are all well below the conservative 10% sustainable mortality threshold derived in Appendix D (Section 3.2.10).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Striped Skunk

Cumulative anthropogenic mortality of striped skunk was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, trapper harvest (from CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 4.2% statewide and ranged from 3.8% to 8.5% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 10.2% (7,932 of 77,761 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Kern County: 3,843 individuals (3.9% of the population). Maximum

lethal WDM under the Proposed Project/Proposed Action contributed 1.4% of this cumulative mortality (53 of 3,843 individuals). The county with the highest percentage of cumulative mortality is Alameda County: 8.5% of the population (1,039 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 50% of this cumulative mortality (516 of 1,039 individuals). Maximum cumulative mortality estimates for striped skunk statewide and in each county are all below the conservative 10% sustainable mortality threshold derived in Appendix D (Section 3.2.11).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

North American Beaver

Cumulative anthropogenic mortality of North American beaver was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, trapper harvest (from CDFW reports), roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 4.1% statewide and ranged from 0% to 14.3% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 7.9% (1,829 of 23,055 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Siskiyou County: 4,050 individuals (3.8% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 0.25% of this cumulative mortality (10 of 4,050 individuals). The county with the highest percentage of cumulative mortality is Yolo County: 14.3% of the population (326 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 73% of this cumulative mortality (238 of 326 individuals). Maximum cumulative mortality estimates for North American beaver statewide and in each county are all below the conservative 20% sustainable mortality threshold derived in Appendix D (Section 3.2.12).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

North American Porcupine

Cumulative anthropogenic mortality of North American porcupine was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 3.8% statewide and ranged from 0% to 4.6% by county. Lethal WDM did not add noticeably to cumulative mortality. In addition, lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for less than 0.01% (52 of 11,936 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Siskiyou County: 1,187 individuals (3.8% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed less than 0.01% of this cumulative mortality (5 of 1,187 individuals). The county with the highest percentage of cumulative mortality is Merced County: 4.6% of the population (0.4 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 0% of this cumulative mortality (0 of 0.4 individuals). Maximum cumulative mortality estimates for North American porcupine statewide and in each county are all well below the conservative 20% sustainable mortality threshold derived in Appendix D (Section 3.2.13).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Yellow-Bellied Marmot

Cumulative anthropogenic mortality of yellow-bellied marmot was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunting, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 5.9% statewide and ranged from 0% to 11.2% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 1.3% (270 of 20,619 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Lassen County: 5.2% of the population (3,243 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 3.5% of this cumulative mortality (115 of 3,243 individuals). Maximum cumulative mortality estimates for yellow-bellied marmot statewide and in each county are all well below the conservative 20% sustainable mortality threshold derived in Appendix D (Section 3.2.14).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Big-Eared Woodrat

Cumulative anthropogenic mortality of big-eared woodrat was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 3.8% statewide and ranged from 0% to 9.4% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.02% (290 of 1,672,868 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is San Diego County: 221,796 individuals (3.8% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 0.01% of this cumulative mortality (30 of 221,796 individuals). The county with the highest percentage of cumulative mortality is Santa Cruz County: 9.4% of the population (17 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 59% of this cumulative mortality (10 of 17 individuals). Maximum cumulative mortality estimates for big-eared woodrat statewide and in each county are all well below the conservative 60% sustainable mortality threshold derived in Appendix D (Section 3.2.15).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Dusky-Footed Woodrat

Cumulative anthropogenic mortality of dusky-footed woodrat was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 3.8% statewide and ranged from 0% to 4% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.01% (410 of 3,077,888

individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Siskiyou County: 335,100 individuals (3.8% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed to less than 0.01% of this cumulative mortality (10 of 335,100 individuals). The county with the highest percentage of cumulative mortality is San Francisco County: 4% of the population (205 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 4.9% of this cumulative mortality (10 of 205 individuals). Maximum cumulative mortality estimates for dusky-footed woodrat statewide and in each county are all well below the conservative 60% sustainable mortality threshold derived in Appendix D (Section 3.2.16).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Black-Tailed Jackrabbit

Cumulative anthropogenic mortality of black-tailed jackrabbit was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunting, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 5% statewide and ranged from 5% to 6.9% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.7% (2,587 of 366,274 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Inyo County: 28,050 individuals (5% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 0.02% of this cumulative mortality (5 of 28,050 individuals). The county with the highest percentage of cumulative mortality is Alameda County: 6.9% of the population (2,449 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 27.8% of this cumulative mortality (680 of 2,449 individuals). Maximum cumulative mortality estimates for black-tailed jackrabbit statewide and in each county are all well below the conservative 20% sustainable mortality threshold derived in Appendix D (Section 3.2.17).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Desert Cottontail Rabbit

Cumulative anthropogenic mortality of desert cottontail was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunting, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 4.7% statewide and ranged from 0% to 6.9% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 5.6% (68,111 of 1,213,017 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is San Bernardino: 237,696 individuals (4.5% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 5.9% of this cumulative mortality (14,059 of 237,696 individuals). The county with the highest percentage of cumulative mortality is Mono County: 6.9% of the population (2,870 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 3.8% of this cumulative mortality (108 of 2,870 individuals). Maximum cumulative mortality estimates for desert cottontail

statewide and in each county are all well below the conservative 40% sustainable mortality threshold derived in Appendix D (3.2.18).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Brush Rabbit

Cumulative anthropogenic mortality of brush rabbit was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunting, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 4.6% statewide and ranged from 0% to 12.7% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 7.2% (37,957 of 524,197 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is San Diego County: 39,130 individuals (4.7% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 7.0% of this cumulative mortality (2,735 of 39,130 individuals). The county with the highest percentage of cumulative mortality is San Joaquin County: 12.7% of the population (3,506 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 8.4% of this cumulative mortality (295 of 3,506 individuals). Maximum cumulative mortality estimates for brush rabbit statewide and in each county are all well below the conservative 40% sustainable mortality threshold derived in Appendix D (3.2.19).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

California Ground Squirrel

Cumulative anthropogenic mortality of California ground squirrel was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunting, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 3.8% statewide and ranged from 0% to 4.1% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.6% (31,801 of 5,294,679 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Siskiyou County: 8,207,839 individuals (3.8% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 3.8% of this cumulative mortality (312,506 of 8,207,839 individuals). The county with the highest percentage of cumulative mortality is Imperial County: 4.1% of the population (50,343 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 4.1% of this cumulative mortality (2,069 of 50,343 individuals). Maximum cumulative mortality estimates for California ground squirrel statewide and in each county are all well below the conservative 40% sustainable mortality threshold derived in Appendix D (Section 3.2.20).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Western Gray Squirrel

Cumulative anthropogenic mortality of western gray squirrel was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunting, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 4.8% statewide and ranged from 0% to 6.6% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 7.3% (22,309 of 305,790 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Siskiyou County: 28,529 individuals (4.6% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 2.3% of this cumulative mortality (652 of 28,529 individuals). The county with the highest percentage of cumulative mortality is Alpine County: 6.6% of the population (1,026 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 31.8% of this cumulative mortality (326 of 1,026 individuals). Maximum cumulative mortality estimates for western gray squirrel statewide and in each county are all well below the conservative 40% sustainable mortality threshold derived in Appendix D (Section 3.2.21).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Deer Mouse

Cumulative anthropogenic mortality of deer mouse was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, roadkill, and rodenticides and other human causes (Appendix D). Cumulative mortality was 3.8% statewide and ranged from 3.8% to 4.5% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.7% (207,124 of 31,354,769 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is San Bernardino County: 4,012,964 individuals (3.8% of the population). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 0.1% of this cumulative mortality (3,574 of 4,012,964 individuals). The county with the highest percentage of cumulative mortality is San Francisco County: 4.5% of the population (23,103 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed 15.5% of this cumulative mortality (3,570 of 23,103 individuals). Maximum cumulative mortality estimates for deer mice statewide and in each county are all well below the conservative 40% sustainable mortality threshold derived in Appendix D (Section 3.2.22).

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Mule Deer

Cumulative anthropogenic mortality of deer mouse was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take, hunter harvest, roadkill, and pesticides and other human causes (Appendix D). Cumulative mortality was 23.9% statewide and ranged from 0% to 24.1% by county. Lethal WDM under the Proposed Project/Proposed Action contributes very little to these cumulative mortality estimates; lethal WDM under the Proposed Project/Proposed Action would be responsible for only 0.05% (64 of

134,375 individuals) of cumulative anthropogenic mortality statewide. The county with the highest cumulative mortality is Siskiyou County: 9,853 individuals (23.9% of the population). However, lethal WDM under the Proposed Project/Proposed Action did not contribute to this cumulative mortality (0 of 9,853 individuals). The county with the highest percentage of cumulative mortality is Sutter County: 24.1% of the population (97 individuals). Maximum lethal WDM under the Proposed Project/Proposed Action contributed approximately 1% of this cumulative mortality (1 of 97 individuals). Maximum cumulative mortality estimates for mule deer statewide and in each county are within the range this species can withstand without substantially affecting the population (Section 3.2.23 of Appendix D). Furthermore, CDFW will continue to ensure the stability of the mule deer population in California.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Mountain Lion (Non-CESA Candidate Counties)

Under CFGC Section 4800, mountain lions in California are considered a "specially protected mammal," and are subject to special provisions under the California Fish and Game Commission. Approved sport hunting of mountain lions has not occurred in California since 1972, due to a series of legislative moratoria and lawsuits, though illegal hunting and trapping undoubtedly occur. Mountain lion is a candidate for state-listing under CESA in 14 counties (i.e., Alameda, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernardino, San Diego, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura). Even in the counties where mountain lion is not proposed for listing under CESA, CDFW policy changes have resulted in issuance of fewer permits for lethal depredation of mountain lions than during the baseline period for this EIR/EIS.

Cumulative anthropogenic mortality for the counties in which mountain lion is not a candidate for listing under CESA was assessed by adding all known and estimated anthropogenic mortality sources: Proposed Project/Proposed Action WDM take and other take under depredation permits, illegal hunter and trapper harvest, roadkill, and secondary poisoning from rodenticides (Appendix D). Total anthropogenic mortality was estimated by adding up all of the estimates above (3.8% of the statewide population) and adding that number to the maximum WDM lethal take under the Proposed Project/Proposed Action. Estimated cumulative anthropogenic mortality of mountain lions in California represents 4.9% of the statewide population and ranges from 0% to 8.9% of the populations within each county. The highest percentages of estimated cumulative take under the Proposed Project/Proposed Action are in El Dorado County at 8.9% (9.7 individuals per year of 108 estimated county population) and Yuba County at 7.5% (1.6 individuals per year of 21 estimated population). In both counties maximum WDM take under the Proposed Project/Proposed Action is low; the higher percentages in these counties are due to the low population estimates. All cumulative mortality estimates statewide and by county are below the 11% sustainable mortality threshold for mountain lion (Section 3.2.24 of Appendix D).

Habitat loss and human disruption also present substantial cumulative stressors to mountain lion but are not quantified in this analysis. The effects of climate change on mountain lions are often examined as an indirect effect, such as climate affecting the prey species which, in turn, modifies the range of mountain lions (White et al. 2020b). Stoner et al. (2018) demonstrated that there is a strong correlation between plant productivity and mountain lion density. A decrease in suitable habitat for prey disperses prey, which may cause mountain lions to increase their home ranges.

The mountain lion populations within counties not proposed for listing under CESA are considered stable or increasing. CDFW manages these populations through their issuance of depredation permits, which provides an

existing method to reduce mountain lion take if negative trends are observed in these populations over time. This impact is not considered cumulatively significant, and the Proposed Project/Proposed Action contribution is not cumulatively considerable.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

Summary of Proposed Project/Proposed Action Interactions with Climate Change Effects

Climate change refers to any significant change in physical measures of the environment, such as temperature, precipitation, sea level rise, hydrologic regimes, or wind patterns, which last for an extended period, decades or longer. Human activities that emit greenhouse gases (e.g., water vapor, carbon dioxide, methane) increase the amount of infrared radiation that gets absorbed before escaping into space, causing the Earth's surface temperature to rise. A warming of about 0.2 °C (0.36 °F) per decade is projected (CNRA 2018). Current and future climate change impacts to various resource areas are discussed in detail in Safeguarding California: Reducing Climate Risk (CNRA 2018).

Case et al. (2015) identified factors that may be used to assess a species' sensitivity to climate change, including (1) whether a species is a generalist or specialist, (2) physiology, (3) life-history, (4) dependence on sensitive habitats, (5) ability to disperse and barriers to dispersal, (6) dependance on disturbance regimes, (7) climate-dependent relationships, (8) non-climatic stressors, and (9) other factors. These variables were combined to formulate a "sensitivity score" for 195 species, including 12 target species evaluated in detail in the BTR (Appendix D). Case et al. (2015) stated that these factors do not speak to whether an animal is vulnerable to climate change effects, but they are relevant to explaining sensitivities to climate events. None of the target species were in the higher levels of sensitivity identified in the Case et al. (2015) analysis, with the highest sensitivity target species being acorn woodpecker (54), tricolored blackbird (53), black-crowned night heron (52), and sandhill crane (51). For reference, the lowest sensitivity score for the bird species evaluated in Case et al. (2015) was 21 and the highest was 71. The median sensitivity score was 52; these bird species cluster around that median. Further, tricolored blackbird and sandhill crane are not targets for lethal WDM activity.

A climate change vulnerability assessment was also conducted for 20 California mammal taxa (Stewart et al. 2016) but did not include any species evaluated in this EIR/EIS. A similar assessment for California birds (Gardali et al. 2012) ranked 358 avian taxa and identified 128 as vulnerable to climate change, including 3 evaluated in this EIR/EIS (Swainson's hawk, California brown pelican, and California least tern). Bateman et al. (2020) also evaluated the sensitivities of 544 bird species in the U.S. to climate change-related threats. Threats considered included sea level rise, increased urbanization, cropland expansion, spring heat and drought, increased fire weather, increased heavy rain, and increased "false springs." That analysis focuses on overlap of threats with species range and does not examine individual species vulnerabilities to those threats, limiting its utility in this analysis. In general, the species most threatened were those relying on coastal habitats where the most threats coincide. Target bird species were typically considered to have either low or neutral vulnerability to climate change across their range (Bateman et al. 2020). Exceptions included tricolored blackbird, which has medium or high vulnerability due to its dependence on marshlands, though other marshland-dependent species with larger populations such as sandhill crane were considered to have low vulnerability. Golden eagle was found to have a medium vulnerability due to potential effects from spring heat and wildfire. Least tern was found to have a high vulnerability due to sea level rise effects on coastal breeding habitats. Acorn woodpecker was found to have a medium-to-high vulnerability, largely due to increased risk of fire affecting woodland habitat.

In general, the species subject to lethal WDM under the Proposed Project/Proposed Action have broad environmental tolerances and are not anticipated to be highly sensitive to climate change based on those factors from Case et al. (2015). The impact of climate change on any species can range from detrimental to beneficial. Warm, wet conditions are expected to benefit some species (Hof et al. 2012). According to Pandey and Papes (2018), over the last 200 years, mesopredator ranges have expanded and they have adapted to human-modified, fragmented habitat. Under the four climate scenarios tested in the Case et al. (2015) study, most apex and mesopredators examined are likely to expand their ranges. Of the mesopredator species analyzed, only arctic foxes (*Vulpes lagopus*) and Canada lynx (*Lynx canadensis*) were predicted to experience range contraction. Of the apex predators, grizzly and polar bears were predicted to experience range contraction. Those species do not occur in California and would not be affected by Proposed Project/Proposed Action activities.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

4.2.2.4.4 Alternatives Impacts

A comparison of alternative impact conclusions is presented in Table 4.2.2-5.

BIO-1: Would the Alternative 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or County WDM would be established and no CDFA or County-led Emergency/Rapid Response activities would occur. Under Alternative 1, WS-California personnel would continue to carry out WDM activities under CSAs and for Threatened and Endangered Species protection projects as requested.

Under current conditions, WDM activities are conducted by WS-California in response to requests for assistance. Most of the activities affecting special-status wildlife species are non-lethal or result in the lethal take of a very small proportion of statewide populations. These activities are limited in area, short lived and/or temporary, and do not involve any permanent conversion of land, including habitat for special-status species. As Alternative 1 represents current conditions, there would be no impact relative to the baseline conditions. Under the Proposed Project/Proposed Action, CDFA/Counties could potentially carry out operational assistance (i.e., Rapid Response activities), but these activities would be limited in scope (geographically and species specific). Thus, the absence of the CDFA/Counties operational WDM activities would not result in a substantive change in impact severity related to special-status species and their habitat, and no impacts would occur under CEQA and not significant under. However, it is expected that some take of mountain lion could occur in areas where the species is a candidate for listing under CESA (described in Threshold BIO-1 for the Proposed Project/Proposed Action), and that take would be significant and unavoidable under CEQA.

CEQA Conclusion: *No impact.*

CEQA Conclusion if mountain lion is listed under CESA: *Significant and unavoidable.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Alternative 2 would be similar to the Proposed Project/Proposed Action; however, lethal operational WDM would only occur in cases to protect health and safety of humans (including airport wildlife hazard management [WHM]) and companion animals, and for T&E species protection. For threats to human and companion animal health or safety, the primary mammalian species of concern would be mountain lions, bears, or coyotes in residential areas, or disease vector species. The CDFA/Counties/WS-California would not use lethal methods to respond to other WDM requests (e.g., agricultural damage, property damage, and for protection of game species). Lethal operational WDM could be handled by other entities (including but not limited to tribes, USFWS, CDFW, private-resource owners, managers, and their private contractors). These entities may or may not adhere to safety precautions, BMPs, or federal, state, and/or local laws. Implementation of Alternative 2 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or legal authorization to carry out WDM like WS-California.

Because this alternative would limit the ability of the CDFA, Counties, and WS-California to manage wildlife damage to agriculture, there could be an increase in the potential for loss of agricultural resources which could increase costs and difficulties of agricultural operations. Although speculative, this potential increase in costs could lead to additional conversion of agricultural lands to non-agricultural use (e.g., urban development), resulting in habitat loss for special-status wildlife species that either forage, nest, or do both in agricultural habitats (e.g., Swainson's hawk, burrowing owl, tricolored blackbird). However, the CDFA/Counties/WS-California would continue to provide technical assistance (for both lethal and non-lethal WDM techniques) and non-lethal operational WDM assistance in response to wildlife damage to agriculture. While this alternative may have a slightly greater impact on special-status species habitat compared to the Proposed Project/Proposed Action, impacts would remain not significant under NEPA as these measures are already incorporated into WS-California's WDM and directives. Impacts under CEQA would generally be less than significant with implementation of MM-BIO-1, MM-BIO-2, MM-BIO-3, and MM-BIO-7. However, as with the Proposed Project/Proposed Action, the potential lethal WDM of mountain lion in counties where it is currently a candidate for listing under CESA would be significant and unavoidable under CEQA.

CEQA Conclusion: *Less than significant with mitigation.*

CEQA Conclusion if mountain lion is listed under the CESA: *Significant and unavoidable.*

NEPA Conclusion: *Not significant.*

Alternative 3: Non-Lethal Operational WDM

Alternative 3 would be similar to Alternative 2; however, only non-lethal operational WDM would be carried out by the CDFA/Counties/WS-California. Any lethal operational WDM would be handled by other entities. Implementation of Alternative 3 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California.

Similar to the discussion under Alternative 2, Alternative 3 would limit the ability of the CDFA, Counties, and WS-California to manage wildlife damage to agriculture which could increase costs and difficulties of agricultural

operations. Although speculative, this potential increase in costs could lead to additional land being converted to non-agricultural land uses that are unsuitable for some special-status wildlife species. This alternative may have a slightly greater impact compared to the Proposed Project/Proposed Action, Alternative 1, or Alternative 2, but this is highly speculative. Regardless, impacts to special-status species related to land conversion would remain less than significant.

Alternative 3 would remove the ability of the CDFA, Counties, and WS-California to use lethal WDM for T&E species protection. In areas where lethal predator removal is an important management tool for federally listed species (e.g., removing mammalian predators of California least tern nest colonies), lethal WDM would either not be conducted or conducted by entities that lack the authority and expertise to carry out WDM like WS-California. It is unknown whether additional take of target predators or other species could occur that would be more or less than that of the Proposed Project/Proposed Action because the actions of other entities cannot be predicted with any certainty. The potential effect on target species or special-status 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 Alternative 3 would avoid or substantially reduce the less than significant biological resources impacts of the Proposed Project/Proposed Action to special-status species, and benefits to special-status species from T&E species protection under the Proposed Project/Proposed Action may also be reduced. Impacts under CEQA would generally be less than significant with implementation of MM-BIO-1, MM-BIO-3, and MM-BIO-7, and impacts would be not significant under NEPA as these measures are already incorporated into WS-California's WDM and directives.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 4: Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative and includes cessation of WDM by WS-California. No WDM activities would be carried out by the CDFA/Counties/WS-California, though these agencies may provide technical assistance. All WDM would be handled by other entities. Implementation of Alternative 4 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California, and it is likely that some calls for service would go unaddressed. Alternative 4 is not available to WS-California. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

The addition of a financial reimbursement program could support eligible ranchers/livestock owners/agricultural operations and others with cost-share funds for infrastructure improvements, livestock protection animals, to offset maintenance costs of protection animals and for purchase of non-lethal WDM devices (e.g., alarms, lights, decoys). The efficacy of a financial reimbursement program would be limited by the individual program's scope and funding (which are unknown at this time). Alternative 4 could reduce impacts of agricultural loss and resultant potential conversion of agricultural habitat for some special-status species to non-agricultural use as compared to Alternatives 2, 3, and 5, but such effects are highly speculative. As such, impacts to most species would be less than significant.

Alternative 4 would remove the ability of the CDFA, Counties, and WS-California to use lethal or non-lethal WDM for T&E species protection. In areas where predator management is an important management tool for federally listed species (e.g., removing mammalian predators of California least tern nest colonies), lethal WDM would either not

be conducted or conducted by entities that lack the authority and expertise to carry out WDM like WS-California. It is unknown whether additional take of target predators or other species could occur that would be more or less than that of the Proposed Project/Proposed Action because the actions of other entities cannot be predicted with any certainty. The potential effect on target species or special-status 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 Alternative 4 would avoid or substantially reduce the less than significant biological resources impacts under CEQA of the Proposed Project/Proposed Action to special-status species, and benefits to special-status species from T&E species protection under the Proposed Project/Proposed Action may be reduced.

CEQA Conclusion: *Less than significant.*

Alternative 5: No Project/Cessation of WS-California

Alternative 5 would not establish or formalize a CDFA WDM Program in California. None of the technical or operational assistance with WDM methods described under the Proposed Project/Proposed Action, Alternative 1, 2, or 3 would be conducted by WS-California. Furthermore, financial reimbursements as described in Alternative 4 would not be provided. Under Alternative 5, potential WDM would be handled by other entities, including but not limited to tribes, USFWS, CDFW, Counties, private-resource owners and managers, private contractors, and/or other non-federal agencies.

Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California and it is likely that calls for service would go unaddressed. These other entities also may or may not adhere to safety precautions, BMPs, or federal state, and/or local laws.

Current WS-California activities and new activities under the Proposed Project/Proposed Action are intended to support existing agricultural uses and minimize the potential for agricultural loss and the conversion of Farmland. In the absence of WDM activities carried out by WS-California and the CDFA/Counties, including technical and operational WDM assistance, there would be an increase in the potential for agricultural loss due to wildlife damage to agriculture. In severe cases of wildlife damage, this could result in agricultural lands becoming less suitable for agricultural use and greater likelihood that lands would be converted to non-agricultural use (e.g., urban development) unsuitable for some special-status wildlife species. However, such effects are highly speculative. Potential impacts caused by other entities would be higher than under Alternatives 1–3 and similar to Alternative 4 but are still anticipated to not exceed sustainable mortality thresholds for species considered in this EIR/EIS. Because the lead agencies would not be involved in these activities, no impact would occur.

As with Alternatives 3 and 4, Alternative 5 would remove the ability of the CDFA, Counties, and WS-California to use lethal WDM for T&E species protection. In areas where predator management is an important management tool for federally listed species (e.g., removing mammalian predators of California least tern nest colonies), lethal WDM would either not be conducted or conducted by entities that lack the authority and expertise to carry out WDM like WS-California. It is unknown whether additional take of target predators or other species could occur that would be more or less than that of the Proposed Project/Proposed Action because the actions of other entities cannot be predicted with any certainty. The potential effect on target species or special-status 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 biological resources impacts of the Proposed Project/Proposed Action to special-status species, and benefits to special-status species from T&E species protection under the Proposed Project/Proposed Action may be reduced. Because the lead agencies would not be involved in these activities, no impact would occur under CEQA and NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

BIO-2: Would the Alternative have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or County WDM would be established and no CDFA or County-led Emergency/Rapid Response activities would occur. Under Alternative 1, WS-California personnel would continue to carry out WDM activities under CSAs and for Threatened and Endangered Species protection projects as requested.

These activities are limited in area, short lived and/or temporary, and do not involve any permanent conversion of land. Minor disturbance of vegetation communities from off-road vehicle use or placement of traps would be temporary and sited outside of sensitive communities. Lethal and non-lethal WDM of beaver and mule deer would affect a very small proportion of statewide populations and would therefore not interfere with the current ecosystem services provided by these species. Potential impacts to riparian habitat or other sensitive natural communities under Alternative 1 are expected to be similar to the Proposed Project/Proposed Action. Under the Proposed Project/Proposed Action, the CDFA/Counties could potentially carry out operational assistance, but these activities would be limited in scope. Thus, the absence of the CDFA/Counties operational WDM activities would not result in a substantive increase or change in impact severity related to riparian habitat and sensitive natural communities; no impacts would occur under CEQA, and no impact would occur under NEPA because this alternative represents continuation of baseline conditions.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Alternative 2 would be similar to the Proposed Project/Proposed Action and Alternative 1; however, lethal operational WDM would only occur in cases to protect human (including airport WHM) and companion animal health and safety, and for T&E species protection. The CDFA/Counties/WS-California would not use lethal methods to respond to other WDM requests (e.g., agricultural damage, property damage, and for game species). Lethal operational WDM could be handled by other entities that may or may not adhere to BMPs, or federal, state, and/or local laws. Implementation of Alternative 2 would likely increase lethal operational WDM activities by other entities in proportion to the reduction in services previously provided by WS-California. Since these other entities may not be aware of or adhere to BMPs or federal/state/local regulations protecting sensitive communities (including riparian habitat), additional impacts may occur than if such services were provided by the CDFA/Counties/WS-

California. However, such activities would still be limited in area, short-lived and/or temporary, and would not result in permanent land conversion. Thus, the absence of the CDFA/Counties/WS-California lethal operational WDM activities would not result in a substantive increase or change in impact severity related to riparian habitat and sensitive natural communities, and impacts would remain less than significant under CEQA and would be not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 3: Non-Lethal Operational WDM

Alternative 3 would be similar to the Alternative 2; however, only non-lethal operational WDM would be carried out by the CDFA/Counties/WS-California. Any lethal operational WDM would be handled by other entities. Implementation of Alternative 3 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California.

Similar to the discussion under Alternative 2, Alternative 3 would limit the ability of the CDFA, Counties, and WS-California to respond to requests for WDM. Implementation of Alternative 3 would likely increase lethal operational WDM activities by other entities in proportion to the reduction in services previously provided by WS-California. Since these other entities may not be aware of or adhere to BMPs or federal/state/local regulations protecting sensitive communities (including riparian habitat), additional impacts may occur than if such services were provided by the CDFA/Counties/WS-California. However, such activities would still be limited in area, short-lived and/or temporary, and would not permanently convert any land. Thus, the absence of the CDFA/Counties/ WS-California lethal operational WDM activities would not result in a substantial increase or change in impact severity related to riparian habitat and sensitive natural communities, and impacts would remain less than significant under CEQA and would be not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 4: Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative and includes cessation of WDM by WS-California. No WDM activities would be carried out by the CDFA/Counties/WS-California, though these agencies may provide technical assistance. All WDM would be handled by other entities. Implementation of Alternative 4 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California, and it is likely that some calls for service would go unaddressed. Alternative 4 is not available to WS-California. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

Similar to the discussion under Alternative 2, Alternative 4 would limit the ability of the CDFA, Counties, and WS-California to respond to requests for WDM. Implementation of Alternative 4 would likely increase lethal operational

WDM activities by other entities in proportion to the reduction in services previously provided by WS-California. Since these other entities may not be aware of or adhere to BMPs or federal/state/local regulations protecting sensitive communities (including riparian habitat), additional impacts may occur than if such services were provided by CDFA/Counties/WS-California. However, such activities would still be limited in area, short-lived and/or temporary, and would not permanently convert any land. Thus, the absence of the CDFA/Counties/WS-California lethal operational WDM activities would not result in a substantive increase or change in impact severity related to riparian habitat and sensitive natural communities, and impacts would remain less than significant under CEQA.

CEQA Conclusion: *Less than significant.*

Alternative 5: No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM by the CDFA or Counties. Unlike Alternative 4, no financial reimbursement program would be established to potentially reduce demand for WDM. WDM would still be implemented by other agencies and entities. Alternative 5 would mean WDM would be handled by other entities, who may or may not adhere to safety precautions, BMPs, or federal state, and/or local laws. Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California and it is likely that calls for service would go unaddressed.

However, WDM conducted by entities other than the Counties/CDFA/WS-California would still be limited in area, short-lived and/or temporary, and would not permanently convert any land. Thus, the absence of the CDFA/Counties/WS-California lethal operational WDM activities would not result in a substantive increase or change in impact severity related to riparian habitat and sensitive natural communities, and impacts would remain less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

BIO-3: Would the Alternative 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?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or County WDM would be established and no CDFA or County-led Emergency/Rapid Response activities would occur. Under Alternative 1, WS-California personnel would continue to carry out WDM activities under CSAs and for Threatened and Endangered Species protection projects as requested.

As stated for the Proposed Project/Proposed Action, WS-California is not authorized to, nor does it, conduct activities such as land development, construction, or soil or vegetation removal. The absence of the CDFA/Counties operational WDM activities would not result in a change in impact severity related to state or federally protected wetlands; there would be no impacts to wetlands under CEQA and impacts would be not significant under NEPA because this alternative represents continuation of baseline conditions.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Alternative 2 would be similar to the Proposed Project/Proposed Action; however, lethal operational WDM would only occur in cases to protect human (including airport WHM) and companion animal health and safety, and for T&E species protection. As stated for the Proposed Project/Proposed Action, WS-California is not authorized to, nor does it, conduct activities such as land development, construction, or soil or vegetation removal. WDM activities are limited in area, short-lived and/or temporary, and do not involve any permanent conversion of land. Minor disturbance of vegetation communities from off-road vehicle use or placement of traps would be temporary and sited outside of state and federally protected wetlands. Non-lethal WDM of beaver would affect a very small proportion of statewide populations and would therefore not interfere with the current ecosystem services provided by these species relative to state and federally protected wetlands. The absence of the CDFA/Counties operational WDM activities would not result in a change in impact severity related to state or federally protected wetlands and impacts would remain less than significant with mitigation (MM-BIO-3, Section 4.2.2.3.2), as described for the Proposed Project/Proposed Action under CEQA, and impacts would be not significant under NEPA as these measures are already incorporated into WS-California's WDM and directives.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 3: Non-Lethal Operational WDM

Alternative 3 would be similar to Alternative 2; however, only non-lethal operational WDM would be carried out by the CDFA/Counties/WS-California. As stated for the Proposed Project/Proposed Action, WS-California is not authorized to, nor does it, conduct activities such as land development, construction, or soil or vegetation removal. Minor disturbance of vegetation communities from off-road vehicle use or placement of traps would be temporary and sited outside of state and federally protected wetlands. Non-lethal WDM of beaver would affect a very small proportion of statewide populations and would therefore not interfere with the current ecosystem services provided by these species related to state and federally protected wetlands. The absence of lethal WDM would not result in a change in impact severity related to state or federally protected wetlands and impacts would remain less than significant with mitigation (MM-BIO-3, Section 4.2.2.3.2) under CEQA, as described for the Proposed Project/Proposed Action. Impacts under NEPA would be not significant as these measures are already incorporated into WS-California's WDM, though there is some potential for increased impacts to T&E species as compared to baseline conditions and to the Proposed Project/Proposed Action because WS-California would not use lethal WDM to protect those species.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 4: Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative and includes cessation of WDM by WS-California. No WDM activities would be carried out by the CDFA/Counties/WS-California, though these agencies may provide technical assistance. Activities such as land development, construction, or soil vegetation removal would not be

covered by financial reimbursements under this alternative. The absence of the CDFA/Counties/WS-California operational WDM activities would not result in a change in impact severity related to state or federally protected wetlands and there would continue to be no impact under CEQA. Alternative 4 is not available to WS-California. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

CEQA Conclusion: *No impact.*

Alternative 5: No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM by the CDFA or Counties. Activities such as land development, construction, or soil vegetation removal would not be provided under this alternative. Cessation of all CDFA/County/WS-California WDM activities would not result in a change in impact severity related to state or federally protected wetlands and there would continue to be no impact under CEQA and NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

BIO-4: Would the Alternative 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?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or County WDM would be established and no CDFA or County-led Emergency/Rapid Response activities would occur. Under Alternative 1, WS-California personnel would continue to carry out WDM activities under CSAs and for Threatened and Endangered Species protection projects as requested.

These activities are limited in area, short lived and/or temporary, and do not involve any large-scale fence installation that interfere substantially with wildlife movement or chronic noise exposure that would impede the use of native wildlife nursery sites resulting in population declines. Potential impacts to the movement of native species under Alternative 1 are expected to be the same as under the Proposed Project/Proposed Action. Under the Proposed Project/Proposed Action, the CDFA/Counties could potentially carry out operational assistance but these activities would be limited in scope. Thus, the absence of the CDFA/Counties operational WDM activities would not result in a substantive increase or change in impact severity related to wildlife movement, corridors, or nursery sites, and impacts would remain less than significant with mitigation (MM-BIO-4) under CEQA and not significant under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Alternative 2 would be similar to the Proposed Project/Proposed Action; however, lethal operational WDM would only occur in cases to protect human (including airport WHM) and companion animal health and safety, and for T&E

species protection. The CDFA/Counties/WS-California would not use lethal methods to respond to other WDM requests (e.g., agricultural damage, property damage, and for game species). Lethal operational WDM could be handled by other entities that may or may not adhere to BMPs, or federal, state, and/or local laws. Implementation of Alternative 2 would likely increase lethal operational WDM activities by other entities in proportion to the reduction in services previously provided by WS-California. Since these other entities may not be aware of or adhere to BMPs or federal/state/local regulations protecting wildlife movement or nursery sites, additional impacts may occur than if such services were provided by the CDFA/Counties/WS-California. However, such activities would still be limited in area, short-lived and/or temporary, and would not permanently convert any land. This alternative would not involve any large-scale fence installations that interfere substantially with wildlife movement or chronic noise exposure that would impede the use of native wildlife nursery sites resulting in population declines. Thus, cessation of the CDFA/Counties/WS-California lethal WDM activities would not result in a substantive increase or change in impact severity related to wildlife movement, corridors, or nursery sites, and impacts would remain less than significant with mitigation (MM-BIO-4) under CEQA and not significant under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 3: Non-Lethal Operational WDM

Alternative 3 would be similar to Alternative 2; however, only non-lethal operational WDM would be carried out by the CDFA/Counties/WS-California. Any lethal operational WDM would be handled by other entities. Implementation of Alternative 3 would likely increase lethal operational WDM activities by other entities in proportion to the reduction in services previously provided by WS-California. Since these other entities may not be aware of or adhere to BMPs or federal/state/local regulations protecting wildlife movement or nursery sites, additional impacts may occur than if such services were provided by the CDFA/Counties/WS-California. However, such activities would still be limited in area, short-lived and/or temporary, and would not permanently convert any land. This alternative would not involve any large-scale fence installations that interfere substantially with wildlife movement or chronic noise exposure that would impede the use of native wildlife nursery sites resulting in population declines. Thus, cessation of the CDFA/Counties/WS-California lethal WDM activities would not result in a substantive increase or change in impact severity related to wildlife movement, corridors, or nursery sites, and impacts would remain less than significant with mitigation (MMBIO-4) under CEQA and not significant under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 4: Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative and includes cessation of WDM by WS-California. No WDM activities would be carried out by the CDFA/Counties/WS-California, though these agencies may provide technical assistance. All WDM would be handled by other entities. Implementation of Alternative 4 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California, and it is likely

that some calls for service would go unaddressed. Alternative 4 is not available to WS-California. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

Implementation of Alternative 4 would likely increase lethal operational WDM activities by other entities in proportion to the reduction in services previously provided by WS-California. Since these other entities may not be aware of or adhere to BMPs or federal/state/local regulations protecting wildlife movement or nursery sites, additional impacts may occur than if such services were provided by the CDFA/Counties/WS-California. However, such activities would still be limited in area, short-lived and/or temporary, and would not permanently convert any land. This alternative would include reimbursement to landowners for installation of fencing to deter wildlife damage, which could lead to increased linear feet of fencing when compared to the Proposed Project/Proposed Action and Alternative 1. However, it is not expected that such increases in fencing would be substantial enough to result in significant impacts to wildlife movement or corridors. Thus, cessation of the CDFA/Counties/WS-California WDM activities and creation of the financial reimbursement assistance program would not result in a substantive increase or change in impact severity related to wildlife movement, corridors, or nursery sites, and impacts would remain less than significant under CEQA.

CEQA Conclusion: *Less than significant.*

Alternative 5: No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM by the CDFA or Counties. Unlike Alternative 4, no financial reimbursement program would be established to potentially reduce demand for WDM. WDM would still be implemented by other agencies and entities. Alternative 5 would mean WDM would be handled by other entities, who may or may not adhere to safety precautions, BMPs, or federal state, and/or local laws. Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California and it is likely that calls for service would go unaddressed.

In addition, these other entities may not be aware of or adhere to BMPs or federal/state/local regulations protecting wildlife movement or nursery sites, and additional impacts may occur than if such services were provided by the CDFA/Counties/WS-California. However, such activities would still be limited in area, short-lived and/or temporary, and would not permanently convert any land. This alternative would not involve any large-scale fence installations that interfere substantially with wildlife movement or chronic noise exposure that would impede the use of native wildlife nursery sites resulting in population declines. Thus, cessation of the CDFA/Counties/WS-California WDM activities would not result in a substantive increase or change in impact severity related to wildlife movement, corridors, or nursery sites, and impacts would remain less than significant under CEQA, and no impact would occur under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *No impact.*

BIO-5: Would the Alternative conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or County WDM would be established and no CDFA or County-led Emergency/Rapid Response activities would occur. Under Alternative 1, WS-California personnel would continue to carry out WDM activities under CSAs and for Threatened and Endangered Species protection projects as requested.

No trees are removed during these activities and compliance with local policies or ordinances would continue to be the responsibility of the local entity conducting or requesting WDM. Therefore, there would be no impact under CEQA and no impact under NEPA as these measures are already incorporated into WS-California's WDM and directives.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Alternative 2 would be similar to the Proposed Project/Proposed Action; however, operational WDM would only occur in cases to protect human (including airport WHM) and companion animal health and safety, and for T&E species protection. No trees are removed during these activities and compliance with local policies or ordinances would continue to be the responsibility of the local entity conducting or requesting WDM. Therefore, impacts would be less than significant with mitigation under CEQA (MM-BIO-5), as described for the Proposed Project/Proposed Action. No impact would occur under NEPA as these measures are already incorporated into WS-California's WDM and directives.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *No impact.*

Alternative 3: Non-Lethal Operational WDM

Alternative 3 would be similar to Alternative 2; however, only non-lethal operational WDM would be carried out by the CDFA/Counties/WS-California. No trees are removed during these activities and compliance with local policies or ordinances would continue to be the responsibility of the local entity conducting or requesting WDM. Therefore, impacts would be less than significant with mitigation under CEQA (MM-BIO-5), as described for the Proposed Project/Proposed Action. No impact would occur under NEPA as these measures are already incorporated into WS-California's WDM and directives.

CEQA Conclusion: *Less than significant with mitigation*

NEPA Conclusion: *No impact.*

Alternative 4: Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative in which all WDM would be conducted by entities other than the CDFA/Counties/WS-California (e.g., private landowners). The removal of trees would not be

reimbursed under this alternative. Compliance with local policies or ordinances would be the responsibility of those entities. Therefore, there would be no impact under CEQA. Alternative 4 is not available to WS-California. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

CEQA Conclusion: *No impact.*

Alternative 5: No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM by the CDFA or Counties. No trees would be removed under this alternative. WDM would still be implemented by other agencies and entities. Compliance with local policies or ordinances would be the responsibility of those entities. Therefore, there would be no impact under CEQA and NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

BIO-6: Would the Alternative conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or County WDM would be established, and no CDFA or County-led Emergency/Rapid Response activities would occur. Under Alternative 1, WS-California personnel would continue to carry out WDM activities under CSAs and for T&E species protection projects as requested. WDM actions under Alternative 1 represents current conditions, there would be no impact relative to the baseline conditions; thus, no impacts are anticipated under NEPA. There would be no change from the baseline condition, and therefore no impact would occur under CEQA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Alternative 2 would be similar to the Proposed Project/Proposed Action; however, operational WDM by WS-California or the CDFA/Counties would only occur in cases to protect human (including airport WHM) and companion animal health and safety, and for T&E species protection. This would represent a reduction in WDM activity as compared to baseline conditions and the Proposed Project/Proposed Action. Impacts would be less than significant with mitigation (MM-BIO-6) under CEQA. No impact would occur under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation*

NEPA Conclusion: *No impact.*

Alternative 3: Non-Lethal Operational WDM

Alternative 3 would be similar to Alternative 2; however, only non-lethal operational WDM would be carried out by the CDFA/Counties/WS-California. By restricting the ability of WS-California and county wildlife specialists to conduct lethal WDM, some WDM that benefits T&E species may not be feasible. However, this alternative would represent a reduction in overall WDM activity as compared to baseline conditions and the Proposed Project/Proposed Action. Impacts would be less than significant with mitigation (MM-BIO-6) under CEQA, as described for the Proposed Project/Proposed Action. No impact would occur under NEPA as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion: *Less than significant with mitigation*

NEPA Conclusion: *No impact.*

Alternative 4: Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative in which all WDM would be conducted by entities other than the CDFA/Counties/WS-California (e.g., private landowners). Any potential conflicts with HCPs, NCCPs, or other approved conservation plans related to WDM activities would be the responsibility of those entities. Therefore, no impact would occur under CEQA. Alternative 4 is not available to WS-California. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

CEQA Conclusion: *No impact.*

Alternative 5: No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM. WDM would still be implemented by other agencies and entities. Any potential conflicts with HCPs, NCCPs, or other approved conservation plans related to WDM activities would be the responsibility of those entities. Therefore, no impact would occur under CEQA and NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No impact.*

BIO-7: Would the Alternative cause a substantial adverse effect to populations of non-special status wildlife or plant species, especially if those effects could result in substantial ecosystem changes?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or County WDM would be established and no CDFA or County-led Emergency/Rapid Response activities would occur. Under Alternative 1, WS-California personnel would continue to carry out WDM activities under CSAs and for Threatened and Endangered Species protection projects as requested.

WDM activities conducted during the baseline period (Appendix D) would continue and would remain under sustainable mortality thresholds relative to statewide and/or county population estimates. Under the Proposed Project/Proposed Action, the CDFA/Counties could potentially carry out operational assistance including lethal and non-lethal WDM, but these activities would be limited in scope. Thus, the absence of the CDFA/Counties operational

WDM activities under Alternative 1 would not result in a substantive increase or change in impact severity related to non-special-status species, and impacts would remain not significant under NEPA. No impact would occur under CEQA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Alternative 2 would be similar to the Proposed Project/Proposed Action; however, lethal WDM would only occur in cases to protect human (including airport WHM) and companion animal health and safety, and for T&E species protection. Lethal WDM of non-special-status species including non-native or feral species would continue to occur but would be conducted by other entities, who may or may not adhere to safety precautions, BMPs, or federal state, and/or local laws. Alternative 2 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California and it is likely that calls for service would go unaddressed. It is possible that this alternative would result in reduced levels of WDM of non-special-status species, but that is speculative as the future capacity of other entities to conduct lethal WDM is unknown. Take of unprotected mammals by private individuals or their agent is not required to be reported to CDFW or other agencies, resulting in underreporting as compared to the Proposed Project/Proposed Action. Impacts to non-special-status species may be reduced as compared to the Proposed Project/Proposed Action and would remain less than significant or less than significant with mitigation (MM-BIO-7) under CEQA depending on the species, as described for the Proposed Project/Proposed Action. Impacts under NEPA would be not significant as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion (Plants and other Wildlife): *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 3: Non-Lethal Operational WDM

Alternative 3 would be similar to the Proposed Project/Proposed Action; however, only non-lethal operational WDM would be carried out by the CDFA/Counties/WS-California. Lethal WDM of non-special-status species including non-native or feral species would continue to occur but would be conducted by other entities, who may or may not adhere to safety precautions, BMPs, or federal state, and/or local laws. Alternative 2 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California and it is likely that calls for service would go unaddressed. It is likely that this alternative would result in reduced levels of lethal WDM of non-special-status species due to the reduced capacity of private landowners to conduct WDM, but the extent of that reduction is speculative as the future capacity of other entities to conduct lethal WDM is unknown. Take of unprotected mammals by private individuals or their agent is not required to be reported to CDFW or other agencies, resulting in underreporting as compared to the Proposed Project/Proposed Action. Impacts to non-special-status species may be reduced as compared to the Proposed Project/Proposed Action and would remain less than significant or less than significant with mitigation (MM-BIO-7) under CEQA, as described for the Proposed Project/Proposed

Action. Impacts under NEPA would be not significant as these measures are already incorporated into WS-California's WDM.

CEQA Conclusion (Plants and other Wildlife): *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 4: Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative in which all WDM would be conducted by entities other than the CDFA/Counties/WS-California (e.g., private landowners). It is likely that this alternative would result in reduced levels of lethal WDM of non-special-status species due to the reduced capacity of private landowners to conduct WDM, but the extent of that reduction is speculative. Take of unprotected mammals by private individuals or their agent is not required to be reported to CDFW or other agencies, resulting in underreporting as compared to the Proposed Project/Proposed Action. Impacts to non-special-status species may be reduced as compared to the Proposed Project/Proposed Action and would remain less than significant. Alternative 4 is not available to WS-California. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

CEQA Conclusion: *Less than significant.*

Alternative 5: No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM by the CDFA or the Counties. WDM would still be implemented by other agencies and entities. It is likely that this alternative would result in reduced levels of lethal WDM of non-special-status species due to the reduced capacity of private landowners to conduct WDM, but the extent of that reduction is speculative. Take of unprotected mammals by private individuals or their agent is not required to be reported to CDFW or other agencies, resulting in underreporting as compared to the Proposed Project/Proposed Action. Impacts to non-special-status species may be reduced as compared to the Proposed Project/Proposed Action and would remain less than significant impacts under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Table 4.2.2-5. Comparison of Impacts from the Proposed Project/Proposed Action and Alternatives

	Proposed Project/Proposed Action		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5	
Significance Threshold	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA	NEPA	CEQA
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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	NS	LTS or LTS/M for all species (Scenario 1) or LTS or LTS/M for all species except mountain lion, mountain lion SU (Scenario 2)[a]	NI	LTS for all species (Scenario 1) or LTS for all species except mountain lion, mountain lion SU (Scenario 2)[a]	NS	LTS or LTS/M for all species (Scenario 1) or LTS or LTS/M for all species except mountain lion, mountain lion SU (Scenario 2)[a]	NS	LTS or LTS/M depending on species	NA	LTS	NI	NI
Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	NS	LTS	NI	LTS	NS	LTS	NS	LTS	NA	LTS	NS	LTS
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.	NS	LTS/M	NS	LTS	NS	LTS/M	NS	LTS/M	NA	NI	NI	NI
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.	NS	LTS/M	NS	LTS/M	NS	LTS/M	NS	LTS/M	NA	LTS	NI	LTS
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	NI	LTS/M	NI	NI	NI	LTS/M	NI	LTS/M	NA	NI	NI	NI
Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	NI	LTS/M	NI	NI	NI	LTS/M	NI	LTS/M	NA	NI	NI	NI
Cause a substantial adverse effect to populations of non-special status wildlife or plant species, especially if those effects could result in substantial ecosystem changes.	NS	LTS or LTS/M depending on species	NS	NI	NS	LTS or LTS/M depending on species	NS	LTS or LTS/M depending on species	NA	LTS	NS	LTS

Notes: NEPA: NI = no impact; NS = Not Significant; S = Significant; NA = not applicable. CEQA: NI = no impact; LTS = less than significant; SU = significant and unavoidable; LTS/M = less than significant with mitigation incorporated

[a] Refer to Threshold BIO-1 regarding the two potential scenarios for mountain lion in California – (1) the species does become listed under CESA, and (2) the species does not become listed under CESA in candidate counties.

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4.2.3 Tribal Cultural Resources (Concerns of Indian Tribes)

This section discusses tribal cultural resources (TCRs) conditions of the State of California; it identifies associated regulatory requirements, summarizes consultation with Native American tribes and designated contacts, evaluates potential impacts, and identifies mitigation measures related to implementation of the Proposed Project/Proposed Action.

Activities within this framework would be carried out by the California Department of Food and Agriculture (CDFA), the California Counties (Counties), and/or Wildlife Services (WS-California), a state office within the U.S. Department of Agriculture's Animal Plant and Health Inspection Service, with collaboration and consultation from local, private, state, tribal, and federal entities. The environmental impact report (EIR)/environmental impact statement (EIS) for the Proposed Project/Proposed Action is focused on managing damage from wildlife species associated with the protection of agriculture, property, human health and safety, and threatened and endangered species. The list of potential wildlife damage management (WDM) activities and methods is included in Appendix C of this EIR/EIS. Assistance with wildlife conflicts could be requested from anywhere within the state; as such, no specific locations for Proposed Project/Proposed Action implementation have been defined at this time. While WDM could occur anywhere within the state, the proposed activities would occur only at the request of the land/resource owner or manager and on limited portion of the lands within California. No WDM activities by the CDFA, Counties, and/or WS-California would be conducted on tribally managed lands without a specific request from the tribe. If WDM is requested on tribally managed lands, the tribal government, the tribal wildlife management entity, and/or the Bureau of Indian Affairs have the authority to determine the methodology used. As described in Section 4.2.2, Biological Resources, the proportion of individual target wildlife removed through WDM activities described as part of the Proposed Project/Proposed Action would be small in comparison to their overall populations.

No earth-disturbing activities or permanent installation of equipment is proposed under the Proposed Project/Proposed Action. For this reason, the potential for affecting TCRs, as defined by California Public Resources Code, Section 21074(a), or cultural resources/historic properties, including both archaeological and historic built environment resources, is very low. In order to ensure compliance with regulatory requirements, government-to-government consultation or other engagement pursuant to Assembly Bill (AB) 52, Section 106 of the National Historic Preservation Act, and National Environmental Policy Act (NEPA) has been completed. All Native American tribal contacts, both federal and state recognized, on file with the California Native American Heritage Commission (NAHC) with traditional cultural affiliation to the Proposed Project/Proposed Action area were contacted in order to further assess potential effects to TCRs.

Native American tribes in the United States are sovereign nations and generally have the authority to manage wildlife and habitat on tribally managed lands as defined in treaties between the U.S. government and the tribes. Native American tribes have a unique cultural and spiritual relationship with wildlife and native ecosystems. The exact nature of the relationship varies among tribes, groups, and families and individuals within tribes. Native American tribes in California use natural resources for food, income, and cultural practices. Tribal members may also derive income from providing guide services. Actions that substantially impact wildlife species population density and distribution have the potential to adversely affect tribal members spiritually, culturally, and economically. Tribal members may also be concerned that wildlife removal could potentially result in impacts to ecosystems that impact other species and plants valued by tribal members.

4.2.3.1 Existing Conditions

A project with an effect that may cause a substantial adverse change in the significance of a TCR (as defined by California Public Resources Code, Section 21074) and/or resources of Native American traditional religious and cultural importance, as defined under NEPA and Section 106 of the National Historic Preservation Act, is a project that may have a significant effect on the environment. An appropriate approach to potential impacts to tribal resources is developed in response to the identified presence of such resources by California Native American tribes through the process of consultation.

The following section provides a summary of government-to-government consultation, as supported by Dudek. Consultation was intended to meet best practice standards, acting in good faith and extending a reasonable effort.

4.2.3.1.1 Consultation

Information pertaining to TCRs is held by California Native American tribes. As such, the initial consultation process was to request a list of Native American tribal contacts, both federal and state recognized, on file with the NAHC. In order to ensure that the tribes had the opportunity to provide comment, the CDFA, as supported by Dudek, then contacted all NAHC-listed tribal contacts through a series of letters, emails, and calls. All letters were addressed from the CDFA with a designated agency contact and with Dudek personnel as secondary contacts. Federally recognized tribes were also provided with an option to consult under Section 106 of the National Historic Preservation Act. Letters provided Proposed Project/Proposed Action details, regulatory requirements, and requested timelines for review and response. For tribal contacts who did respond to these initial letter notifications, they were contacted by Dudek personnel acknowledging their request to consult, their declining of additional outreach, or their request for additional clarification about the Proposed Project/Proposed Action. Follow-up emails and calls were also components of the outreach process.

Below is an overview of Native American tribal outreach pertaining to the development of this EIS/EIR. Communication records are included in Appendix E of this EIR/EIS. Within this appendix, the table within Attachment A contains the initial contact list provided by the NAHC. Table 1 of Appendix E includes a summary record of responses. Attachment D includes representative samples of the letters sent to Native American contacts. Attachment E is the phone script that was developed for follow-up contact with tribes.

A list containing 198 Native American contacts was provided by the NAHC on September 14, 2020. This list included physical addresses, telephone numbers, and email addresses used to contact the tribal representatives. All individuals were mailed formal AB 52 project notification letters via U.S. Postal Service Certified Mail on September 22, 2020. Individuals were requested to respond with any comments, concerns, or requests for consultation within 30 days of receipt of the letter. A Certified Mail Receipt was requested for each letter. For those tribal representatives who did not respond, or in cases where the letter was undeliverable or a Certified Mail Receipt was not returned, Dudek emailed follow-up AB 52 letters on February 22, 2021, to those tribes with provided emails. Recipients were provided an additional 30 days to respond.

Near the end of the 30-day response period for this follow-up communication, Dudek called all NAHC-listed contacts with provided telephone numbers that had yet to respond (March 19 through March 23, 2021). A phone script was developed and approved by the CDFA to ensure consistency with outreach and the overall Program description. On March 30, 2021, Dudek re-sent letters via email to those who indicated during calls that they had a new contact or an updated email address. Additional research for those contacts that were undeliverable (incorrect or missing physical address or email) was conducted and on April 7, 2021, Dudek re-sent AB 52 notification letters via U.S.

Postal Service Certified Mail, providing another 30 days to respond. Additional follow-up by phone was completed with Rincon Band of Mission Indians (May 11, 2021) and Washoe Tribe of California and Nevada (May 18, 2021) to confirm if consultation was desired. Tribes expressing interest in consultation calls or informational calls were invited to schedule online meetings via Zoom.

In total, 21 tribes responded to outreach letters, emails, and phone calls. Of these, six tribes requested consultation pursuant to AB 52. Six additional tribes did not request formal consultation but expressed interest in an informational call regarding the Proposed Project/Proposed Action process and implementation. These 12 tribes were invited to schedule either a consultation call or informational call via Zoom. Three tribes scheduled a consultation call and two tribes scheduled an informational call. The CDFA and WS-California agency representatives were present during these Zoom video conference meetings. WS-California's consultation obligations pursuant to federal regulatory requirements extend to federally recognized tribes on this list. Of those tribes who did not request consultation or informational calls, one tribe indicated that they would like to review the EIR/EIS when the draft document is circulated, one tribe indicated they would like to be contacted in the event of an inadvertent discovery of Native American artifacts, one tribe indicated they would like to be contacted if WDM activities result in furs or materials that would be of use to the tribe, and seven tribes indicated that no additional contact would be required. A full summary of tribal responses, communications, and consultations can be found in the tribal report (Appendix E).

4.2.3.2 Relevant Laws, Policies, and Ordinances

Relevant laws, policies, ordinances, plans, and executive orders related to tribal and cultural resources are located in Appendix B.

4.2.3.3 Adverse Effects/Thresholds of Significance

Under NEPA, the level of an effect must consider the context and intensity of the environmental effect and if the corresponding impact results in an adverse effect. For the purposes of the analysis, an adverse effect under NEPA would occur if the Proposed Project/Proposed Action would:

Directly, indirectly, or cumulatively result in adverse effects on tribal cultural resources.

The significance criteria used to evaluate potential Proposed Project/Proposed Action impacts to TCRs under state and local regulations are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to TCRs would occur if the Proposed Project/Proposed Action would:

1. Cause a substantial adverse change in the significance of a tribal cultural resource as defined above; or
2. Cause an adverse effect to a traditional cultural property, landscape, or other resource of Native American traditional religious or cultural importance, as defined above.

4.2.3.4 Impacts Analysis

This section uses the below terminology adapted from Section 4.1.4, Impact/Effect Terminology, to describe the effects of the Proposed Project/Proposed Action on resources under CEQA (i.e., CEQA Conclusion) and on the ecological aspects of the human environment (i.e., natural resources and components, structures, and functioning of affected ecosystems) under NEPA (i.e., NEPA Conclusion).

CEQA Conclusions

- **No Impact:** The Proposed Project/Proposed Action would not affect the resource or topic and would not change the environmental baseline. (NI)
- **Less than Significant:** The Proposed Project/Proposed Action would not result in a substantial adverse change in the resource or topic, and no mitigation is needed. (LTS)
- **Less than Significant with Mitigation:** The Proposed Project/Proposed Action would not result in a substantial adverse change in the resource or topic if mitigation is incorporated. (LTS/M)
- **Significant and Unavoidable:** The Proposed Project/Proposed Action could result in a substantial adverse impact on the resource or topic and the impact would remain significant after application of all feasible mitigation measures. (SU)
- **Less than Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is not considered cumulative and significant. (LCC)
- **Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is considered cumulative and significant. (CC)
- **Beneficial:** The Proposed Project/Proposed Action would result in an increase in the quality of the resource. (B)

NEPA Conclusions

- **No Impact:** The Proposed Project/Proposed Action would not affect ecological aspects of the human environment. (NI)
- **Not Significant:** The Proposed Project/Proposed Action would not substantially affect ecological aspects of the human environment. (NS)
- **Significant:** The Proposed Project/Proposed Action would substantially affect ecological aspects of the human environment. (S)

4.2.3.4.1 Proposed Project/Proposed Action Impacts

TCR-1: Would the Proposed Project/Proposed Action cause a substantial adverse change in the significance of a tribal cultural resource as defined above?

TCR-2: Would the Proposed Project/Proposed Action cause an adverse effect to a traditional cultural property, landscape, or other resource of Native American traditional religious or cultural importance, as defined above?

Under the Proposed Project/Proposed Action, the CDFA would have a new role in statewide activities. The CDFA and the Counties would have the opportunity to formalize a program that provides an adaptive and integrated approach, cooperator/requestor participation, technical assistance on lethal and non-lethal techniques, and/or lethal and non-lethal operational WDM assistance that is similar to WS-California's existing WDM activities. Under the Proposed Project/Proposed Action, WS-California would continue to provide technical assistance on lethal and non-lethal WDM techniques and/or provide lethal and non-lethal operational WDM assistance as described in their Cooperative Service Agreements. This would include threatened and endangered species protection and wildlife hazard management at airports. The Proposed Project/Proposed Action will utilize an integrated WDM approach to address high-risk wildlife damage situations calling for immediate treatment activities (i.e., rapid response). Refer to Section 3.7.1 of this EIR/EIS for additional details of the Proposed Project/Proposed Action.

Consultation with California Native American tribes has not indicated that Proposed Project/Proposed Action activities are likely to result in impacts to specific TCRs. Proposed Project/Proposed Action activities would not involve ground disturbance, nor would they include permanent installation of equipment. Activities occurring on tribally managed lands would occur at the request of that tribe and, as such, tribes would be informed before WDM activities began.

Additionally, Proposed Project/Proposed Action activities would not significantly impact wildlife populations (see Section 4.2.2 of this EIS/EIR for detailed analysis). Given that the Proposed Project/Proposed Action is focused on a process involving pre-defined activities by multiple agencies that occur at the request of land/resource owners or managers, it is possible that activities could intersect areas understood to be TCRs. Also, the definition of TCRs includes a broad range of natural, environmental, and cultural features, the location, type, and significance of which are assigned by tribes.

With these considerations in mind, Proposed Project/Proposed Action activities could result in temporary auditory or visual impacts or occur in proximity to culturally important places; however, the activities would not cause a permanent substantive adverse change in the significance of any TCRs (see Section 4.2.6, Noise, of this EIR/EIS for detailed analysis). As such, the Counties, WS-California, and the CDFA would maintain contact with the tribes and provide annual reporting of Proposed Project/Proposed Action activities, if requested in the consultation process. The traditional geographic area for these tribes, as well as current tribal contacts, would be on file with the respective county governments due to the regular occurrence of tribal notification related to AB 52; in the event that this information is not known, a request should be sent to the NAHC.

The analysis under NEPA indicates that there are no significant direct, indirect, or cumulative impacts associated with the Proposed Project/Proposed Action as it relates to TCRs and the analysis under CEQA concludes that impacts associated with the Proposed Project/Proposed Action as it relates to TCRs would be less than significant with mitigation. Mitigation measures are discussed below.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

4.2.3.4.2 Mitigation Measures

As part of their data management role for the Proposed Project/Proposed Action, the CDFA shall refer to Appendix E, Ongoing Tribal Coordination Table, for a list of tribes that have requested activity summaries, their contact information, and other tribe-specific preferences. These tribes would be furnished with summary information on Proposed Project/Proposed Action activities as specified in the Mitigation Measure (MM) TCR-1:

MM-TCR-1 Consulting tribes that have so requested shall be provided with an annual summary of wildlife damage management (WDM) activities that occurred within the counties identified as their tribal cultural resource/tribal cultural place. Consulting tribes shall be provided a reasonable opportunity to review the Proposed Project/Proposed Action activities, review the location of activity implementation on public lands, and provide comment with regard to potential impacts to tribal cultural resources or other resources of Native American cultural value. In the event that a potential resource is identified by a consulting tribe that might be affected, the responsible county government, the CDFA, and/or WS-California shall work with the traditionally culturally affiliated tribe(s) to develop a reasonable and feasible strategy to ensure activities avoid, minimize, or

otherwise appropriately mitigate impacts. In the event that an agreed strategy cannot be developed, counties, the CDFA, and/or WS-California would make the ultimate determination, ensuring compliance with local, state, and federal regulatory conditions.

4.2.3.4.3 Proposed Project/Proposed Action Cumulative Impacts

While comments were initially received from tribes indicating some concern over how wildlife would be cumulatively affected, through consultation it was agreed that Proposed Project/Proposed Action WDM activities were intended to improve the overall natural environment (refer to Section 4.2.2, Biological Resources). No cumulative impacts to tribal cultural values associated with the broader environmental landscapes are anticipated as a result of Proposed Project/Proposed Action activities. The Proposed Project/Proposed Action, as designed, does not involve earth-disturbing activities, permanent installation of equipment, or significant reductions in native wildlife species populations. Based on this knowledge and having received no indication through consultation that known TCRs or resources of Native American cultural value would be cumulatively impacted through implementation of the Proposed Project/Proposed Action, the Proposed Project/Proposed Action would not cumulatively contribute to a significant impact associated with TCRs and therefore would have no adverse effect; impacts would be less than cumulatively considerable.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

4.2.3.4.4 Alternatives Impacts

TCR-1: Would the Proposed Project/Proposed Action cause a substantial adverse change in the significance of a tribal cultural resource as defined above?

TCR-2: Would the Proposed Project/Proposed Action cause an adverse effect to a traditional cultural property, landscape, or other resource of Native American traditional religious or cultural importance, as defined above?

Alternative 1: No Project/Continuation of WS-California

As described above, consultation with California Native American tribes was conducted. WS-California and Counties do not conduct any WDM activities that result in earth disturbance. While there are existing WS-California and county WDM activities that could result in temporary auditory or visual impacts or occur in proximity to culturally important places, the activities would not cause a permanent substantive adverse change in the significance of any TCRs. Under Alternative 1, there would not be an increase or change to WDM activities compared to existing conditions; therefore, there would be no impact.

As this alternative describes existing WS-California WDM, there would be no significant direct, indirect, or cumulative impacts associated with Alternative 1.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

As described in Section 4.2.3.1.1, Consultation, consultation with California Native American tribes was conducted. As part of the consultation process, some tribes requested to be provided with an annual summary of WDM that occurred in counties identified within their TCR/Tribal Cultural Place. This was incorporated as a mitigation measure (MM-TCR-1). WS-California does not conduct any WDM activities that result in earth disturbance. While WDM activities to preserve human, companion animal, and/or threatened and endangered species life could result in temporary auditory or visual impacts or occur in proximity to culturally important places, the activities would not cause a permanent substantive adverse change in the significance of any TCRs. Under Alternative 2 there would not be a substantial increase or change to WDM activities compared to existing conditions; therefore, the impacts would be less than significant with mitigation.

Under Alternative 2, there would be no significant physical impacts to culturally important places or permanent substantive adverse changes in the significance of any TCRs; however, there would be a reduced opportunity for individual counties to partner with the CDFA and/or WS-California to participate in emergency/rapid response activities, except for those related to human or companion animal health and safety, threatened and endangered species protection, and airport wildlife hazard management. Under this alternative, WS-California may not be able to meet its legal obligations to protect American agriculture without lethal WDM and it would not meet its mission to respond to all requests for assistance. There are no significant direct, indirect, or cumulative impacts anticipated to be associated with Alternative 2.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 3. Non-Lethal Operational WDM

As described in Section 4.2.3.1.1, consultation with California Native American tribes was conducted. As part of the consultation process, some tribes requested to be provided with an annual summary of WDM that occurred in counties identified within their TCRs/traditional cultural properties (TCPs). This was incorporated as a mitigation measure (MM-TCR-1).

Under this alternative, California Native American tribes would need to rely on other entities, besides the CDFA and WS-California, to conduct lethal WDM if non-lethal WDM fails. Also, threatened and endangered species protection would not be available from the CDFA and WS-California. Tribes would need to seek that protect from other entities. Also, airports on tribally managed lands would not be able to use the services of the CDFA or WS-California to protect their airports from wildlife hazards. WS-California is federally funded, which makes it more affordable for tribes to obtain WDM services to protect their lands and resources.

WS-California does not conduct any WDM activities that result in earth disturbance. Non-lethal operational WDM activities are not anticipated to result in impacts to culturally important places or cause permanent substantive adverse changes in the significance of any TCRs. Under Alternative 3 there would not be a substantial increase or change in WDM activities compared to existing conditions; therefore, the impacts would be less than significant with mitigation.

Under Alternative 3, there would be no significant physical impacts to culturally important places or permanent substantive adverse changes in the significance of any TCRs; tribes would need to rely on other entities for lethal

WDM activities. Under this alternative, WS-California may not be able to meet its legal obligations to protect American agriculture without lethal WDM and it would not meet its mission to respond to all requests for assistance. There are no significant direct, indirect, or cumulative impacts associated with Alternative 3.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Alternative 4 is a financial reimbursement assistance alternative. No WDM activities would be carried out by the CDFA/Counties/WS-California. All WDM would be handled by other entities or other governmental agencies. Alternative 4 would likely increase operational WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Implementation of Alternative 4 is not available to WS-California, therefore NEPA based analysis and impact determination is not warranted (see Chapter 3 Section 3.8.4: Financial Reimbursement Assistance).

As described in Section 4.2.3.1.1, consultation with California Native American tribes was conducted. As part of the consultation process, some tribes requested to be provided with an annual summary of WDM that occurred in counties identified within their TCRs. This was incorporated as a mitigation measure (MM-TCR-1).

Reimbursement for a verified loss of livestock or poultry due to predation, installation of protective measures such as fences or scare devices, or purchase of protection animals to address predation would not cause a permanent substantive adverse change in the significance of any TCRs. Because there would not be an adverse change in the significance of any TCRs compared to existing conditions, the impacts would be less than significant with mitigation.

Under this alternative, California Native American tribes would need to rely on other entities, besides the CDFA and WS-California, to conduct lethal WDM if non-lethal WDM fails. Also, threatened and endangered species protection would not be available from the CDFA and WS-California. Tribes would need to seek that protection from other entities. Also, airports on tribally managed lands would not be able to use the services of the CDFA or WS-California to protect their airports from wildlife hazards. WS-California is federally funded, which makes it more affordable for tribes to obtain the WDM services they need to protect their lands and resources.

CEQA Conclusion: *Less than significant with mitigation.*

Alternative 5. No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM activities by the CDFA or the Counties. WDM activities would still be implemented by other agencies and entities. Alternative 5 would mean any WDM activities would be handled by other entities, who may or may not adhere to safety precautions, best management practices, or federal, state, and/or local laws. Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM activities like WS-California, and it is likely that calls for service would go unaddressed.

As described in Section 4.2.3.1.1, consultation with California Native American tribes was conducted. There are existing WDM activities conducted by these other agencies and entities that could result in temporary auditory or visual impacts or occur in proximity to culturally important places; however, the WDM activities are not anticipated

to cause a permanent substantive adverse change in the significance of any TCRs. Under Alternative 5, there would be an increase in WDM activities by these other agencies but not an increase in overall WDM activities compared to existing conditions; therefore, the quantification of an increase in impacts to tribal cultural resources is speculative and the impacts are not significant. However, this alternative (similar to the Proposed Project/Proposed Action and the remaining alternatives) would not involve any physical development or physical activities that would be substantially more intense than existing conditions. As such, the impacts from this alternative would still be less than significant.

Under Alternative 5, there would be no significant physical impacts to culturally important places or permanent substantive adverse changes in the significance of any TCRs. Tribes would need to rely on other entities for lethal and non-lethal WDM activities. Under this alternative, WS-California may not be able to meet its legal obligations to protect American agriculture without lethal WDM and it would not meet its mission to respond to all requests for assistance, because this alternative assumes cessation of WS-California services. However, this alternative (similar to the Proposed Project/Proposed Action and the remaining alternatives) would not involve any physical development or physical activities that would be substantially more intense than existing conditions. As such, the impacts from this alternative would still be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

***NEPA Conclusion*:** *Not significant.*

4.2.3.4.5 Alternatives Impacts - Cumulative

No cumulative impacts to tribal cultural values associated with the broader environmental landscapes are anticipated as a result of activities under Alternatives 1–5. Alternatives 1–5, as designed, do not involve earth-disturbing activities, permanent installation of equipment, or significant reductions in native wildlife species populations. Based on this knowledge and having received no indication through consultation that known TCRs or resources of Native American cultural value would be cumulatively impacted through implementation of Alternatives 1–5, Alternatives 1–5 would not cumulatively contribute to a significant impact associated with TCRs and therefore would have no adverse effect; impacts would be less than cumulatively considerable under CEQA and no impact under NEPA.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *No impact.*

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4.2.4 Hazards and Hazardous Materials

This section presents the existing hazards and hazardous materials conditions and evaluates potential impacts related to implementation of the proposed Project. This section incorporates results from risk assessments on several WDM tools that are considered hazardous and may pose an ecological or human health risk if used improperly.

Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such, or if it is toxic (i.e., causes adverse impacts to human health and/or the environment), ignitable, corrosive, or reactive. The term "hazardous material" is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (California Health and Safety Code, Chapter 6.95, Section 25501[o]). Also included in this section are associated regulatory requirements, and evaluation of potential impacts related to implementation of the Proposed Project/Proposed Action. Other resource sections in the EIR/EIS that provide information related to hazards and hazardous materials include the following:

- Section 4.2.5, Human and Companion Animal Health and Safety
- Section 4.2.6, Noise

4.2.4.1 Existing Conditions

This section provides an overview of the conditions in California that are subject to various WDM activities. Many of the WDM activities and methods that would be conducted under the Proposed Project/Proposed Action are already ongoing throughout the State of California (State) on an as-needed basis in California Counties. However, while these activities and methods are ongoing, future activities and methods may occur in areas that previously were not subject to said activities and methods, and therefore impacts associated with hazards and hazardous materials are evaluated in the context of potential new geographic locations.

4.2.4.1.1 WS Environmental Risk Assessments

In support of WDM activities, WS prepared risk assessments for many of the methods it uses. These formal risk assessments analyze the impacts of WDM methods on human health and the environment. To ensure the scientific rigor, these risk assessments were peer reviewed by non-federal professionals with knowledge of the methods and risks associated with the use of WDM methods. The peer reviewers were selected by the Association of Fish and Wildlife Agencies, the organization of state, provincial, and territorial fish and wildlife agencies in North America entrusted with primary stewardship over vital wildlife resources. The analyses in this Section will reference these risk assessments. Details of individual WS risk assessments can be found at the USDA-APHIS website https://www.aphis.usda.gov[1].

The following risk assessments have been prepared by WS for the use of hazardous materials in WDM:

- The Use of Carbon Monoxide in Wildlife Damage Management (USDA-APHIS-WS 2019)
- The Use of DRC-1339 in Wildlife Damage Management (USDA-APHIS-WS 2022)

[1] Each of the risk assessments prepared by USDA-APHS-WS can be found using the following link: https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/programs/nepa/ct-ws-risk_assessments.

- The Use of Explosive Materials in Wildlife Damage Management (USDA-APHIS-WS 2023a)
- The Use of Immobilization and Euthanasia Drugs in Wildlife Damage Management (USDA-APHIS-WS 2023b)

These WS risk assessments have generally found that the WDM methods analyzed often include some inherent risk and cite appropriate measures to mitigate the risks to employee, public, and companion animal safety, humaneness, and risks to other environmental factors. WS-California generally already incorporates these measures, in addition to label requirements, into WDM actions.

4.2.4.1.2 Environmental Setting

The following discussion describes the use of Immunization and Euthanasia (I&E) drugs, DRC-1339, carbon monoxide, lead ammunition, and explosives in California, including product application and regulatory use, exposure incidents, sensitive receptors, and potentially affected and socioeconomically disadvantaged communities, to provide context for the impact evaluation of the Proposed Project/Proposed Action. Many substances used for WDM are Restricted Use Products (RUP) and can only be used by a certified applicator or someone under the certified applicator's direct supervision. Others, such as DRC-1339, can only be used by WS-California.

WDM Uses in California

Some wildlife species are involved in conflicts with humans, including damaging agricultural resources and property, preying upon or harassing livestock, damaging infrastructure and property, and threatening human health and safety. In certain instances, wildlife species may impede efforts by wildlife management agencies to protect and enhance natural resources. Wildlife may also prey upon populations of threatened or endangered species or damage habitat restoration efforts. Wildlife damage management methods are used throughout California by federal, state, and local jurisdictions as well as by private producers and landowners. The WDM products, and their ingredients, that are available under the Proposed Project/Proposed Action are described in Appendix A of the EIR/EIS.

Product Labels

The EPA and FDA require extensive testing and scientific data on the potential health and environmental effects of pesticides or animal drugs before approving the use of the product in the United States. These may include the potential effects on human health, target species, non-target species, the environment, aquatic invertebrates, plants, secondary effects, and other effects, All registered pesticides (e.g., DRC-1339 and carbon monoxide gas cartridges) and animal drugs (e.g., I&E drugs) include a label which provides critical information on how to safely and legally store, handle, and apply the product in order to avoid unintended adverse health and environmental effects. Labels are legally enforceable and it is a violation of Federal law to use any product in a manner inconsistent with its labeling.

Lead Ammunition

Effective July 1, 2015, California state law (AB711) and subsequent regulations promulgated by the California Fish and Game Commission require the use of nonlead ammunition in a phased approach when taking wildlife for recreation or depredation purposes. Effective July 1, 2019, nonlead ammunition is required for the taking of any wildlife for any reason. More information on the state regulations and phased approach can be found at https://www.wildlife.ca.gov/Hunting/Nonlead-Ammunition. WS-California complies with federal, state and local

laws and regulations in accordance with APHIS-WS Directive 2.210. As such, neither the Proposed Project/Proposed Action nor the project alternatives would result in additional lead added to the environment.

Explosives

Explosive materials are any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion. WDM tools that are considered explosives include pyrotechnics, rocket and cannon net charges, and incidental explosive materials such as fuses and primers that are integral to the other devices. Wildlife specialists use, store, transport, and dispose of these explosives in accordance with ATF Federal Explosives Laws and Regulations (ATF P 5400.7), Occupational Safety and Health Administration (OSHA) regulations, state regulations, the Institute of Makers of Explosives (IME) safety recommendations (IME 2021), and product manufacturer instructions.

Contaminated Sites

Contaminated sites and the use and management of hazardous materials are reported to and regulated in the State by environmental regulatory agencies, such as Department of Toxic Substances Control (DTSC), State Water Resources Control Board (SWRCB), and on a local level by various county, regional, and city agencies delegated through the Certified Unified Program Agency (CUPA). Online databases, such as GeoTracker, EnviroStor, and the CalEPA Regulated Site Portal, provide up-to-date information on such sites.

Government Code Section 65962.5 requires the DTSC, the State Department of Health Services, the SWRCB, and the California Department of Resources Recycling and Recovery (CalRecycle) to compile and annually update lists of hazardous waste sites and lands designated as hazardous waste sites throughout the state. In addition to these sites (identified as Cortese List sites), other types of hazardous material releases, such as those under voluntary cleanup or military cleanup, are listed in state and local agency databases, which are publicly available.

Schools

Schools are considered sensitive receptors with regard to hazardous substances. There are over 1,000 school districts in the State, encompassing over 10,000 schools, including public, private, charter, and magnet schools. In general, schools are documented and regulated through California Department of Education. Private institutions also provide geographical information on schools throughout the State, such as the California School Campus Database (GreenInfo Network 2021).

Airports

Airport hazards are generally related to noise and safety. Construction projects are required to evaluate for the presence of airports to verify they are compliant with airspace safety regulations outlined in 14 CFR Part 77. The Proposed Project/Proposed Action would not require construction of any facilities, buildings, or other structures. However, Proposed Project/Proposed Action activities are often conducted on airport property to reduce wildlife strike hazards and therefore hazards to workers or the public may be present.

Airport land use plans, which are generally developed by the county in which the airport is located, are public information that provide projected noise and safety contours for each public use airport in the State. Private airports that are not regulated by the county still must comply with FAA regulations, and activities around those airports are also required to comply with FAA and State regulations.

Emergency Response

In general, local agencies are responsible for designating emergency response procedures and routes and implementing these during evacuation emergencies. Local general plans and emergency evacuation response procedures are public information and are generally provided on county websites to provide information to the public.

4.2.4.1.3 Potential Hazards

WDM Methods Application

When selecting damage management techniques for specific wildlife damage situations, wildlife specialists must consider the frequency, extent, and magnitude of the damage. In addition to confirming and assessing damage to the property being treated, they must consider label restrictions, the conservation status of target and potential non-target species, local environmental conditions, relative costs of applying management techniques, environmental impacts, and social and legal concerns specific to the case. Wildlife specialists have developed a management strategy that minimizes harmful effects on humans, non-target species, and the environment while applying practical wildlife damage prevention methods. In addition to safe and legal application and storage, proper monitoring of hazardous material use is required. Within WS's nationwide Management Information System (MIS) is an inventory system called the Controlled Materials Inventory Tracking System (CMITS), which allows WS-California to fully account for its hazardous materials (e.g., poisonous chemicals, veterinary drugs, etc.). The CDFA and county wildlife specialists that use controlled materials, such as I&E drugs, are also required by law to monitor its use of these products.

Each of the WDM activities and methods included in this EIR/EIS, I&E drugs, avicides (DRC-1339), gas cartridges (carbon monoxide), and explosives, are used only by trained and authorized wildlife specialists. Only WS-California is authorized to use DRC-1339 in California.

Personal protective equipment (PPE) is used where required and, in the case of I&E drugs, is used in consultation with the state veterinarian. Additionally, I&E drugs, and carbon monoxide gas cartridges are highly targeted such that only the target animal is exposed to the constituent. Other substances, such as DCR-1339 and explosives, are used in accordance with labels and product manufacturer instructions to minimize non-target wildlife take or human exposure.

Exposure to Sensitive Receptors

Physiologically, sensitive receptors are individuals that may have a substantially increased sensitivity or exposure to contaminants because of their age, health, or proximity to the contamination (e.g., children, fetuses, the elderly, the infirm, and farm workers). Consideration of potential health effects to these sensitive receptors is particularly important with respect to use of hazardous materials near schools, daycare centers, education-related facilities, hospitals, nursing homes, retirement homes, agricultural lands, playgrounds, athletic fields, and parks. In addition to the sensitive receptors listed above, farm workers may be at a greater risk of exposure to hazardous materials used in agricultural settings. The majority of farmworkers in California are Hispanic, so cultural and language differences among the farm worker population may act as barriers to occupational health information – the ability to read and understand English may be necessary for observing warning signs, reading educational materials, and training to be effective. However, pesticides and other hazardous materials used for WDM under the Proposed Project/Proposed Action are used in a manner consistent with label restrictions to minimize risk of substantial exposure to employees and the public.

DRC-1339 is typically used in rural areas, such as crop fields or agricultural pastures. DRC-1339 breaks down in soil within 0.02 to 2 days (Batelle U.K. 2018), but there is still the potential for migration to non-target areas. Risks to nontarget areas and animals can be reduced by adhering to label requirements, such as pre-baiting and avoiding areas where runoff into water sources is likely to occur. Label requirements also instruct applicators to choose treatment sites that limit public access. Treated bait is only applied after a period of pre-baiting with untreated bait material and observation during which nontarget animals, including T&E species, are confirmed not feeding at the site. If nontarget species are seen in the area, the application will be delayed or DRC-1339 will not be used at the site. In some cases, DRC-1339 is applied on elevated stands, platforms, or other restricted locations to further minimize potential impacts to ground feeding birds or any other animals. To make treated bait, DRC-1339 powder is bonded to a bait material using an edible oil and lecithin. Common bait types include dog food and corn kernels, but specific bait materials must be used depending on the target species. Application of the treated bait is scheduled to avoid rainy weather to prevent loss of DRC-1339 into the soil and surplus bait is removed from the site if any remains once WDM actions have concluded. These requirements reduce the potential of exposure from WDM materials to field workers, school children, residential neighborhoods, and to adjacent waterways and wildlife habitat.

Wildfire Hazards

The California Department of Forestry and Fire Protection (CAL FIRE) has developed a series of maps that identify fire hazard severity zones and the responsible fire response agency for the State. These fire hazard severity zones, divided up by county, provide a scaled range of severity zones from Urban-Unzoned to Very High to help identify the potential for wildfire hazards. The potential for wildfire, and hazards to public safety associated with wildfires, increases with variations in vegetation, climate, and other environmental conditions. Potential fire hazards associated with WDM tools could include the improper use or storage of explosives.

4.2.4.2 Relevant Laws, Policies, and Ordinances

Relevant laws, policies, ordinances, plans, and executive orders related to hazards and hazardous materials are located in Appendix B.

4.2.4.3 Adverse Effects/Thresholds of Significance

The significance criteria used to evaluate the Proposed Project/Proposed Action impacts related to hazards and hazardous materials are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to hazards and hazardous material would occur if the program would:

1. Expose the public or the environment to significant hazards through the routine transport, use, or disposal of hazardous materials.
2. Expose the public or the environment to significant hazards through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would it create a significant hazard to the public or the environment.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or within the vicinity of a private airstrip, result in a safety hazard or excessive noise for people residing or working in the project area.

6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Potential impacts to human health or the environment related to hazards or hazardous materials are discussed as it relates to the Proposed Project's purpose and need. In accordance with Section 15064.7 of the CEQA Guidelines, lead agencies may develop thresholds of significance that the agency uses in the determination of the significance of environmental effects. The following thresholds are included in the analysis for informational purposes:

8. Expose physiologically sensitive populations to human health hazards.
9. Impact the human health or environment in such a manner that it would disproportionately affect minority and/or low-income communities.

4.2.4.4 Impacts Analysis

This section describes the methodology and significance criteria that were used to analyze hazards and hazardous materials for constituents identified for the Proposed Project/Proposed Action and analyzed in this EIR/EIS. The impact analysis presents the potential environmental impacts of the Proposed Project/Proposed Action, including cumulative impacts, and presents mitigation measures to be implemented for potentially significant impacts.

This section uses the below terminology adapted from Section 4.1.4 (Impact/Effect Terminology) to describe the effects of the Proposed Project/Proposed Action on resources under CEQA (i.e., CEQA Conclusion) and on the ecological aspects of the human environment (i.e., natural resources and components, structures, and functioning of affected ecosystems) under NEPA (i.e., NEPA Conclusion).

CEQA Conclusions

- **No Impact:** The Proposed Project/Proposed Action would not affect the resource or topic and would not change the environmental baseline. (NI)
- **Less than Significant:** The Proposed Project/Proposed Action would not result in a substantial adverse change in the resource or topic, and no mitigation is needed. (LTS)
- **Less than Significant with Mitigation:** The Proposed Project/Proposed Action would not result in a substantial adverse change in the resource or topic if mitigation is incorporated. (LTS/M)
- **Significant and Unavoidable:** The Proposed Project/Proposed Action could result in a substantial adverse impact on the resource or topic and the impact would remain significant after application of all feasible mitigation measures. (SU)
- **Less than Cumulatively considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is not considered significant. (LCC)
- **Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is considered significant. (CC)
- **Beneficial:** The Proposed Project/Proposed Action would result in an increase in the quality of the resource. (B)

NEPA Conclusions

- **No Impact:** The Proposed Project/Proposed Action would not affect ecological aspects of the human environment. (NI)
- **Not Significant:** The Proposed Project/Proposed Action would not substantially affect ecological aspects of the human environment. (NS)
- **Significant:** The Proposed Project/Proposed Action would substantially affect ecological aspects of the human environment. (S)

Impacts associated with each of the significance criteria are discussed first, followed by discussions of cumulative impacts and a comparison of impacts under each of the Proposed Project/Proposed Action alternatives.

4.2.4.4.1 Proposed Project/Proposed Action Impacts

HAZ-1: Would the Proposed Project/Proposed Action expose the public or the environment to significant hazards through the routine transport, use, or disposal of hazardous materials?

Proposed Project/Proposed Action implementation would not result in a measurable increase in the number of vehicles or the use of any heavy equipment to and from an individual project location. As such, hazardous materials from transportation equipment such as fuels, lubricating oil, grease, and/or hydraulic fluid would not present a potential impact to on the public or the environment. Accidental spills or improper use, storage, or disposal associated with routine transport of hazardous materials could result in chemical contamination at the location(s) of Proposed Project/Proposed Action activities, and could be a potential, although unlikely, hazard off-site with regard to nearby sensitive receptors and the general public. The transport of hazardous materials to soils and surface water is possible but unlikely given the small volumes of materials used.

Although the materials included in the Proposed Project/Proposed Action involve hazards as described above, WDM activities are required to comply with all applicable federal, state, and local regulations and are required to be carried out so that these activities would not result in substantial risks.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

HAZ-2: Would the Proposed Project/Proposed Action expose to the public or the environment to significant hazards through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The transportation, use, storage, and disposal of the materials included in the Proposed Project/Proposed Action are subject to local, state, and federal hazardous materials laws and regulations as well as regulations imposed by various County Health Service Departments (WS Directive 2.210; 2009[2]). Additionally, labels and SDS sheets outline transportation and use restrictions/safety measures, and labels must be complied with under law. Implementation of the Proposed Project/Proposed Action is not expected to result in substantial increases in the number of spills and accidents. Proposed Project/Proposed Action activities would require the use, storage, transport, and disposal of various hazardous and toxic materials, including explosives, gas cartridges, I&E drugs,

2 https://www.aphis.usda.gov/wildlife_damage/directives/pdf/2.210.pdf

and DRC-1339. Accidental release of any of these materials into the air, soil, surface water, or groundwater may occur; however, the constituents included in the Proposed Project/Proposed Action are administered in small volumes such that any potential release from an accident would be confined to a small area that could be quickly remedied, thereby eliminating migration from the spill site or exposure to the public. As such, adherence to existing regulations would result in a less than significant impact under CEQA and not significant impact under NEPA. Proposed Project/Proposed Action materials are only used and handled by licensed veterinarians or trained wildlife specialists, which reduces the risk for accidental release of hazardous materials.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

HAZ-3: Would the Proposed Project/Proposed Action emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Proposed Project/Proposed Action activities may need to occur at or near existing or proposed school sites, but these occurrences are likely to be highly infrequent and would be avoided when possible. WDM activities that use hazardous materials that could occur near a school include pyrotechnics to disperse birds or I&E drugs. DRC-1339 and rocket nets are typically used in rural areas for agricultural protection and are not likely to be used near a school. If use of WDM hazardous materials in the vicinity of a school is necessary, wildlife specialists would attempt to conduct the activity when children are not present and with adequate quarantine time prior to reentry. In addition, such activities would not occur over an extended period of time which would increase potential exposure and subsequent risk to children and/or staff.

Any materials left behind after use may present a hazard to children, school staff, or nontarget wildlife that come into contact with program materials. However, strict adherence to federal law and label requirements for each of the WDM methods would effectively eliminate risk to children and school staff, as physical materials are not likely to be left behind. Existing laws and regulations would apply to the handling of any WDM materials on school properties, to provide safe handling and reporting of use. Wildlife specialists will work with schools to ensure that WDM applications occur at a time when children are least likely to be present. Therefore, the impacts would be less than significant with mitigation (MM-HAZ-1; see Section 4.2.4.4.2) under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

HAZ-4: Would the Proposed Project/Proposed Action be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

WS-California, the CDFA, or County wildlife specialists may receive requests to conduct WDM at hazardous materials sites. Birds, coyotes, foxes, and other wildlife[3] may be attracted to hazardous materials site structures, especially if the area is not often frequented by people. As such, wildlife specialists may have to conduct WDM at hazardous materials sites which may result in a potential hazard to wildlife specialists. Any activities carried out by wildlife

[3] Wildlife damage management under the Proposed Project/Proposed Action does not include urban rodents. Damage management requests associated with urban rodents would be referred to pest control or animal control entities for assistance.

specialists to manage wildlife damage would be implemented such that there are no impacts to the public or personnel working at the site that are not affiliated with the WDM activities.

Because wildlife specialists may need to enter abandoned buildings or culverts in order to conduct WDM, previously unknown or undiscovered hazardous materials could be encountered during WDM activities that could pose a significant risk to wildlife specialists. For the vast majority of situations, the nature and location of the activity would make it unlikely that such exposure would occur. Highly impacted sites, such as active remediation sites, are generally controlled and secured to prevent human contact with hazardous materials and/or hazardous wastes, and as such, it is highly unlikely wildlife specialists would directly encounter hazardous materials. Additionally, hazardous impacts typically associated with cleanup sites are subsurface (soil, groundwater) and would not directly impact surface activities conducted by wildlife specialists. Before conducting any activities under the Proposed Project/Proposed Action, wildlife specialists shall determine whether the potential exists for the activity, based on its characteristics and location, to result in exposure to existing hazardous materials contamination. If access to a controlled site (such as an active remediation site) is required, wildlife specialists will coordinate with the site owner/operator to ensure site-specific health and safety measures are followed.

As WDM activities are ground surface level and are not likely to impact subsurface contamination, and any potentially hazardous conditions due to a contaminated site would be communicated by a site owner/operator, impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

HAZ-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or within the vicinity of a private airstrip, would the Proposed Project/Proposed Action result in a safety hazard or excessive noise for people residing or working in the project area?

Proposed Project/Proposed Action activities are likely to occur within an airport land use plan, or a private or public airport. WS-California wildlife specialists would implement WHM at airports. Bird and mammal dispersal techniques using the pyrotechnic devices described in Appendix C are often used in and around airports to prevent wildlife, particularly birds, from interfering with airport operations. These activities are designed to reduce potential safety hazards to aircraft, personnel, and passengers during take-off and landing due to collisions with wildlife. Pyrotechnics are used by trained wildlife specialists and are used in compliance with safety recommendations and product manufacturer instructions. These techniques would not result in a safety hazard for people residing or working in the vicinity of the airports, and wildlife damage management activities would only cause a minimal disruption for anyone residing or working in the vicinity. The Proposed Project/Proposed Action will not conflict with any airport land use plan surrounding the airport or airstrip. WS-California would coordinate WDM activities with appropriate airport staff to further reduce hazards associated with these activities, as wildlife specialists would also likely require access permissions to restricted airport areas.

The Proposed Project/Proposed Action would not cause harm to other airplane equipment and would not interfere with other plane landings and takeoffs. The Proposed Project/Proposed Action activities would not interfere with the operation of a private airstrip or a public use airport and would not conflict with any airport land use plan surrounding the airport or airstrip. Therefore, the impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

HAZ-6: Would the Proposed Project/Proposed Action impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Proposed Project/Proposed Action activities would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. WS-California, the CDFA, or County wildlife specialists may receive requests for assistance during an emergency situation, but the WDM implemented would be coordinated with, and in support of, the emergency response. WDM activities can be rescheduled if interference with adopted emergency response or evacuation could occur, as communicated by emergency response agencies. Therefore, the impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

HAZ-7: Would the Proposed Project/Proposed Action expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Explosive devices under the Proposed Project/Proposed Action can be a fire hazard; however, WS-California, the CDFA, and County wildlife specialists adhere to safety regulations to minimize this risk. Wildlife specialists are trained and certified in the safe and proper use of WDM explosive devices. Therefore, WDM activities would not result in a significant risk of loss involving wildland fires and the impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

HAZ-8: Would the Proposed Project/Proposed Action activities expose physiologically sensitive populations to human health hazards?

The potential impacts of the constituents included in the Proposed Project/Proposed Action on physiologically sensitive populations were examined in risk assessments prepared by WS. The risk assessments conclude that the constituents included in the Proposed Project/Proposed Action are not expected to pose substantial risks to human health. Adherence to label requirements and proper use of PPE minimize risk to WS-California, the CDFA, and County wildlife specialists who handle and apply WDM methods to wildlife. Although some of the constituents used in WDM are hazardous to humans due to their acute and chronic toxicity via the inhalation, ingestion, ocular, and dermal routes, as referenced above in Section 4.2.4.1.1 the low potential for a complete exposure pathway or low levels of exposure expected for these constituents when following label requirements and management practices during application supports a conclusion that adverse health risks are not expected. Any exposure would be infrequent and of short duration based on the use patterns of these constituents by wildlife specialists. Further, exposure of physiologically sensitive subpopulations to these constituents is not anticipated based on the limited use patterns as well as the post-treatment disposal and carcass management requirements and adverse health risk to the general public is not expected. Therefore, the impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

HAZ-9: Would the Proposed Project/Proposed Action impact human health or the environment in such a manner that it would disproportionately effect minority and/or low-income communities?

Field workers, often made up of minority groups, are at particular risk from exposure to chemicals used on farms and ranches. Additionally, low-income communities often surround farms and ranches where WDM activities likely occur. The risk of chemical exposure may be even greater among migrant farm workers because of language barriers. However, hazardous materials typically used in rural areas, such as DRC-1339 and carbon monoxide gas cartridges, are applied in a manner to minimize accidental exposure to people. Carbon monoxide gas cartridges are extremely targeted and there is no risk to minority and/or low-income communities from its use. Exposure to DCR-1339 is greatest for wildlife specialists who mix the product with a bait material; however, required PPE would minimize the potential for exposure and risk when factoring in available health effects. Additionally, all remaining treated bait is removed from the site at the conclusion of WDM activities. The potential exposure and risk to the general public is low due to the use pattern and label restrictions, as well as lack of dietary exposure through food or drinking water. Therefore, the impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

4.2.4.4.2 Mitigation Measures

MM-HAZ-1: If the use of WDM hazardous materials in the vicinity of a school is necessary, wildlife specialists will conduct WDM when children are not present, unless public health and safety is at risk. Wildlife specialists shall allow for adequate quarantine time prior to reentry, and will remove any physical materials when WDM is complete.

4.2.4.4.3 Cumulative Impacts

CU-HAZ-1: Would the Proposed Project/Proposed Action make a considerable contribution to cumulatively significant non-chemical hazards?

WDM activities, as needed, are intended to reduce wildlife damage. Non-chemical hazards considered, such as airplane collisions (e.g. bird strikes) or physical hazards to people (e.g., wildlife attacks), would ultimately be reduced with WDM activities. As such, cumulative impacts are not anticipated.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

CU-HAZ-2: Would the Proposed Project/Proposed Action make a considerable contribution to cumulatively significant human exposure to health hazards?

The WS risk assessments concluded that implementation of the WDM activities would not result in risk exceeding the level of concern for human health, including acute, chronic, and carcinogenic effects. Although cumulative exposure to multiple chemicals could occur, including chemicals used for purposes other than the Proposed

Project/Proposed Action, or multiple chemical application scenarios associated with the Proposed Project/Proposed Action, this exposure and related health risk is not expected to have a significant cumulative impact, due to the fact that any potential increases are expected to be minor due to the lack of exposure routes as discussed above in Section 4.2.4.1.3. The resulting risks are negligible as referenced above in Section 4.2.4.1.1. The lack of significant exposure and risk of WDM hazardous materials to the general public suggests that cumulative impacts would also be negligible when factoring in other stressors.

The estimated risk of adverse health effects from the Proposed Project/Proposed Action, and cumulative exposure to multiple hazardous materials with common mechanisms of actions would be below levels of concern. The Proposed Project/Proposed Action would not make a cumulatively considerable contribution to any impact on humans from exposure to health hazards.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

4.2.4.4.4 Alternatives Impacts

ALT-HAZ-1: Would the alternative expose the public or the environment to significant hazards through the routine transport, use, or disposal of hazardous materials?

ALT-HAZ-2: Would the alternative expose the public or the environment to significant hazards through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

ALT-HAZ-3: Would the alternative emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

ALT-HAZ-4: Would the alternative be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would it create a significant hazard to the public or the environment?

ALT-HAZ-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or within the vicinity of a private airstrip, would the alternative result in a safety hazard or excessive noise for people residing or working in the project area?

ALT-HAZ-6: Would the alternative impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

ALT-HAZ-7: Would the alternative expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

ALT-HAZ-8: Would the alternative expose physiologically sensitive populations to human health hazards or impact the human health or environment in such a manner that it would disproportionately effect minority and/or low-income communities?

ALT-HAZ-9: Would the alternative cause or significantly contribute to an increase in mortality or illness, pose a substantial present or potential hazard to human health or the environment when improperly managed?

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, all WDM methods described in Appendix C would be available to WS-California. Refer to Section 3.8.1 for a description of activities proposed under Alternative 1. Under this alternative, WS-California would continue to provide technical assistance on lethal and non-lethal techniques, and/or provide lethal and non-lethal operational assistance, Alternative 1 would not include any new CDFA or County Programs or Emergency/Rapid Response WDM activities. WDM activities would continue to occur under federal, state, and local laws and regulations. Impacts would be no impact under CEQA and not significant impacts under NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and Airport Work

Under Alternative 2, I&E drugs, DRC-1339, and carbon monoxide gas cartridges would only be used for human or companion animal health and safety, T&E protection, or WHM. Pyrotechnics and rocket nets are non-lethal WDM tools and would continue to be used under this alternative. Requests for the use of lethal WDM would be referred to other entities; however, other entities may not have the authorization to use I&E drugs or carbon monoxide gas cartridges. Because only WS-California has the authorization to use DCR-1339, this pesticide would only be used for human or companion animal health and safety, T&E protection, or WHM under Alternative 2. Potential impacts through the use of hazardous materials during WDM activities under Alternative 2 would be the same as described in Section 4.2.4.4.1 under the Proposed Project/Proposed Action. Potential direct, indirect, and cumulative impacts from the use of hazardous materials during WDM activities would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 3. Non-Lethal Operational WDM

Under Alternative 3, I&E drugs, DRC-1339, and carbon monoxide gas cartridges would not be used. Pyrotechnics and rocket nets would continue to be used under this alternative. Requests for the use of lethal WDM would be referred to other entities; however, other entities may not have the authorization to use I&E drugs or carbon monoxide gas cartridges. Because only WS-California has the authorization to use DCR-1339, this pesticide would not be available for WDM under Alternative 3. Potential impacts through the use of hazardous materials during WDM activities under Alternative 3 would be the same as described in Section 4.2.4.4.1 under the Proposed Project/Proposed Action; however, use of lethal WDM tools would not be implemented. Potential direct, indirect, and cumulative impacts from the use of hazardous materials during WDM activities would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Under Alternative 4, participating entities could receive reimbursement from the counties or other governmental agencies for the purchase of nonlethal WDM tools. This could potentially include pyrotechnics used to disperse birds and wildlife from agricultural resources. Land/resource owners and managers would be required to personally implement WDM, which could result in untrained and improper use of hazardous materials. While there is inherent risk with untrained entities implementing their own management practices, rules and regulations are in place to control the use of hazardous materials associated with these WDM tools, including label laws and regulatory reporting of controlled and hazardous substances above certain quantities. Alternative 4 would not include technical assistance or operational assistance from WS-California, the CDFA, or County wildlife specialists, but use of materials and associated potential impacts would be managed by individual counties. Counties and land/resource owners are held to the same statewide rules and regulations regarding the handling of hazardous materials, and technical assistance from the county could be requested and received regarding use of WDM tools. Financial reimbursement would only occur when WDM tools are properly used and implemented. As such, impacts would remain less than significant under CEQA. As discussed in Chapter 3, Section 3.8.4 – Alternative 4 Financial Reimbursement Assistance, implementation of Alternative 4 is not available to WS-California, therefore a NEPA impact determination is not applicable.

CEQA Conclusion: *Less than significant.*

Alternative 5. No Project/Cessation of WS-California

Should WDM activities cease, land/resource owners and managers would be required to personally implement WDM, which could result in untrained and improper use of hazardous materials. While rules and regulations are in place, there is inherent risk with untrained property owners implementing their own management practices, which could include the use of hazardous materials. Alternative 5 would not include technical assistance or operational assistance from WS-California, the CDFA, or County wildlife specialists. Land/resource owners would be required to purchase WDM tools independently, which could result in the purchase and use of unregulated materials. Without the availability of technical assistance or regulatory oversight from WS-California, the CDFA, or County wildlife specialists, there is a potential that adverse impacts could occur. However, as discussed under Alternative 4, while there is inherent risk with untrained entities implementing their own management practices; there are rules and regulations in place to control the use of hazardous materials associated with these WDM tools, including label laws and regulatory reporting of controlled and hazardous substances above certain quantities. As such, impacts would remain less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

4.2.4.5 Alternatives Cumulative Impacts

CU-HAZ-1: Would the Alternatives 1 - 5 make a considerable contribution to cumulatively significant non-chemical hazards?

WDM activities, as needed, are intended to reduce wildlife damage. Non-chemical hazards considered, such as airplane collisions (e.g., bird strikes) or physical hazards to people (e.g., wildlife attacks), would ultimately be reduced with WDM activities. As such, cumulatively considerable impacts are not anticipated.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

CU-HAZ-2: Would the Alternatives 1 - 5 make a considerable contribution to cumulatively significant human exposure to health hazards?

The WS risk assessments concluded that implementation of the WDM activities would not result in risk exceeding the level of concern for human health, including acute, chronic, and carcinogenic effects. Although cumulative exposure to multiple chemicals could occur, including environmental chemicals used for purposes other than the Proposed Project/Proposed Action, or multiple chemical application scenarios associated with the Proposed Project/Proposed Action, this exposure and related health risk is not expected to have a significant cumulative impact, due to the fact that any potential increases are expected to be minor and the resulting risks negligible. The lack of significant exposure and risk of WDM hazardous materials to the general public suggests that cumulative impacts would also be negligible when factoring in other stressors.

The estimated risk of adverse health effects from the Proposed Project/Proposed Action, and cumulative exposure to multiple hazardous materials with common mechanisms of actions would be below levels of concern. The Proposed Project/Proposed Action would not make a cumulatively considerable contribution to any impact on humans from exposure to health hazards.

CEQA Conclusion: *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

4.2.4.6 References

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IME (Institute of Makers of Explosives). 2021. SLP 17: Safety in the Transportation, Storage, Handling & Use of Commercial Explosive Materials. January 2021.

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USDA-APHIS-WS. 2023b. The Use of Immobilization and Euthanasia Drugs in Wildlife Damage Management. https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/programs/nepa/ct-ws-risk_assessments

4.2.5 Human and Companion Animal Health and Safety

This section describes the existing conditions, adverse effects/thresholds of significance, potential impacts associated with those actions and consequences, along with the corresponding adverse effects of the Proposed Project/Proposed Action as it relates to human and companion animal health and safety. Information in this section is based on the WS Directives (USDA WS 2020), description of potential wildlife damage management (WDM) activities and methods included in Appendix A of this environmental impact report (EIR)/environmental impact statement (EIS), WS-California Methods Risk Assessments, and data provided by the WS-California Management Information System (MIS). Other resource sections in the EIR/EIS that provide information related to human and companion animal health and safety include the following:

- Section 4.2.4, Hazards and Hazardous Materials
- Section 4.2.6, Noise
- Section 4.2.7, Public Services
- Section 4.3, Environmental Resource Topics Eliminated from Further Analysis

4.2.5.1 Existing Conditions

Existing and ongoing WDM activities conducted by WS-California, CDFA, and County wildlife agencies include a range of protection activities (e.g., responding to wildlife that pose a direct threat to human safety) across numerous difference scenarios and circumstances (e.g., wildlife/bird strikes at airports, wildlife attacks, disease/pathogen transmission, and others). However, as human development and growth continue to put pressures on wildlife populations and their use of remaining habitat, the potential for human and companion animal encounters with wildlife is increasing and the ability of wildlife to adapt to the changing circumstances are constrained. Some species have the ability to be more flexible and adaptable than others, with highly adaptable and flexible species often reaching unnaturally high populations, and less adaptable species losing population numbers and distribution. Some wildlife species and localized populations have adapted to change by using human infrastructure or concentrated agricultural practices for their life cycle needs, such as obtaining food and water, finding areas to breed or rest, and using human structures as shelter. Where human-provided resources overlap with occupied wildlife territory, the animals often learned to take advantage of those resources. As human/wildlife interactions increase, wildlife may and have lost their natural fear and may exhibit bold and even dominant behavior. Companion animals (pets), hobby animals, and livestock encounters and interactions with wildlife are increasing, which also increases the opportunity for transmission of pathogens to humans (see Section 1.5.2.2, Zoonotic Diseases).

Human and companion animal health and safety concerns include but are not limited to wildlife encounters and/or attacks of humans and companion animals, disease exposure where wildlife act as reservoirs; threats from parasite transmission from wildlife to humans and companion animals; odor and noise nuisances; and wildlife strike risks at airports. WDM activities and methods included in the Proposed Project/Proposed Action would address these health and safety concerns. Species or species groups in California historically associated with human and companion animal health and safety concerns include, but are not limited to birds, black bears, bobcats, coyotes, feral animals, foxes, mountain lions, opossums, racoons, squirrels, and skunks (USDA 2022). It should be noted that overall, attacks by wildlife on humans or companion animals are rare (see Section 1.5.2.2, Wildlife Attacks). During the analysis period (CY2010 to 2019), WS-CA reported $475,701 in verified losses due to human health and safety conflicts (USDA 2022). These conflicts include WHM at airports, disease, and other threats to human and companion animal health and safety. Additionally, threats to human and companion animal health and safety that do not result in estimated

monetary damages can still generate public concern and requests for conflict resolution consistent with existing services provided by federal, state, and local agencies, law enforcement, public health agencies, and others.

With respect to public safety in California, WS-California, CDFA, or county wildlife specialists are not solely responsible for determining when wildlife pose a threat. This responsibility, as defined in Chapter 1, is shared with the California Department of Fish and Wildlife (CDFW), California Department of Public Health (CDPH) and federal, state, and local law enforcement, which may include forest or park service personnel when there are attacks or threats at campgrounds or parks. CDFW may request assistance to resolve conflicts for any species under its primary responsibility, including their Law Enforcement Division's mission to provide both public safety and additional protections of California's natural resources through effective and responsive law enforcement (CDFW 2023). The public safety and resource protection services include the Californians Turn In Poachers and Polluters (CALTIP), K-9 Program, Wildlife Forensic Lab, and Hunter Education. Law enforcement agencies may also request assistance when safety is a concern, for example, a mountain lion threatening the immediate safety of humans and/or companion animals.

4.2.5.2 Relevant Laws, Policies, and Ordinances

Relevant laws, policies, ordinances, plans, and executive orders related to human and companion health and safety are located in Appendix B.

4.2.5.3 Adverse Effects/Thresholds of Significance

There are no thresholds for this topic listed in Appendix G of the California Environmental Quality Act (CEQA) Guidelines; therefore, human and companion animal health and safety has not been analyzed under CEQA. Under NEPA, the level of an effect must consider the context and intensity of the environmental effect and if the corresponding impact results in an adverse effect. For the purposes of the analysis, an adverse effect under NEPA would occur if the Proposed Project/Proposed Action would:

1. Directly, indirectly, or cumulatively result in adverse effects on human or companion animal health and safety.

4.2.5.4 Impacts Analysis

4.2.5.4.1 Proposed Project/Proposed Action Impacts

This section uses the below terminology adapted from Section 4.1.4, Impact/Effect Terminology, to describe the effects of the Proposed Project/Proposed Action on the ecological aspects of the human environment (i.e., natural resources and components, structures, and functioning of affected ecosystems) under NEPA (i.e., NEPA Conclusion).

NEPA Conclusions

- **No Impact:** The Proposed Project/Proposed Action would not affect ecological aspects of the human environment. (NI)
- **Not Significant:** The Proposed Project/Proposed Action would not substantially affect ecological aspects of the human environment. (NS)
- **Significant:** The Proposed Project/Proposed Action would substantially affect ecological aspects of the human environment. (S)

Under the Proposed Project/Proposed Action, all WDM methods described in Appendix C of the EIR/EIS would be available to WS-California, the CFDA, and county wildlife specialists as federal, state, local, and tribal laws and policies allow and when feasible. Refer to Section 3.7.1 for a description of activities proposed under the Proposed Project/Proposed Action Alternative.

WS conducted a series of risk assessments on several WDM activities included in the Proposed Project/Proposed Action. These WS risk assessments are publicly available on the USDA-APHIS website (USDA WS 2023). These analyses included a review of the introductory chapter (Chapter 1) which addresses employee, public, and companion animal safety, along with the other 17 chapters, which address specific tools used by WS and available under the Proposed Project/Proposed Action regarding employee, public, and companion animal safety related use of those tools. To further support the WS risk assessments performed, peer reviews have and continue to be conducted by non-federal professionals. The peer reviewers have the required knowledge of the methods and risks associated with the use of WDM methods, including the Association of Fish and Wildlife Agencies, an organization of state, provincial and territorial fish and wildlife agencies in North America entrusted with primary stewardship over vital wildlife resources. The analysis in this Section references and relies upon these risk assessments and the peer reviews. These WS risk assessments have generally found that the WDM methods analyzed often include some inherent risk and cite appropriate measures to mitigate the risks to employee, public, and companion animal safety, as well as other environmental factors and humaneness. WS-California generally already incorporates these measures into WDM actions. One such measure incorporated into WDM actions when feasible, is the use of best management practices (BMPs) for Trapping in the United States (AFWA 2022). The development of BMPs is part of an international effort to evaluate trapping devices and techniques with the goal of improving animal welfare. However, if these analyses determine that additional mitigation measures are warranted, WS-California, the CDFA, and county wildlife specialists will implement those measures, as applicable. The potential impacts on human and companion animal health and safety from the implementation of the Proposed Project/Proposed Action are analyzed for five core techniques below.

Capture Devices

Several types of capture devices, such as cage traps, snares, and foothold traps, could be utilized under the Proposed Project/Proposed Action (Appendix A of the EIR/EIS). Use of capture devices could result in increased harm to humans and capture of nontarget species, such as companion animals, if used improperly. However, WS-California, the CDFA, and county wildlife specialists would use traps in compliance with applicable federal, state, and local laws and regulations to minimize risks to non-targets and potential impacts to human and companion animal health and safety (see Appendix B). Additionally, WS-California is directed by WS Directive 2.210 (USDA WS 2020), which requires WS-California personnel to, when feasible, adhere to applicable federal, state, and local laws and regulations and BMPs. WS-California, the CDFA personnel, or county wildlife specialists will only provide operational assistance upon request and would only use capture devices approved by the land or resource manager/owner when providing the requested assistance. Consistent with the reduction of potential impacts to human and companion pet health and safety described above, when placing capture devices on public lands, bilingual warning signs will be placed near trap sets to alert the public to potential human or companion animal hazards from traps or captured animals. Capture devices are placed so that captured animals are not readily visible from any designated recreation road or trail. When conducting WDM on private lands, wildlife specialists will make reasonable efforts to obtain approval from adjacent landowners when setting capture devices under fence lines to avoid capture of domestic animals. Cage traps set for mountain lions and black bears, and foot snares set for black bears are typically used on private lands to protect livestock or property. And reasonable efforts are made to obtain approval from adjacent landowners when setting traps or snares under fence lines to avoid capture of domestic animals.

The WS-prepared risk assessments entitled "The Use of Cable Devices in Wildlife Damage Management," "The Use of Foothold Traps in Wildlife Damage Management, "The Use of Cage Traps in Wildlife Damage Management," and "The Use of Quick-Kill Traps in Wildlife Damage Management" evaluate risks and alternatives in detail (USDA WS 2023). These risk assessments conclude that these WDM methods would not have an adverse effect on human and companion animal health and safety.

Capture devices have the potential to capture nontarget species, but nontarget capture rates are low compared to overall take (see Chapters 3 and 4 of the BTR). Moreover, non-target individuals inadvertently captured are typically released unharmed. Feral dogs and feral cats can be targeted for lethal removal in response to requests for assistance when they are causing damage; however, WS-California, the CDFA, and county wildlife specialists will not deliberately target a licensed companion animal. During the analysis period (CY2010–2019), the average nontarget capture rate during WDM activities included 0.3 feral dogs and 0.8 feral cats annually. All nontarget feral dogs and cats captured during the analysis period were released unharmed (see Section 4.1 of the BTR for more details).

Risks to the health and safety of the public, including recreationists, companion animals, and livestock, are low on private lands and highly unlikely on public lands due to the low potential to encounter such equipment set on the landscape. WS-California, the CDFA personnel, and county wildlife specialists are professionals who are highly trained and routinely follow standard safety practices, especially the use of PPE (e.g., boots, long-sleeve shirts, and leather gloves) and safety requirements, which substantially reduces the risk of major or even minor injury during trapping and snaring activities. Capture devices used by WS-California, CDFA personnel, and county wildlife specialists are highly specialized to the target species and the rate of nontarget capture of wildlife is low. Therefore, WS-California, CDFA, or county wildlife specialist use of physical capture devices under the Proposed Project/Proposed Action presents little to no potential effect on human and companion animal health and safety.

Chemical Methods

Several types of hazardous materials and pesticides could be used during WDM activities under the Proposed Project/Proposed Action. The methods available are described in Appendix C of the EIR/EIS. WS-California, the CDFA, or county wildlife specialists may only use or recommended the use of restricted use pesticides which must be registered with the U.S. Environmental Protection Agency and California Department of Parks and Recreation. Chemicals applied during WDM activities will be used following label directions and are highly selective to target individuals or populations. Such use has negligible impacts or effects on the environment. Additionally, in accordance with WS Directives 2.401, 2.430, and 2.640, WS-California must apply, certify, store, transport, dispose, and use hazardous materials and pesticides in compliance with applicable federal, state, tribal, and local laws and regulations. A detailed analysis of the potential impacts of hazard and hazardous materials is also provided in Section 4.2.4 of this EIR/EIS. The analysis concluded that use of chemical methods under the Proposed Project/Proposed Action is unlikely to result in any adverse effect to human and companion animal health and safety.

Firearms/Firearm Like Devices

Licensed firearms are used to selectively target and remove individual damaging animals. The use of firearms and firearm-like devices during WDM activities is described in Appendix C of the EIR/EIS. Extensive and continuing training and certification is and will continue to be required for any firearm or firearm-like device use. WS-California, the CDFA personnel, and other participating wildlife specialists shall be trained and experienced in the use of firearms. WS-California employees who use shooting as a method must comply with WS Directive 2.615 and all standards described in the WS Firearms Safety Training Manual. WS Directive 2.615 requires that personnel

undergo regular training, adhere to a set of safety standards, submit to drug testing, and are subject to the Lautenberg Amendment. Certified instructors provide the required firearms training for WS-California personnel. Personnel are expected to clearly identify the targeted animal before shooting. A WS-prepared risk assessment chapter entitled "The Use of Firearms in Wildlife Damage Management" informs this training and WS firearm procedures (USDA WS 2019a). To ensure that CDFA and county programs will require similar firearms training for wildlife specialists Mitigation Measure (MM) HPHS-1 will be implemented (see Section 4.2.5.3.2, Mitigation Measures). When used appropriately, with proper training, and with consideration of human safety, risks associated with firearms are minimal. Section 4.2.6 and Section 4.2.4 concluded that no adverse effects would occur to the environment or sensitive receptors. Therefore, there is little to no potential effect on human and companion animal health and safety by the use of firearms when used either by WS-California, the CDFA, or county wildlife specialist use of firearms specialists, and/or any other person under the Proposed Project/Proposed Action.

Aerial Operations

Only WS-California would provide aerial WDM operations using fixed-wing or rotary-wing (i.e., helicopter) aircraft. The CDFA or county wildlife specialists could contribute to aerial WDM operations though cooperating and funding (refer to Appendix A-1 of the EIR/EIS).

Accidents in relation to WS aerial operations carried out by WS have occurred nationally and are a concern to WS and to the public. In order to address the risks posed to WS personnel, the public, and the environment, WS prepared a risk assessment chapter entitled "The Use of Aircraft in Wildlife Damage Management" that evaluates risks and alternatives in detail (USDA WS 2019b). It is important to note that the aerial environment in which WS operates inherently carries a higher risk compared to general aviation. Low-level flights introduce hazards such as power lines and trees, and the safety margin for error during maneuvers diminishes in comparison to high-level flights. The nature of WS aerial operations is more similar to activities such as crop-dusting. Therefore, it is essential to emphasize that WS agency pilots and contractors possess extensive skills, experience, and hold commercial pilot ratings. They have also successfully passed proficiency tests that evaluate their ability to navigate the flight environment encountered during WS operations. Moreover, shooting activities are only conducted once potential hazards have been recognized and assessed. These measures have collectively contributed to a reduction in the aviation accident rate for WS, making aerial WDM safer for both its employees and the public. The nationwide accident rate for WS during CY 2007–2016 was 4.46 accidents per 100,000 hours flown, which is lower than the general aviation rate of 6.6 during the same timeframe (USDA WS 2019b). The lower accident rate serves as a testament to WS's commitment to aviation safety.

WS-California would use fixed-wing aircraft for aerial WDM activities only in areas under agreement and primarily conduct efforts during certain times of the year such as during lambing. Nationally, WS annually flies less than 20 min/mi^2 (this is equivalent to less than 2 seconds per acre), on properties under agreement.

The risk of fire or hazardous spills related to WS-California's aerial operational are considered negligible. In addition, the National Transportation Safety Board considers risks of fire and from hazardous spills related to government aircraft operations and accidents to be negligible nationwide, and no such incidents have been attributed to WS-California aerial operations (USDA WS 2019b).

Taking these factors into account, WS-California's involvement in aerial WDM is relatively limited. WS-California owns a single fixed-wing aircraft and primarily relies on contracts with other state WS offices to carry out additional WDM operations. During FY2022, WS-California flew 3.5 hours, with an additional 7.4 hours contracted from other state WS offices (USDA 2022). Because of the relatively low use by WS-California, the high level of expertise

required, and the short-term nature of aerial operations, the potential for significant risks to WS-California wildlife specialists, the public, and companion animals would be low.

Trained Animals

Trained animals may include dogs, llamas, donkeys, and other animals. Trained dogs are used during WDM operations to track or trail animals, detect particular species or their sign, retrieve animals taken with another method such as firearms, haze animals from an area where they are not wanted (e.g., dispersal of birds), and decoy or attract coyotes which respond to canid invasions of their territories. WS-California regularly uses trained dog for these activities. WS Directive 2.445 requires WS-California personnel to ensure that trained dogs have all the necessary care, including appropriate housing, food, and all required licenses and vaccinations per applicable state and local laws. WS-California and the CDFA personnel may own trained dogs or hire certified contractors. These animals are highly trained and are taught to respond only when directed by its handler. Pursuant to the Migratory Bird Treaty Act (MBTA), a dog handler cannot allow their dog to catch or harm protected migratory birds unless the dog is intentionally harassing or retrieving the bird. A federal or state permit may be required to target or harass wildlife using dogs, consistent with federal and state laws. Additionally, WS Directive 2.445 states that dogs under WS-California direction must be trained not to attack an animal captured, at bay, or killed, nor leave the trail for distractions. In order to address the risks posed to WS personnel, the public, and the environment, WS prepared a risk assessment chapter entitled "The Use of Dogs and Other Animals in Wildlife Damage Management" that evaluates risks and alternatives in detail (USDA WS 2021). This risk assessment concluded that trained dogs may take nontarget species, but the rates are low compared to overall take.

Trained livestock guarding animals, such as dogs or llamas, are under the ownership, care, and control of the livestock owner or their agent. Activities of wildlife specialists in investigating depredation events or conducting WDM activities may be in the vicinity of such animals and must take care not to distract or directly interact with them. They are trained to protect the livestock from all threats, including perceived threats from people, and are not typically socialized to human interactions. WS-California, the CDFA personnel, and county wildlife specialists will be vigilant to the presence of livestock guarding animals or licensed companion animals while conducting WDM on private or public lands to avoid unwanted interactions. To address the potential for impacts related to livestock guarding animals and interactions with the general public, MM-HPHS-2 shall be implemented (see Section 4.2.5.3.2, Mitigation Measures).

The risk of injury to humans or companion animals from trained dogs actively working in the field and under the control of handlers, as well as livestock guarding animals, is negligible. WS personnel or contractor handled trained dogs have not injured members of the public for at least the last 10 years. Thus, the potential for significant risks from trained animals to WS-California, the CDFA personnel, county wildlife specialists, the public, and companion animals under the Proposed Project/Proposed Action would be low.

Conclusion

The operational WDM activities and methods included in the Proposed Project/Proposed Action could expose WS-California, the CDFA personnel, county wildlife specialists, the public, and companion animals to health and safety risks if improperly carried out. However, the potential risk is low because all methods and materials are consistently used in a manner known to be safe. This is ensured through requiring training and certification programs for the use of certain WDM methods and compliance with chemical use, firearms, and aviation safety. The risk to the public is further reduced because most WDM methods are typically used in areas where public access is limited. Under the Proposed Project/Proposed Action, WDM activities and methods would be carried out where the land or

resource manager/owner is informed and has authorized the activity. Though the Proposed Project/Proposed Action may result in some nontarget take, including companion animals, WS-California, the CDFA, and county wildlife specialist WDM actions under the Proposed Project/Proposed Action would result in no significant direct, indirect, or cumulative impacts to human and companion animal health and safety.

NEPA Conclusion: *Not significant.*

4.2.5.4.2 Mitigation Measures

MM-HPHS-1: Training and/or certification will continue to be required for any firearm or firearm-like device use, including all wildlife specialists (federal, state, regional, and local).

MM-HPHS-2: Wildlife specialists will be vigilant to the presence of livestock guarding animals or licensed companion animals while conducting WDM on private or public lands to avoid unwanted interactions.

4.2.5.4.3 Cumulative Impacts

The operational WDM activities and methods included in the Proposed Project/Proposed Action in combination with past, present, and reasonably foreseeable future development would not result in significant or cumulatively considerable impacts related to human and companion animal health and safety. Actions taken by the CDFA, WS-California, or Counties would not compound with other activities in the human environment to adversely affect human and companion animal health and safety and are instead intended to reduce risks. As previously described, the Proposed Project/Proposed Action would be carried out where the land or resource manager/owner is informed and has authorized the activity; thus, allowing an expansion of resources to address all types of human and companion animal health and safety emergencies.

NEPA Conclusion: *Not significant.*

4.2.5.4.4 Alternatives Impacts

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, all WDM methods described in Appendix C would be available to WS-California. Refer to Section 3.8.1 for a description of activities proposed under Alternative 1. However, services that could be provided by a state program (i.e., the proposed CDFA Program), such as maintaining the EIR portion of this EIR/EIS and compiling data of non-WS county WDM activities, would not be available. Furthermore, the establishment of Rapid Response protocols would not occur. These services are intended to enhance collaboration between local, state, tribal, and federal entities and reduce response time during high-risk wildlife damage events, such as wildlife disease outbreaks. Consequently, those engaged in WDM activities under Alternative 1 would not be able to take advantage of these potential benefits and state-wide damaging events may take longer to resolve, potentially resulting in continued longer periods of risk to human and companion animal health and safety.

Under Alternative 1, WS-California use of capture devices, trained animals, and firearms, chemical methods, and aerial operations would be the same as under the Proposed Project/Proposed Action. Thus, potential impacts to human and companion animal health and safety under Alternative 1 would be similar to those under the Proposed Project/Proposed Action. Implementation of MM-HPHS-1 and MM-HPHS-2 will minimize the potential for significant impacts. Alternative 1 may result in some nontarget take, including companion animals; however, WDM actions

under Alternative 1 are unlikely to result in significant direct, indirect, or cumulative impacts to human and companion animal health and safety.

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Under Alternative 2, WS-California, CDFA, and county wildlife specialists would provide technical assistance on lethal and non-lethal techniques, and/or provide non-lethal operational WDM assistance, but would not provide lethal WDM operational assistance, except for cases of human and companion animal health and safety, T&E species protection, and WHM at airports. WS-California, CDFA, and county wildlife specialists would not use lethal methods to respond to other WDM requests (e.g., agricultural and property protection). Refer to Section 3.8.2 for a description of activities proposed under of Alternative 2.

Under Alternative 2, resource or land managers/owners requesting lethal operational assistance would be referred to other entities. This alternative would place the immediate burden of lethal operational damage management on the resource owner, other governmental agencies, private businesses and/or private individuals. These entities may or may not adhere to safety precautions, BMPs, or federal, state, and/or local laws. Private efforts to reduce or prevent damage would be expected to increase and would likely result in less experienced persons implementing lethal damage management methods which may have a greater risk to human health and safety. Private individuals are not likely to have the consistent training and constant experience with lethal capture equipment that WS-California or other trained wildlife Specialists have, nor the experience to confirm the individual animals causing the damage. Since it is likely that private entities would conduct the majority of lethal WDM on private land or lands with restricted access (i.e., airports or military installations), there is low likelihood that the general public would encounter private entity equipment. Landowners are responsible for the safety of their companion animals and livestock on private land. Other commercial, governmental, and private entities and landowners would continue to conduct WDM activities as requested.

Alternative 2 may result in greater private entity caused nontarget take, including companion animals, or án escalation of improper use of WDM methods by private entities; however, potential impacts on human and companion animal health and safety from WS-California, the CDFA, or county provided operational WDM would be lower than under the Proposed Project/Proposed Action and Alternative 1. Implementation of MM-HPHS-1 and MM-HPHS-2 will minimize the potential for significant impacts. Alternative 2 is unlikely to result in significant direct, indirect, or cumulative impacts to human and companion animal health and safety.

NEPA Conclusion: *Not significant.*

Alternative 3. Non-Lethal Operational WDM

Under Alternative 3, WS-California, CDFA, and county wildlife specialists would provide technical assistance on lethal and non-lethal techniques and provide only non-lethal operational WDM assistance. No lethal operational WDM assistance would be provided. Refer to Section 3.8.3 for a description of activities proposed under Alternative 3.

Alternative 3 would be similar to Alternative 2, however WS-California, CDFA, or county wildlife specialists would not provide lethal operational WDM for any reason. Under Alternative 3, resource or land managers/owners requesting lethal operational assistance would be referred to other entities. This alternative would place the immediate burden

of lethal operational damage management on the resource owner, other governmental agencies, private businesses and/or private individuals. These entities may or may not adhere to safety precautions, BMPs, or federal, state, and/or local laws. Private efforts to reduce or prevent damage would be expected to increase and would likely result in less-experienced persons implementing lethal damage management methods which may have a greater risk to human health and safety. Private individuals are not likely to have the consistent training or experience with capture equipment that WS-California and/or trained wildlife specialists have, nor the experience to confirm the individual animals causing the damage. Since it is likely that private entities would conduct the majority of WDM on private land or lands with restricted access (i.e., airports or miliary installations), there is low likelihood that the general public would encounter private entity equipment placed by landowners or their agents. Landowners are responsible for the safety of their companion animals and livestock on private land. Other commercial, governmental, and private entities and landowners would continue to conduct WDM activities as requested.

Alternative 3 may result in greater private-entity-caused nontarget take, including companion animals, or an escalation of improper use of WDM methods Risks to human and companion animal health and safety at airports and from aggressive wildlife may increase as entities other than WS-California, the CDFA, or county wildlife specialists would need to provide lethal WHM and WDM operational assistance. However, potential impacts on human and companion animal health and safety from WS-California, the CDFA, or county provided operational WDM would be lower than under the Proposed Project/Proposed Alternative and Alternative 1, and similar to Alternative 2. Implementation of MM-HPHS-1 and MM-HPHS-2 will minimize the potential for significant impacts. Alternative 3 is unlikely to result in significant direct, indirect, or cumulative impacts to human and companion animal health and safety.

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Under Alternative 4, participating counties or other governmental agencies could establish an assistance program or cost-sharing initiative that provides monetary compensation to affected cooperators with a focus on funding improved protection from damaging wildlife. This alternative would not include technical assistance or operational assistance provided by WS-California, the CDFA, or counties. Implementation of Alternative 4 is not available to WS-California or the CDFA. Refer to Section 3.8.4 for a description of activities proposed under Alternative 4.

Alternative 4 is a financial reimbursement assistance alternative to fund non-lethal WDM methods, such as exclusion fencing. Resource or land managers/owners requesting financial reimbursement assistance under this alternative would only receive assistance for as long as funds last. Resource or land managers/owners requesting lethal or non-lethal operational assistance or reimbursement assistance after funds have run out would not be reimbursed under this alternative and be referred to other entities. This alternative would place the immediate burden of operational damage management on the resource owner, other governmental agencies, private businesses and/or private individuals. These entities may or may not adhere to safety precautions, BMPs, or federal, state, and/or local laws. Private efforts to reduce or prevent damage would be expected to increase and would likely result in less-experienced persons implementing operational damage management methods which may have a greater risk to human health and safety. Private individuals are not likely to have the consistent training or experience with capture equipment that WS-California and/or trained wildlife specialists have, nor the experience to confirm the individual animals causing the damage. Since it is likely that private entities would conduct the majority of lethal WDM on private land or lands with restricted access (i.e., airports or miliary installations), there is low likelihood that the general public would encounter private entity equipment placed by landowners or their agents. Landowners are responsible for the safety of their companion animals and livestock

on private land. Other commercial, governmental, and private entities and landowners would continue to conduct WDM activities as requested.

Alternative 4 may result in greater private entity caused nontarget take, including companion animals, or an escalation of improper use of WDM methods. Risks to human and companion animal health and safety at airports and from aggressive wildlife may increase as entities other than WS-California, CDFA, or county wildlife specialists would need to provide operational WHM and WDM assistance. Because Alternative 4 does not include any operational WDM, potential impacts on human and companion animal health and safety from WS-California, the CDFA, or county provided operational WDM is not anticipated. Alternative 4 is expected to have no direct or indirect effects to human and companion animal health and safety; however, as described in Section 4.2.5.2 Adverse Effects/Thresholds of Significance, there are no thresholds for this topic listed in Appendix G of the CEQA Guidelines; therefore, human and companion animal health and safety has not been analyzed under CEQA and no CEQA impact determination is provided. The above analysis is presented for informational purposes only.

Alternative 5. No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WS-California WDM activities and would not include any new CDFA or county WDM programs. Resource or land managers/owners requesting technical or operational WDM assistance or would be referred to other entities. This alternative would place the immediate burden of operational damage management on the resource owner, other governmental agencies, private businesses and/or private individuals. These entities may or may not adhere to safety precautions, BMPs, or federal, state, and/or local laws. Private efforts to reduce or prevent damage would be expected to increase and would likely result in less-experienced persons implementing operational damage management methods which may have a greater risk to human health and safety. Private individuals are not likely to have the consistent training or experience with capture equipment that WS-California and/or trained wildlife specialists have, nor the experience to confirm the individual animals causing the damage. Since it is likely that private entities would conduct the majority of lethal WDM on private land or lands with restricted access (i.e., airports or miliary installations), there is low likelihood that the general public would encounter private entity equipment placed by landowners or their agents. Landowners are responsible for the safety of their companion animals and livestock on private land. Other commercial, governmental, and private entities and landowners would continue to conduct WDM activities as requested.

Alternative 5 may result in greater private entity caused nontarget take, including companion animals, or an escalation of improper use of WDM methods. Risks to human and companion animal health and safety at airports and from aggressive wildlife may increase as entities other than WS-California, the CDFA, or county would need to provide WHM and WDM assistance. However, the quantification of the corresponding effects in the context of an increase in impacts would be speculative and are expected to result in not significant impacts under NEPA.

NEPA Conclusion: *Not significant.*

4.2.5.4.5 Alternatives Impacts - Cumulative

The operational WDM activities and methods included in the Alternatives 1–3 in combination with past, present, and reasonably foreseeable future development would not result in significant impacts related to human and companion animal health and safety. Actions taken by the CDFA, WS-California, or Counties would not compound with other activities in the human environment to adversely affect human and companion animal health and safety and are instead intended to reduce risks. As previously described, the Proposed Project/Proposed Action would be carried out where the land or resource manager/owner is informed and has authorized the activity. Because

Alternatives 4 and 5 do not include any operational WDM, potential impacts on human and companion animal health and safety from WS-California, CDFA, or county wildlife specialist provided operational WDM are not anticipated. Alternatives 4 and 5 are expected to have no direct, indirect, or cumulative impacts to human and companion animal health and safety.

NEPA Conclusion (Alternatives 1–3): *Not significant.*

NEPA Conclusion (Alternatives 4 and 5): *No impact.*

4.2.5.5 References

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4.2.6 Noise

This section describes existing noise conditions, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the California Department of Food and Agriculture Program and WS-California's Wildlife Damage Management (Project or Proposed Project/Proposed Action).

The Proposed Project/Proposed Action will describe and formalize a framework for managing damage from wildlife proving injurious to California's agricultural industry. This environmental impact report/environmental impact statement (EIR/EIS) will inform decision makers and the general public about the potential impacts of existing and future Wildlife Damage Management (WDM) activities that would be considered under the Proposed Project framework. Activities within this framework will be carried out by the California Department of Food and Agriculture (CDFA), California Counties, and Wildlife Services (WS)-California, with collaboration and consultation from other local, state, and federal agencies, as applicable.

This EIR/EIS for the Proposed Project is focused on proposed WDM activities to protect California's agriculture industry, with appropriate consideration for avoiding impacts to the environment. The EIR/EIS evaluates a range of activities that will be implemented at specific locations, based on management needs. This list of activities is summarized in Chapter 2, Project Description, of this EIR/EIS. No specific locations for Project implementation have been defined at this time.

4.2.6.1 Existing Conditions

4.2.6.1.1 Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represents the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound separate from sound level and is expressed in units of cycles per second, or hertz. The normal frequency range of hearing for most people extends from approximately 20 to 20,000 hertz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system was developed to evaluate how loud a noise level is perceived by humans. The frequency weighting, called "A" weighting, is typically used for quieter noise levels, which de-emphasizes the low-frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the "noise level" and is referenced in units of A-weighted decibels (dBA). Table 4.2.6-1 presents typical noise levels for common outdoor and indoor activities.

Sound is measured on a logarithmic scale; a doubling of sound energy results in a 3 dB increase in the noise level. However, changes in a community noise level of less than 3 dB are not typically noticed by the human ear (Caltrans 2020a). Changes from 3 to 5 dB may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dB increase is readily noticeable (EPA 1974). The human ear perceives a 10 dB increase in sound level as a doubling of the sound level (e.g., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual's noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually changes throughout a typical day, corresponding to distant noise sources such as

traffic volume and changes in atmospheric conditions. The time-varying character of environmental noise is often described using statistical or percentile noise descriptors, such as L10, L50, and L90. These are the noise levels equaled or exceeded during 10%, 50%, and 90% of the measured time interval. Sound levels associated with L10 typically describe transient or short-term events, such as the noise from distinct passing cars and trucks measured from a position near a low-traffic roadway. L50 represents the median sound level during the measurement interval. Levels will be above and below this value exactly 50% of the accumulated measurement time. L90 is the sound level exceeded 90% of the time, and often is used to describe background noise conditions or sources that are continuous or "steady-state" in character.

Table 4.2.6-1. Typical Noise Levels Associated with Common Activities

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet	105	
	100	
Gas Lawn Mower at 3 feet	95	
	90	
Diesel Truck at 50 feet, 50 miles per hour	85	Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime	75	
	70	Vacuum Cleaner at 10 feet
Commercial Area	65	Normal Speech at 3 feet
Heavy Traffic at 300 feet	60	
	55	Large Business Office
Quiet Urban Daytime	50	Dishwasher (in next room)
	45	
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime	35	
	30	Library
Quiet Rural Nighttime	25	Bedroom at Night, Concert Hall (background)
	20	
	15	Broadcast/Recording Studio
	10	
	5	
Lowest Threshold of Human Hearing (Healthy)	0	Lowest Threshold of Human Hearing (Healthy)

Source: Caltrans 2020a.
dBA = A-weighted decibel

Noise levels are generally higher during the daytime and early evening when traffic (including aircraft), commercial activity, and industrial activity are the greatest. As such, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the perceiver. To evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "Community Noise Equivalent Level" (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}, respectively), percentile-exceeded sound level (L_{xx}), the day-night average sound level (L_{dn}), and CNEL. The following list provides brief definitions of noise terminology used in this section:

- **Decibel** (dB) is a unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-weighted decibel** (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent sound level** (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the L_{dn} and CNEL scales.
- **Maximum sound level** (L_{max}) is the maximum sound level measured during the measurement period.
- **Minimum sound level** (L_{min}) is the minimum sound level measured during the measurement period.
- **Percentile-exceeded sound level** (L_{xx}) is the sound level exceeded X% of a specific time period. For example, L_{10} is the sound level exceeded 10% of the time.
- **Day-night average sound level** (L_{dn}) is a 24-hour average A-weighted sound level with a 10 dB penalty added each of the hourly average noise levels occurring in the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours.
- **Community Noise Equivalent Level** (CNEL) is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.) by adding 5 dB to the recorded hourly average sound levels in the evening and 10 dB to the hourly average sound levels at night.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time; and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dB for each doubling of distance from the source to the receptor at acoustically "hard" sites, and at a rate of 7.5 dB for each doubling of distance from source to receptor at acoustically "soft" sites (Caltrans 2020a). Sound generated by a line source (e.g., a roadway) typically attenuates at a rate of 3 dB and 4.5 dB per doubling distance, for hard and soft sites, respectively (Caltrans 2020a). Sound levels can also be attenuated by human-made or natural barriers. For the purpose of a sound attenuation discussion, a hard or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically soft or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Here is an example of this distance-attenuation relationship for exterior noise. A 60 dBA noise level measured at 50 feet from a tractor installing fenceposts within a packed earth feedlot site would diminish to 54 dBA at 100 feet from the source, and to 48 dBA at 200 feet from the source. This scenario is governed by the point-source attenuation for a hard site (6 dB with each doubling of distance). For the scenario where soft-site conditions exist between the point source and receptor, represented by natural vegetation, planted row crops, or plowed furrows adjacent to the work area, an attenuation rate of 7.5 dB per doubling of distance would apply; the tractor noise

measured as 60 dBA at 50 feet would diminish to 52.5 dBA at 100 feet from the source and to 45 dBA at 200 feet from the source where soft ground exists between the sound source and the receptor location.

Structural Noise Attenuation

Sound levels can also be attenuated by human-made or natural barriers. Solid walls, berms, or elevation differences typically reduce noise levels in the range of approximately 5 dB to 15 dB (Caltrans 2020a). Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical structures in California ranges from 17 dB to 30 dB with open and closed windows, respectively, as shown in Table 4.2.6-2.

Table 4.2.6-2. Outside-to-Inside Noise Attenuation

Building Type	Open Windows (dB)	Closed Windows (dB)*
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Offices/Hotels	17	25
Theaters	17	25

Source: Transportation Research Board, National Research Council 1971.
Notes: dB = decibel.
* As shown, structures with closed windows can attenuate exterior noise by a minimum of 25 dB.

4.2.6.1.2 Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be experienced by building occupants as perceptible vibration. It is also common for groundborne vibration to cause windows, pictures on walls, and items on shelves to rattle. Although the perceived vibration from such equipment operation can be bothersome to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

Peak particle velocity describes particle movement over time (in terms of physical displacement of mass, expressed as inches per second), and is generally employed for the discussion of vibration impacts on people and structures. Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities. Next to pile driving and soil compacting, grading activity has the greatest potential for vibration impacts when earthwork involves large bulldozers, large trucks, or other heavy equipment.

4.2.6.1.3 Health Effects of Noise

Noise is known to have a number of different adverse effects on humans. Based on these recognized adverse effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on the effects of noise on people such as hearing loss (not generally associated with community noise), communication interference, sleep interference, physiological responses, and annoyance (EPA 1974).

4.2.6.1.4 Sensitive Receptors

Noise- and vibration-sensitive receptors are locations where people reside or where the presence of unwanted sound or vibration could adversely affect use of the land. Residences, hospitals, nursing care or assisted living facilities, guest lodging, and places of worship would be considered noise- and vibration-sensitive receptors. Domestic pets would be included in the same residential population addressed under noise-sensitive land uses because they would gain the same relief afforded by retreating indoors when exterior noise exposure reached annoyance levels; noise-related impacts to non-target wildlife species are normally considered within the scope of a biological resources assessment. In addition, vibration-sensitive land uses also include institutional uses such as laboratories where the activities within the building are particularly sensitive to vibration.

The specific areas and extent of individual Proposed Project activities would depend on various factors, including the target species and the management approaches available. Proposed Project activities would occur primarily in rural, residential, and agricultural environments. Project activities in urbanized areas would likely have a limited or rare occurrence, but noise- and vibration-sensitive receptors from all of the above-referenced categories may exist and could potentially be adversely affected by these less-common Project activities. Scattered or low-density residences are common in agriculture zones and could be adversely affected by noise or vibration from Project activities. Note that most WDM activities would be conducted within a small target area, would be temporary, and would only be conducted in response to a specific request for service.

4.2.6.1.5 Existing Noise Levels

Given that the geographic scope of the Proposed Project is the entire State of California, it is not practical to complete sound-level measurements to establish the existing noise environment where each Project activity may occur. This conclusion is strengthened in that locations where Project activities may be needed have not been determined and will likely evolve over time. Activities associated with the Proposed Project could occur at various locations throughout California in urban, residential, and agricultural areas; therefore, the magnitude range (in dBA L_{eq} or dBA L_{dn}) of the existing ambient noise environment in areas where Project activities may occur would vary widely and would depend heavily on community noise sources in proximity to a given location. In general, the ambient outdoor sound environment that may be measured or perceived at a given location represents an aggregate of possibly many distinct nearby stationary and mobile sources combined with a multitude of other distant sources.

A characterization of the existing ambient outdoor sound levels at a noise-sensitive receptor (expressed as dBA L_{dn} or L_{eq}) that may be exposed to noise from Proposed Project activities is important with respect to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) assessment criteria. For reasonable comparisons appropriate in this analysis, Federal Transit Administration noise assessment guidance provides two methodologies to estimate existing noise exposure throughout a given community (FTA 2018):

- proximity to transportation routes based on the perpendicular distances to highways, railroad lines, and other major roadways; and
- population density when noise from major surface transportation routes is far enough away, and ambient urbanized noise is dominated by local street traffic, building operations (e.g., heating, ventilating, and air conditioning), and community activities.

Table 4.2.6-3 correlates distance ranges from major roadways, other roadways, and rail-lines to estimated daytime, nighttime, and L_{dn} ambient sound levels. Table 4.2.6-3 also identifies community noise levels (ambient exterior noise levels) based on population density ranges that may be used for areas that are far removed from transportation (e.g., road and rail facilities) noise sources.

Table 4.2.6-3. FTA Method Results for Estimating Existing Ambient Noise Levels (dBA)

FTA Method Based on Transportation	Distances from Major Transportation Sources (feet)[a]							
Interstate Highway[b]	N/A		>800	400–800	200–400	100–200	50–100	<50
Rail[c]			500–800	240–500	120–240	60–120	30–60	10–30
Other Roadway[d]			>400	200–400	100–200	50–100	<50	N/A
FTA Method Based on Population	**People per Square Mile**							
	<300	300–1,000	1,000–3,000	3,000–10,000	10,000–30,000	>30,000	N/A	
Estimated Sound Level (dBA)								
Nighttime L_{eq}	30	35	40	45	50	55	60	65
Daytime L_{eq}	40	45	50	55	60	65	70	75
Day-Night Avg. (L_{dn})	40	45	50	55	60	65	70	75

Source: FTA 2018

Notes: FTA = Federal Transit Administration; dBA = A-weighted decibels; N/A = not applicable; L_{eq} = equivalent sound level.

[a] Distances do not include shielding from intervening rows of buildings. The general rule for estimating shielding attenuation in populated areas is as follows: assume one row of buildings every 100 feet provides a 4.5-decibel reduction for the first row and a 1.5-decibel reduction for every subsequent row.

[b] Roadways with four or more lanes that permit trucks, with traffic at 60 miles per hour (mph).

[c] Main line railroad corridors typically carry 5–10 trains per day at speeds of 30–40 mph.

[d] These are parkways with traffic moving at 55 mph, but without trucks, and city streets with the equivalent of 75 or more heavy trucks per hour and 300 or more medium trucks per hour at 30 mph.

4.2.6.2 Relevant Laws, Policies, and Ordinances

Relevant laws, policies, ordinances, plans, and executive orders related to noise are located in Appendix B.

4.2.6.3 Adverse Effects/Thresholds of Significance

Under the National Environmental Policy Act (NEPA), the level of an effect must consider the context and intensity of the environmental effect and if the corresponding impact results in an adverse effect. For the purposes of the analysis, an adverse effect under NEPA would occur if the Proposed Project/Proposed Action would:

> Directly, indirectly, or cumulatively result in significant adverse noise impacts on humans or significant adverse vibration impacts on humans or structures.

The significance criteria used to evaluate Proposed Project impacts related to noise are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to noise would occur if the project would:

1. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
2. Generate excessive groundborne vibration or groundborne noise levels; and/or

3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

4.2.6.4 Impacts Analysis

4.2.6.4.1 Methodology

Noise Sources Descriptions

One of the most extensive and widely used databases for sound levels from motorized or powered equipment is the Federal Highway Administration's Roadway Construction Noise Model (RCNM), Version 1.1 (FHWA 2008). Although the focus is on equipment that would typically be used for construction of transportation facilities, the list is comprehensive enough to be useful in assessing sound levels for nearly every activity for which powered equipment is used. Table 4.2.6-4 provides an excerpt from RCNM of the sound levels generated by various powered equipment that could be associated with Proposed Project activities.

Table 4.2.6-4. Selected Powered Equipment Noise Emission Levels from the RCNM

Equipment	Maximum Sound Level (dBA L_{max}) – 50 feet from Source
Air Compressor	78
Air Horn/Deterrent Device	83
Generator	72
Pickup Truck	55

Sources: FHWA 2006, 2008.
RCNM = Roadway Construction Noise Model; dBA = A-weighted decibel.

An additional, widely used database for noise levels generated by sources, including non-construction machinery, vehicles, and even wildlife, is the Noise Navigator Sound Level Database (Berger 2013). Table 4.2.6-5 provides sound levels from the Noise Navigator and other references for these types of sources that are useful in assessing sound generation that would result from Project activities.

Table 4.2.6-5. Various Sound Source Noise Emission Levels - Other Reference Sources

Equipment	Maximum Sound Level (dBA L_{max}) 50 Feet from Source
All-Terrain Vehicle (ATV)[a]	75
Piper PA-18 (Super Cub)[b]	92
Crows[a]	47
Dog Barking[a]	60
Hammer Strike (e.g., sledge on stake)	64

Sources: [a] Berger 2013; [b] FAA 1997.
dBA = A-weighted decibel

The most substantial noise sources would be associated with potential wildlife deterrent methods and direct control activities and would include firearms and explosive devices. Published sound-level test data from manufacturers or distributors of such items are presented in Table 4.2.6-6 and were used in assessing sound generation that would result from Project activities.

Table 4.2.6-6. Noise Emissions Levels for Firearms and Explosive Devices

Equipment	Maximum Sound Level (dBA L_{max}) 3.28 Feet from Source	Maximum Sound Level (dBA L_{max}) 50 feet from Source[f]
Rocket Net/Cannon Net[a]	150	126
Propane Exploder[b]	122	98
Pyrotechnic (Screamer Siren)[b]	92	68
Pyrotechnic (CAPA)[b]	142	118
.308 Caliber Rifle[c]	173	149
.308 Caliber Rifle with Sound Suppressor[c]	149	125
.22 Caliber Rifle[c]	153	129
.22 Caliber Rifle with Sound Suppressor[c]	129	105
.22 Caliber Rifle, Subsonic Ammo, with Sound Suppressor[e]	75	51
12-Gauge Shotgun[d]	164	140
12-Gauge Shotgun with Sound Suppressor[d]	137	113
Daisy Red Ryder BB Gun[d]	97	73

Notes: dBA = A-weighted decibel.
Sources:
[a] E.A.R. Customized Hearing 2023; based on average shotgun noise data.
[b] Reed-Joseph 2022a, 2022b, 2022c.
[c] Ammo-to-Go 2019.
[d] Silencer Central 2022.
[e] Felix and Massey 2022.
[f] Calculated with exterior noise attenuation of 20*LOG(d/dref); where d is the horizontal distance between a source and a receiver position and dref is the reference distance at which the sound source L is defined.

Methodology – Noise Level Quantification for Project Activities

RCNM allows the user to assemble a list of powered equipment that would be employed for a given activity, and then based on the reported sound emission level for each piece of equipment, the model calculates the sound level from equipment use at any specified distance. RCNM includes a use factor for each piece of equipment, which reflects the percentage over a given time when the equipment is in full operation; the individual use factors are included in the calculation of average sound levels for each given piece of equipment. RCNM includes equations for outdoor distance attenuation and for the addition of the individual sound levels at distance into a composite sound level for all the included equipment (FHWA 2006, 2008).

RCNM can also calculate noise levels for custom sources not found in RCNM, as long as the sound level at 50 feet and a use factor are supplied for the custom entries (use factor values are not limited to those included in the native RCNM model). Sound attenuation with distance and the summing of noise levels at distance for the custom sources and the native RCNM equipment are handled the same way (FHWA 2006, 2008).

From the available Proposed Project information regarding WDM methods and techniques, Dudek acousticians assembled an anticipated equipment list for Project activities that would involve noise generation of a substantial degree. The RCNM, Noise Navigator, and manufacturer sound data (refer to Tables 4.2.6-4 to 4.2.6-6, above) were used to identify the sound generation level of each piece of anticipated equipment or machinery, and appropriate entries were made into RCNM version 1.1 (FHWA 2008). The RCNM was then run to identify average noise levels (L_{eq}) that would be generated by a specific Project activity at a reference distance of 50 feet. The resulting L_{eq} value

for each specific Project activity was then averaged over an 8-hour period, using an expected duration of the activity compared to the 8 hours available in a typical daytime or nighttime work schedule. The duration of any given activity is expressed in hours or minutes, which is identified in each of the results tables. The RCNM was re-run successively with different distances for each individual Project activity until the daytime target of 65 dBA L_{eq} 8-hour was reached. This distance represents the setback from residences needed to avoid significant noise impacts for daytime completion of the given activity. The RCNM was then again re-run successively with different distances for each individual activity until the nighttime target of 45 dBA L_{eq} 8-hour was reached. This distance represents the setback from residences needed to avoid significant noise impacts for nighttime completion of the given activity.

Parameters used in the noise analysis for various WDM activities (i.e., X number of explosions/gunshots every X minutes) are a conservative average and should not be interpreted to restrict WDM activities. Also, although daytime average noise levels are calculated across an 8-hour workday for comparison to representative noise standards, most Project equipment would not be used for 8 hours without interruption; the analysis assumes 8 hours of use to provide a conservative parameter to estimate potential noise levels.

Vibration Sources

Similar to the construction equipment noise data compiled by the Federal Highway Administration, the California Department of Transportation (Caltrans) has been assembling data for vibration levels generated by heavy construction equipment operation during the building of transportation projects for many years (Caltrans 2020b). Along with vibration source levels for construction equipment, Caltrans has developed an equation to determine the vibration level at a given distance from the equipment operations. The Caltrans data covers common heavy-duty construction equipment and equipment with substantial vibration generation, such as pile drivers and jackhammers. However, the equipment with vibration generation potential that may be employed for the Project, namely a pickup truck, is not included in the Caltrans data. Consequently, a vibration source level for a pickup truck was derived from a published research paper (Shiferaw 2021). The reported values are for a standard single-cab pickup truck traveling at 50 miles per hour. Although pickup trucks may travel 50 miles per hour between sites or on an airfield, typically much slower speeds are employed when conducting actual WDM activities, and therefore the vibration level in Table 4.2.6-7 represents the maximum that would not be realized under most circumstances.

Table 4.2.6-7. Vibration Velocities for Typical Vehicles

Equipment	Peak Particle Velocity at 6.56 Feet (2 Meters)
Pickup Truck	0.114 inches per second

Source: Shiferaw 2021

Methodology – Vibration Assessment for Project Activities

With respect to potential vibration generation, the equipment most likely to be employed in carrying out Project activities consists of a pickup truck. A pickup truck's peak particle velocity (PPV) at 2 meters (6.56 feet) is 0.114 inches per second (in/sec) (Shiferaw 2021). All-terrain vehicles (ATVs) and other equipment that may be employed for Project activities would have negligible vibration levels compared to a pickup truck.

Caltrans uses a threshold of 0.2 in/sec PPV for annoyance to persons to address construction, or 0.24 in/sec PPV for long-term vibration sources. All Project activities are anticipated to be infrequent (i.e., occurring fewer than 30 times per day), and therefore the construction threshold for human annoyance is the most appropriate. Caltrans identifies a conservative damage threshold vibration level standard of 0.3 in/sec PPV for historic structures

(Caltrans 2020b). Using the human annoyance threshold of 0.2 in/sec PPV, therefore, is also appropriate (conservative) to avoid structural damage to historic structures.

Using the vibration level value for a pickup truck, the distance to the target vibration level of 0.2 in/sec PPV was determined using the following formula:

$$\text{Peak particle velocity at distance (d)} = \text{peak particle velocity}(d_{ref}) * (d_{ref}/d)1.5$$

In the above equation, "d" is the distance between the receiver and a vibration source, and "d_{ref}" is the reference distance that applies for the indicated vibration magnitude. The calculated distance to a vibration level of 0.2 in/sec PPV represents the setback from residences to avoid significant vibration impacts for completion of Project activities.

4.2.6.4.2 Proposed Project Impacts

This section uses the terminology from Section 4.1.4, Impact/Effect Terminology, to describe the effects of the Proposed Project on environmental resources under CEQA (i.e., CEQA Conclusion) and on the ecological aspects of the human environment (i.e., natural resources and components, structures, and functioning of affected ecosystems) under NEPA (NEPA Conclusion).

CEQA Conclusions

- **No Impact:** The Proposed Project would not affect the biological resource or topic and would not change the environmental baseline. (NI)
- **Less than Significant:** The Proposed Project would not result in a substantial adverse change in the biological resource or topic, and no mitigation is needed. (LTS)
- **Less than Significant with Mitigation:** The Proposed Project would not result in a substantial adverse change in the biological resource or topic if mitigation is incorporated. (LTS/M)
- **Significant and Unavoidable:** The Proposed Project could result in a substantial adverse impact on the biological resource or topic and the impact would remain significant after application of all feasible mitigation measures. (SU)
- **Less than Cumulatively Considerable:** The impact from the Proposed Project, in combination with other cumulative development effects, is not considered cumulative and significant. (LCC)
- **Cumulatively Considerable:** The impact from the Proposed Project, in combination with other cumulative development effects, is considered cumulative and significant. (CC)
- **Beneficial:** The Proposed Project would result in an increase in the quality of the biological resource. (B)

NEPA Conclusions

- **No Impact:** The Proposed Project would not affect ecological aspects of the human environment. (NI)
- **Not Significant:** The Proposed Project would not substantially affect ecological aspects of the human environment. (NS)
- **Significant:** The Proposed Project would substantially affect ecological aspects of the human environment. (S)

Proposed Project impacts associated with each of the significance criteria are discussed first, followed by discussions of cumulative impacts and a comparison of impacts under each of the Project alternatives.

NOI 1 - Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The below sub-sections are organized by Project activity; if a Project activity could be conducted during the daytime and nighttime, the predicted absolute noise level from the activity is first compared to the daytime (HUD) limit, followed by comparison of the predicted absolute noise level to the nighttime (WHO) limit. If a Project activity would not be conducted in the nighttime period, the predicted noise level is compared against the daytime (HUD) limit only.

Indirect WDM Methods

Impact 1: Electronic Distress Sounds

Distress and alarm calls of various animals have been used singly and in conjunction with other scaring devices to successfully scare or harass animals. Many of these sounds are available in digital format. Calls may be played for short (few seconds) bursts, for longer periods, or even continually, depending on the severity of damage and relative effectiveness of different treatment or "playing" times. The reported sound level for a crow and for a barking dog were used to represent a reasonable estimation of noise levels for electronic distress sounds because crows provide very loud calls to warn the flock of danger, and a barking dog should be louder than the distress sounds made by common prey species or the calls of common predator species. As described in Section 4.2.6.2.1, Methodology, the RCNM (FHWA 2008) was used to quantify sound levels from the potential use of electronic distress sounds (specifically a barking dog and a crow call occurring simultaneously); Table 4.2.6-8 identifies inputs and results to the RCNM, including sound sources, the anticipated duration of the playing of the sounds, the source noise level for the calls, the use factor (set at 100%), and the distance used in calculating the combined 8-hour average noise level for comparison to the daytime 65 dBA L_{eq} 8-hour threshold (refer also to the noise technical report in Appendix F for the RCNM worksheet). As indicated in Table 4.2.6-8, the distance radius for noise activity to remain under the significance threshold during the daytime is 30 feet.

Table 4.2.6-8. Electronic Distress Sounds Activity - Noise Sources and Sound Levels

Noise Source	Activity Duration Per Installed Device	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance Used to Calculate Receiver Noise Level	Combined Noise Level (L_{eq} 8-hour)
Barking Dog	8 hours	100	60	30 feet	65
Crow Call	8 hours	100	47		

Source: Appendix F RCNM worksheet
dBA = A-weighted decibel

As seen in Table 4.2.6-8, the constant playing of distress sounds based on reference noise levels combined for a dog barking and crow calling could occur at a distance of 30 feet or greater during the daytime and remain in compliance with the HUD standard. This daytime distance is considered sufficient to avoid disturbance to sensitive receptors because planted crops or pastures containing vulnerable livestock (e.g., fowl, young lambs) would not likely be placed within 30 feet of an occupied structure.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Table 4.2.6-9 provides the radius distance from electronic distress sounds to sensitive receptors for sound levels that would remain compliant with the U.S. Department of House and Urban Development (HUD) guidance for daytime activity (HUD 2009) and the World Health Organization (WHO) guidance for nighttime activity (Berglund et al. 1999). As seen in Table 4.2.6-9, electronic distress sounds could occur at night at distances from sensitive receptors of 200 feet or greater and would comply with the established guidelines. If sensitive receptors are closer than this distance, then the CDFA and WS-California would implement Mitigation Measure (MM) NOISE-1 (see Section 4.2.6.3.4, Mitigation Measures) to reduce the impact on sensitive receptors between 30 and 200 feet by restricting activity to daytime hours.

Table 4.2.6-9. Electronic Distress Sounds - Minimum Distances to Comply with Noise Criteria

Activity	Daytime per HUD Guidance (65 dBA L_{eq} 8-hour)	Nighttime per WHO Guidance (45 dBA L_{eq} 8-hour)	Nighttime per WHO Guidance (60 dBA L_{max})
Electronic Stress Sounds	30 feet	200 feet	50 feet

Source: Appendix F RCNM worksheet
HUD = U.S. Department of House and Urban Development; WHO = World Health Organization; dBA = A-weighted decibel

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Impact 2: Propane Exploders

Propane exploders operate on propane gas and are designed to produce loud explosions at controllable intervals. They are strategically located (elevated above the vegetation, if possible) in areas of high wildlife use to frighten wildlife from the problem site. These problem sites are typically airfields or landfills. The published sound level for the Scare-Away LP Gas Cannon (Reed-Joseph 2022a) was used in the RCNM (FHWA 2008) to evaluate the sound level from propane exploder devices. Table 4.2.6-10 identifies this sound source, along with the anticipated duration of "explosions" at a given activity area, the source noise level for the explosion, the use factor (set at 0.7% or 1 explosion every 5 minutes with a duration of 2 seconds apiece [Reed-Joseph 2022a]), and the distance used in calculating the combined 8-hour average noise level for comparison to the daytime 65 dBA L_{eq} 8-hour threshold (refer also to Appendix F for the RCNM worksheet). As indicated in Table 4.2.6-10, the distance radius for noise activity to remain under the significance threshold during the daytime is 140 feet.

Table 4.2.6-10. Propane Exploders Activity - Noise Sources List and Resulting Sound Level

Equipment	Activity Duration Per Installed Device	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance Used to Calculate Receiver Noise Level	Combined Noise Level (L_{eq} 8-hour)
Propane Blaster	8 hours	0.7	98	140 feet	65

Source: Appendix F RCNM worksheet

As shown in Table 4.2.6-10, the use of propane exploders and similar devices with one "detonation" each 5 minutes could occur at a distance of 140 feet or greater from sensitive receptors during the daytime and remain in

compliance with the HUD standard. This daytime distance is considered somewhat prohibitive with respect to the use of this method in residential areas because a residence could quite commonly exist this close to crop or pasture areas where propane exploder use might occur. Therefore, the CDFA and WS-California would implement MM-NOISE-2 (Section 4.2.6.3.4) to reduce the impact on sensitive receptors by restricting use within critical distances to neighboring residences.

Table 4.2.6-11 provides the radius distance from propane exploders activity to sensitive receptors for sound levels that would remain compliant with the HUD guidance for daytime activity and the WHO guidance for nighttime activity. As seen in Table 4.2.6-11, propane exploder use could occur at night at distances from sensitive receptors of 1,850 feet or greater and would comply with the established WHO guidelines. If sensitive receptors are closer than this distance, then the CDFA and WS-California would implement MM-NOISE-2 (Section 4.2.6.3.4) to reduce the impact on sensitive receptors between 140 and 1,850 feet by restricting activity to daytime hours.

Table 4.2.6-11. Propane Exploders - Minimum Separation Distances to Comply with Noise Criteria

Activity	Daytime per HUD Guidance (65 dBA L_{eq} 8-hour)	Nighttime per WHO Guidance (45 dBA L_{eq} 8-hour)	Nighttime per WHO Guidance (60 dBA L_{max})
Propane Blaster	140 feet	1,000 feet	1,850 feet

Source: Appendix F RCNM worksheet
HUD = U.S. Department of House and Urban Development; WHO = World Health Organization; dBA = A-weighted decibel

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Impact 3: Pyrotechnics

The published sound levels for the Screamer Siren and CAPA (an anti-bird harassment cartridge that travels roughly 1,000 feet downrange before it emits a 150 dBA report) (Reed-Joseph 2022b, 2022c) were used in the RCNM (FHWA 2008) to evaluate the sound level from pyrotechnic devices. Pyrotechnics are most often used by WDM specialists to disperse birds from airfields to reduce wildlife strike hazards. Table 4.2.6-12 identifies these sound sources, along with the anticipated duration of "pyrotechnic firings" at a given activity area, the source noise level for the firing, the use factor (set at 0.3% for each of the two pyrotechnics, or five firings in a 30-minute period for each of the two pyrotechnics, with a duration of 1 second apiece), and the distance used in calculating the combined 8-hour average noise level for comparison to the daytime 65 dBA L_{eq} 8-hour threshold (refer also to Appendix F for RCNM worksheet). As indicated in Table 4.2.6-12, the distance radius for noise activity to remain under the significance threshold during the daytime is 200 feet.

Table 4.2.6-12. Pyrotechnics Activity - Noise Sources List and Resulting Sound Level

Equipment	Activity Duration Per Installed Device	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance Used to Calculate Receiver Noise Level	Combined Noise Level (L_{eq} 8-hour)
Screamer Siren	30 minutes	0.3	68	200 feet	65
CAPA	30 minutes	0.3	118		

Source: Appendix F RCNM worksheet
CAPA is an anti-bird harassment cartridge; dBA = A-weighted decibel

As shown in Table 4.2.6-12, the use of two individual pyrotechnics with "firing" five times per 30 minutes could occur at a distance of 200 feet or greater from sensitive receptors during the daytime and remain in compliance with the HUD standard (HUD 2009). This daytime distance is considered somewhat prohibitive with respect to the use of this method in residential areas because a residence could commonly exist this close to crop or pasture areas in which pyrotechnics activity might occur. Therefore, the CDFA and WS-California would implement MM-NOISE-3 (Section 4.2.6.3.4) to reduce the impact on sensitive receptors by restricting use within critical distances to neighboring residences. Pyrotechnics activity would not occur at night.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Impact 4: Chemical Repellents

Chemical repellents are compounds that prevent consumption of food items or use of an area. They operate by producing an undesirable taste, odor, feel, or behavior pattern. Effective and practical chemical repellents need to be nonhazardous to wildlife; nontoxic to plants, seeds, and humans; resistant to weathering; easily applied; reasonably priced; and capable of providing good repelling qualities. Many are baits or tacky substances that are applied to perches. Methyl anthranilate is a liquid repellent that could be applied with a back-pack sprayer and might involve use of an ATV for access to spray application areas. The RCNM (FHWA 2008) was used to evaluate the sound level from chemical repellent activity. Table 4.2.6-13 identifies these sound sources, along with the anticipated duration of the spraying activity in a given location, the source noise level for the equipment, the use factor, and the distance used in calculating the combined 8-hour average noise level for comparison to the daytime 65 dBA L_{eq} 8-hour threshold. As indicated in Table 4.2.6-13, the distance radius for noise activity to remain under the significance threshold during the daytime is 35 feet.

Table 4.2.6-13. Chemical Repellents Spray Activity - Noise Sources List and Resulting Sound Level

Equipment	Activity Duration Per Site*	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance Used to Calculate Receiver Noise Level	Combined Noise Level (L_{eq} 8-hour)
All-Terrain Vehicle (ATV)	3 hours	40	75	35 feet	65

Source: Appendix F RCNM worksheet.
* Site would be equivalent to approximately 1 acre, the smallest expected rural residential lot in agricultural zones.

As shown in Table 4.2.6-13, the spray application of chemical repellent involving the use of an ATV for access to spray areas could occur at a distance of 35 feet or greater during the daytime and remain in compliance with the HUD standard. This daytime distance is considered sufficient because planted crops sites for which chemical repellent might be spray-applied (e.g., crop fields, golf courses) would not likely be placed within 35 feet of a residence. Chemical repellent spraying would not be conducted at night. MM-NOISE-4 applies to chemical repellent spraying activities and reinforces minimum distance setbacks for this activity during daytime and nighttime periods.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Direct Methods

Impact 5: Trapping

A variety of traps are used to capture wildlife (see Appendix C). Equipment used to set and retrieve the traps could include an ATV or a pickup truck. The RCNM (FHWA 2008) was used to evaluate the sound level from trapping activity. Table 4.2.6-14 identifies these sound sources, along with the anticipated duration of the trap setting or collection/removal, the source noise level for the equipment, the use factor, and the distance used in calculating the combined 8-hour average noise level for comparison to the daytime 65 dBA L_{eq} 8-hour threshold. As indicated in Table 4.2.6-14, the distance radius for noise activity to remain under the significance threshold during the daytime is 25 feet. This analysis is performed with a pickup truck traveling at 50 miles per hour; slower truck speeds would likely result in a shorter distance limit from trapping locations to any residence.

Table 4.2.6-14. Trapping Activity Equipment - Noise Sources List and Resulting Sound Level

Equipment	Activity Duration Per Site*	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance Used to Calculate Receiver Noise Level	Combined Noise Level (L_{eq} 8-hour)
All-Terrain Vehicle (ATV)	30 minutes	40	75	25 feet	65
Pickup Truck	30 minutes	40	55		

Source: Appendix F RCNM worksheet.
* Site would be equivalent to approximately 1 acre, the smallest expected rural residential lot in agricultural zones.

As shown in Table 4.2.6-14, trap setting and collecting could occur at a distance of 25 feet or greater during the daytime and remain in compliance with the HUD standard. This daytime distance is not considered prohibitive for use of this method because planted crops or pastures containing vulnerable livestock would not likely be placed within 25 feet of a residence.

Table 4.2.6-15 provides the radius distance from trapping activities to sound levels that would remain compliant with the HUD guidance for daytime activity (HUD 2009) and the WHO guidance for nighttime activity (Berglund et al. 1999). As shown in Table 4.2.6-15, trapping activity could occur at night at distances from sensitive receptors of 180 feet or greater and would comply with established guidelines. If sensitive receptors are closer than this distance, then the CDFA and WS-California would implement MM-NOISE-5 (see Section 4.2.6.3.4) to reduce the impact on sensitive receptors between 25 and 180 feet by restricting activity to daytime hours.

Table 4.2.6-15. Trapping Activity - Minimum Separation Distances to Comply with Noise Criteria

Activity	Daytime per HUD Guidance (65 dBA L_{eq} 8-hour)	Nighttime per WHO Guidance (45 dBA L_{eq} 8-hour)	Nighttime per WHO Guidance (60 dBA L_{max})
Trapping	25 feet	180 feet	180 feet

Source: Appendix F RCNM worksheet
HUD = U.S. Department of House and Urban Development; WHO = World Health Organization; dBA = A-weighted decibel

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Impact 6: Rocket Nets/Cannon Nets

Conventional rockets and cannon nets use two or more gunpowder-fueled launchers. No sound level-data for detonation of a rocket or cannon net system could be found for this analysis. To address these systems, acousticians used the average sound level for shotguns (E.A.R. Customized Hearing 2023), with two simultaneous detonations per net launch. Equipment used to set the nets and to retrieve trapped animals would include a pickup truck. The RCNM (FHWA 2008) was used to evaluate the sound level from rocket net/cannon net activity. Table 4.2.6-16 identifies these sound sources, along with the anticipated duration of rocket/cannon net launch activity at a given activity area, the source noise level for the firing, the use factor (set at 0.05% or one launch during the 30-minute work period), and the distance used in calculating the combined 8-hour average noise level for comparison to the daytime 65 dBA L_{eq} 8-hour threshold (refer also to Appendix F for RCNM the worksheet). As indicated in Table 4.2.6-16, the distance radius for noise activity to remain under the significance threshold during the daytime is 250 feet.

Table 4.2.6-16. Rocket/Cannon Net Use - Noise Sources List and Resulting Sound Level

Equipment	Activity Duration Per Site*	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance Used to Calculate Receiver Noise Level	Combined Noise Level (L_{eq} 8-hour)
Pickup Truck	30 minutes	40	55	250 feet	65
Rocket Net	30 minutes	0.05	126		

Source: Appendix F RCNM worksheet.
* Site would be equivalent to approximately 5 acres to maintain specified separation distance evaluated.

As shown in Table 4.2.6-16, one launch of a rocket net or cannon net within an 8-hour period could occur at a distance of 250 feet or greater from sensitive receptors during the daytime and remain in compliance with the HUD standard. This daytime distance is considered somewhat prohibitive with respect to the use of this method in residential areas because a residence could commonly exist this close to crop or pasture areas where rocket/cannon net use might occur. Therefore, the CDFA and WS-California would implement MM-NOISE-6 (see Section 4.2.6.3.4) to reduce the impact on sensitive receptors by restricting use within critical distances to neighboring residences.

Table 4.2.6-17 provides the radius distance from rocket/cannon net activity to sensitive receptors for sound levels that would remain compliant with the HUD guidance for daytime activity and the WHO guidance for nighttime activity. As shown in Table 4.2.6-17, rocket/cannon net use could occur at night at distances from sensitive receptors of 13,000 feet (approximately 2.5 miles) or greater and would comply with the established WHO guidelines. If sensitive receptors are closer than this distance, then the CDFA and WS-California would implement MM-NOISE-6 (see Section 4.2.6.3.4) to reduce the impact on sensitive receptors between 250 and 13,000 feet by restricting activity to daytime hours.

Table 4.2.6-17. Rocket/Cannon Net Use - Minimum Separation Distances to Comply with Noise Criteria

Activity	Daytime per HUD Guidance (65 dBA L_{eq} 8-hour)	Nighttime per WHO Guidance (45 dBA L_{eq} 8-hour)	Nighttime per WHO Guidance (60 dBA L_{max})
Rocket/Cannon Net	250 feet	2,000 feet	13,000 feet

Source: Appendix F RCNM worksheet
HUD = U.S. Department of House and Urban Development; WHO = World Health Organization; dBA = A-weighted decibel

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Impact 7: Aerial Shooting

Shooting is frequently performed for predators such as coyotes, bobcats, and foxes that have preyed on livestock. Aerial shooting is limited to locations where it is legal and safe to discharge firearms. Aerial shooting is used selectively for target species, but may be relatively expensive because of the use of an aircraft and staff hours required. Wildlife Services uses fixed- and rotary-wing aircraft for aerial WDM activities only in areas under agreement and focuses efforts only during certain times of the year such as during calving and lambing. Nationally, APHIS-WS annually flies less than 20 minutes per square mile (this is equivalent to under 2 seconds per acre), on properties under agreement (USDA 2019). WS-California personnel are trained to avoid non-target wildlife. While adverse reactions to short-duration overflights can occur in wildlife, more serious adverse effects are generally observed in cases of chronic exposure (i.e., flight training facilities, airports, etc.) (USDA 2019). WS-California spends comparatively little time in any one area, making significant impacts to both target and non-target species unlikely (USDA 2019). Low level flights conducted for the removal of damaging individuals, such as a depredating coyote, occur for only brief moments in any given spot. Pursuits are short in duration, generally under a minute, thus minimizing any prolonged stress to the animal, as well as maximizing safety for the air crew members. WS-California does not expect that brief aerial overpasses during WDM will significantly alter wildlife behavior or cause prolonged expenditures of energy reserves. Wildlife Services has concluded that disturbance effects on wildlife are short-lived and negligible and will not cause adverse impacts to non-target species including those that are threatened or endangered. The Airborne Hunting Act allows shooting of animals from aircraft for protection of livestock. A representative aircraft noise level (Cessna 172, a four-seat, single-engine, fixed-wing aircraft) was obtained from the Federal Aviation Administration (FAA 1997); the published sound levels for a 12-gauge shotgun were used to represent gunfire sound levels for aerial shooting. The RCNM (FHWA 2008) was used to evaluate the sound level from aerial shooting.

Table 4.2.6-18 identifies these sound sources, the anticipated duration of shooting/hunting at a given activity area, the duration for aircraft use in the area, the source noise level for the aerial gun-shot and aircraft, the use factor (set at 0.17% or a gun-shot every 10 minutes and 100% for the aircraft), and the distance used in calculating the combined 8-hour average noise level for comparison to the daytime 65 dBA L_{eq} 8-hour threshold (refer also to Appendix F for the RCNM worksheet). As indicated in Appendix F, the distance radius for noise activity to remain under the significance threshold during the daytime is 900 feet (of which some distance would represent the altitude of the aircraft above the ground). In accordance with Federal Aviation Administration regulations, an aircraft cannot fly below 500 feet near people or structures (FAA 1997). Given a minimum altitude of 500 feet above the ground, the horizontal ground distance equating to a 900-foot separation (the hypotenuse of the triangle

representing the airborne aircraft and a receiver on the ground) would be 750 feet. Thus, a minimum of 750 feet should be maintained between a point on the ground beneath an aircraft engaged in aerial shooting and the closest residence to the aircraft. This 750 feet of separation is identified in Table 4.2.6-18.

Table 4.2.6-18. Aerial Shooting Activity - Noise Sources List and Resulting Sound Level

Equipment	Activity Duration Per Site[a]	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Horizontal Ground Distance Used to Calculate Receiver Noise Level	Combined Noise Level (L_{eq} 8-hour)
12-Gauge Shotgun	10 minutes	0.17	140	750 feet[b]	65
Aircraft	10 minutes	100	92		

Source: Appendix F RCNM worksheet

[a] To avoid additive sound levels from multiple simultaneous aerial shooting events, such events should not occur closer than 2400 feet or 0.5 miles apart. A "site" would therefore have a radius of 0.25 miles.

[b] With a minimum aircraft altitude of 500 feet and a minimum separation between plane and ground-based receiver of 900 feet, the horizontal separation distance on the ground would be no less than 750 feet from a point below the aircraft to the nearest adjacent residence.

Table 4.2.6-19 provides the radius distance from aerial shooting activity (supported by aircraft) to sound levels that would remain compliant with the HUD guidance for daytime activity and the WHO guidance for nighttime activity. As shown in Table 4.2.6-19, aerial shooting activity with a gunshot every 10 minutes could occur at a distance of 750 feet or greater during the daytime and remain in compliance with the HUD standard. This daytime distance (750 feet of horizontal ground separation) is considered relatively prohibitive in agricultural areas because a residence could commonly exist this close to rangeland or pasture areas where aerial shooting of target animals might occur. Therefore, the CDFA and WS-California would implement MM-NOISE-7 (see Section 4.2.6.3.4) to reduce the impact on sensitive receptors by requiring the use of a firearm sound suppressor for daytime aerial shooting closer than 750 feet from an occupied structure.

Table 4.2.6-19. Aerial Shooting Activity - Minimum Separation Distances to Comply with Noise Criteria

Activity	Horizontal Ground Distance - Daytime per HUD Guidance (65 dBA L_{eq} 8-hour)[a]	Horizontal Ground Distance - Nighttime per WHO Guidance (45 dBA L_{eq} 8-hour)[a]	Horizontal Ground Distance - Nighttime per WHO Guidance (60 dBA L_{max})[a]
Aerial Shooting	750 feet	2,000 feet	22,000 feet
Aerial Shooting With Rifle Sound Suppressor	0 feet	685 feet	6,250 feet

Source: Appendix F RCNM worksheet.

HUD = U.S. Department of House and Urban Development; WHO = World Health Organization; dBA = A-weighted decibel

[a] Federal Aviation Administration minimum altitude of 500 feet for aircraft included in calculation.

As shown in Table 4.2.6-19, shooting could occur at night at distances from sensitive receptors of 22,000 feet (approximately 5 miles) or greater and would comply with the established guidelines. If sensitive receptors are closer than this distance, then the CDFA and WS-California would implement MM-NOISE-8 (see Section 4.2.6.3.4) to reduce the significant impacts on sensitive receptors within 22,000 feet by requiring use of a suppressor.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Impact 8: Ground Based Shooting

Reference sound levels for firearms that could be used for shooting activities were obtained from published sound pressure level measurement results of representative individual firearm models discharged at an outdoor firing range by Ammo To Go (2019). The sound level results from Ammo To Go address each gun with and without a sound suppressor. Based on these published sound levels for various firearms, the RCNM was used to quantify the sound levels from shooting activities that use each firearm type. A use factor of 0.11% was used to evaluate each scenario, which equates to one gun firing every 15 minutes across the identified duration period. The parameters used in this analysis are a conservative average and should not be interpreted to restrict WDM activities that might include a grouping of higher-frequency gunshots over a shorter period or wider spacing between events. Four duration scenarios were modeled: 8 hours, 4 hours, 2 hours, and 30 minutes. The sound level was then averaged over 8 hours for comparison to the HUD daytime guidance and WHO nighttime guidance. Modeling was completed for each of three representative firearms with and without a suppressor: .308 caliber rifle, 12-gauge shotgun, and .22 caliber rifle. For the .22 caliber rifle, modeling was also performed for a bolt-action model with integrated sound suppressor for both supersonic and subsonic ammunition. Modeling was also performed for a popular BB gun (representing an air rifle) for each of the four duration scenarios. Tables 4.2.6-20 to 4.2.6-27 summarize the RCNM results for the shooting scenarios, and Appendix F contains the spreadsheets with inputs and results.

The evaluation of impacts from ground-based shooting includes firearms that incorporate a sound suppressor and firearms without a sound suppressor. The availability or feasibility of a sound suppressor for a given firearm proposed for WDM activities is not guaranteed, especially for local agencies where the cost may be prohibitive. The use of firearms not equipped with a sound suppressor would be allowed, but such use would need to follow the more restrictive distance and duration limitations outlined under the evaluation conclusions presented in this section.

Daytime Shooting Activities

As indicated in Table 4.2.6-20, under an 8-hour shooting duration, the distance from shooting activity to sound levels conforming to the HUD daytime standard would range from 1,300 feet to 7,000 feet for representative firearms (approximately 0.25 to 1.3 miles). These distances would be considered prohibitive for shooting activities, and therefore a suppressor should be employed for each firearm and/or the duration of shooting in a given area should be reduced to less than 8 hours. A BB gun (air rifle) could be used as close as 3 feet from a sensitive receptor and would therefore not be anticipated to result in significant noise impacts. Table 4.2.6-20 also indicates that with a suppressor attached, the distance from shooting activity to sound levels conforming to the HUD daytime standard would range from 90 feet to 900 feet for representative firearms. Even with the use of a suppressor, 8 hours of shooting with a .308 caliber rifle would exceed the HUD guideline at distances less than 900 feet, shooting with a 12-gauge shotgun would exceed the HUD guideline at distances less than 225 feet, and shooting with a .22 caliber rifle would exceed the HUD guideline at distances less than 90 feet. Sensitive receptors could easily be within these distances from shooting activities. Therefore, the CDFA and WS-California would implement MM-NOISE-9 restricting user within critical distances to neighboring residences or requiring the use of suppressors (see Section 4.2.6.3.4). Note that with using a bolt-action .22 caliber rifle, integrated sound suppressor, and sub-sonic ammunition, shooting could occur as close as 1 foot from a residence and still maintain compliance with the HUD daytime standard.

Table 4.2.6-20. Shooting Activity - Firearm Noise Sources List and Daytime Receptor Noise Results for 8-Hour Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)
.308 Caliber Rifle	8 hours	0.11	149	7,000 feet	125	900 feet
12-Gauge Shotgun			140	3,500 feet	113	225 feet
.22 Caliber Rifle			129	1,300 feet	105	90 feet
.22 Caliber Rifle (subsonic ammunition)			N/A	N/A	51	1 foot
Daisy Rider BB Gun[a]			73	3 feet	N/A	N/A

Source: Appendix F RCNM worksheet.
HUD = U.S. Department of House and Urban Development; dBA = A-weighted decibel; N/A = not applicable
[a] This would represent any air rifle.

As indicated in Table 4.2.6-21, under a 4-hour shooting duration, the distance from shooting activity to sound levels conforming to the HUD daytime standard would range from 1,000 feet to 5,500 feet for representative firearms (approximately 0.2 to 1 mile). These distances would be considered prohibitive for shooting activities, and therefore a suppressor should be employed for each firearm and/or the duration of shooting in a given area should be reduced to less than 4 hours. A BB gun (air rifle) could be used as close as 3 feet from a sensitive receptor and would therefore not be anticipated to result in significant noise impacts. Table 4.2.6-21 also indicates that with a suppressor attached, the distance from shooting activity to sound levels conforming to the HUD daytime standard would range from 70 feet to 650 feet for representative firearms. Even with the use of a suppressor, 4 hours of shooting with a .308 caliber rifle would exceed the HUD guideline at distances less than 650 feet, shooting with a 12-gauge shotgun would exceed the HUD guideline at distances less than 175 feet, and shooting with a .22 caliber rifle would exceed the HUD guideline at distances less than 70 feet; sensitive receptors could easily be within these distances from shooting activities. Therefore, the CDFA and WS-California would implement MM-NOISE-10 restricting use within critical distances to neighboring residences or requiring the use of suppressors (see Section 4.2.6.3.4). Using a bolt-action .22 caliber rifle, integrated sound suppressor, and sub-sonic ammunition, shooting could occur as close as 1 foot from a residence and still maintain compliance with the HUD daytime standard.

Table 4.2.6-21. Shooting Activity - Firearm Noise Sources List and Daytime Receptor Noise Results for 4-Hour Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)
.308 Caliber Rifle	4 hours	0.11	149	5,500 feet	125	650 feet
12-Gauge Shotgun			140	2,700 feet	113	175 feet

Table 4.2.6-21. Shooting Activity - Firearm Noise Sources List and Daytime Receptor Noise Results for 4-Hour Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)
.22 Caliber Rifle			129	1,000 feet	105	70 feet
.22 Caliber Rifle (subsonic ammunition)			N/A	N/A	51	1 foot
Daisy Rider BB Guna			73	2 feet	N/A	N/A

Source: Appendix F RCNM worksheet.
HUD = U.S. Department of House and Urban Development; dBA = A-weighted decibel; N/A = not applicable
[a] This would represent any air rifle.

As indicated in Table 4.2.6-22, under a 2-hour shooting duration, the distance from shooting activity to sound levels conforming to the HUD daytime standard would range from 700 feet to 4,500 feet for representative firearms. These distances would be considered prohibitive for shooting activities, and therefore a suppressor should be employed for each firearm and/or the duration of shooting in a given area should be reduced to less than 2 hours. A BB gun (air rifle) could be used as close as 2 feet from a sensitive receptor and would therefore not be anticipated to result in significant noise impacts. Table 4.2.6-22 also indicates that, with a suppressor attached, the distance from shooting activity to sound levels conforming to the HUD daytime standard would range from 50 feet to 450 feet for representative firearms. Even with the use of a suppressor, 2 hours of shooting with a .308 caliber rifle would exceed the HUD guideline at distances less than 450 feet, shooting with a 12-gauge shotgun would exceed the HUD guideline at distances less than 125 feet, and shooting with a .22 caliber rifle would exceed the HUD guideline at distances less than 50 feet; sensitive receptors could easily be within these distances from shooting activities. Therefore, the CDFA and WS-California would implement MM-NOISE-11 restricting the use within the critical distances to neighboring residences or requiring the use of suppressors (see Section 4.2.6.3.4). Using a bolt-action .22 caliber rifle, integrated sound suppressor, and sub-sonic ammunition, shooting could occur as close as 1 foot from a residence and still maintain compliance with the HUD daytime standard.

Table 4.2.6-22. Shooting Activity - Firearm Noise Sources List and Daytime Receptor Noise Results for 2-Hour Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)
.308 Caliber Rifle	2 hours	0.11	149	4,500 feet	125	450 feet
12-Gauge Shotgun			140	2,200 feet	113	125 feet
.22 Caliber Rifle			129	700 feet	105	50 feet

Table 4.2.6-22. Shooting Activity - Firearm Noise Sources List and Daytime Receptor Noise Results for 2-Hour Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)
.22 Caliber Rifle (subsonic ammunition)			N/A	N/A	51	1 foot
Daisy Rider BB Gun[a]			73	2 feet	N/A	N/A

Source: Appendix F RCNM worksheet.
HUD = U.S. Department of House and Urban Development; dBA = A-weighted decibel; N/A = not applicable
[a] This would represent any air rifle.

As indicated in Table 4.2.6-23, under a 30-minute shooting duration, the distance from shooting activity to sound levels conforming to the HUD daytime standard would range from 350 feet to 2,750 feet for representative firearms (up to approximately 0.5 miles). These distances would be considered prohibitive for shooting activities, and therefore a suppressor should be employed for each firearm and/or the duration of shooting in a given area should be reduced to less than 30 minutes. A BB gun could be used as close as 1 foot from a sensitive receptor and would therefore not be anticipated to result in significant noise impacts. Table 4.2.6-23 also indicates that, with a suppressor attached, the distance from shooting activity to sound levels conforming to the HUD daytime standard would range from 25 feet to 225 feet for representative firearms. Even with the use of a suppressor, 30 minutes of shooting with a .308 caliber rifle would exceed the HUD guideline at distances less than 225 feet, shooting with a 12-gauge shotgun would exceed the HUD guideline at distances less than 70 feet, and shooting with a .22 caliber rifle would exceed the HUD guideline at distances less than 25 feet; sensitive receptors could be within these distances from shooting activities. Therefore, the CDFA and WS-California would implement MM-NOISE-12 restricting use within critical distances to neighboring residences or requiring the use of suppressors (see Section 4.2.6.3.4). Using a bolt-action .22 caliber rifle, integrated sound suppressor, and sub-sonic ammunition, shooting could occur as close as 1 foot from a residence and still maintain compliance with the HUD daytime standard.

Table 4.2.6-23. Shooting Activity - Firearm Noise Sources List and Daytime Receptor Noise Results for 30-Minute Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)
.308 Caliber Rifle	0.5 hours	0.11	149	2,750 feet	125	225 feet
12-Gauge Shotgun			140	1,200 feet	113	70 feet
.22 Caliber Rifle			129	350 feet	105	25 feet

Table 4.2.6-23. Shooting Activity - Firearm Noise Sources List and Daytime Receptor Noise Results for 30-Minute Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Daytime HUD Guidance (65 dBA L_{eq} 8-hour)
.22 Caliber Rifle (subsonic ammunition)			N/A	N/A	51	1 foot
Daisy Rider BB Gun[a]			73	1 foot	N/A	N/A

Source: Appendix F RCNM worksheet.
HUD = U.S. Department of House and Urban Development; dBA = A-weighted decibel; N/A = not applicable
[a] This would represent any air rifle.

Nighttime Shooting Activities

As indicated in Table 4.2.6-24, under an 8-hour shooting duration, the distance from shooting activity to sound levels conforming to the WHO nighttime standard would range from 7,000 feet to 18,000 feet for representative firearms (approximately 1.3 to 3.4 miles). These distances would be considered prohibitive for shooting activities, and therefore a suppressor should be employed for each firearm, or the duration of shooting in a given area should be reduced to less than 8 hours or the activity should be conducted during the daytime. A BB gun could be used as close as 25 feet from a sensitive receptor and would not be anticipated to result in significant noise impacts. Table 4.2.6-24 also indicates that, with a suppressor attached, the distance from shooting activity to sound levels conforming to the WHO nighttime standard would range from 900 feet to 5,200 feet for representative firearms (up to approximately 1 mile). Even with the use of a suppressor, 8 hours of shooting with a .308 caliber rifle would exceed the WHO nighttime guideline at distances less than 5,200 feet, shooting with a 12-gauge shotgun would exceed the WHO nighttime guideline at distances less than 2,000 feet, and shooting with a .22 caliber rifle would exceed the WHO nighttime guideline at distances less than 900 feet; sensitive receptors could easily be within these distances from shooting activities. Therefore, the CDFA and WS-California would implement MM-NOISE-13 restricting use within critical distances to neighboring residences or requiring the use of suppressors (see Section 4.2.6.3.4). Using a bolt-action .22 caliber rifle, integrated sound suppressor, and sub-sonic ammunition, shooting could occur as close as 2 feet from a residence and still maintain compliance with the WHO nighttime standard.

Table 4.2.6-24. Shooting Activity - Firearm Noise Sources List and Nighttime Receptor Noise Results for 8-Hour Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Nighttime WHO Guidance (45 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Nighttime WHO Guidance (45 dBA L_{eq} 8-hour)
.308 Caliber Rifle	8 hours	0.11	149	18,000 feet	125	5,200 feet
12-Gauge Shotgun			140	12,500 feet	113	2,000 feet
.22 Caliber Rifle			129	7,000 feet	105	900 feet
.22 Caliber Rifle (subsonic ammunition)			N/A	N/A	51	2 feet
Daisy Rider BB Gun[a]			73	25 feet	N/A	N/A

Source: Appendix F RCNM worksheet.
WHO = World Health Organization; dBA = A-weighted decibel; N/A = not applicable
[a] This would represent any air rifle.

As indicated in Table 4.2.6-25, under a 4-hour shooting duration, the distance from shooting activity to sound levels conforming to the WHO nighttime standard would range from 5,500 feet to 16,500 feet for representative firearms (approximately 1 to 3 miles). These distances would be considered prohibitive for shooting activities, and therefore a suppressor should be employed for each firearm, or the duration of shooting in a given area should be reduced to less than 4 hours or the activity should be conducted during the daytime. A BB gun could be used as close as 17 feet from a sensitive receptor and would not be anticipated to result in significant noise impacts. Table 4.2.6-25 also indicates that, with a suppressor attached, the distance from shooting activity to sound levels conforming to the WHO nighttime standard would range from 650 feet to 4,200 feet for representative firearms (up to approximately 0.8 miles). Even with the use of a suppressor, 4 hours of shooting with a .308 caliber rifle would exceed the WHO nighttime standard at distances less than 4,200 feet, shooting with a 12-gauge shotgun would exceed the WHO nighttime standard at distances less than 1,500 feet, and shooting with a .22 caliber rifle would exceed the WHO nighttime standard at distances less than 650 feet; sensitive receptors could easily be within these distances from shooting activities. Therefore, the CDFA and WS-California would implement MM-NOISE-14 restricting use within critical distances to neighboring residences or requiring the use of suppressors (see Section 4.2.6.3.4). Using a bolt-action .22 caliber rifle, integrated sound suppressor, and sub-sonic ammunition, shooting could occur as close as 2 feet from a residence and still maintain compliance with the WHO nighttime standard.

Table 4.2.6-25. Shooting Activity - Firearm Noise Sources List and Nighttime Receptor Noise Results for 4-Hour Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Nighttime WHO Guidance (45 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Nighttime WHO Guidance (45 dBA L_{eq} 8-hour)
.308 Caliber Rifle	4 hours	0.11	149	16,500 feet	125	4,200 feet
12-Gauge Shotgun			140	11,000 feet	113	1,500 feet
.22 Caliber Rifle			129	5,500 feet	105	650 feet
.22 Caliber Rifle (subsonic ammunition)			N/A	N/A	51	2 feet
Daisy Rider BB Gun[a]			73	17 feet	N/A	N/A

Source: Appendix F RCNM worksheet
WHO = World Health Organization; dBA = A-weighted decibel; N/A = not applicable
[a] This would represent any air rifle.

As indicated in Table 4.2.6-26, under a 2-hour shooting duration, the distance from shooting activity to sound levels conforming to the WHO nighttime standard would range from 4,500 feet to 14,500 feet for representative firearms (approximately 0.8 to 2.7 miles). These distances would be considered prohibitive for shooting activities, and therefore a suppressor should be employed for each firearm, and the duration of shooting in a given area should be reduced to less than 2 hours and/or the activity should be conducted during the daytime. A BB gun could be used as close as 12 feet from a sensitive receptor and would not be anticipated to result in significant noise impacts. Table 4.2.6-26 also indicates that, with a suppressor attached, the distance from shooting activity to sound levels conforming to the WHO nighttime standard would range from 450 feet to 3,200 feet for representative firearms (up to approximately 0.6 miles). Even with the use of a suppressor, 2 hours of shooting with a .308 caliber rifle would exceed the WHO nighttime standard at distances less than 3,200 feet, shooting with a 12-gauge shotgun would exceed the WHO nighttime standard at distances less than 1,100 feet, and shooting with a .22 caliber rifle would exceed the WHO nighttime standard at distances less than 450 feet; sensitive receptors could easily be within these distances from shooting activities. Therefore, the CDFA and WS-California would implement MM-NOISE-10 requiring the use of suppressors, and MM-NOISE-11 to reduce the impact on sensitive receptors by restricting use within critical distances to neighboring residences (see Section 4.2.6.3.4). Using a bolt-action .22 caliber rifle, integrated sound suppressor, and sub-sonic ammunition, shooting could occur as close as 1 foot from a residence and still maintain compliance with the WHO nighttime standard.

Table 4.2.6-26. Shooting Activity - Firearm Noise Sources List and Nighttime Receptor Noise Results for 2-Hour Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (L_{max} dBA at 50 feet)	Distance per Nighttime WHO Guidance (45 dBA L_{eq} 8-hour)	With Suppressor Reference Level (L_{max} dBA at 50 feet)	With Suppressor Distance per Nighttime WHO Guidance (45 dBA L_{eq} 8-hour)
.308 Caliber Rifle	2 hours	0.11	149	14,500 feet	125	3,200 feet
12-Gauge Shotgun			140	9,500 feet	113	1,100 feet
.22 Caliber Rifle			129	4,500 feet	105	450 feet
.22 Caliber Rifle (subsonic ammunition)			N/A	N/A	51	1 foot
Daisy Rider BB Gun[a]			73	12 feet	N/A	N/A

Source: Appendix F RCNM worksheet.
WHO = World Health Organization; dBA = A-weighted decibel; N/A = not applicable
[a] This would represent any air rifle.

As indicated in Table 4.2.6-27, under a 30-minute shooting duration, the distance from shooting activity to sound levels conforming to the WHO nighttime standard would range from 2,750 feet to 11,000 feet for representative firearms (approximately 0.5 to 2 miles). These distances would be considered prohibitive for shooting activities, and therefore a suppressor should be employed for each firearm, or the duration of shooting in a given area should be reduced to less than 30 minutes or the activity should be conducted during the daytime. A BB gun could be used as close as 6 feet from a sensitive receptor and would not be anticipated to result in significant noise impacts. Table 4.2.6-27 also indicates that, with a suppressor attached, the distance from shooting activity to sound levels conforming to the WHO nighttime standard would range from 225 feet to 2,000 feet for representative firearms (up to approximately 0.4 miles). Even with the use of a suppressor, 30 minutes of shooting with a .308 caliber rifle would exceed the WHO nighttime standard at distances less than 2,000 feet, shooting with a 12-gauge shotgun would exceed the WHO nighttime standard at distances less than 550 feet, and shooting with a .22 caliber rifle would exceed the WHO nighttime standard at distances less than 225 feet; sensitive receptors could easily be within these distances from shooting activities. Therefore, the CDFA and WS-California would implement MM-NOISE-16 restricting use within critical distances to neighboring residences or requiring the use of suppressors (see Section 4.2.6.3.4). Using a bolt-action .22 caliber rifle, integrated sound suppressor, and sub-sonic ammunition, shooting could occur as close as 1 foot from a residence and still maintain compliance with the WHO nighttime standard.

Table 4.2.6-27. Shooting Activity – Firearm Noise Sources List and Nighttime Receptor Noise Results for 30-Minute Shooting Duration

Equipment	Activity Duration Per Site	Use Factor (percent)	Reference Level (Lmax dBA at 50 feet)	Distance per Nighttime WHO Guidance (45 dBA Leq 8-hour)	With Suppressor Reference Level (Lmax dBA at 50 feet)	With Suppressor Distance per Nighttime WHO Guidance (45 dBA Leq 8-hour)
.308 Caliber Rifle	0.5 hours	0.11	149	11,000 feet	125	2,000 feet
12-Gauge Shotgun			140	6,500 feet	113	550 feet
.22 Caliber Rifle			129	2,750 feet	105	225 feet
.22 Caliber Rifle (subsonic ammunition)			N/A	N/A	51	1 foot
Daisy Rider BB Gun[a]			73	6 feet	N/A	N/A

Source: Appendix F RCNM worksheet.
WHO = World Health Organization; dBA = A-weighted decibel; N/A = not applicable
[a] This would represent any air rifle.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

NOI 2 - Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Impact 9: Vibration Potential of Project Activities

With respect to groundborne vibration, Table 4.2.6-7 provides vibration levels for a pickup truck, the only equipment with any substantial vibration generation potential likely to be used for any Project activities. A pickup truck would routinely be employed to transport employees and equipment to carry out Project activities. Using reference levels from Shiferaw (2021) for this type of equipment, the vibration levels generated by Project activities were calculated using the Caltrans methodology (Caltrans 2020b). The result of the vibration calculation for a pickup truck is presented in Table 4.2.6-28, in comparison to the Caltrans vibration significance level of 0.2 in/sec PPV for human annoyance and damage to fragile buildings (Caltrans 2020b). Since vibration potential is related to vehicle weight, and because ATVs typically account for no more than 50% of the weight of a pick-up truck, vibration potential for the use of ATVs would be substantially less than for pick-ups, and therefore was not separately evaluated.

Table 4.2.6-28. Vibration Levels for Project Activities – Minimum Separation Distances for Compliance

Activity	Minimum Separation Distance to Comply With Significance Threshold (0.20 inches per second peak particle velocity)
Pickup Truck Operation*	5 feet

Note:
* Vehicle driven at 50 miles per hour.

Based on the distance shown in Table 4.2.6-28, the existence of any sensitive buildings located this close to Project activities would be highly unlikely. In addition, Table 4.2.6-28 shows that safe distances would easily be maintained between vibration-generating activities and buildings/residences where people normally sleep. Mitigation measures for potential vibration impacts would therefore not be necessary.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

NOI 3 - For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Impact 10: Airport Noise Exposure from Project Activities

Because the Proposed Project has a statewide scope, certain Project activities would be anticipated to be carried out within areas encompassed by an adopted airport land use plan and/or within 2 miles of a public airport. The Proposed Project would not include development of housing, nor would the Project directly or indirectly result in the introduction of new residents within such zones that are influenced by airport operations noise levels. However, the Project could include the use of propane exploders, pyrotechnic devices, rocket nets, cannon nets, and shooting activity to discourage the presence of birds and mammals that present a collision hazard for aircraft operations. Out of these activities, only shooting would be anticipated to be conducted during the nighttime at airports. The CDFA and WS-California would implement MM-NOISE-2, MM-NOISE-3, and MM-NOISE-6 to address impacts from propane blasters, pyrotechnic devices, and rocket/cannon nets. Finally, the CDFA and WS-California would implement MM-NOISE-9 through MM-NOISE-12 to avoid impacts from daytime shooting activities (see Section 4.2.6.3.4), as well as MM-NOISE-13 through MM- NOISE-16 to avoid and reduce impacts from nighttime shooting activities.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

4.2.6.4.3 Cumulative Impacts

Noise-generating activities under the Proposed Project could occur in locations where ambient noise levels are high, such as airports. Other future projects could also generate noise in proximity to Proposed Project activities. Although noise associated with future projects or operations in proximity to Project activities may be individually below the applicable criteria, in combination, they could exceed noise criteria. In more extreme cases, ambient conditions or other projects already may exceed the criteria, with Proposed Project activities exacerbating this situation. However, it should be noted that many WDM activities occur in rural settings with low ambient noise levels; farming and use of heavy machines do not typically occur at the same time as WDM activities for safety reasons, and therefore often the noise generating effects from WDM activities could be largely offset by the temporary cessation of farming or ranching operations, including farm equipment use.

Per the impact analysis discussed above, the CDFA and WS-California would implement MM-NOISE-1 through MM-NOISE-16 in the event that Proposed Project activities could exceed applicable criteria (see Section 4.2.6.3.4). The incorporation of these minimizing measures would reduce the Proposed Project's contribution to cumulative

noise impacts and would not be cumulatively considerable. It is also anticipated to be rare that noise generated under the Proposed Project would combine with other noise sources to create significant noise effects.

The Proposed Project has virtually no potential to contribute to cumulative vibration impacts because vibration levels with the potential to result in human annoyance would be limited to a distance of 6 feet from any Project activity. At this distance, it is highly unlikely that other vibration sources would be present to exacerbate existing ambient vibration levels.

CEQA Conclusion: *Less than cumulatively considerate with mitigation.*

NEPA Conclusion: *Not significant.*

4.2.6.4.4 Mitigation Measures

Because Proposed Project activities have the potential to result in noise levels that would exceed standards adopted by international (WHO), federal (e.g., HUD), and/or state (e.g., CEQA) agencies, mitigation would be required. **Under certain extenuating circumstances (including emergency operations, actions to protect human safety, rapid response activities, or the permission of the sensitive receptor[s] that could experience the noise impact), the necessity for mitigation may be waived**; however, residual impacts under such waver allowances could remain significant. The following mitigation measures would reduce Proposed Project activity noise levels at the closest residential receivers to be compliant with applicable standards.

MM-NOISE-1 Electronic distress sounds shall not be used continuously for more than 8 hours within 30 feet of an occupied structure during daytime hours (sunrise to sunset).

MM-NOISE-2 Propane exploders shall not be used within 140 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 1,850 feet of an occupied structure during nighttime hours (sunset to sunrise).

MM-NOISE-3 Pyrotechnic devices (i.e., screamer siren, CAPA, etc.) shall not be used within 200 feet of an occupied structure during daytime hours (sunrise to sunset).

MM-NOISE-4 Daytime use of ATVs for spraying chemical repellents shall not occur closer than 35 feet from an occupied structure. ATVs shall not be used for nighttime chemical spraying operations.

MM-NOISE-5 Trapping activities employing a pick-up truck or ATV shall not be conducted within 25 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 180 feet of an occupied structure during nighttime hours (sunset to sunrise).

MM-NOISE-6 The use of rocket or cannon nets shall not occur within 250 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 13,000 feet of an occupied structure during nighttime hours (sunset to sunrise).

MM-NOISE-7 Aerial shooting activities occurring during the daytime shall not be conducted closer than 750 feet (as measured on the ground) from an occupied structure unless a suppressor is used. If a suppressor is used, daytime aerial shooting activities could be conducted without any horizontal ground distance separation from an occupied structure.

MM-NOISE-8 Aerial shooting activities occurring during the nighttime shall not be conducted closer than 22,000 feet (approximately 5 miles) from an occupied structure unless a suppressor is used. If a suppressor is used, Project nighttime aerial shooting activities shall not be conducted closer than 6,250 feet (approximately 1.2 miles) from an occupied sensitive receptor.

MM-NOISE-9 For daytime shooting activities involving an 8-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM-NOISE-10 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 7,000 feet (without suppressor) or not less than 900 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 3,500 feet (without suppressor) or not less than 225 feet (with suppressor).
- For .22 Caliber Rifle, not less than 1,300 feet (without suppressor) or not less than 90 feet (with suppressor).
- For .bolt-action 22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-10 For daytime shooting activities involving a **4-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM-NOISE-11 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 5,500 feet (without suppressor) or not less than 650 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 2,700 feet (without suppressor) or not less than 175 feet (with suppressor).
- For .22 Caliber Rifle, not less than 1,000 feet (without suppressor) or not less than 70 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-11 For daytime shooting activities involving a **2-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM--MM-NOISE-12.

- For .308 Caliber Rifle, not less than 4,500 feet (without suppressor) or not less than 450 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 2,200 feet (without suppressor) or not less than 125 feet (with suppressor).

- For .22 Caliber Rifle, not less than 700 feet (without suppressor) or not less than 50 feet (with suppressor).
- For .bolt-action 22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-12 For daytime shooting activities involving a **30-minute duration**, shooting shall not occur at distances from an occupied structure less than indicated below.

- For .308 Caliber Rifle, not less than 2,750 feet (without suppressor) or not less than 225 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 1,200 feet (without suppressor) or not less than 70 feet (with suppressor).
- For .22 Caliber Rifle, not less than 350 feet (without suppressor) or not less than 25 feet (with suppressor).
- For .bolt-action 22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-13 For nighttime shooting activities involving an **8-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-14 to MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 18,000 feet (without suppressor) or not less than 5,200 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 12,500 feet (without suppressor) or not less than 2,000 feet (with suppressor).
- For .22 Caliber Rifle, not less than 7,000 feet (without suppressor) or not less than 900 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 2 feet.

MM-NOISE-14 For nighttime shooting activities involving a **4-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-15 to MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 16,500 feet (without suppressor) or not less than 4,200 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 11,000 feet (without suppressor) or not less than 1,500 feet (with suppressor).

- For .22 Caliber Rifle, not less than 5,500 feet (without suppressor) or not less than 650 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 2 feet.

MM-NOISE-15 For nighttime shooting activities involving a **2-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 14,500 feet (without suppressor) or not less than 3,200 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 9,500 feet (without suppressor) or not less than 1,100 feet (with suppressor).
- For .22 Caliber Rifle, not less than 4,500 feet (without suppressor) or not less than 450 feet (with suppressor).
- For.bolt-action 22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-16 For nighttime shooting activities involving a **30-minute duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 11,000 feet (without suppressor) or not less than 2,000 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 6,500 feet (without suppressor) or not less than 550 feet (with suppressor).
- For .22 Caliber Rifle, not less than 2,750 feet (without suppressor) or not less than 225 feet (with suppressor).
- For bolt-action 22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

4.2.6.4.5 Alternatives Impacts

Under CEQA, the analysis of a project's impacts is performed on a comparative basis against the environmental setting attributable to development and activities that exist when the analysis is initiated. Consequently, WDM activities that are currently being conducted by each agency are considered part of the baseline condition, and even if such activities result in nuisance noise, the continuation of baseline conditions is not considered an impact under CEQA. However, a change in the implementation of WDM activities (even via a different agency than is currently carrying out the activity) is considered an "action" under CEQA, for which the impact must be evaluated. Hence, the "no project" alternative is not the same as for other alternatives where the responsibility for an action may simply be shifting from one agency to another.

NOI 1 - Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Alternative 1: No Project/Continuation of WS-California

Alternative 1 would continue the current WS-California WDM activities. Under this alternative, WS-California would continue to provide technical assistance on lethal and non-lethal techniques, and/or provide lethal and non-lethal operational assistance. Alternative 1 would not include any new CDFA or County Programs or emergency/rapid response WDM activities.

Noise-generating activities under Alternative 1 would be the same as described for existing conditions. Under current conditions, WDM activities are conducted by WS-California in response to requests for assistance. These activities may be conducted in areas close to occupied residences if assistance is requested from the landowner. These activities are limited in area, and generally short lived and/or temporary. Alternative 1 would not result in an increase in WDM activities compared to existing conditions. Because existing WDM activities are included in the baseline condition for CEQA, the no project alternative would result in no impacts under CEQA and not significant under NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and Airport Work

Under Alternative 2, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques, and/or provide non-lethal operational WDM assistance, but would not provide lethal WDM assistance, except for cases of human health and safety, pet health and safety, threatened and endangered species protection, and wildlife hazard management (WHM) at airports. Under Alternative 2, resource or land managers/owners requesting lethal operational assistance to protect agricultural resources would be referred to other entities.

Under Alternative 2, lethal operational activities would only occur in cases involving human or pet health and safety, threatened and endangered species protection, and WHM. Lethal damage management tools that generate noise, such as aerial shooting and ground shooting, would not be implemented in cases of agricultural damage. Because Alternative 2 would not include lethal operational WDM assistance by the CDFA, Counties, or WS-California to manage wildlife damage to agriculture, there may be a slight decrease in the use of firearms near occupied residences and a slightly lower potential for substantial noise increases at occupied residences compared to the Proposed Project. Entities other than WS-California are not authorized to conduct aerial shooting. However, the CDFA/Counties/WS-California would continue to provide technical assistance (for both lethal and non-lethal techniques) and non-lethal operational assistance in response to wildlife damage to agriculture. Alternative 2 may have a slightly lower impact compared to the Proposed Project. Noise-generating activities under Alternative 2 would be the same as described for the Proposed Project; however, use of lethal noise-generative tools would be limited to human health and safety, pet health and safety, threatened and endangered species protection, and WHM at airports. Potential direct, indirect, and cumulative impacts from noise-generating activities when implementing the mitigation measures listed in Section 4.2.6.3.4 would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 3. Non-Lethal Operational WDM

Under Alternative 3, Non-Lethal Operational WDM Alternative, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques and provide non-lethal operational WDM assistance. No lethal operational WDM assistance would be provided, even in cases involving human or pet health and safety, threatened and endangered species protection, or WHM at airports. Under Alternative 3, resource or land managers/owners requesting lethal operational assistance would be referred to other entities.

Similar to Alternative 2, Alternative 3 would not include lethal operational WDM assistance by the CDFA, Counties, or WS-California to manage wildlife damage to agriculture. Lethal management tools that generate noise, such as aerial shooting and ground shooting, would not be implemented. Therefore, a slight decrease may occur in the use of firearms near occupied residences (with a slightly lower potential for substantial noise increases at occupied residences). Entities other than WS-California are not authorized to conduct aerial shooting. However, the CDFA/Counties/WS-California would continue to provide technical assistance for both lethal and non-lethal techniques, and non-lethal operational assistance in response to wildlife damage to agriculture. Alternative 3 may have a slightly lower impact compared to the Proposed Project. Noise-generating activities under Alternative 3 would be the same as under the Proposed Project; however, use of lethal noise-generative tools would not be implemented. Potential direct, indirect, and cumulative impacts from non-lethal noise-generating activities when implementing the mitigation measures listed in Section 4.2.6.3.6 would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Under Alternative 4, Financial Reimbursement Assistance Alternative, the participating Counties and other governmental agencies could establish an assistance program or initiative that provides monetary compensation to affected cooperators/requestors (producers) upon verified livestock and poultry losses as a result of predation, with a focus on protection. Noise-generating tools that could be reimbursed under this alternative include electronic distress sounds, propane exploders, guard dogs, and chemical repellents. The resource or land managers/owners would be responsible for implementing these tools and submitting a reimbursement request. Alternative 4 would not include technical assistance or operational assistance provided by the CDFA, WS-California, or participating Counties. WS-California would not conduct WDM activities under this alternative, therefore NEPA based analysis and impact determination is not warranted (See Chapter 3, Section 3.8.4 – Alternative 4: Financial Reimbursement Assistance).

The addition of a financial reimbursement program would be intended to mitigate some of the loss of agricultural products resulting from wildlife damage for farmers and livestock owners. Although technical assistance or operational assistance such as in the Proposed Project/Proposed Action would not be provided, financial reimbursement would allow landowners to recoup their losses and/or implement methods to minimize wildlife damage to designated farmland (e.g., fencing, livestock protection animals, scare devices). Alternative 4 may have a slightly lower impact compared to the Proposed Project.

CEQA Conclusion: *Less than significant.*

Alternative 5. No Project/Cessation of WS-California

Under current conditions, WDM activities are conducted by WS-California in response to requests for assistance, including lethal and non-lethal methods such as scare devices, trapping, and shooting of animals with the potential to cause damage to agriculture or pose a threat to humans. These activities may be conducted in areas close to occupied residences (belonging to a given landowner or neighbor) if assistance is requested from the landowner and could involve substantial noise generation. These activities are limited in area, and generally short lived and/or temporary.

Alternative 5, the No Project/Cessation of WS-California Alternative, would not establish or formalize a CDFA WDM Program in California and would result in the cessation of existing WS-California WDM activities in California. Neither technical nor operational assistance with WDM methods described under the Proposed Project/Proposed Action would be conducted. This alternative would likely involve a transfer of WDM activities handled by other entities, such as Native American tribes, the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife, the Counties, private-resource owners and managers, private contractors, and/or other non-federal agencies. Other entities, including private landowners, would not likely have the expertise, training, equipment (e.g., firearms and aircraft), or authorization to carry out WDM like WS-California and it is likely that calls for service would go unaddressed. These other entities also may or may not adhere to safety precautions, BMPs, or federal state, and/or local laws. The implementation of these WDM activities outside of the existing CDFA and WS-California services would include some measure of replacement activities by others that also generate noise. While the quantification of such effects in the context of either an increase or decrease would be speculative, the potential impacts caused by other entities could be higher than the existing referenced CDFA and WS-California programs. However, any potential increase in noise-based impacts would not be expected to result in significant impacts. Therefore, the resulting impacts would be less than significant under CEQA and not significant under NEPA.

Because Alternative 5 would not include any operational or technical WDM, and noise generating WDM tools would not be implemented by WS-California, the CDFA, or Counties, there is no potential to generate excessive noise. In the absence of WDM activities carried out by WS-California and the CDFA/Counties, there would be no resulting increase in impact severity related to the generation of a substantial temporary or permanent increase in ambient noise levels on sensitive receptors.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

NOI-2: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Alternative 1: No Project/Continuation of WS-California

Alternative 1 describes existing WS-California WDM. WS-California WDM activities under Alternative 1 would continue to be implemented in response to requests for assistance to minimize or prevent loss from wildlife damage. Similar to the Proposed Project, the only equipment with any vibration generation potential likely to be used under Alternative 1 is a pickup truck. These activities may be conducted in areas close to occupied residences (belonging to a given landowner or neighbor) if assistance is requested from the landowner. These activities are limited in area, and generally short lived and/or temporary. The Proposed Project would also potentially include

operational assistance (e.g., rapid response activities), but these activities would also be limited in area and generally short-lived and/or temporary. Thus, the absence of the proposed CDFA Program from this alternative would not result in increased impact severity related to the generation of excessive groundborne vibration or groundborne noise levels. Because existing WDM activities are included in the baseline condition for CEQA, the no project alternative would result in no impacts under CEQA and not significant under NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and Airport Work

Under Alternative 2, CDFA/Counties/WS-California lethal operational activities would only occur in cases involving human or pet health and safety, threatened and endangered species protection, and WHM at airports. Similar to the Proposed Project and Alternative 1, the only equipment with any vibration generation potential likely to be used under Alternative 2 is a pickup truck. Potential direct, indirect, and cumulative impacts from using a pickup truck to implement WDM would be the same as described for the Proposed Project. Based on the vibration velocities shown in Table 4.2.6-28, there is little potential for WDM activities to cause excessive groundborne vibration that would result in human annoyance or damage to fragile buildings.

Lethal damage management would not be implemented in cases of wildlife damage unless the cases involve one or more of the above topics in which lethal operational assistance would be allowed. Alternative 2 would include the deployment of trained personnel and specialized equipment to provide lethal operational WDM assistance, but such assistance would not typically include vibration sources. Because this alternative would not include lethal operational WDM assistance by the CDFA, Counties, or WS-California to control wildlife damage to agriculture, there may be a slight increase in the use of non-lethal WDM methods, including live trapping, that could involve larger trucks and slightly greater vibration levels near occupied residences. However, CDFA/Counties/WS-California would continue to provide technical assistance for both lethal and non-lethal techniques, and non-lethal operational assistance in response to wildlife damage to agriculture. Although Alternative 2 may have a slightly greater impact compared to the Proposed Project, the resulting impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 3. Non-Lethal Operational WDM

Similar to Alternative 2, Alternative 3 would not include lethal operational WDM assistance by the CDFA, Counties, or WS-California to manage wildlife damage to agriculture, avoid risks to human or pet health and safety, prevent harm to threatened and endangered species, or lessen aircraft/wildlife collision potential. Because this alternative would not include lethal operational WDM assistance by the CDFA, Counties, or WS-California, there may be a slight increase in the use of non-lethal WDM methods, including live trapping, that could involve more pickup trucks but would unlikely result in any greater vibration levels near occupied residences. However, CDFA/Counties/WS-California would continue to provide technical assistance for both lethal and non-lethal techniques, and non-lethal operational assistance in response to wildlife damage to agriculture that would be

equivalent to the Proposed Project relating to vibration. Similar to the Proposed Project, Alternative 1, and Alternative 2, the only equipment with any vibration generation potential likely to be used under Alternative 3 is a pickup truck. Potential direct, indirect, and cumulative impacts from using a pickup truck to implement WDM would be the same as described for the Proposed Project. Based on the vibration velocities shown in Table 4.2.6-28, there is no potential for WDM activities to cause excessive groundborne vibration that would result in human annoyance or damage to fragile buildings. The resulting impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Although the CDFA would not provide technical assistance or operational assistance under this alternative, as with the Proposed Project, participating entities could receive reimbursement from the counties or other governmental agencies which would allow landowners to recoup their losses and/or implement methods that create noise to control manage wildlife damage to agricultural resources (e.g., fencing, livestock protection animals, scare devices). Alternative 4 would not include technical assistance or operational assistance provided by the CDFA, WS-California, or participating Counties. WS-California would not conduct WDM activities under this alternative Implementation of therefore NEPA based analysis and impact determination is not warranted (See Chapter 3, Section 3.8.4 – Alternative 4: Financial Reimbursement Assistance).

Because Alternative 4 would not include lethal or non-lethal operational WDM assistance by the CDFA, Counties, or WS-California to manage wildlife damage to agriculture, a slight decrease may occur in the use of pickup trucks associated with trapping or carcass removal near occupied residences, with a slightly lower potential for generation of substantial vibration levels at occupied residences. This alternative may have a slightly lower impact compared to the Proposed Project. Because Alternative 4 does not include any operational WDM, there is no potential for WS-California, the CDFA, or County WDM activities to cause excessive groundborne vibration, the resulting impacts would be less than significant under CEQA.

CEQA Conclusion: *Less than significant.*

Alternative 5. No Project/Cessation of WS-California

As previously described, the No Project/Cessation of WS-California Alternative would not establish or formalize a CDFA WDM Program in California and would result in the cessation of existing WS-California WDM activities in California. Under current conditions, WDM activities are conducted by WS-California in response to requests for assistance, including lethal and non-lethal methods such as scare devices, trapping, and shooting of predatory animals. These activities may involve the use of more pickup trucks for transporting traps, trapped animals, or carcasses, possibly leading to vibration generation in areas close to occupied residences belonging to a given landowner or neighbor if assistance is requested from the landowner. These activities are limited in area, and generally short lived and/or temporary.

Alternative 5 would likely increase WDM activities by other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, training, equipment, or authorization to carry out WDM like CDFA and WS-California and it is likely that

calls for service would go unaddressed. As discussed in the above under the previous threshold the quantification of such effects in the context of either an increase or decrease would be speculative in the absence of WDM activities carried out by WS-California and the CDFA/Counties, including technical and operational WDM assistance, Groundborne vibration from this alternative and cessation of current WS California activities would not result in increased impact severity related to the generation of groundborne vibration or groundborne noise compared to the Proposed Project. This alternative may have a slightly lower impact compared to the Proposed Project. Therefore, the resulting impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

NOI-3: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Alternative 1: No Project/Continuation of WS-California

As previously discussed, WS-California WDM activities under Alternative 1 would continue to be implemented in response to requests for assistance (such as from airports) to minimize or prevent safety hazards to humans from collisions between aircraft and wildlife. Under current conditions, WDM activities are conducted by WS-California in response to requests for assistance with wildlife populations at or adjacent to airport facilities. These activities may be conducted in areas close to occupied residences. These activities are limited in area, and generally short-lived and/or temporary. Under the Proposed Project, the new CDFA Program would also potentially include operational assistance (e.g., rapid response activities), but these activities would also be limited in area and generally short-lived and/or temporary. Thus, the absence of the proposed CDFA Program from this alternative would not result in increased impact severity related to the exposure of people to excessive noise levels. Noise-generating activities under Alternative 1 would be the same as described for the Proposed Project. Because existing WDM activities are included in the baseline condition for CEQA, the no project alternative would result in no impacts under CEQA and not significant under NEPA.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *Not significant.*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and Airport Work

Under Alternative 2, CDFA/Counties/WS-California lethal and non-lethal operational assistance would occur in cases involving airports, and the CDFA/Counties/WS-California would continue to provide technical assistance for both lethal and non-lethal techniques in response to requests for assistance by airport operators. Lethal operational assistance would also be provided at airports. Noise-generating activities under Alternative 2 would be the same as described for the Proposed Project. The CDFA and WS-California would also implement MM-NOISE-2, MM-NOISE-3 and MM-NOISE-6 to address impacts from propane blasters, pyrotechnic devices, and rocket/cannon nets. Finally, the CDFA and WS-California would implement MM-NOISE-9 through MM-NOISE-12 to avoid impacts from daytime shooting activities and MM-NOISE-13 through MM-NOISE-16 to avoid impacts from nighttime shooting activities. Potential direct, indirect, and cumulative impacts from noise-generating activities would be less than

significant when implementing the mitigation measures listed in Section 4.2.6.3.4 under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 3. Non-Lethal Operational WDM

Under Alternative 3, Non-Lethal Operational WDM Alternative, the CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques and provide non-lethal operational WHM assistance for airports, but no lethal operational WDM assistance would be provided. Lethal management tools that generate noise, such as aerial shooting and ground shooting, would not be implemented. The Proposed Project would include the deployment of trained personnel and specialized equipment to provide lethal operational WHM assistance to airports, which often involves the use of firearms. Because this alternative would not include lethal operational WDM assistance by the CDFA, Counties, or WS-California to airports, there may be a slight decrease in the use of firearms near occupied residences and a slightly lower potential for substantial noise increases at occupied residences. However, the CDFA/Counties/WS-California would continue to provide non-lethal operational assistance, such as electronic distress sounds, propane exploders, pyrotechnics, chemical repellents, rocket nets, and non-lethal trapping methods. Non-lethal noise-generating activities under Alternative 3 would be the same as described for the Proposed Project. The CDFA and WS-California would also implement MM-NOISE-2, MM-NOISE-3 and MM-NOISE-6 to address impacts from propane blasters, pyrotechnic devices, and rocket/cannon nets. Potential direct, indirect, and cumulative impacts from noise-generating activities would be less than significant when implementing the mitigation measures listed in Section 4.2.6.3.4 under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant with mitigation.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Financial reimbursement assistance is not envisioned to include efforts at airports to avoid collisions between aircraft and wildlife. Thus, financial reimbursement assistance to agricultural landowners under this alternative would not result in increased impact severity related to the exposure of people to excessive noise levels. Therefore the CEQA determination will result in no impact. Additionally, since WS-California cannot participate in this alternative, a NEPA based analysis and impact determination is not warranted (see Chapter 3 Section 3.8.4: Financial Reimbursement Assistance).

CEQA Conclusion: *No impact.*

Alternative 5. No Project/Cessation of WS-California

As previously described, the No Project/Cessation of WS-California Alternative would not establish or formalize a CDFA WDM Program in California and would result in the cessation of the existing WS-California WDM activities in California. Because Alternative 5 does not include any operational WDM activities, and noise-generating WDM tools would not be implemented by WS-California, the CDFA, or County wildlife specialists, there would be no potential to generate excessive noise. Under current conditions, WDM activities are conducted by WS-California in response to requests for assistance from airports, including lethal and non-lethal methods such as scare devices, trapping, and

shooting of predatory animals. These activities may involve the use of larger trucks for transporting traps, trapped animals, or carcasses, leading to vibration generation in areas close to occupied residences belonging to a given landowner or neighbor if assistance is requested from a given airport. These activities are limited in area, and generally short-lived and/or temporary. The absence of the proposed CDFA Program from this alternative and cessation of current WS-California activities would not result in increased impact severity related to the exposure of people to elevated noise near airports compared to the Proposed Project. This alternative may have a slightly lower impact compared to the Proposed Project. Therefore, the resulting impacts would be less than significant under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than Significant.*

NEPA Conclusion: *Not significant.*

4.2.6.4.6 Alternatives Cumulative Impacts

Noise-generating activities under the Alternatives 1 - 5 could occur in locations where ambient noise levels are high, such as airports. Other future projects could also generate noise in proximity to Alternatives 1 and 2 activities. Although noise associated with future projects or operations in proximity to Alternatives 1 and 2 activities may be individually below the applicable criteria, in combination, they could exceed noise criteria. In more extreme cases, ambient conditions or other projects already may exceed the criteria, with Alternatives 1 and 2 activities exacerbating this situation.

The Alternatives 1 - 5 have virtually no potential to contribute to cumulative vibration impacts because vibration levels with the potential to result in human annoyance would be limited to a distance of 6 feet from any WDM activity. At this distance, it is highly unlikely that other vibration sources would be present to exacerbate existing ambient vibration levels.

CEQA Conclusion (Alternatives 1–3): *Less than cumulatively considerable with mitigation.*

CEQA Conclusion (Alternatives 4 and 5): *Less than cumulatively considerable.*

NEPA Conclusion: *Not significant.*

4.2.6.5 References

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4.2.7 Public Services

This section describes the existing public services conditions of the Proposed Project/Proposed Action and evaluates potential impacts related to implementation of the Proposed Project/Proposed Action.

Although certain wildlife damage management (WDM) activities may be conducted near schools, parks, or other public facilities, the Proposed Project/Proposed Action would not include any actions that would permanently affect the use or availability of these facilities or the services that they provide. Therefore, this section is focused on the Proposed Project/Proposed Action's potential to impact fire and police protection.

4.2.7.1 Existing Conditions

4.2.7.1.1 Fire Protection Services

Fire protection services within California are primarily provided by the California Department of Forestry and Fire Protection (CAL FIRE).[1] CAL FIRE provides fire protection and stewardship of over 31 million acres of California's privately owned wildlands. An additional 48 million acres of wildlands are within federal jurisdiction (LAO 2005).[2] Individual counties and cities (local governments/jurisdictions) also provide fire protection services (or often have contracts with CAL FIRE) for the protection of people and structures in developed areas. Preventing wildfires in the State Responsibility Areas (SRAs) is a vital part of CAL FIRE's mission. CAL FIRE's Fire Prevention Program consists of multiple activities including wildland pre-fire engineering, vegetation management, fire planning, education, and law enforcement. Typical fire prevention projects include brush clearance, prescribed fire, defensible space inspections, emergency evacuation planning, fire prevention education, fire hazard severity mapping, and fire-related law enforcement activities (CAL FIRE 2022).

In addition, CAL FIRE provides varied emergency services in 36 of the state's 58 counties via contracts with local governments. Local fire protection services are also focused on providing emergency medical response.

As part of the CAL FIRE team since 1995, the Office of the State Fire Marshal supports the CAL FIRE mission to protect life and property through fire prevention engineering programs, law and code enforcement and education. The Office of the State Fire Marshal provides for fire prevention by enforcing fire-related laws in state-owned or operated buildings, investigating arson fires in California, licensing those who inspect and service fire protection systems, approving fireworks as safe and sane for use in California, regulating the use of chemical flame retardants, evaluating building materials against fire safety standards, regulating hazardous liquid pipelines, and tracking incident statistics for local and state government emergency response agencies (CAL FIRE 2022).

In practice, fire protection (including wildland fire) is built upon the premise that agencies will respond to incidents beyond their jurisdictions to maximize the use of resources and ensure that the closest available resources respond. The delivery and use of firefighting resources across jurisdictions are guided by a series of interagency agreements (mutual aid) of varying types. This can include services provided to other jurisdictions without reimbursement,

1 The Board of Forestry and Fire Protection (Board) is a Governor-appointed body that establishes and administers forest and rangeland policy for the State of California, provides direction and guidance to CAL FIRE on fire protection and natural resource management, and is responsible for engaging in a strategic planning process in development of the California Strategic Fire Plan, as described in Public Resources Code (PRC) Sections 4114 and 4130.

2 Fire protection services in California are also provided by other federal agencies. This includes, but is not limited to, the U.S. Forest Service, a federal agency within the USDA; the Bureau of Land Management, National Park Service, and Bureau of Indian Affairs, agencies within the Department of Interior; and the U.S. Fish and Wildlife Service and U.S. Department of Defense.

services provided to state and federal agencies by local agencies for reimbursement, services provided to local agencies by CAL FIRE for reimbursement, and state and federal interagency cooperation (LAO 2005).

4.2.7.1.2 Police (Law Enforcement) Services

In 2019, according to the Federal Bureau of Investigation (FBI) Uniform Crime Reporting Program (UCR) there were 79,616 total law enforcement officers in California spread across 469 law enforcement agencies (FBI 2019).[3] Local jurisdictions (counties and cities) are typically served by local law enforcement agencies (sheriff/police). School districts, colleges, and universities may also have separate law enforcement agencies. While not included in the UCR total, game wardens are sworn peace offers for the California Department of Fish and Wildlife (CDFW), who protect public safety and natural resources. Other special districts that have law-enforcement personnel include but are not limited to airports, community service districts, harbors, parks, railroads, transit, and tribal organizations. Additionally, the California Highway Patrol provides uniform traffic law enforcement throughout the state. Besides law enforcement officers, agencies also employ civilian personnel such as clerks, radio dispatchers, meter attendants, stenographers, jailers, correctional officers, and mechanics. In 2019, there were 41,635 civilian employees in California (FBI 2019). Based on the FBI's 2019 population estimate in California, the ratio of law enforcement officers to inhabitants was approximately 2.35 officers per 1,000 inhabitants (FBI 2019).[4]

4.2.7.2 Relevant Laws, Policies, and Ordinances

Relevant laws, policies, ordinances, plans, and executive orders related to public services are located in Appendix B.

4.2.7.3 Adverse Effects/Thresholds of Significance

Under the National Environmental Policy Act (NEPA), the level of an effect must consider the context and intensity of the environmental effect and if the corresponding impact results in an adverse effect. For the purposes of the analysis, an adverse effect under NEPA would occur if the Proposed Project/Proposed Action would:

Directly, indirectly, or cumulatively result in adverse effects on public services.

The significance criteria used to evaluate the potential impacts of the Proposed Project/Proposed Action to public services are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to public services would occur if the Proposed Project/Proposed Action would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
    a. Fire protection.
    b. Police protection.

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3 The Uniform Crime Reporting (UCR) Program defines law enforcement officers as individuals who ordinarily carry a firearm and a badge, have full arrest powers, and are paid from governmental funds allocated specifically for sworn law enforcement representatives (FBI 2019a).

4 For the 2019 population estimates, the FBI computed individual rates of growth from one year to the next for every city/town and county using 2010 decennial population counts and 2011 through 2018 population estimates from the U.S. Census Bureau. Each agency's rates of growth were averaged; that average was then applied and added to its 2018 Census population estimate to derive the agency's 2019 population estimate.

c. Schools.
d. Parks.
e. Other public facilities.

The Proposed Project/Proposed Action would not increase demand on schools, parks, or other public facilities (Items 1c through 1e) because it would not increase housing or induce population growth, nor would it increase nonresidential development. Furthermore, the Proposed Project/Proposed Action would not construct any physical structures that would require protection from theft/vandalism or require protection from fire risks. Therefore, the Proposed Project/Proposed Action would not increase the demand for these public services and would not require new or physically altered governmental facilities, the construction of which could cause significant environmental impacts. Thus, no impact (and no significant direct, indirect, or cumulative impact) would occur related to those public services (Items 1c through 1e listed above) and they are not discussed further. Fire and police could be requested to respond to a human or companion animal health and safety emergency from wildlife in the absence of a wildlife specialist; thus, the Proposed Project/Proposed Action could affect service ratios, response times, or other performance objectives for fire and police protection. Potential impacts to fire and police performance objectives are discussed in detail below.

Refer to Section 4.3, Environmental Topics Eliminated from Further Discussion, for additional discussion of Land Use/Planning/Publicly Owned or Managed Lands/Property (Section 4.3.6), Population and Housing (Section 4.3.7), and Recreation (Section 4.3.9).

4.2.7.4 Impacts Analysis

This section uses the below terminology adapted from Section 4.1.4, Impact/Effect Terminology, to describe the effects of the Proposed Project/Proposed Action on resources under CEQA (i.e., CEQA Conclusion) and on the ecological aspects of the human environment (i.e., natural resources and components, structures, and functioning of affected ecosystems) under NEPA (i.e., NEPA Conclusion).

CEQA Conclusions

- **No Impact:** The Proposed Project would not affect the resource or topic and would not change the environmental baseline. (NI)
- **Less than Significant:** The Proposed Project would not result in a substantial adverse change in the resource or topic, and no mitigation is needed. (LTS)
- **Less than Significant with Mitigation:** The Proposed Project would not result in a substantial adverse change in the resource or topic if mitigation is incorporated. (LTS/M)
- **Significant and Unavoidable:** The Proposed Project/Proposed Action could result in a substantial adverse impact on the resource or topic and the impact would remain significant after application of all feasible mitigation measures. (SU)
- **Less than Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is not considered significant. (LCC)
- **Cumulatively Considerable:** The impact from the Proposed Project/Proposed Action, in combination with other cumulative development effects, is considered significant. (CC)
- **Beneficial:** The Proposed Project/Proposed Action would result in an increase in the quality of the resource. (B)

NEPA Conclusions

- **No Impact:** Actions taken under the Proposed Project/Proposed Action would not adversely affect the topic or ecological aspects of the human environment. (NI)
- **Not Significant:** Actions taken under the Proposed Project/Proposed Action would not substantially adversely affect the topic or ecological aspects of the human environment. (NS)
- **Significant:** Actions taken under the Proposed Project/Proposed Action would substantially adversely affect the topic or ecological aspects of the human environment. (S)

4.2.7.4.1 Proposed Project/Proposed Action Impacts

PS-1: Would the Proposed Project/Proposed Action result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Police protection?

As stated in Chapter 2, Project Description, the CDFA is mandated to "promote and protect the agricultural industry of the state," and that responsibility encompasses the prevention of wildlife damage to public infrastructure (e.g., roads, water conveyance structures, and buildings).

Under federal law, the U.S. Secretary of Agriculture (Secretary) is authorized to conduct a program of wildlife services with respect to injurious animal species and take any action the Secretary deems necessary in conducting the program.

In California, WDM activities to protect livestock, crops, human health and safety and property from wildlife damage have been historically carried out by the individual counties, WS-California (through cooperative service agreements [CSAs]), private landowners/entities (or their agents), or have not been addressed.

As such, the continued use of lethal and non-lethal WDM methods described as part of the Proposed Project/Proposed Action are already a part of the environmental baseline, and WDM activities carried out under the Proposed Project/Proposed Action would not represent a substantive change from existing conditions.

Under the Proposed Project/Proposed Action, WDM activities could be carried out by the CDFA, individual counties, and WS-California wildlife specialists. This would include coordination and support to fire and police (law enforcement) protection services (herein referred to collectively as emergency service providers) where human (and companion animal) health and safety is at risk due to wildlife. The Proposed Project/Proposed Action would not generate housing or induce population growth, nor would it increase non-residential development affecting emergency service providers. It would not construct any physical structures that would require protection from theft/vandalism (police protection/law enforcement), nor would it require protection from fire dangers (fire protection/fire department). The Proposed Project/Proposed Action would not result in adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

Implementation of the Proposed Project/Proposed Action is not anticipated to result in additional calls to emergency service providers for human and companion animal health and safety, compared to existing conditions. Instead, requests for WDM assistance from the public, private landowners/entities (or their agents), other agencies and governmental bodies, and Native American tribes in California could be addressed by (or directed to) the CDFA, WS-California, or the Counties themselves, alleviating calls for service to emergency service providers and representing a *beneficial impact*. The Proposed Project/Proposed Action would represent an increased opportunity for individual counties to partner with CDFA and/or WS-California (for human and companion animal health and safety calls and for Emergency/Rapid Response activities), as well as carrying out WDM on their own. Under both CEQA and NEPA, the Proposed Project/Proposed Action would have no impact/beneficial impact.

CEQA Conclusion: *Beneficial impact.*

NEPA Conclusion: *No impact.*

4.2.7.4.2 Mitigation Measures

No mitigation measures are required.

4.2.7.4.3 Cumulative Impacts

Implementation of the Proposed Project/Proposed Action in combination with past, present, and reasonably foreseeable future development would not result in significant or cumulatively considerable impacts related to public services. Actions taken by the CDFA, WS-California, or the Counties would not combine with other activities in the human environment to adversely affect performance objectives for fire or police protection As previously described, the Proposed Project/Proposed Action could redirect wildlife emergency requests from emergency service providers, thus allowing an expansion of resources to address all types of human and companion animal health and safety emergencies.

CEQA Conclusion: *Less than cumulatively considerable/beneficial.*

NEPA Conclusion: *Not significant.*

4.2.7.4.4 Alternatives Impacts

Alternative 1: No Project/Continuation of WS-California

Under Alternative 1, no new CDFA or County WDM would be established, and no CDFA or County-led Rapid Response activities would occur. Under Alternative 1, all WDM methods described in Appendix C-1 would be available to WS-California, which includes coordination and support to emergency service providers. Refer to Section 3.8.1 for a description of activities proposed under Alternative 1.

Similar to the Proposed Project/Proposed Action, implementation of Alternative 1 is not anticipated to result in additional calls to emergency service providers for human and companion animal health and safety; thus, actions under this alternative considered under NEPA are expected to have no impact. Instead, requests for WDM assistance from the public, private landowners/entities (or their agents), other agencies and governmental bodies, and Native American tribes in California could be addressed by (or directed to) WS-California, potentially alleviating calls for service to emergency service providers, and representing a *beneficial impact*. There would be no change from the baseline condition and therefore no impact under CEQA would occur.

CEQA Conclusion: *No impact.*

NEPA Conclusion: *No Impact*

Alternative 2: Non-Lethal Operational WDM, Except for Human/Companion Animal Health and Safety, Threatened and Endangered Species Protection, and WHM

Under Alternative 2, CDFA/Counties/WS-California would provide technical assistance on lethal and non-lethal techniques, and/or provide non-lethal operational WDM assistance, but would not provide lethal WDM operational assistance except in cases of human and companion animal health and safety, threatened and endangered species protection, and WHM at airports. Alternative 2 includes coordination and lethal WDM support to emergency service providers where human and companion animal health and safety is at risk due to wildlife.

Similar to the Proposed Project/Proposed Action Alternative and Alternative 1, implementation of Alternative 2 is not anticipated to result in additional calls to emergency service providers for human and companion animal health and safety. Instead, requests for WDM assistance from the public, private landowners/entities (or their agents), other agencies and governmental bodies, and Native American tribes in California could be addressed by (or directed to) WS-California, potentially alleviating calls for service to emergency service providers, and representing a *beneficial impact*.

As emergency service provider WDM response is focused on responding to calls for human and companion animal health and safety, negligible or no impact to performance objectives for fire or police protection would be anticipated under Alternative 2.

CEQA Conclusion: No impact.

NEPA Conclusion: *No impact.*

Alternative 3. Non-Lethal Operational WDM

Alternative 3 would be similar to the Proposed Project/Proposed Action; however, only non-lethal operational WDM would be carried out by the CDFA/WS-California/Counties. Any lethal operational WDM would be handled by other entities including emergency service providers.

Potential impacts to the performance objectives for fire or police protection from WS-California WDM actions under Alternative 3 are expected to be the same as those examined under the Proposed Project/Proposed Action; thus, Alternative 3 actions considered under NEPA are expected to have no impact. However, implementation of Alternative 3 would likely increase operational WDM activities (and calls for service) by other entities and emergency service providers in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, immobilization and euthanasia [I&E] drugs, aircraft), or authorization to carry out WDM like WS-California, and it is likely that some calls for service (e.g., those requiring lethal operational WDM) could go unaddressed.

Under Alternative 3, while no significant physical impacts associated with an increased demand for public services would occur, there would be a reduced opportunity for individual counties to partner with the CDFA and/or WS-California to coordinate or provide support to emergency service providers on human and companion animal health and safety calls (where lethal operational WDM is necessary) or participate in for Rapid Response activities (also limited to non-lethal operational WDM). Under this alternative, WS-California may not be able to

meet its legal obligations to protect American agriculture without lethal WDM and it would not meet its mission to respond to all requests for assistance. The inability for the CDFA, WS-California, or the Counties to respond to a wildlife emergency with lethal WDM would put additional burdens on fire or police protection resources and may result in less-than-significant impacts to fire or police performance objectives under CEQA and not significant under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

Alternative 4. Financial Reimbursement Assistance

Under Alternative 4, participating entities could establish an assistance program or cost-sharing initiative from the counties or other governmental agencies that provides monetary compensation for non-lethal methods for affected cooperators. No WDM activities would be carried out by the CDFA/WS-California/Counties. All WDM would be handled by other entities, including response to calls for service related to human and companion animal health and safety, which would likely increase calls to emergency service providers. Alternative 4 is unlikely to benefit affected cooperators because emergency situations with wildlife often require swift lethal resolution. Such scenarios would not be reimbursed under this alternative. Implementation of Alternative 4 is not available to WS-California, therefore NEPA based analysis and impact determination is not warranted (see Chapter 3 Section 3.8.4: Financial Reimbursement Assistance).

Implementation of Alternative 4 would likely increase operational WDM activities provided by (and calls for service to) other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California, and it is likely that some calls for service could go unaddressed.

Under Alternative 4, while no significant physical impacts associated with an increase demand for public services would occur, there would be no opportunity for individual counties to partner with the CDFA and/or WS-California to coordinate or provide support for WDM activities. Therefore, the corresponding effects would result in less-than-significant impacts under CEQA.

CEQA Conclusion: *Less than significant.*

Alternative 5. No Project/Cessation of WS-California

Alternative 5 would be a complete cessation of WDM activities by WS-California and would not include any new WDM by CDFA or the Counties. All WDM would be handled by other entities, including response to calls for service related to human and companion animal health and safety, which would likely increase calls to emergency service providers. However, such effects are speculative. Under this alternative, Potential impacts caused by other entities would be higher than under Alternatives 1–3 and similar to Alternative 4, would be not significant.

Implementation of Alternative 5 would likely increase operational WDM activities provided by (and calls for service to) other entities in proportion to the reduction of services previously provided by WS-California. Other entities, including private landowners, would not likely have the expertise, equipment (e.g., firearms, I&E drugs, aircraft), or authorization to carry out WDM like WS-California, and it is likely that some calls for service would go unaddressed.

Under Alternative 5, while no significant physical impacts associated with an increase demand for public services would occur, there would be no opportunity for individual counties to partner with the CDFA and/or WS-California to coordinate or provide support for WDM activities. The inability for the CDFA, WS-California, or the Counties to respond to a wildlife emergency with operational or technical WDM would put additional burdens on fire or police protection resources. However, while an increase in calls to emergency service providers would likely occur, quantification of the corresponding effects in the context of an increase in service needs would be speculative and are expected to result in less-than-significant impacts to fire or police performance objectives under CEQA and not significant impacts under NEPA.

CEQA Conclusion: *Less than significant.*

NEPA Conclusion: *Not significant.*

4.2.7.4.5 Cumulative Impacts

Implementation of Alternatives 1 and 2, in combination with past, present, and reasonably foreseeable future development, would not result in a cumulatively considerable impact related to public services. As previously described, CDFA, WS-California-, and County-provided WDM during wildlife emergency situations could potentially alleviate calls for service for emergency service providers. If the CDFA, WS-California, or the Counties could not provide lethal WDM during an emergency situation, as would be required under Alternatives 3–5, then emergency service providers or other entities would need to respond. This could put additional burdens on fire or police resources. Alternatives 1 and 2 could redirect wildlife emergency requests from emergency service providers, thus allowing an expansion of resources to address all types of human and companion animal health and safety emergencies.

CEQA Conclusion (Alternatives 1 and 2): *Less than cumulatively considerable/beneficial.*

The inability for the CDFA, WS-California, or the Counties to respond to a wildlife emergency with lethal WDM may put additional burdens on fire or police protection resources and could adversely impact fire or police resources to address other types of human and companion animal health and safety emergencies.

CEQA Conclusion (Alternatives 3–5): *Cumulatively considerable.*

Actions taken by the CDFA, WS-California, or the Counties would not combine with other activities in the human environment to adversely affect performance objectives from a cumulatively considerable perspective for fire or police protection.

NEPA Conclusion: *Not significant.*

4.2.7.5 References

CAL FIRE (California Department of Forestry and Fire Protection). 2022. "About Us." CAL FIRE website. March 14, 2022. https://www.fire.ca.gov/about-us/.

FBI (Federal Bureau of Investigation). 2019. "2019 Crime in the United States." FBI, Uniform Crime Reporting (UCR) Program. March 14, 2022. https://ucr.fbi.gov/crime-in-the-u.s/2019/crime-in-the-u.s.-2019/topic-pages/police-employee-data.

LAO. 2005. California wildlands within federal jurisdiction (to be provided).

4.3 Environmental Resource Topics Eliminated from Further Analysis

The following environmental resource areas have been eliminated from further analysis in this environmental impact report (EIR)/environmental impact statement (EIS) because little or no potential exists for these activities to have a physical effect on the specified resources, based on the nature and scope of the Proposed Project/Proposed Action activities.

4.3.1 Aesthetics/Visual Resources

The Proposed Project/Proposed Action would not include the installation of structures or facilities that could result in permanent visual changes or new sources of light or glare. Visual impacts associated with the Proposed Project/Proposed Action would be geographically focused in scale, short term and/or temporary, and limited to use of equipment meant for implementation of wildlife damage management (WDM) activities and administered by trained personnel (personnel from Wildlife Services [WS-California], a state office within the U.S. Department of Agriculture's Animal Plant and Health Inspection Service; CDFA; and/or county wildlife specialists). A number of WDM activities under WS-California's current authority are ongoing and part of baseline conditions, and thus visual effects associated with Proposed Project/Proposed Action activities would not result in a substantial change in the nature or magnitude of these activities that could result in an adverse aesthetic impact under CEQA. Additionally, WDM actions implemented by WS-California, the CDFA, or county wildlife specialists under the Proposed Project/Proposed Action would not significantly impact the visual quality of public sites or areas under NEPA. Although physical structures may be recommended as part of technical assistance, they are not constructed by WS-California, the CDFA, or county wildlife specialists and therefore are not within the scope of the Proposed Project/Proposed Action.

The integrated WDM methods that could be used by the CDFA, WS-California, or county wildlife specialists would be implemented primarily on private lands and to a lesser extent on federal-, state-, tribal, and locally managed lands or facilities, consistent with historic and current practices. In California, pursuant to California Code of Regulations, Title 14, Section 465.5, traps must be checked at least once daily, and each time traps are checked, all trapped animals must be removed. Additionally, if traps or trapping devices are used, Wildlife Services Directive 2.450 requires WS-California wildlife specialists to post appropriate warning signs on commonly used public access points to areas where traps or snares are in use; signs would be routinely checked by a to ensure the potential for public's view of captured animals would be minimized. Therefore, the Proposed Project/Proposed Action would not have a substantial adverse effect on a scenic vista, substantially damage scenic resources within a state scenic highway, and/or substantially degrade the existing visual character or quality of any area under NEPA. Any visual variation relative to the environmental baseline would be consistent with typical WDM practices and generally would be imperceptible to sensitive viewer groups, even if multiple concurrent WDM activities were to occur in the same location, and thus visual effects associated with Proposed Project/Proposed Action activities would not result in a substantial change in the nature or magnitude of these activities that could result in an adverse aesthetic impact under CEQA.

The Proposed Project/Proposed Action would not include any interior lighting that creates nighttime glare, exterior lighting sources, and/or building surfaces that reflect sunlight. A variety of lights, such as strobe, barricade, and revolving units, may be used to frighten birds or other wildlife. The use, if any, of these types of methods would be geographically focused, infrequent, and of short duration and thus impacts of artificial lights used for WDM would

be not significant under NEPA. The Proposed Project/Proposed Action would not create a permanent new source of substantial light or glare that would adversely affect nighttime views in the area under CEQA.

With consideration of the above, the Proposed Project/Proposed Action's effects on aesthetic resources would not be significant, and the Proposed Project/Proposed Action's contribution to potential cumulative aesthetic impacts would be less than considerable.

4.3.2 Air Quality, Greenhouse Gas Emissions, and Energy (Global Climate Change)

Air Quality

There would be a limited amount of vehicle use by the CDFA, WS-California, and county personnel for Proposed Project/Proposed Action activities. Automobiles, light-duty passenger trucks, aircraft, and other vehicles generate exhaust emissions, which consist of ozone precursors, particulate matter, diesel particulate matter, carbon monoxide, and other chemicals. Operation of vehicles and ATVs off-road would also generate fugitive dust emissions. These emissions (ozone precursors, particulate matter, carbon monoxide, etc.) from ATVs would be minor, localized, and would dissipate quickly. Furthermore, the number of vehicles and aircraft used historically by WS-California personnel is anticipated to remain the same because changes to WS-California activities in the state would not substantially increase vehicle and aircraft use. A minor increase could occur if a county that currently does not conduct WDM activities were to engage in a cooperative service agreement with WS-California; however, this increase would likely be offset by the reduction in emissions by private entities. Implementation of the Proposed Project/Proposed Action would potentially cause an increase in vehicle usage from rapid response activities; however, these activities would only be conducted in the event of high-risk wildlife damage scenarios. Therefore, additional vehicle emissions released under the Proposed Project/Proposed Action would be minor. Implementation of the Proposed Project/Proposed Action would not involve substantial construction activities that would result in air quality impacts. Therefore, the Proposed Project/Proposed Action would not result in a substantial net increase in emissions that would result in long-term or cumulative air quality impacts, and the Proposed Project/Proposed Action would not result in a cumulatively considerable net increase of any criteria. Furthermore, the Proposed Project/Proposed Action would not expose sensitive receptors to pollution concentration given that WDM activities would be conducted at the request of the landowner and that the activity would be conducted under the supervision of trained wildlife personnel.

Animal carcasses, if not disposed of properly, can decompose and create odors. However, Wildlife Services Directive 2.515 sets forth requirements for the disposal of wildlife carcasses, requiring that WS-California personnel make a reasonable effort to retrieve and dispose of wildlife carcasses that result from WS-California WDM activities. The directive further requires WS-California wildlife specialists dispose of all carcasses in a manner consistent with federal, state, county, and local regulations. The CDFA and county wildlife specialists are also required to follow local, county, and state policies for proper carcass disposal. The use of any olfactory attractants and/or repellants as part of WDM activities would be temporary and carried out in accordance with federal and state laws. Therefore, given the nature of the areas where Proposed Project/Proposed Action activities are anticipated to occur and compliance with policies and regulations, the Proposed Project/Proposed Action would not create objectional odors and impacts would be less than significant.

Greenhouse Gas Emissions

On January 20, 2021, President Biden issued Executive Order (EO) 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. Section 7(e) of this EO directs the White House Council on Environmental Quality (CEQ) to rescind the 2019 Draft GHG Guidance and review, revise, and update its 2016 GHG Guidance. Among its key provisions, the order directed federal agencies to review and potentially revise a range of policies, regulations, and actions that were inconsistent with the Biden Administration's commitment to combatting climate change and promoting environmental sustainability. The order also sought to reestablish interagency working groups and committees that had been disbanded or sidelined during the previous administration, with a focus on restoring evidence-based decision-making processes.

The Interagency Working Group (IWG) on the Social Cost of Greenhouse Gases is a collaborative effort involving multiple U.S. federal agencies with the goal of providing scientifically sound estimates for the social cost of greenhouse gases (SC-GHG). This metric assigns a monetary value to the long-term damages caused by the emission of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) emissions, considering their impacts on climate change, public health, ecosystems, and the economy. The IWG, under the authority of Executive Order 13990, released the Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 in February 2021. This document contains methodologies, data, and analyses used by IWG to develop interim estimates for the social cost of carbon ($SC\text{-}CO_2$), methane ($SC\text{-}CH_4$), and nitrous oxide ($SC\text{-}N_2O$) emissions under EO 13990.

WS-California operates an existing WDM program. The addition of the CDFA's WDM Program and any county led Programs are not anticipated to significantly increase the number of vehicle trips associated with WDM. Additionally, such trips would be limited to the duration and needs for WDM activity at any given site. Origin and destination trips would not be concentrated to or from any given location, but rather would be initiated on an as-needed basis from the closest available dispatch area. Exhaust containing greenhouse gas emissions, such as carbon dioxide, would be generated by the use of vehicles and aircraft by the CDFA, WS-California, and county personnel. During FY2022, vehicles, excluding aircraft, employed by WS-California personnel generated an estimated 1,168.46 metric tons of greenhouse gas emissions (WS 2023). The estimated greenhouse gas emissions for WS-California vehicles, excluding aircraft, translates to the same greenhouse gas emissions of 147 homes, or 0.0003 coal-fired plants for one year. In regard to aircraft, from 2011-2021, an estimated 2,531.5 metric tons of greenhouse gas emissions were generated from single-engine fixed-wing and rotary aircraft used in performing the Wildlife Services mission nationwide. This Wildlife Services aviation estimated greenhouse gas emissions is roughly equivalent to the emissions from the energy use of 319 homes, or 0.007 coal-fired power plants for one year. However, very little of these aviation greenhouse gas emissions were tied to WS-California WDM in FY 2022. From 2011-2021, Wildlife Services federally owned aircraft flew an average of 11,347 hours/year and contract aircraft also flew for Wildlife Services during this period for an average of 3,823 hours/year flown (WS 2023). During FY2022, WS-California flew 3.5 hours, with an additional 7.4 hours contracted from other state WS offices (MIS 2022). Selecting the most conservative (greater of the two greenhouse gas estimates), WS-California generated an estimated at 1,169 metric tons of greenhouse gas emissions for vehicles during FY 2022, resulting in a Social Cost of $94,699 according to the IWG on Social Cost of Greenhouse Gases (2021). Impacts from greenhouse gas emissions produced as a result of WDM actions under the Proposed Project/Proposed Action would not be significant and would not adversely add to cumulative greenhouse gas social and environmental impacts under NEPA.

The number of vehicles and aircraft used is anticipated to remain the same because changes to WDM activities in the state would not substantially increase vehicle and aircraft use. A minor increase could occur if a county that currently does not conduct WDM activities were to engage in a cooperative service agreement with WS-California;

however, this increase would likely be offset by the reduction in emissions by private entities. Implementation of the Proposed Project/Proposed Action would potentially cause an increase in vehicle usage from rapid response activities; however, these activities would only be conducted in the event of high-risk wildlife damage scenarios. Therefore, under CEQA, additional vehicle emissions released under the Proposed Project/Proposed Action would be minor and would not result in a substantial net increase in greenhouse gas emissions. Similarly, the Proposed Project/Proposed Action would not result in long-term or cumulative greenhouse gas impacts.

Energy

The Proposed Project/Proposed Action would result in short-term consumption of petroleum-based energy products to power vehicles used by the CDFA, WS-California, and county personnel to travel to and from areas where WDM is required. The greenhouse gas emissions assessment prepared by Wildlife Services concludes that energy consumption from activities implemented during the Proposed Project would be minimal and would not create significant impacts under NEPA.

The number of vehicles and aircraft used would generally remain the same as previous and current years because little new vehicle and aircraft use is anticipated for the CDFA or county activities, and no changes to WS-California activities are anticipated that would substantially increase vehicle and aircraft use. While the Proposed Project/Proposed Action would potentially cause an increase in vehicle usage from rapid response activities, these activities would only be conducted in the event of high-risk wildlife damage scenarios and therefore the additional energy consumption under the Proposed Project/Proposed Action would be minor. Therefore, under CEQA, Proposed Project/Proposed Action implementation would not constitute a waste of fossil-fuel resources, and the impact on energy would be less than significant.

Furthermore, the Proposed Project/Proposed Action would not involve construction of any residential or nonresidential permanent structures. The lack of permanent structures requiring substantial energy resources (e.g., energy to power lighting or air conditioning) means that energy conservation or energy efficiency measures mandated by the California Energy Code or local building codes are not applicable to the Proposed Project/Proposed Action. The Proposed Project/Proposed Action would not conflict with any state or local energy conservation or energy efficiency programs. Therefore, the Proposed Project/Proposed Action would have no impact.

4.3.3 Cultural Resources

Cultural resources generally fall into two categories: archaeological and built environment. Archaeological resources contain the remnants or traces left by past prehistoric and historic-era human activity. Archaeological resources are typically tangible and spatially bound, although there may also be intangible attributes related to these places and the surrounding landscape. Common types of archaeological resources include prehistoric and historic-era artifact scatters, deposits, features, ruins, shipwrecks, sites, and districts. Tribal cultural resources represent a separate resource category under the CEQA and, as such, are addressed in Section 4.2.3. Built environment resources are largely considered buildings, structures, landscapes, and districts that comprise what is considered the built environment. Built environment resources include but are not limited to water management structures (levees, canals, dams, ditches), buildings (residential, industrial, and commercial), and linear structures (railroad alignments, roads, and bridges).

This section addresses the Proposed Project/Proposed Action's potential to result in impacts or adverse effects to significant, or potentially significant, historical resources (CEQA) or historic properties (Section 106/NEPA). Project construction and implementation activities are considered significant if they would cause physical disturbance,

demolition, destruction, relocation, or alteration of the resource or its immediate surroundings to the extent that the historical resource or historic property would no longer be able to convey its significance. Current professional practice commonly groups activities that could cause such impacts into direct and indirect impact considerations. Direct impact considerations are commonly linked to physical project construction activities that might result in direct disturbance of an archaeological or historic built environment resource and/or damage or demolition, non-compatible building or structural modifications, construction-related groundborne vibration, and property acquisitions. Impact considerations commonly considered indirect are largely related to project implementation or impacts to properties adjacent to a project site once the project is built. For example, alternations to the setting of a historically significant property, historic district noise considerations, or visual effects.

Substantial review of the Proposed Project/Proposed Action indicates that there are no proposed activities that would result in impacts to archaeological or built environment properties that might be considered CEQA historical resources or historic properties under Section 106 and NEPA. Permitted Proposed Project/Proposed Action uses or activities would not introduce substantial ground disturbing activities likely to result in disturbances to cultural resources. Direct repair or restoration of any existing building or structures due to damage by wildlife is not included as part of this Proposed Project/Proposed Action. Nor does the Proposed Project/Proposed Action propose installation of new structures or facilities that could result in alterations of settings or visual impacts to historic resources. Overall, the purpose of the Proposed Project/Proposed Action is to set up program/ policy level guidance for wildlife management and conduct WDM. As such, no activities are directly proposed as part of this Proposed Project/Proposed Action that would result in physical damage, demolition, destruction, relocation, or alteration of an archaeological or built environment historical resource or historic property or its immediate surroundings such that the significance would be impaired. As stated in Section 4.2.6 Noise and above in Section 4.3.1 Aesthetics/Visual Resources, there are no significant impacts from the Proposed Project/Proposed Action from noise or visual resources. Therefore, there are no indirect impacts to cultural resources from Proposed Project/Proposed Action. Based on the nature of the Proposed Project/Proposed Action, there are no potential impacts to known or unknown cultural resources, CEQA historical resources, or Section 106/NEPA historic properties, this subject has been removed from further study.

4.3.4 Geology/Soils and Paleontological Resources

The Proposed Project/Proposed Action would not include construction of structures that could be subject to earthquake-related hazards, unstable soils, expansive soils, or other geotechnical hazards, and it would not entail construction of septic or other wastewater disposal systems. The extent to which the Proposed Project/Proposed Action could disturb soils would be limited to the WDM activities described in this document, and such activities would generally be consistent with current WDM practices under baseline environmental conditions. Additionally, WDM actions implemented by WS-California, the CDFA, or county wildlife specialists under the Proposed Project/Proposed Action would not be significant in area or impact geological, soil or paleontological resources under NEPA. Although physical structures may be recommended as part of technical assistance, they are not constructed by WS-California, the CDFA, or county wildlife specialists and therefore are not within the scope of the Proposed Project/Proposed Action. Thus, the Proposed Project/Proposed Action would not expose individuals to increased geological or seismic hazards, would not result in erosion or the loss of topsoil, would not construct structures on unstable soils, and would not create wastewater systems in unsuitable soils. Therefore, the Proposed Project/Proposed Action's effects on geologic or soil resources would be less than significant, both at a project level and cumulatively.

4.3.5 Hydrology and Water Quality

The Proposed Project/Proposed Action would not include any physical improvements (such as construction, grading, or vegetation removal) that could substantively alter existing drainage patterns, affect groundwater recharge, increase surface runoff, exceed stormwater drainage capacities, or impede or redirect flood flows. The Proposed Project/Proposed Action would not include the bulk storage of any chemicals, hazardous materials, or other potential pollutants that could be released within a flood hazard, tsunami, or seismic zone. Proposed Project/Proposed Action activities would be implemented in accordance with applicable permits and regulatory requirements regarding the handling, storage, use, and disposal of any chemical substances, which are designed to reduce the potential for inadvertent release, drift, runoff, and erosion. Therefore, the Proposed Project/Proposed Action's effects on hydrology would not be significant under NEPA and would be less than significant under CEQA.

Under the Proposed Project/Proposed Action, removal of beavers and muskrats causing damage to infrastructure systems could occur, particularly where damage could affect public safety and agriculture (e.g., flooding). WS-California has initiated consultation with National Oceanic and Atmospheric Administration (NOAA)-National Marine Fisheries Service, and WS-California operates within the limitations of an Endangered Species Act Section 7(d) Determination that addresses aquatic mammal damage management. While beaver damage management in some areas of California can be intensive, those areas tend to be in heavily altered environments, such as levees and drainages, where beaver activity is less likely to benefit water quality. In light of this and the more dispersed nature of beaver damage management sites in more natural locations, the potential for substantive changes to surface and groundwater quality would be considered less than significant under CEQA and not significant under NEPA. For more discussion on beavers, refer to Section 4.2.2 of this EIR/EIS.

4.3.6 Land Use/Planning/Publicly Owned or Managed Lands

The Proposed Project/Proposed Action would not result in any permanent land use changes that could conflict with any land use plans, policies, or regulations adopted to avoid or mitigate an environmental impact. The Proposed Project/Proposed Action may specify methods for injurious wildlife detection, eradication, or damage management; however, they would not supersede other agency rules or requirements, and they would not recommend activities that would be inconsistent with existing or future land use plans or policies. All actions conducted under the Proposed Project/Proposed Action would be required to obtain any necessary authorizations from the relevant land use authority and/or property owner and to comply with any applicable laws or policies specific to the area. Therefore, the Proposed Project/Proposed Action's impacts related to land use and planning would be less than significant under CEQA and not significant under NEPA, both at a project level and cumulatively. Potential impacts related to habitat conservation plans are discussed in Section 4.2.2.

4.3.7 Mineral Resources

The Proposed Project/Proposed Action would not include any activities that would impact mineral production sites. Additionally, WDM actions implemented by WS-California, the CDFA, or county wildlife specialists under the Proposed Project/Proposed Action would not be significant in area or impact mineral resources under CEQA or NEPA. No impact would occur on the availability or use of a known, valuable mineral resource both at a project level and cumulatively.

4.3.8 Recreation

Cultural use of natural resources includes a variety of ways to recreate and or interact with the environment, including recreation and aesthetic uses. Recreation encompasses a wide variety of outdoor entertainment in the form of hunting, fishing, resource gathering, bird watching, photography, camping, hiking, biking, rock climbing, and many others. Aesthetics is the philosophy dealing with the nature of beauty or the appreciation of beauty. Therefore, aesthetics is truly subjective in nature, dependent on what an observer regards as beautiful.

Wildlife generally is regarded as providing economic, recreational and aesthetic benefits (Steinhoff et al. 1987) and the mere knowledge that wildlife exists is a positive benefit to many people. In a survey conducted in 2011 by U.S. Census Bureau in collaboration with the USFWS and the Association of Fish and Wildlife Agencies (U.S. Fish and Wildlife Service 2011) 90.1 million Americans (38% of the U.S. population) enjoyed an outdoor recreation experience including hunting, fishing, other wildlife-associated recreation. Expenditures for 2011 for wildlife-recreation (hunting, fishing, wildlife viewing) were $145 billion. This survey does not include all forms of wildlife related recreation expenses and or types of individuals who recreate or appreciate wildlife. These expenditures occurred with the current WDM activities in place. Public opinion about the best ways to reduce conflicts between humans and wildlife is highly variable, making the implementation of damage management actions extremely complex. Ideas about how these actions are implemented and conducted are as unique as the almost infinite combinations of philosophies, psyches, aesthetic values, personal attitudes and opinions found in humans. These differences in opinion result in concerns that the Proposed Project/Proposed Action or its alternatives would result in the loss of aesthetic and recreational benefits to the general public, tribes, and resource owners.

Some individuals may believe their recreational experiences on public lands are impaired by knowing that any lethal WDM actions are occurring on these lands. Others feel that they are being deprived of the aesthetic experience of viewing or hearing coyotes or other predators because of Proposed Project WDM actions. Occasionally, individuals may have formed an attachment to a specific group or individual animal. Removal of these animals can be a cause of distress and sorrow for these individuals. Some commenters have stated that encountering warning signs for WDM devices or animals captured in traps is distressing and has a profound negative impact on their aesthetic and recreational enjoyment of a site. Some individuals may be reluctant to use areas or walk pets in areas where signs are posted. Disturbance (noise) associated with WDM has also been reported as adversely impacting some individuals' recreation. Safety concerns have also been expressed regarding the use of livestock guarding dogs. Livestock guarding dogs may approach people who come near their flocks which, given the large size of the dogs, can be alarming for some people. In rare instances, livestock guarding dogs may perceive recreationists as a threat and behave aggressively, or they may prey on wildlife, or exclude wildlife species other than undesirable predators, from the area near the sheep (Frank 2011). Opinions regarding the impact of WDM on recreation and aesthetic values vary among individuals. An adverse impact associated with WDM actions, such as the use of foothold traps, may be perceived by one individual in one way and may be perceived completely differently by an individual who hunts and traps recreationally. Some individuals believe that WDM is acceptable because it can help bolster certain species populations such as game species (e.g. elk or mule deer) or sensitive/T/E species.

In localized areas where wildlife specialists do remove some portion of the local wildlife population, dispersal of wildlife from adjacent areas typically contributes to repopulation of the area within a few weeks to a year, depending on the level of removal and wildlife population levels in nearby areas (Gese 2005). The likelihood of getting to see or hear wildlife in some localized areas could be temporarily reduced as a result of WDM activities, but this temporary local reduction in public viewing opportunity would not likely be noticeable in most cases. Additionally, take under the Proposed Project/Proposed Action is a small fraction of existing wildlife populations in California

(Section 4.2.3). Consequently, for most species, the presence or absence of impacts of WDM activities may not be discernable from impacts from other sources. Overall impacts on wildlife populations would be relatively low, and opportunities to view, hear or see evidence of wildlife would remain.

To the extent practicable, when WDM actions are necessary near areas with public use, wildlife specialists strive to schedule activities at times and in seasons when recreational activity is likely to be low. Other strategies used to reduce risk that WDM activities would adversely impact an individual's recreational experience include setting capture devices well away from roads and trails. Conflicts with recreationists are further reduced due to the inherent nature of WDM. Most WDM in California is conducted on BLM public lands for grazing allotments with sheep and cattle. These areas are generally not used extensively by recreationists during the spring and early summer months when WDM is more likely to conducted for the protection of lambing and calving livestock. Most recreationists are totally unaware of the WDM actions, and the quality of the outdoor experience is not disrupted.

Game and non-game wildlife populations are not significantly impacted by Proposed Project/Proposed Action WDM activities (Section 4.2.3) on public or private lands, allowing hunters ample opportunities for pursuit. Recreationists interested in viewing and photography opportunities for wildlife also have ample areas in California that are suitable for seeing abundant wildlife. WDM under the Proposed Project/Proposed Action does not significantly impact wildlife populations and it does not remove a significant number of any one species. In fact, WDM activities could bolster local populations of wildlife and increase opportunities for cultural uses by implementing WDM activities for the protection of T&E wildlife species. Procedures and policies designed to minimize WDM impacts on recreation are in place. On private lands, the cooperators or landowners are aware that WDM tools are set and can alert visitors using the property of their presence. Landowners determine the areas and timing of equipment placement, thereby avoiding conflicts with recreationists. Warning signs are posted in prominent places to alert the public (on both private and public lands) that WDM tools are set in an area. On public lands, WS-California coordinates with the public land management agencies. WDM is not conducted in high use recreational areas except for the purposes of human health and safety protection and only after receiving a request from the applicable public land official.

Although Proposed Project/Proposed Action WDM activities may be conducted in and around recreational areas, the Proposed Project/Proposed Action would not include any actions that would permanently affect the use or availability of recreation sites. Though not anticipated, temporary closures of parts of public recreation areas could be needed to implement Proposed Project/Proposed Action WDM activities, to provide for public safety. However, if needed, such closures would be short term, would be limited only to the area necessary for Proposed Project/Proposed Action WDM, and would be in coordination with the land management authority. Once activities are completed, access and availability to affected recreation areas would resume unimpeded. Because the Proposed Project/Proposed Action would include minimal, if any, temporary closures, effects on the availability or use of recreational areas would be negligible. Additionally, WDM actions implemented by WS-California, the CDFA, or county wildlife specialists under the Proposed Project/Proposed Action would not be significant in area or impact recreational resources under CEQA or NEPA. Therefore, the Proposed Project/Proposed Action's effects on recreation would be less than significant, both at a project level and cumulatively.

4.3.9 Transportation

Anticipated on-road vehicle use under the Proposed Project/Proposed Action would be associated with personnel and equipment transport to and from work sites. The addition of the CDFA's WDM Program and any county led Programs are not anticipated to significantly increase the number of vehicle trips associated with WDM. Additionally, such trips would be temporary and would be limited to the duration and needs for management activity at any given

site. Origin and destination trips would not be concentrated to or from any given location, but rather would be initiated on an as-needed basis from the closest available dispatch area. The Proposed Project/Proposed Action's effects would be intermittent and widespread and are not anticipated to have a substantial effect on regional or local roadways or transportation systems overall. In addition, because many Proposed Project/Proposed Action activities are ongoing, many of these vehicle trips already occur under existing conditions, and thus they would not result in a change relative to baseline conditions. Additionally, WDM actions implemented by WS-California, the CDFA, or county wildlife specialists under the Proposed Project/Proposed Action would not be significant in area or impact transportation resources under CEQA or NEPA. Therefore, the Proposed Project/Proposed Action's effects on traffic and transportation would be less than significant, both at a project level and cumulatively.

4.3.10 Utilities/Service Systems

The Proposed Project/Proposed Action would not include the disturbance of, creation of, or need for utility systems, including water, sewage, wastewater, or stormwater. However, direct WDM measures associated with implementation of the Proposed Project/Proposed Action would result in animal carcasses that would require proper disposal. Wildlife Services Directive 2.515 sets forth requirements for WS-California personnel for the disposal of wildlife carcasses, requiring that all carcasses be disposed of in a manner consistent with federal, state, county, and local regulations as well as other WS Directives. CDFA and county wildlife specialists would be required to dispose of carcasses in a similar manner. Due to the limited removal of target animals within spatial boundaries and the low frequency with which that occurs, the disposal of carcasses would have an inconsequential effect on landfill capacity and would not result in the need for disposal facility expansion that could result in environmental impacts. Because of the widespread nature of Proposed Project/Proposed Action activities and the low volume of materials expected to be generated for disposal at any one site, Proposed Project/Proposed Action activities are not anticipated to generate waste amounts that would exceed the capacity of existing waste disposal facilities in any particular location. Furthermore, Proposed Project/Proposed Action activities would be temporary and would not include any long-term waste generation activities at any given location throughout the state. Thus, the potential contribution to landfill facilities would be minimal. Therefore, the Proposed Project/Proposed Action's impacts on utilities and service systems would be less than significant.

4.3.11 Wildfire

The Proposed Project/Proposed Action would not result in construction of urbanized development or permanent placement of people in a wildland area and thus would not result in a significant risk of loss, injury, or death involving wildland fires. Additionally, the Wildlife Services Directives summarized above direct that any WDM methods implemented by WS-California personnel that could result in fire hazards, such as pyrotechnics or propane exploders, be subject to oversight and accountability by trained and certified personnel. Federal laws and manufacturer's instructions must also be followed by the CDFA, WS-California, and county wildlife specialists. Activities under the Proposed Project/Proposed Action would also be conducted consistent with federal, state, county, and local regulations related to fire safety and wildfires. Known areas of moderate, high, and very high fire hazard risk would be subject to local regulations and applicable best practices including not using explosives or parking vehicles in dry grass and driving on established roads as much as possible. Therefore, the Proposed Project/Proposed Action would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Proposed Project/Proposed Action impacts related to wildfire would be less than significant.

4.3.12 References

Interagency Working Group on Social Cost of Greenhouse Gases. 2021. "Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 United States Government." https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf.

5 Other CEQA/NEPA Considerations

This chapter discusses the significant environmental effects that cannot be avoided if the Proposed WDM Project (Project) is implemented, significant irreversible environmental changes that would result from implementation of the Proposed Project, and growth-inducing impacts of the Proposed Project. These topics are required in an environmental impact report (EIR) as described in California Environmental Quality Act (CEQA) Guidelines Section 15126.2. This section also identifies additional disclosures required of an environmental impact statement (EIS) as described in the Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Implementing Regulations Section 1502.16.

5.1 Summary of Significant Unavoidable Impacts

An EIR must describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures, per CEQA Guidelines Section 15126.2(c). An EIS must describe any adverse environmental effects that cannot be avoided should the proposal be implemented, per CEQ NEPA Implementing Regulations Section 1502.16(a)(2).

5.2 Significant and Irreversible Environmental Changes (Irreversible and Irretrievable Commitment of Resources)

Section 15126.2(d) of the CEQA Guidelines (14 CCR 15000 et seq.) and Section 1502.16(a)(4) of the CEQ NEPA Implementing Regulations require discussion of any significant irreversible environmental changes that would result from the Proposed Project/Proposed Action should it be implemented and any irreversible or irretrievable commitments of resources should the Project be implemented. Significant irreversible environmental impacts could involve any of the following:

- Uses of nonrenewable resources during the initial and continued phases of the Project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely;
- The primary and secondary impacts of the Project would generally commit future generations of people to similar uses;
- Irreversible damage from environmental accidents associated with the Project; and
- The proposed consumption of resources is not justified (e.g., the Project results in wasteful use of energy).

The Proposed Project would describe and formalize a framework for managing wildlife damage proving injurious to California's agricultural industry. Activities within this framework will be carried out by WS-California, the CDFA, and California Counties with collaboration and consultation from other local, state, and federal agencies.

Wildlife damage management (WDM) activities do not require large commitments of nonrenewable resources. Vehicle travel related to routine activities and emergency responses would require the use of fossil fuels, but, as discussed in Section 4.3, this consumption would be relatively minor and it would not be expected to have significant direct, indirect, or cumulative impacts. It is assumed vehicles would be upgraded over time to more energy efficient models, including hybrid and electric vehicles, as California's Advanced Clean Cars II regulation for

all new passenger cars, light-trucks, and SUVs sold in California to be zero emissions by 2035 comes to fruition. The Proposed Project, by its nature, is meant to be adaptable, and would not commit the agencies to a particular use of resources.

The Proposed Project would not introduce land uses or facilities that would require the use or manufacture of hazardous materials. As described in Chapter 4.2, Hazardous Materials, WS-California does employ certain hazardous materials in its management activities. As further described in Chapter 4.2, WS risk assessments have been prepared for these activities. Due to the relatively small amounts of hazardous materials involved and considerable federal, state, and local regulatory requirements, the potential to substantially damage the environment as a result of an accident involving hazardous materials is not significant. As stated above, there is no significant or irreversible commitment of resources as WDM does not require large commitments of nonrenewable resources.

5.3 Growth-Inducing Impacts

CEQA requires a discussion of ways in which the Proposed Project could be growth inducing. The CEQA Guidelines identify a project as growth inducing if it fosters economic or population growth or results in the construction of additional housing, either directly or indirectly, in the surrounding environment (14 CCR 15126.2[e]). Included in this are projects that would remove obstacles to population growth, such as an expansion of infrastructure that would allow additional construction within the service area. Increases in the population may also tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. An EIR should also discuss the potential for certain projects to encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. Under CEQA, it is not assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

The Proposed Project/Proposed Action would not result in population change, as it would not include construction of new housing, nor would it displace existing housing. In addition, the Proposed Project/Proposed Action would not result in construction of infrastructure or include other activities that could indirectly induce or remove an obstacle to population growth. Therefore, the Proposed Project/Proposed Action would have no impacts related to population growth and/or housing demand, both at a project level and cumulatively.

Where WDM activities are county-led (county-led WDM program) or WS-California cooperative, on average, two or fewer personnel are employed in each county (typically in the Agricultural Commissioner's office), often performing multiple roles.[1] Additionally, WS-California typically employs about 40 staff statewide to implement non-county based WDM (e.g., wildlife hazard management and threatened and endangered species protection). There are 15 counties that currently do not have a formal WDM program and 35 that have cooperative service agreements (CSAs) with WS-California. Should all of the remaining counties contract with WS-California or implement their own WDM program under the CDFA, no more than 100 additional employees would be anticipated. The increase in employment and economic activity would not be considerable.

WDM activities offer an economic benefit to agriculturalists in California, by providing resources (technical and operational assistance) that protect crops and livestock. Improved economic conditions for agricultural owner/operators in the state make it less likely that agricultural land will become vacant or converted to urban uses. In this manner, the Proposed Project/Proposed Action could be seen as a useful component in discouraging growth through the conversion of farmland and other agricultural resource uses to non-agricultural use.

[1] As of January 2023, eight counties carry out WDM on their own.

5.4 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and Executive Order 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All, require all Federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. Environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (EPA 2023). Federal agencies must consider environmental justice in their activities under NEPA.

WS-California provides technical and operational WDM assistance only at the request of the land or resource owner. WS-California responds to all requests for assistance, regardless of race or level of income. The contribution of federal and cooperative funds can further assist such low-income populations in addressing wildlife damage to property, agricultural resources, natural resources, and human and pet health and safety. WS-California's WDM activities promote access to expertise and assistance in resolving human wildlife conflicts equally to all communities, including historically underserved communities, Native American tribes, and rural communities. WS-California personnel select damage management methods using the WS Decision Model (WS-Directive 2.201). As depicted in the Decision Model, consideration is given to potential physical, economic, and social impacts before selecting or recommending WDM techniques. WS-California's personnel use only legal, effective, and environmentally safe WDM methods, tools, and approaches. All hazardous materials used by WS-California are federally and state regulated. Disposal of carcasses and handling, use, and disposal of hazardous materials are conducted per agency policy and federal and state law and regulations. The NEPA analyses in Chapter 4 show that the Proposed Project/Proposed Action and ongoing WS-CA activities do not adversely affect public health and safety or environmental quality. As there are not significant or adverse effects identified from ongoing WS-California activities or the Proposed Project/Proposed Action in the statewide NEPA analyses and all services are carried out at the request of the land or resource owner, it is not anticipated that there will not be disproportionally high direct, indirect, cumulative or disparate effects from ongoing WS-California activities or the Proposed Project/Proposed Action to children or minorities and low-income populations and communities. WS-California will monitor and abide by any new developments or changes to the U.S. Department of Agriculture's departmental policies related to implementation and promotion of environmental justice.

5.5 Humaneness and Ethics

The issue of humaneness and animal welfare, as it relates to the killing or capturing of animals is an important but very complex concept that can be interpreted in a variety of ways. These topics are included in the analysis because they are a social issue of important public concern. The science of wildlife biology and management, including integrated WDM and wildlife research, often involves directly capturing, handling, physically marking, taking samples from, and, at times, lethally removing free-range animals. WS-California, CDFA, and county personnel strive to undertake these activities as ethically and humanely as possible. Some people consider this inhumane, while others consider allowing a predator to harm livestock to be equally inhumane. The analysis is not intended to determine the correctness of one of these social positions, rather, it examines the science related to the humaneness and the provisions in place to ensure WS-California, CDFA, and county wildlife specialists' actions are as humane as possible.

Humaneness, in part, appears to be a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. However, humaneness also pertains to human suffering caused by wildlife directly hurting or impacting them. In addition, some people are highly concerned with suffering caused by predators chasing, injuring, or killing wildlife and domestic animals, including horses, livestock guard animals, and pets. People have bred many of the defensive capabilities out of domestic animals and may feel it is unethical and inhumane not to effectively protect them from predation or injury, as predators can have very inhumane attacking and killing techniques where animals are injured and/or eaten prior to being killed. The challenge in coping with this issue is how to achieve the least amount of animal suffering. Schmidt (1989) indicated that vertebrate damage management for societal benefits could be compatible with animal welfare concerns, if "*...the reduction of pain, suffering, and unnecessary death is incorporated in the decision-making process.*"

Suffering has previously been described by the American Veterinary Medical Association (AVMA), as a "*...highly unpleasant emotional response usually associated with pain and distress*" (AVMA 1987). The AVMA further states that "*[s]uffering can be conceptualized as the product of severity, incidence, and duration. As a general rule, a gentle death that takes longer is preferable to a rapid, but more distressing death; however, in some species and under some circumstances, the most humane and pragmatic option may be exposure to an aversive agent or condition that results in rapid unconsciousness with few to no outward signs of distress*" (AVMA 2020).

Defining pain as a component in humaneness appears to be a greater challenge than that of suffering. Pain obviously occurs in animals. Altered physiology and behavior can be indicators of pain. The AVMA has previously stated that "*[f]or wild and feral animals, many of the recommended means of euthanasia for captive animals are not feasible.*" (AVMA 2001). Pain and suffering, as it relates to methods available for use to manage animal damage has both a professional and lay point of arbitration. The decision-making process can involve trade-offs between the above aspects of pain and humaneness.

The Proposed Project/Proposed Action could include killing and capturing and either subsequently killing or immobilizing and then releasing target animals using the best and most appropriate method(s) available. WDM under the Proposed Project/Proposed Action alternative would adhere to applicable state and local laws and regulations. WS-California would additionally adhere to WS Directives. These include but are not limited to guidelines for the types of devices or drugs which can be used, frequency in which capture devices must be checked and manner in which they must be applied. When recommending methods, wildlife specialists would caution against their misuse.

Some publications have expressed concerns about the conclusions and thresholds established through the best management practice (BMP) testing process (Rochlitz 2010; Virgós et al. 2016). However, trapping BMPs are based on scientific evaluations of humaneness, efficiency, selectivity, practicality, and safety, and are updated periodically. Traps which conform to established thresholds are considered "BMP traps". Trapping components, systems, and techniques are also included in BMPs (*e.g.*, anchoring systems, modifications, pan-tension devices, trap tuning and maintenance, lures and baits, trap location). Modern BMPs are based on more than 20 years of scientific research and provide a standard framework for future updates as new traps and components are developed. Groups such as the American Association of Wildlife Veterinarians and the AVMA support the use of BMP traps in wildlife management. These BMPs provide a more useful method for identifying the most humane traps. When checked regularly, as required by regulations – and, for WS-California, also WS policy – traps are a preferred depopulation technique by the AVMA because placement by experienced personnel can reduce nontarget take and improve humaneness of captures (AVMA 2019). It is WS policy to use the most selective and humane methods available for WDM and to use BMPs whenever feasible (WS Directive 1.301).

Euthanasia methods should minimize any stress and anxiety experienced by the animal prior to unconsciousness. However, AVMA (2020) notes, "*While recommendations are made, it is important for those utilizing these recommendations to understand that, in some instances, agents and methods of euthanasia identified as appropriate for a particular species may not be available or may become less than an ideal choice due to differences in circumstances. Conversely, when settings are atypical, methods normally not considered appropriate may become the method of choice. Under such conditions, the humaneness (or perceived lack thereof) of the method used to bring about the death of an animal may be distinguished from the intent or outcome associated with an act of killing. Following this reasoning, it may still be an act of euthanasia to kill an animal in a manner that is not perfectly humane or that would not be considered appropriate in other contexts. For example, due to lack of control over free-ranging wildlife and the stress associated with close human contact, use of a firearm may be the most appropriate means of euthanasia. Also, shooting a suffering animal that is in extremis, instead of catching and transporting it to a clinic to euthanize it using a method normally considered to be appropriate (e.g., barbiturates), is consistent with one interpretation of a good death. The former method promotes the animal's overall interests by ending its misery quickly, even though the latter technique may be considered to be more acceptable under normal conditions (Yeates 2010). Neither of these examples, however, absolves the individual from her or his responsibility to ensure that recommended methods and agents of euthanasia are preferentially used.*"

Because of the variety of situations that may be encountered, it is difficult to strictly classify methods for termination of free-ranging wildlife as acceptable, acceptable with conditions, or unacceptable. Furthermore, classification of a given method as a means of euthanasia or humane killing may vary by circumstances. These acknowledgments are not intended to condone a lower standard for the humane termination of wildlife. The best methods possible under the circumstances must be applied, and new technology and methods demonstrated to be superior to previously used methods must be embraced. The AVMA lists injectable anesthetic agents as acceptable euthanasia methods, but also lists other methods as acceptable with conditions (AVMA 2020). Use of firearms is an acceptable technique because nontarget take is extremely low and precise shooting by trained personnel can minimize animal suffering (AVMA 2019, 2020).

The efficacy and therefore, the humaneness of methods would be based on the skill and knowledge of the person employing methods. WS-California, CDFA, and County wildlife specialists are experienced professionals skilled in their use of methods. When selecting methods, wildlife specialists evaluate all potential tools for their humaneness, effectiveness, ability to target specific species and individuals, as well as other factors. Consequently, management methods would be implemented under the Proposed Project/Proposed Action in the most humane manner possible. Many methods listed in Appendix C would be available for use under any of the alternatives. Therefore, the issue of humaneness associated with methods and any direct impacts would be similar across any of the alternatives since those methods could be employed in the absence of WS-California, CDFA, or county provided WDM. Those persons who view a particular method as humane or inhumane would likely continue to view those methods as humane or inhumane under any of the alternatives. WS-California has improved the selectivity and humaneness of WS implemented management techniques through research and development. Research is continuing to bring new findings and products into practical use. Until new findings and products are found practical, a certain amount of animal suffering could occur when some methods are used in situations where non-lethal damage management methods are not practical or effective.

5.6 Special Designation Areas

Special designation areas (SDAs) are federal lands that have unique cultural, scenic, educational, scientific, geological, or ecological values and are specially designated to be managed to preserve their characteristics. They

may be undeveloped, preserved lands or they may be developed for human use such as a campground or visitor center. Land classes defined as SDAs can include Wilderness Areas, Wilderness Study Areas, National Parks, National Monuments, Natural Areas, National Recreational Areas, Scenic Recreation Areas, National Historic Parks, and others. SDAs are generally established by land management agencies or Congress for a specific purpose (e.g., habitat management for a threatened or endangered species) or to preserve the characteristics of a site until a formal management decision regarding the site's future management can be made. These areas may have restrictions on the types of WDM activities that may be conducted within them.

WS-California, CDFA, or county provided WDM in SDAs ranges from no activity to limited seasonal activities, based upon requests for assistance. This may include technical assistance to land managers and resource owners with methods that they could implement to reduce damage, which would also include referral to the appropriate land management agency to ensure actions are in compliance with law and policy. WS-California, CDFA, or county wildlife specialists could also provide operational assistance when requested.

Several SDAs, including Wilderness Areas and Wilderness Study Areas, allow livestock grazing, and wildlife specialists may need to respond to the request of any individual with a valid grazing permit experiencing predation of livestock. The Wilderness Act of 1964 states that "the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary" (Section 4.d.4.2). The Congressional Grazing Guidelines further emphasize Congressional intent related to grazing activities in wilderness: "the general rule of thumb on grazing management in wilderness should be that activities or facilities established prior to the date of an area's designation as wilderness should be allowed to remain in place and may be replaced when necessary for the permittee to properly administer the grazing program" (House Report 101-405). Prevention of serious losses of domestic livestock in wilderness through WDM activities, with limitations that are consistent with law, regulations, and policy, is appropriate under this Congressional direction. Livestock protection does not occur consistently year-round, as it is most needed during times when livestock are especially vulnerable to predation (e.g., during calving/lambing season, spring–early summer). Similarly, WDM is not needed across entire land classes, as only portions of public lands are open to grazing or have permitted grazing activities. These facts limit the times and locations where WDM is likely to be necessary, but do not make requests for assistance wholly predictable.

SDAs are also recreation areas for humans and pets. This increases the chance of human-wildlife conflicts, such as wildlife attacks. There is a potential for the need to respond to a human health or safety emergency, such as for large predator threats at campgrounds. Additionally, state agencies can request that WS-California, CDFA, or county wildlife specialists conduct WDM in SDAs for state-managed wildlife species, when authorized by the state agency and the federal land management agency. The special features protected by SDAs include habitats for federally protected species. WS-California, CDFA, or county wildlife specialists could be requested by land management agencies to assist in protecting vulnerable species on SDAs from predation.

Wildlife Services has signed national level memoranda of understanding with the Bureau of Land Management and U.S. Forest Service, which provide guidance on coordinating and conducting WDM activities on SDAs. When responding to a request, WS-California, CDFA, or county wildlife specialists would follow all applicable laws, WS Directives (only applicable to WS-California personnel), memoranda of understanding, regulations, management plans, Minimum Requirements Analyses, and land management agency policies. WS-California, CDFA, or county wildlife specialists coordinate all activities on federally managed lands with the responsible land management agencies. Whether or not WDM needs to occur on an SDA and what the minimum tools needed might be are refined through interagency discussion and analysis. In Wilderness Areas, the land managing agencies are responsible for preserving wilderness character and conducting a Minimum Requirements Analysis if necessary. Wilderness Study

Areas possess wilderness characteristics, and the land managing agencies are responsible for maintaining the area's suitability for preservation as wilderness. These precautions ensure that all impacts to SDAs are evaluated on a site-specific level and modified to prevent adverse effects as necessary. Furthermore, as described in Chapter 4 of the EIR/EIS, the Proposed Project/Proposed Action has low or negligible impacts on wildlife species populations, the environment, humans, or domestic animals from its activities. Given these factors, the Proposed Project/Proposed Action is not expected to have an adverse impact on the natural quality or character of SDAs.

5.7 References

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6 List of Preparers

6.1 Client

Table 6-1 includes CDFA staff contributors to this environmental impact report/environmental impact statement (EIR/EIS).

Table 6-1. CDFA Staff Contributors

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Table 6-2 includes WS-California staff and other USDA staff contributors to this EIR/EIS.

Table 6-2. WS-California and Other USDA Staff Contributors

Name	Title	Qualifications	Years of Experience
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Shannon Chandler	Environmental Coordinator	BS, Wildlife Biology	18
Terry Clark	Director of the USDA APHIS Office of National Tribal Liaison	DVM, Doctor of Veterinary Medicine	34
Todd Felix	WS-CA Acting Assistant State Director	MS, Biology BS, Biology	27
Jeff Flores	WS-CA State Director	Previous WS-Guam and WS-Oregon State Director 0486 Wildlife Biologist equivalent	25
Andrew Hubble	Assistant Director of the USDA APHIS Office of National Tribal Liaison/Wildlife Biologist	BS, Wildlife Biology	20
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Dennis Orthmeyer	WS-CA State Director (retired)	MS, Wildlife Biology	38

6.2 Dudek

Table 6-3 includes the Dudek contributors to this EIR/EIS.

Table 6-3. Dudek Contributors

Name	Title	Qualifications	Years of Experience
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Babcock, Keith	Biologist	MS, Business Management BS, Wildlife Biology	40
Baldridge, Jessica	Biologist	MS, Natural Resource Planning BS, Biology	16
Barrios, Lola	Project Accountant	AA, General Studies	35
Battle, Curtis	GIS Analyst	MS, GIScience BA, Geography AS, Geographic Information Systems Specialist	14
Betlach, Melanie	Creative Design Manager	MFA, New Media/Computer Arts BA, Biology	22
Brogdon, Mollie	Environmental Planner	BA, Social and Behavioral Sciences	1
Carr, Michael	Environmental Acoustician	AS, Electronic Technology AS, Computer Technology	24
Castaneda, Karen	Creative Designer	BS, Graphic Design	9
Chiu, Angelica	Environmental Planner	BS, Environmental Policy Analysis and Planning	4
Colston, Jessica	Archaeologist	BA, Anthropology	16
Crist, Megan	Formatting Specialist	Master of Public Administration BA, Psychology	3
Dickerson, Kassandra	Analyst	BS, Environmental Science, Analytical Chemistry, Animal Biology	4
Dobrolenski, Rachel	Formatting Specialist	None Listed	7
Dokkestul, Brayden	GIS Analyst	BS, Geoscience	5
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Farned, Jennifer	Technical Editor	MA, Art History	3
Fisher-Colton, Erin	Biologist	MS, Environmental Studies BS, Environmental Biology	9

Table 6-3. Dudek Contributors

Name	Title	Qualifications	Years of Experience
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Fukasawa, Christine	Environmental Planner	BA, Environmental Studies	15
Giacinto, Adam	Archaeologist	MA, Anthropology BA, Anthropology/ Linguistics AA, Anthropology	17
Grattidge, Brian	Environmental Planner	MA, Political Science BA, International Relations	28
Haley, Kathryn	Architectural Historian	MA, Public History BA, History	20
Harper, Kyle	Systems Analyst Lead	BS, Environmental Systems	17
Henry, Michael	Biologist	PhD, Ecology, Evolution, and Marine Biology BS, Aquatic Biology	24
Herschberger, Audrey	Environmental Engineer	BS, Chemical Engineering	15
Howard, Mike	Biologist	MESM, Applied Ecology BS, Environmental Studies BS, Ecology	25
Iyer, Shilpa	Associate Analyst	None Listed	7
Kershaw, Lia	Technical Editor	BA, Behavioral Science	12
Kil, Daniel	Environmental Project Coordinator	BA, Economics AA, Business Administration AA, Liberal Studies	13
Koziel, Olivia	Biologist	BS, Environmental Systems	7
Landoe, Kathryn	Technical Editor	BA, English Language and Literature	10
Leech, Jonathan	Practice Director	BA, Environmental Studies/Geology	37
Lorenzen, Nicholas	Air Resources Specialist	BA, Environmental Studies	8
Maddox-Ramsey, Morgan	Formatting Specialist	MS, Book Publishing BA, English Literature	3
Marrin, Donn	As-Needed Geochemist	PhD, Water Resources MS, Environmental Science	34

Table 6-3. Dudek Contributors

Name	Title	Qualifications	Years of Experience
		BS, Biological Sciences	
Martin, Meghan	As-Needed Biologist	PhD, Biology MS, Biology BA, Biology	17
McDonnell, Anne	Technical Editor	MFA, Literary Nonfiction BS, Communications	27
McGinnis, Mark	Practice Director	MA, Geography BA, Geography	23
McMahon, Glenna	Environmental Engineer	BS, Civil and Environmental Engineering	26
Meisman, Elizabeth	Associate Biologist	MS, Natural Resources BS, Wildlife Conservation Biology and Applied Vertebrate Ecology	8
Morales, Matthew	Air Resources Specialist	BS, Environmental Toxicology	18
Mullen, Danielle	As-Needed Biologist	BS, Biology	14
Muri, Kamarul	Biologist	BS, Ecology, Behavior, and Evolution	22
Narel, Kimberly	Biologist	BS, Biology: Ecology, Behavior, and Evolution	7
O'Brien, Sean	Biologist	BS, Ecology and Systematic Biology	28
Ogburn, Michelle	Environmental Planner	BS, Environmental Science	19
Ortega, Brock	Biologist	BS, Wildlife Biology and Management	32
Owen, Ross	Archaeologist	MA, Applied Archaeology BA, Archaeology	5
Palavido, Matthew	Geospatial Application Developer	BS, Geography	25
Pascua, Dennis	Transportation Specialist	BA, Social Ecology	30
Peterson, Steven	Environmental Planner	BA, Physical Geography and Environmental Planning	34
Porter, Laurel	Technical Editor	BA, Music	38
Proctor, Meghan	Biologist	MS, Environmental Science and Policy BS, Ecology and Evolutionary Biology	3
Pugay, Felisa	Formatting Specialist	BA, Electronic Publishing	26
Raith, Morgan	Creative Designer	None Listed	4
Rañoa, Raoul	Visual Storytelling Manager	BA, Communications	26
Reed, Laura	Formatting Specialist	BA, English Literature	27

Table 6-3. Dudek Contributors

Name	Title	Qualifications	Years of Experience
Reynolds, Jason	Environmental Planner	BS, City and Regional Planning	29
Ricketts, Matthew	Biologist	MS, Biology/Applied Ecology BS, Natural Resources and Environmental Sciences	23
Rigg, Jonathan	Environmental Planner	MA, Russian and Eastern European Studies BA, International Affairs and Russian Studies	16
Ringenback, Chelsea	Formatting and Production Manager	BA, Journalism	9
Saunders, Joshua	Environmental Planner	MS, Architecture BA, Urban Studies and Planning	19
Schniewind, Eric	Environmental Geologist	BA, Geological Sciences	29
Seals, Amy	Editorial Services Manager	MA, English BA, English	23
Shilling, Fraser	Associate Biologist	PhD, Ecology BS, Biological Sciences	30
Sibbers, Christopher	Project Accountant	Master of Accountancy BS, Music	4
Smith, Jason	IT Systems Analyst Developer	MBA, Business Administration BA, Business Economics	16
Stambaugh, Kara	Formatting Specialist	BA, Economics	11
Starbird, Christopher	GIS Analyst	BA, Geography	17
Steffey, Jennifer	Graphic Designer	BFA, Fine Arts	13
Strobridge, Rachel	GIS Analyst	BA, Geography	10
Taffolla, Steve	Publications Manager	BA, English	15
Valdez, Lisa	Transportation Specialist	MCRP, City and Regional Planning BA, Environmental Studies	25
Varela, Lis	Formatting Specialist	AA, Graphic Design	1
Ward, Hayley	Environmental Planner	BA, Environmental and Ocean Sciences	3
Wertheimer-Roberts, Hannah	Technical Editor	BA, History	8
Yurovsky, Daniela	Technical Editor	BA, English Literature	6
Zecher, Kirsten	GIS Analyst	BA, Geography	33

6.3 Subconsultants

Baker Botts LLP
Blankinship and Associates Inc.
Clarivate Analytics (US) LLC
Kearns and West Inc.
Paul Hastings (Legal)
Ramboll US Consulting Inc. (Hazardous Materials)
Velo Consulting Group

7 Acronyms

Acronym/Abbreviation	Definition
AB	Assembly Bill
AI	avian influenza
APHIS	Animal and Plant Health Inspection Service
ATV	All-Terrain Vehicle
AVMA	American Veterinary Medical Association
B	Beneficial
BASH	Bird Air Strike Hazard Program
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	best management practice
BTR	Biological Technical Report
CAL FIRE	California Department of Forestry and Fire Protection
CALTIP	Californians Turn In Poachers and Polluters
Caltrans	California Department of Transportation
CC	Cumulatively Considerable
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CDPR	California Department of Pesticide Regulation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CMITS	Controlled Materials Inventory Tracking System
CNEL	Community Noise Equivalent Level
CO_2	carbon dioxide
CSA	Cooperative Service Agreement
CUPA	Certified Unified Program Agency
dB	decibel
dBA	A-weighted decibels
DEA	U.S. Drug Enforcement Administration
DOC	California Department of Conservation
DPS	Distinct Population Segments
DTSC	Department of Toxic Substances Control
EA	environmental assessment
EIR	environmental impact report
EIS	environmental impact statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency

Acronym/Abbreviation	Definition
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAC	California Food and Agricultural Code
FBI	Federal Bureau of Investigation
FDA	Food and Drug Administration
FESA	Federal Endangered Species Act
FMMP	Farmland Mapping and Monitoring Project
FONSI	Finding of No Significant Impact
HCP	Habitat Conservation Plan
HUD	Department of House and Urban Development
I&E	immobilization and euthanasia
IME	Institute of Makers of Explosives
in/sec	inches per second
IWG	Interagency Working Group
LCC	Less than Cumulatively Considerable
L_{dn}	day-night average sound level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
LTS	Less than Significant
LTS/M	Less than Significant with Mitigation
MBTA	Migratory Bird Treaty Act
MIS	California Management Information System
MM	Mitigation Measure
MOU	memorandum of understanding
N_2O	nitrous oxide
NAHC	Native American Heritage Commission
NAICS	North American Industry Classification System
NASAO	National Association of State Aviation Officials
NASS	National Agricultural Statistics Survey
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NI	No Impact
NOAA	National Oceanic and Atmospheric Administration.
NOP	Notice of Preparation
NPS	National Park Service
NS	Not Significant
OSHA	Occupational Safety and Health Administration
PPE	personal protective equipment
PPV	peak particle velocity
PRC	California Public Resources Code
RCNM	Roadway Construction Noise Model
ROD	Record of Decision
RUP	Restricted Use Products

Acronym/Abbreviation	Definition
S	Significant
SC-CH_4	social cost of methane
SC-CO_2	social cost of carbon dioxide
SC-GHG	social cost of greenhouse gases
SC-N_2O	social cost of nitrous oxide
SDA	Special Designation Area
SRA	State Responsibility Area
SSC	Species of Special Concern
SU	Significant and Unavoidable
SWRCB	State Water Resources Control Board
T&E	threatened and endangered
TCP	tribal cultural property
TCR	tribal cultural resource
UCR	Uniform Crime Reporting Program
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHF	very high frequency
WA	Wilderness Area
WDM	wildlife Damage Management
WHM	wildlife hazard management
WHO	World Health Organization
WS	Wildlife Services
WS-California	California Wildlife Services
WSA	Wilderness Study Area

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EXHIBIT B

Environmental Checklist for California Counties Wildlife Damage Management Programs

This Environmental Checklist allows California Counties (Counties) to evaluate the potential environmental impacts that may result from implementation of wildlife damage management (WDM) and whether those impacts are consistent with the 2024 California Wildlife Damage Management Environmental Impact Report and Environmental Impact Statement (EIR/EIS). The EIR/EIS was prepared by the California Department of Food and Agriculture (CDFA) and Wildlife Services (WS-California), a state office within the U.S. Department of Agriculture's Animal Plant and Health Inspection Service, to examine potential adverse impacts from the implementation of WDM across California.

The CDFA is mandated to "promote and protect the agricultural industry of the state" (California Food and Agricultural Code Section 401). This responsibility encompasses the prevention of wildlife damage to agriculture, including injury to or death of livestock; damage to row crops, orchards, forestry/timber plantations, or vineyards; and harm to the structural integrity of roads, buildings, irrigation and other water conveyance structures, and other agricultural infrastructure. California has a unique system of County Agricultural Commissioners (California Food and Agricultural Code Section 2276.5), and the California Legislature has specified that where the CDFA and County Agricultural Commissioners have joint responsibilities, WDM is performed at the county level by County Agricultural Commissioners while the CDFA primarily serves in an oversight and support capacity by providing data and issuing recommendations and policies (California Food and Agricultural Code Sections 2281, 2282).

This Environmental Checklist provides California Counties the opportunity to compare their county-level WDM programs to the EIR portion of the EIR/EIS to streamline the Counties' compliance with the California Environmental Quality Act (CEQA). The CDFA has designed the EIR/EIS to serve as the foundation for the California Counties to use in their individual decision-making processes under CEQA concerning WDM activities. The EIR/EIS is a "Program EIR" that provides robust environmental review for the various WDM activities to be conducted, including, to the extent feasible, activities performed by California Counties (14 CCR 15168). This environmental review includes an in-depth evaluation of the potential environmental effects, including cumulative effects, of WDM activities conducted under the EIR's framework; considers broad policy alternatives; and identifies mitigation measures. All Counties, despite their current WDM approach, could elect to rely on the EIR to facilitate any future decisions regarding WDM activities. This includes counties that currently have no WDM program but wish to participate in a statewide program, independent counties, or those that have existing Cooperative Service Agreements with WS-California. Other subdivisions of the State of California (i.e., agencies) may also elect to rely on the EIR.

Activities and Methods Addressed in the WDM EIR/EIS

The WDM EIR/EIS evaluates the environmental impacts from implementation of various WDM activities and methods across the state described in Appendix C-2 of the EIR/EIS (Attachment B of this checklist). WDM activities undertaken by a county (a County Program) must be consistent with the activities and methods evaluated in the WDM EIR for the county to determine that its County Program is entirely within the scope of the WDM EIR and no additional CEQA review is required. If a county wishes to undertake WDM activities or methods that are beyond the

scope of those identified in the WDM EIR, the county will need to determine what additional CEQA review is required to understand the environmental impacts of those activities or methods.

Determining if a County Program is within the WDM EIR/EIS Scope

The purpose of the checklist is to determine whether a County Program has been adequately evaluated in the EIR/EIS and whether a county can approve the County Program without further environmental review and documentation (beyond the scope of the EIR/EIS). If additional environmental review and documentation is required, this checklist can also be used to determine what type of CEQA documentation would be most appropriate (i.e., a negative declaration [ND], mitigated negative declaration [MND], or EIR). Under the CEQA Guidelines, later activities that are "within the scope" of a project covered by a Program EIR may be approved without the preparation of additional CEQA documents (14 CCR 15168[c][2]).

A proposed County Program is within the scope of the WDM EIR/EIS and no additional CEQA documentation is required when it meets the following qualifications:

- **Activities and Methods** – The proposed County Program activities and methods are consistent with the activities and methods described in Appendix C-2 of the WDM EIR/EIS. Detailed descriptions of each activity and method are provided in Attachment B of this checklist.
- **Environmental Impacts** – The environmental effects of the proposed County Program have been examined in the WDM EIR/EIS and none of the criteria for preparation of subsequent CEQA documentation are met (14 CCR 15168[c][2], 15162).
- **Mitigation Measures** – The proposed County Program incorporates all necessary and appropriate mitigation measures identified for the selected activities and methods from the WDM EIR/EIS. Attachment A to this checklist provides a comprehensive list of mitigation measures identified in the EIR/EIS.

Providing Substantial Evidence

The impact determinations and findings in the checklist—as well as any explanation for planned deviations, identified parameters, or feasibility determinations associated with program requirements and mitigation measures—must be based on substantial evidence, which is defined in the CEQA Guidelines (14 CCR 15384[b]) as "facts, reasonable assumptions predicted upon facts, and expert opinion supported by facts." Therefore, the checklist allows Counties to include analytical discussions to support the conclusions reached. Portions of the EIR/EIS relied on for conclusions should be identified by section number and page number. In addition, any ancillary information (e.g., site-specific surveys) not included in the EIR/EIS but relied on for conclusions or required by EIR/EIS measures shall be attached to the checklist. A list of references cited in the checklist shall be included with the completed checklist, and Counties should make copies of such references available to the public upon request.

Mitigation Monitoring and Reporting

CEQA requires public agencies to adopt a program for monitoring and reporting on changes made to a project or made a condition of project approval for the purposes of avoiding or mitigating significant environmental effects (California Public Resources Code Section 21081.6; 14 CCR 15091[d], 15097). The CDFA adopted a Mitigation Monitoring and Reporting Program (MMRP), which lists each mitigation measure from EIR/EIS and identifies the

party responsible for implementation of the mitigation measure, the party responsible for monitoring the mitigation measure, and the timing for which the mitigation measure must be implemented or completed. The County Program proponent can refer to the MMRP provided in Attachment C of this checklist.

In order for the County Program to be within the scope of the EIR/EIS, the County Program would need to incorporate all applicable mitigation measures from the EIR/EIS. A mitigation measure applies to a County Program if the County Program covers the WDM activities, methods, or species for which the mitigation measure was established. Some mitigation measures apply to all activities and methods, while others only apply to specific activities and methods or locations.

To comply with the MMRP, the County Program proponent is required to submit a Monitoring Report to the CDFA annually. The first Monitoring Report shall be submitted August 31 after the County Program start date recorded in this checklist and annually by August 31 thereafter. The CDFA Monitoring Report can be obtained at (https://www.cdfa.ca.gov/AHFSS/animal_health/Wildlife_Services.html).

If a County Program would result in new significant or potentially significant environmental impacts not evaluated in the EIR/EIS, the county would be required to adopt an MMRP including all applicable mitigation measures from the EIR/EIS, any new mitigation measures required to lessen or avoid the new environmental impacts from the County Program, and identification of the associated parties responsible for monitoring and reporting.

Tribal Consultation

For County Programs that are within the scope of the WDM EIR/EIS, Native American consultation for Assembly Bill 52 compliance has been completed. The CDFA conducted consultation pursuant to California Public Resources Code Section 21080.3.1 during preparation of the EIR/EIS. For County Programs with impacts not within the scope of the EIR/EIS, pursuant to California Public Resources Code Sections 21080.3.1, 21080.3.2, and 21082.3, Counties preparing a new ND, MND, or EIR must notify any California Native American tribe who has submitted written request to the county for notification of a project in the tribe's area of interest. Upon written request for consultation by a tribe, the county must begin consultation before the release of the environmental document and must follow the requirements of the cited California Public Resources Code sections.

Checklist Answers

The primary functions of this checklist are as follows:

- To allow Counties to verify that the activities and methods, environmental impacts, and mitigation measures of their County Programs are consistent with the WDM EIR/EIS;
- To allow Counties to determine whether their County Programs would result in any new impacts that were not evaluated in the WDM EIR/EIS; and
- To allow Counties to determine the appropriate type of CEQA document, if any, that will be needed to examine any impacts associated with a County Program that are not within the scope of the WDM EIR/EIS.

Accordingly, the checklist questions presented for each resource area identify, for each impact addressed in the WDM EIR/EIS, whether the impact applies to the County Program, and if so, the mitigation measures that would need to be incorporated into the County Program to support a within-the-scope finding. The checklist also allows Counties to identify whether the impact significance determination for the County Program is different than the

impact significance determination in the WDM EIR/EIS. If the determination is different, the checklist can be used to identify whether the difference constitutes a new or substantially more severe significant impact that is not within the scope of the WDM EIR/EIS.

A "substantially more severe" significant impact includes any impact from a County Program that cannot be mitigated down to the same level, or to a lower level (e.g., no impact), than what is identified in the WDM EIR/EIS. If a county identifies a substantially more severe significant impact, the county shall prepare a subsequent EIR (14 CCR 15168[c][1], 15162). However, if mitigation measures incorporated into the County Program would mitigate all new or more severe significant impacts to less-than-significant levels, then it may be appropriate to prepare a subsequent MND rather than an EIR. The subsequent document may be limited to examining the impacts that are not within the scope of the WDM EIR/EIS, in accordance with CEQA Guidelines Section 15152. This completed checklist can be attached as an appendix to the subsequent document to provide substantial evidence that all other impacts resulting from the County Program are within the scope of the WDM EIR/EIS and would not require further analysis in the subsequent document.

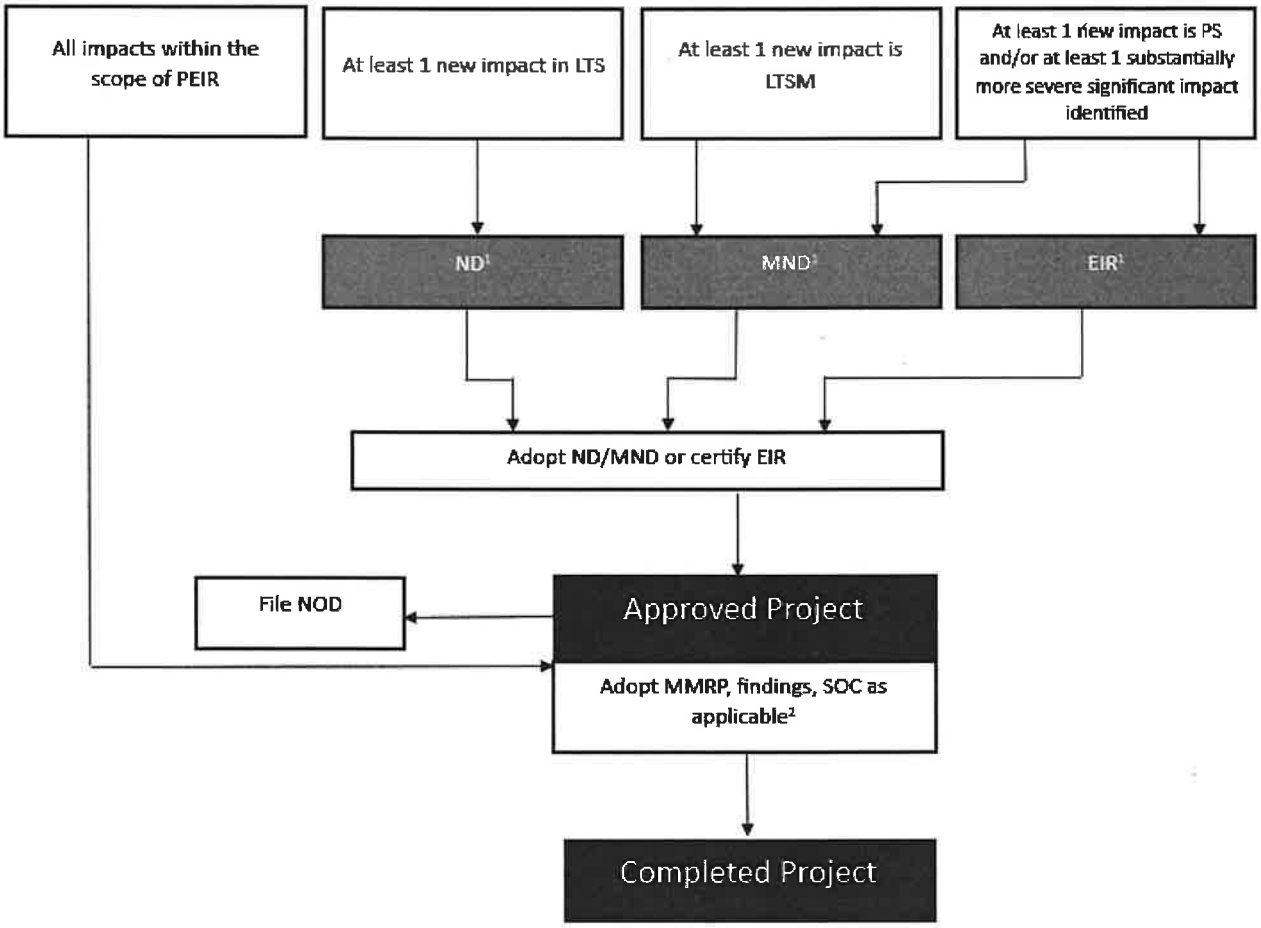
New impacts include any adverse effects on the environment from a County Program that were not addressed in the WDM EIR/EIS. For each new impact identified in the checklist, the County Program proponent should indicate whether the impact would be one of the following:

- **New Impact that is Less Than Significant**: The County Program would result in a new adverse impact that is not analyzed in the WDM EIR/EIS; however, the impact would not be significant. In this case, the impact is not "within the scope" of the WDM EIR/EIS and preparation of an ND would be appropriate. Pursuant to CEQA Guidelines Section 15168(d), a subsequent ND shall document the new impact and provide substantial evidence supporting the less-than-significant conclusion.

- **New Impact that is Less Than Significant with Mitigation Incorporated**: The County Program would result in a new significant impact that is not analyzed in the WDM EIR/EIS, but the impact could be reduced to less than significant with feasible mitigation incorporated. In this case, the impact is not "within the scope" of the WDM EIR/EIS and preparation of an MND would be appropriate. Consistent with CEQA Guidelines Section 15168(d), the subsequent MND shall document the new impact and provide substantial evidence supporting the significance conclusion and the ability of the mitigation measure(s) to reduce the impact to a less-than-significant level.

- **New Impact that is Significant and Unavoidable**: The County Program would result in new significant impacts that are not analyzed in the WDM EIR/EIS, and the impacts cannot be mitigated to less-than-significant levels. In this circumstance, the impact is not "within the scope" of the WDM EIR/EIS and preparation of a subsequent EIR would be appropriate. Under CEQA Guidelines Section 15168(d), the subsequent EIR shall document the new impact, include applicable mitigation measure(s) to lessen the impact, and provide substantial evidence supporting the significance conclusion.

Refer to the WDM Checklist Process flowchart presented below in Figure 1.



[1]The CEQA document will be limited to impact(s) not within the scope of the PEIR.

[2]Findings are required for any LTSM or SU impacts identified in an EIR, including impacts within the scope of the PEIR. SOC is required for any SU impact identified, including impacts within the scope of the PEIR. MMRP is required if any MMs are identified as applicable in the CEQA document.

EIR: environmental impact report

LTS: less than significant

LTSM: less than significant with mitigation incorporated

MM: mitigation measure

MMRP: mitigation monitoring and reporting program

MND: mitigated negative declaration

ND: negative declaration

PEIR: program EIR

PS: potentially significant

SOC: statement of overriding considerations

SU: significant and unavoidable

California County Program Information

Local/County Agency Name:	Plumas County Department of Agriculture
County:	Plumas
County Program Start Date:	July 1, 2025
County Program End Date:	June 30, 2030
County Program Contact:	Willo Vieira
County Program Proponent Address:	208 Fairgrounds Road, Quincy, CA 95971
County Program Proponent Phone:	(530)283-6365
County Program Proponent Email:	agcomm@countyofplumas.com

Description of County Program

Overview

Wildlife provides many benefits, including ecological, cultural, aesthetic, and economic. However, they also may be involved in conflicts with humans by preying upon livestock, damaging agricultural resources and property, and threatening human and companion animal health and safety. WDM in California is necessary to resolve these conflicts. Requests for assistance may come from many sources including private groups or individuals; other federal, state, and local agencies; and Native American tribes. The County Program will use an integrated WDM approach to recommend and apply a comprehensive range of legally available non-lethal and lethal techniques for reducing wildlife damage and conflicts. This includes providing advice on wildlife damage prevention and management, information on sources of WDM materials, depredation investigations, equipment loans, training on the use of WDM methods, and assistance with implementation of WDM methods. Activities will be conducted both independently and jointly with federal and state agencies, Counties, municipalities, Native American tribes, and private land and resource owners/managers. The nature of these independent and collaborative activities is not a finite set of predictable actions in specific locations, but rather, a process of responding to and minimizing damage caused by wildlife, which is inherently unpredictable both spatially and temporally. For each reported incident of wildlife damage, this process will involve investigation of the damage, review of available methods, implementation of chosen methods, monitoring effectiveness of the methods, and adaptive management as necessary. This decision-making process protects the public's safety and prioritizes non-lethal methods to minimize or resolve wildlife conflicts when possible and humanely dispatches animals that are lethally taken.

The WDM EIR/EIS explains that some Counties may wish to perform certain WDM methods or activities in addition to those listed in Appendix C-2 (Attachment B to this checklist) and/or Counties may wish to perform WDM on species that are not identified in Appendix D of the EIR/EIS. Table 1 below identifies the activities, methods, and species that are covered by the County Program but that are not covered by the WDM EIR/EIS (Appendices C-2 [Attachment B to this checklist] and D to the EIR/EIS). If any of the boxes in Table 1 are checked or completed, further CEQA review would be required in connection with the approval of the County Program. Boxes are provided for the county to indicate if there are items outside of the scope of the WDM EIR/EIS. Except for those activities,

methods, or species identified in Table 1, the county does not intend to perform any WDM activities or methods beyond those described in the EIR/EIS (Appendix C-2 to the EIR/EIS/Attachment B to this checklist) and does not intend to target any species beyond those identified in Appendix D to the EIR/EIS.

Additionally, the WDM EIR/EIS envisions that Counties may wish to perform the WDM methods or activities identified in Appendix C-2 to the EIR/EIS (Attachment B to this checklist) and target the species identified in Appendix D to the EIR/EIS. However, there may be methods, activities, or species described in the EIR/EIS and its appendices that are not relevant to the County Program. Table 2 below identifies the activities, methods, and species covered by the WDM EIR/EIS (Appendices C-2 [Attachment B to this checklist] and D to the EIR/EIS) but that are not included in the County Program. Except for those activities, methods, or species identified in Table 2, the county intends to perform all the WDM activities and methods described in the EIR/EIS (Appendix C-2 to the EIR/EIS/Attachment B to this checklist) and may target any and all of the species identified in Appendix D.

Table 1: Activities, Methods, or Species Included in the County Program but Not Identified in the EIR/EIS

☒ **Not Applicable (N/A)** The County Program does not include any WDM activities, methods, or species that are not identified in the EIR/EIS. (***If this box is checked, the table below should be left blank.***)

The County Program would include the activities, methods, or species indicated below:

Activities Instructions: List all activities anticipated to be utilized in the County Program that are not listed in Attachment B of this checklist.	**Methods** Instructions: List all methods anticipated to be utilized in the County Program that are not listed in Attachment B of this checklist.	**Species** Instructions: List all species anticipated to be included in the County Program that are not identified in Appendix D of the EIR/EIS.
Avian Wildlife Damage Management ☐ **Technical Assistance** ☐ **Non-Lethal Operational Assistance** ☐ **Lethal Operational Assistance** **Comments:**_____		

Mammalian Wildlife Damage Management ☐ Technical Assistance ☐ Non-Lethal Operational Assistance ☐ Lethal Operational Assistance **Comments:**		
Reptilian Wildlife Damage Management ☐ Technical Assistance ☐ Non-Lethal Operational Assistance ☐ Lethal Operational Assistance **Comments:**		

Table 2: Activities, Methods, or Species Identified in the EIR/EIS but Not Included in the County Program

☒ **Not Applicable (N/A)** - The County Program includes all WDM activities, methods, and species identified in the EIR/EIS (Appendices C-2 [Attachment B to this checklist] and D to the EIR/EIS). (***If this box is checked, the table below should be left blank.***)

The County Program would not include the activities and wildlife groups indicated below:

Activities Instructions: List all activities listed in Attachment B of this checklist that are not anticipated to be utilized in the County Program.	**Methods** Instructions: List all methods listed in Attachment B of this checklist that are not anticipated to be utilized in the County Program.	**Species** Instructions: List all species that are identified in Appendix D of the EIR/EIS that are not anticipated to be included in the County Program.
☐	☐	☐
☐	☐	☐

EVALUATION OF ENVIRONMENTAL IMPACTS

By completing this checklist, Counties can identify any new or more severe impacts associated with a County Program that may require additional environmental review and documentation. If a county determines that new or more severe impacts require preparation of a subsequent ND, MND, or EIR, that subsequent document can be limited to the new significant impact(s) or more severe impact(s). All other impacts associated with the County Program that are within the scope of the EIR/EIS would be evaluated in a completed version of this checklist, and the checklist can be attached to the subsequent CEQA document as an appendix. When preparing any environmental document, the environmental analysis should incorporate by reference pertinent portions of the analysis from the EIR/EIS and focus the environmental analysis solely on issues that were not addressed in the EIR/EIS.

1. Determine whether the impact identified in the EIR/EIS is also applicable to the proposed County Program. A county's determination should include the following information:

    a. Review the impact as it was presented in the EIR/EIS and mitigation measure(s) proposed to lessen or avoid the impact.[1]

    b. Refer to the applicable resource analysis section in the WDM EIR/EIS for relevant information on each environmental topic.

    c. Review applicable mitigation measure(s) and indicate that mitigation measures will be followed.as part of the County Program.

[1] NI = no impact; B = beneficial; LTCC = less than cumulatively considerable; LTS = less than significant; SU = significant and unavoidable; LTS + mitigation = less than significant with mitigation.

d. Determine whether the proposed County Program would cause a significant impact.

e. Determine whether the proposed County Program's impact is less severe than that identified in the EIR/EIS.

f. Determine whether the proposed County Program is within the scope of the EIR/EIS. A "YES" answer means:

   - It is consistent with the EIR/EIS in terms of locations and intensity (i.e., duration),
   - It has no new or significant impacts that were not analyzed in the EIR/EIS,
   - Mitigation measures from the EIR/EIS will be implemented, and
   - provide any additional information or analysis (as necessary) to document there is evidence substantiating the significance conclusion is consistent with the impact determination in the EIR/EIS.

2. If the county has determined that a new or more severe impact would occur, then the checklist answers for the impact must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant without the need for mitigation.

   a. A "Potentially Significant" finding is appropriate if there is substantial evidence that a new impact may be significant or if any impact would constitute a substantially more severe significant impact than was covered in the EIR/EIS. If there are one or more Potentially Significant new impacts identified, a subsequent EIR shall be prepared.

   b. A "Less than Significant with Mitigation" finding is appropriate if a County Program would introduce a new or more severe impact than was covered in the EIR/EIS, but one or more mitigation measures incorporated into the County Program would mitigate the effect to a point where clearly no significant effect on the environment would occur. In this scenario, an MND would be appropriate to address this new or more severe impact.

   c. A "Less than Significant" finding is appropriate if a County Program would introduce a new or more severe impact than was covered in the EIR/EIS, but the impact would not rise to a level of significance requiring mitigation. In this scenario, an ND can be prepared.

   d. (*If applicable*) An explanation should be included of why the impact significance in the checklist is different than that found in the EIR/EIS, providing any additional information or analysis to support the county's determination for any new or more severe impacts, including a summary of any evidence substantiating the different (new) significance conclusion.

3. Counties should incorporate into their checklist responses references to any information, analysis, and/or sources/references beyond the EIR/EIS that support the county's determination of potential impacts. In such situations, the county should include a list of references (as necessary) at the end of its completed checklist, and make copies of such references available to the public upon request.

a. (*If applicable*) Include an explanation regarding which mitigation measures or components of mitigation measures would not be applicable to the proposed County Program. This may be appropriate in situations where a mitigation measure need not apply because there would be no impact or a less-than-significant impact resulting from the County Program or if the mitigation measure allows for deviation from requirements (e.g., minimum buffer distances), only applies in certain circumstances (e.g., only for a certain activity type or method), or is based on a finding of feasibility.

Complete resource tables below. Labels in the tables (1a, 1b, etc.) correspond to the instructions outlined above.

Agricultural Resources

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **AG-1:** Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Project of the California Resources Agency, to non-agricultural use?	NI	Threshold AG-1, pp. 4.2.1-7	x☐ Yes ☐ No	N/A	☐ xYes ☐ No	x Yes ☐ No	xYes ☐ No
Threshold **AG-4:** Result in the loss of forest land or conversion of forest land to non-forest use?	NI	Threshold AG-4, pp. 4.2.1-7	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **AG-5:** Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	NI	Threshold AG-5, pp. 4.2.1-8	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **AG-6:** Result in the loss of market value of agricultural products sold in California, agricultural employment, and agricultural income/earnings?	NI/B	Threshold AG-6, pp. 4.2.1-8	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Result in cumulative impacts related to agricultural resources?	LTCC/B	Section 4.2.1.4.3, pp. 4.2.1-8	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

2.) New Agricultural Resources Impacts: Would the County Program result in other impacts to agricultural resources that are not evaluated in the WDM EIR/EIS?	☐ Yes	x No	**If yes, complete row(s) below and discussion**	
		2a.) Potentially Significant	**2b.) Less Than Significant with Mitigation Incorporated**	**2c.) Less than Significant**
2d.) [identify new impact here, if applicable; add rows as needed]		☐	☐	☐

3/3a.) Include any additional information or analysis necessary to support the impact determinations in the tables above as an attachment (See Attachment D).

Biological Resources

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **BIO-1:** Substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Services?	LTS LTS + mitigation SU* * Mountain Lion if listed under California Endangered Species Act (16 Counties – See Section 4.2.2-10).	Threshold BIO-1, pp. 4.2.2-5 through 4.2.2-13	x Yes ☐ No	x Yes MM-BIO-1 MM-BIO-2 MM-BIO-3 MM-BIO-7 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **BIO-2:** Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish	LTS	Threshold BIO-2, pp. 4.2.2-13	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
and Wildlife or U. S. Fish and Wildlife Service?							
Threshold **BIO-3:** 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?	LTS + mitigation	Threshold BIO-3, pp. 4.2.2-14	x Yes ☐ No	x Yes MM-BIO-3 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **BIO-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?	LTS + mitigation	Threshold BIO-4, pp. 4.2.2-14 through 4.2.2-15	x Yes ☐ No	x Yes MM-BIO-4 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **BIO-5:** Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	LTS + mitigation	Threshold BIO-5, pp. 4.2.2-16	x Yes ☐ No	x Yes MM-BIO-5 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **BIO-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?	LTS + mitigation	Threshold BIO-6, pp. 4.2.2-16 through 4.2.2-17	x Yes ☐ No	x Yes MM-BIO-6 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **BIO-7:** Cause a substantial adverse effect to populations of non-special status wildlife or plant species, especially if those could result in substantial ecosystem changes?	LTS LTS + mitigation	Threshold BIO-7, pp. 4.2.2-17 through 4.2.2-41	x Yes ☐ No	x Yes MM-BIO-7 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **CU-BIO-1**: Make a considerable contribution, either directly or through habitat modifications, to cumulatively significant effects on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California	LTCC CC* * Mountain Lion if listed under California Endangered Species Act (16 Counties – See	Threshold CU-BIO-1, pp. 4.2.2-43 through 4.2.2-50	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Section 4.2.2-10).						
Threshold **CU-BIO-2:** Make a considerable contribution to cumulatively significant effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	LTCC	Threshold CU-BIO-1, pp. 4.2.2-50	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **CU-BIO-3:** Make a considerable contribution to cumulatively significant effects related to interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or use of native wildlife nursery sites?	LTCC	Threshold CU-BIO-1, pp. 4.2.2-50 through 4.2.2-51	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **CU-BIO-4:** Make a considerable contribution to cumulatively significant effects on populations of non-special status wildlife or plant species, especially if those effects could result in substantial ecosystem changes?	LTCC	Threshold CU-BIO-4, pp. 4.2.2-51 through 4.2.2-62	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

2.) New Biological Resources Impacts: Would the County Program result in other impacts to biological resources that are not evaluated in the WDM EIR/EIS?	☐ Yes	x No	**If yes, complete row(s) below and discussion**	
		2a.) Potentially Significant	**2b.) Less Than Significant with Mitigation Incorporated**	**2c.) Less than Significant**
2d.) [identify new impact here, if applicable; add rows as needed]		☐	☐	☐

3/3a.) Include any additional information or analysis necessary to support the impact determinations in the tables above as an attachment (See Attachment D).

Tribal Cultural Resources

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **TCR-1:** Cause a substantial adverse change in the significance of a tribal cultural resource?	LTS + mitigation	Threshold TCR-1, pp. 4.2.3-4 through 4.2.3-5	x Yes ☐ No	x Yes MM-TCR-1 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **TCR-2:** Cause an adverse effect to a traditional cultural property, landscape, or other resource of Native American traditional religious or cultural importance?	LTS + mitigation	Threshold TCR-2, pp. 4.2.3-4 through 4.2.3-5	x Yes ☐ No	x Yes MM-TCR-1 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Result in cumulative impacts related to tribal cultural resources?	LTCC	Section 4.2.3.4.3, pp. 4.2.3-6	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

2.) New Tribal Cultural Resources Impacts: Would the County Program result in other impacts to tribal cultural resources that are not evaluated in the WDM EIR/EIS?	☐ Yes	x No	**If yes, complete row(s) below and discussion**

	2a.) Potentially Significant	2b.) Less Than Significant with Mitigation Incorporated	2c.) Less than Significant
2d.) [identify new impact here, if applicable; add rows as needed]	☐	☐	☐

3/3a.) Include any additional information or analysis necessary to support the impact determinations in the tables above as an attachment (See Attachment D).

Hazards and Hazardous Materials

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the Impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **HAZ-1:** Expose the public or the environment to significant hazards through the routine transport, use, or disposal of hazardous materials?	LTS	Threshold HAZ-1, pp. 4.2.4-7	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **HAZ-2:** Expose to the public or the environment to significant hazards through reasonably foreseeable upset and accident conditions involving the release of hazardous	LTS	Threshold HAZ-2, pp. 4.2.4-7 through 4.2.4-8	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
materials into the environment?							
Threshold **HAZ-3:** Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	LTS + mitigation	Threshold HAZ-3, pp. 4.2.4-8	x Yes ☐ No	x Yes MM-HAZ-1 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **HAZ-4:** Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	LTS	Threshold HAZ-4, pp. 4.2.4-8 through 4.2.4-9	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **HAZ-5:** If located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or within the vicinity of a private airstrip, result in a safety hazard or excessive	LTS	Threshold HAZ-5, pp. 4.2.4-9 through 4.2.4-10	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
noise for people residing or working in the project area?							
Threshold **HAZ-6:** Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	LTS	Threshold HAZ-6, pp. 4.2.4-10	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **HAZ-7:** Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	LTS	Threshold HAZ-7, pp. 4.2.4-10	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **HAZ-8:** Expose physiologically sensitive populations to human health hazards?	LTS	Threshold HAZ-8, pp. 4.2.4-10 through 4.2.4-11	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **HAZ-9:** Impact human health or the environment in such a manner that it would disproportionately affect	LTS	Threshold HAZ-9, pp. 4.2.4-11	x Yes ☐ No	N/A	x Yes ☐ No	xYes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
minority and/or low-income communities?							
Threshold **CU-HAZ-1:** Make a considerable contribution to cumulatively significant non-chemical hazards?	LTCC	Threshold CU-HAZ-1, pp. 4.2.4-11	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Threshold **CU-HAZ-2:** Make a considerable contribution to cumulatively significant human exposure to health hazards?	LTCC	Threshold CU-HAZ-2, pp. 4.2.4-11 through 4.2.4-12	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

2.) New Hazards and Hazardous Materials Impacts: Would the County Program result in other impacts related to hazards and hazardous materials that are not evaluated in the WDM EIR/EIS?	☐ Yes	x No	**If yes, complete row(s) below and discussion**	
		2a.) Potentially Significant	**2b.) Less Than Significant with Mitigation Incorporated**	**2c.) Less than Significant**
2d.) [identify new impact here, if applicable; add rows as needed]		☐	☐	☐

3/3a.) Include any additional information or analysis necessary to support the impact determinations in the tables above as an attachment (See Attachment D).

Human and Pet Health and Safety

The EIR/EIS discusses human and pet health and safety to comply with the requirements of the National Environmental Policy Act. Human and pet health and safety is not a topic required to be evaluated under CEQA and this topic is not included in Appendix G to the CEQA Guidelines. However, the EIR/EIS nevertheless identifies appropriate mitigation measures (MMs) to reduce such impacts.

Will the County Program implement all applicable mitigation measures?

☐ Yes

MM-HPHS-1
MM-HPHS-2

☐ No

In order to find the County Program to be within the scope of the EIR/EIS, a county should implement all applicable MMs in the EIR/EIS. This includes MM-HPHS-1 and MM-HPHS-2, which are set forth in Attachment A.

Noise

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than Identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **NOI-1**: Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, from the following methods:							
Electronic Distress Sounds	LTS LTS + mitigation	Threshold NOI-1, pp. 4.2.6-11 through 4.2.6-12	x Yes ☐ No	x Yes MM-NOISE-1 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Propane Exploders	LTS + mitigation	Threshold NOI-1, pp. 4.2.6-12	x Yes ☐ No	x Yes	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
		through 4.2.6-13		MM-NOISE-2 ☐ No			
Pyrotechnics	LTS + mitigation	Threshold NOI-1, pp. 4.2.6-13 through 4.2.6-14	x Yes ☐ No	x Yes MM-NOISE-3 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Chemical Repellents	LTS + mitigation	Threshold NOI-1, pp. 4.2.6-14	x Yes ☐ No	x Yes MM-NOISE-4 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Trapping	LTS + mitigation	Threshold NOI-1, pp. 4.2.6-15	x Yes ☐ No	x Yes MM-NOISE-5 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Rocket Nets/Cannon Nets	LTS + mitigation	Threshold NOI-1, pp. 4.2.6-16 through pp. 4.2.6-17	x Yes ☐ No	x Yes MM-NOISE-6 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Aerial Shooting	LTS + mitigation	Threshold NOI-1, pp. 4.2.6-17 through pp. 4.2.6-18	x Yes ☐ No	x Yes MM-NOISE-7 MM-NOISE-8 ☐ No	x Yes ☐ No	x Yes ☐ No	xYes ☐ No
Ground Based Shooting	LTS + mitigation	Threshold NOI-1, pp. 4.2.6-19 through pp. 4.2.6-27	x Yes ☐ No	x Yes MM-NOISE-9 MM-NOISE-10 MM-NOISE-11 MM-NOISE-12 MM-NOISE-13	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
				MM-NOISE-14 MM-NOISE-15 MM-NOISE-16 ☐ No			
Threshold **NOI-2:** Result in generation of excessive groundborne vibration or groundborne noise levels?	LTS	Threshold NOI-2, pp. 4.2.6-27 through 4.2.6-28	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	xYes ☐ No
Threshold **NOI-3:** If located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?	LTS + mitigation	Threshold NOI-3, pp. 4.2.6-28	x Yes ☐ No	x Yes MM-NOISE-2 MM-NOISE-3 MM-NOISE-6 MM-NOISE-9 MM-NOISE-10 MM-NOISE-11 MM-NOISE-12 MM-NOISE-13 MM-NOISE-14 MM-NOISE-15	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
				MM-NOISE-16 ☐ No			
Result in cumulative impacts related to noise?	LTCC + mitigation	Section 4.2.6.4.3, pp. 4.2.6-28 through 4.2.6-29	x Yes ☐ No	x Yes MM-NOISE-2 MM-NOISE-3 MM-NOISE-6 MM-NOISE-9 MM-NOISE-10 MM-NOISE-11 MM-NOISE-12 MM-NOISE-13 MM-NOISE-14 MM-NOISE-15 MM-NOISE-16 ☐ No	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No

2.) New Noise Impacts: Would the County Program result in other impacts related to noise that are not evaluated in the WDM EIR/EIS?	☐ Yes	x No	**If yes, complete row(s) below and discussion**

	2a.) Potentially Significant	2b.) Less Than Significant with Mitigation Incorporated	2c.) Less than Significant
2d.) [identify new impact here, if applicable; add rows as needed]	☐	☐	☐

3/3a.) Include any additional information or analysis necessary to support the impact determinations in the tables above as an attachment (See Attachment D).

Public Services

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than Identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
Threshold **PS-1:** Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:							
Fire Protection	NI/B	Threshold PS-1, pp. 4.2.7-4 through 4.2.7-5	x Yes ☐ No	N/A	x Yes ☐ No	x Yes ☐ No	x Yes ☐ No
Police Protection	NI/B	Threshold PS-1, pp. 4.2.7-4	x Yes	N/A	x Yes	x Yes	x Yes

Impact in the EIR/EIS							
Environmental Threshold Covered in the EIR/EIS	1a.) Impact Significance in the EIR/EIS	1b.) Location of Impact Analysis in the EIR/EIS	1.) Does the threshold apply to the county program?	1c.) Will the County Program implement all applicable MMs in the EIR/EIS?	1d.) Would the County Program result in the same or less impact significance as the EIR/EIS?	1e.) Would the impact be Less Severe/ Significant than identified in the EIR/EIS?	1f.) Is this County-level Impact Within the Scope of the EIR/EIS?
Would the County Program							
		through 4.2.7-5	☐ No		☐ No	☐ No	☐ No

2.) **New Public Services Impacts**: Would the County Program result in other impacts related to public services that are not evaluated in the WDM EIR/EIS?	☐ Yes	x No	If yes, complete row(s) below and discussion	
		2a.) Potentially Significant	2b.) Less Than Significant with Mitigation Incorporated	2c.) Less than Significant
2d.) [identify new impact here, if applicable; add rows as needed]		☐	☐	☐

3/3a.) Include any additional information or analysis necessary to support the impact determinations in the tables above as an attachment (See Attachment D).

DETERMINATION

On the basis of this checklist and the substantial evidence supporting it:

x I find that all of the effects of the proposed County Program (a) have been covered in the WDM EIR/EIS, (b) all applicable mitigation measures identified in the WDM EIR/EIS will be implemented, and (c) there are no new or more severe impacts than identified in the WDM EIR/EIS. The proposed County Program is, therefore, **WITHIN THE SCOPE** of the WDM EIR/EIS. **NO ADDITIONAL CEQA DOCUMENTATION** is required.

☐ I find that the proposed County Program will have effects that were not covered in the WDM EIR/EIS. These effects are less than significant without any mitigation beyond what is already required pursuant to the WDM EIR/EIS. A **NEGATIVE DECLARATION** will be prepared.

☐ I find that the proposed County Program will have effects that were not covered in the WDM EIR/EIS or will have effects that are substantially more severe than those covered in the WDM EIR/EIS. Although these effects may be significant in the absence of additional mitigation beyond the WDM EIR/EIS's measures, revisions to the proposed County Program or additional mitigation measures have been agreed to by the county that would avoid or reduce the effects so that clearly no significant effects would occur. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☐ I find that the proposed County Program will have significant environmental effects that are (a) new and were not covered in the WDM EIR/EIS and/or (b) substantially more severe than those covered in the WDM EIR/EIS. Because one or more effects may be significant and cannot be clearly mitigated to less than significant, an **ENVIRONMENTAL IMPACT REPORT** will be prepared.

Willo Vieira

_____ 6/10/2025 _____

Signature Date

Willo Vieira _____ Agricultural Commissioner/Sealer _____

Printed Name Title

Attachment A: Mitigation Measures

MM-BIO-1. Wildlife species designated as "Fully Protected" under California Fish and Game Code Sections 3511, 4700, 5050, and 5515 shall not be taken or possessed unless authorized by the CDFW. This exclusion does not apply when such species pose an imminent threat to human health and safety (e.g., potential collision with aircraft); however, non-lethal measures shall be considered before selecting the option of lethal WDM for Fully Protected species.

MM-BIO-2. Lethal removal of mountain lion in Counties where the species is listed under the California Endangered Species Act would only occur under the following circumstances:

- The subject mountain lion has been designated by a law enforcement official as an imminent threat to public health or safety.
- A depredation permit has been issued by CDFW

MM-BIO-3. Minimize the activity area of WDM to the extent feasible by coordinating with land managers and landowners, placing equipment primarily on previously disturbed sites, using vehicles on existing roads and trails to the extent practicable, and avoiding entering wetland areas when the wildlife conflict does not occur in the wetland.

MM-BIO-4. Proposed Project/Proposed Action installation of electrified fencing and other fencing shall be limited to site-specific applications and shall avoid impeding movement through wildlife migration corridors to the extent feasible.

MM-BIO-5. Prior to conducting WDM, the entity responsible for conducting the WDM activity shall ensure that the planned WDM activities do not violate any local policies or ordinances protecting biological resources.

MM-BIO-6. If WDM activities under the Proposed Project/Proposed Action receive coverage from an Implementing Entity of an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) for take of species covered under those plans, the entity conducting the WDM activity shall ensure that the WDM activity is conducted in accordance with all requirements and conditions of the Incidental Take Permits, HCP/NCCP, and Implementing Agreement (if applicable) for those plans.

MM-BIO-7. Entities conducting WDM shall follow the protective measures in WS-California ESA Section 7 compliance.

MM-TCR-1. Consulting tribes that have so requested shall be provided with an annual summary of wildlife damage management (WDM) activities that occurred within the Counties identified as their tribal cultural resource/tribal cultural place. Consulting tribes shall be provided a reasonable opportunity to review the Proposed Project/Proposed Action activities, review the location of activity implementation on public lands, and provide comment with regard to potential impacts to tribal cultural resources or other resources of Native American cultural value. In the event that a potential resource is identified by a consulting tribe that might be affected, the responsible County government, the CDFA, and/or

WS-California shall work with the traditionally culturally affiliated tribe(s) to develop a reasonable and feasible strategy to ensure activities avoid, minimize, or otherwise appropriately mitigate impacts. In the event that an agreed strategy cannot be developed, Counties, the CDFA, and/or WS-California would make the ultimate determination, ensuring compliance with local, state, and federal regulatory conditions.

MM-HAZ-1: If the use of WDM hazardous materials in the vicinity of a school is necessary, wildlife specialists will conduct WDM when children are not present, unless public health and safety is at risk. Wildlife specialists shall allow for adequate quarantine time prior to reentry, and will remove any physical materials when WDM is complete.

MM-HPHS–1: Training and/or certification will continue to be required for any firearm or firearm-like device use, including all wildlife specialists (federal, state, regional, and local).

MM-HPHS–2: Wildlife specialists will be vigilant to the presence of livestock guarding animals or licensed companion animals while conducting WDM on private or public lands to avoid unwanted interactions.

Under certain extenuating circumstances (including emergency operations, actions to protect human safety, rapid response activities, or the permission of the sensitive receptor[s] that could experience the noise impact), the necessity for mitigation may be waived; however, residual impacts under such waiver allowances could remain significant. The following mitigation measures would reduce Proposed Project activity noise levels at the closest residential receivers to be compliant with applicable standards.

MM-NOISE-1 Electronic distress sounds shall not be used continuously for more than 8 hours within 30 feet of an occupied structure during daytime hours (sunrise to sunset).

MM-NOISE-2 Propane exploders shall not be used within 140 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 1,850 feet of an occupied structure during nighttime hours (sunset to sunrise).

MM-NOISE-3 Pyrotechnic devices (i.e., screamer siren, CAPA, etc.) shall not be used within 200 feet of an occupied structure during daytime hours (sunrise to sunset).

MM-NOISE-4 Daytime use of ATVs for spraying chemical repellents shall not occur closer than 35 feet from an occupied structure. ATVs shall not be used for nighttime chemical spraying operations.

MM-NOISE-5 Trapping activities employing a pick-up truck or ATV shall not be conducted within 25 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 180 feet of an occupied structure during nighttime hours (sunset to sunrise).

MM-NOISE-6 The use of rocket or cannon nets shall not occur within 250 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 13,000 feet of an occupied structure during nighttime hours (sunset to sunrise).

MM-NOISE-7 Aerial shooting activities occurring during the daytime shall not be conducted closer than 750 feet (as measured on the ground) from an occupied structure unless a suppressor is used. If a suppressor is used, daytime aerial shooting activities could be conducted without any horizontal ground distance separation from an occupied structure.

MM-NOISE-8 Aerial shooting activities occurring during the nighttime shall not be conducted closer than 22,000 feet (approximately 5 miles) from an occupied structure unless a suppressor is used. If a suppressor is used, Project nighttime aerial shooting activities shall not be conducted closer than 6,250 feet (approximately 1.2 miles) from an occupied sensitive receptor.

MM-NOISE-9 For daytime shooting activities involving an 8-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM-NOISE-10 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 7,000 feet (without suppressor) or not less than 900 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 3,500 feet (without suppressor) or not less than 225 feet (with suppressor).
- For .22 Caliber Rifle, not less than 1,300 feet (without suppressor) or not less than 90 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-10 For daytime shooting activities involving a **4-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM-NOISE-11 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 5,500 feet (without suppressor) or not less than 650 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 2,700 feet (without suppressor) or not less than 175 feet (with suppressor).
- For .22 Caliber Rifle, not less than 1,000 feet (without suppressor) or not less than 70 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-11 For daytime shooting activities involving a **2-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM--MM-NOISE-12.

- For .308 Caliber Rifle, not less than 4,500 feet (without suppressor) or not less than 450 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 2,200 feet (without suppressor) or not less than 125 feet (with suppressor).
- For .22 Caliber Rifle, not less than 700 feet (without suppressor) or not less than 50 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-12 For daytime shooting activities involving a **30-minute duration**, shooting shall not occur at distances from an occupied structure less than indicated below.

- For .308 Caliber Rifle, not less than 2,750 feet (without suppressor) or not less than 225 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 1,200 feet (without suppressor) or not less than 70 feet (with suppressor).
- For .22 Caliber Rifle, not less than 350 feet (without suppressor) or not less than 25 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-13 For nighttime shooting activities involving an **8-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-14 to MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 18,000 feet (without suppressor) or not less than 5,200 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 12,500 feet (without suppressor) or not less than 2,000 feet (with suppressor).
- For .22 Caliber Rifle, not less than 7,000 feet (without suppressor) or not less than 900 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 2 feet.

MM-NOISE-14 For nighttime shooting activities involving a **4-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-15 to MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 16,500 feet (without suppressor) or not less than 4,200 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 11,000 feet (without suppressor) or not less than 1,500 feet (with suppressor).
- For .22 Caliber Rifle, not less than 5,500 feet (without suppressor) or not less than 650 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 2 feet.

MM-NOISE-15 For nighttime shooting activities involving a **2-hour duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in

MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 14,500 feet (without suppressor) or not less than 3,200 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 9,500 feet (without suppressor) or not less than 1,100 feet (with suppressor).
- For .22 Caliber Rifle, not less than 4,500 feet (without suppressor) or not less than 450 feet (with suppressor).
- For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

MM-NOISE-16 For nighttime shooting activities involving a **30-minute duration**, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12.

- For .308 Caliber Rifle, not less than 11,000 feet (without suppressor) or not less than 2,000 feet (with suppressor).
- For 12-Gauge Shotgun, not less than 6,500 feet (without suppressor) or not less than 550 feet (with suppressor).
- For .22 Caliber Rifle, not less than 2,750 feet (without suppressor) or not less than 225 feet (with suppressor).

For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.

Attachment B: List of Analyzed Methods and Activities (Appendix C-2 WDM EIR/EIS)

CDFA Methods Descriptions

1 Overview

CDFA recognizes the federal expertise in managing wildlife conflicts that Wildlife Services (WS-California) brings to California.[2] The wildlife damage management (WDM) activities and methods that WS-California *currently* uses are described in detail in Appendix C-1. WS-California Methods Descriptions. Should an individual County enter into a Cooperative Service Agreement (CSA) with WS-California, their WDM would be consistent with the descriptions provided in Appendix C-1.

The following is a description of WDM activities and methods that may be used by CDFA and participating California Counties (and their agents, thereof), *independent* of WS-California. However, these activities and methods directly build upon those previously described, and thus are familiar, proven, and compatible. To ensure consistency in how WDM activities and methods are carried out by CDFA (and participating California Counties), CDFA shall adopt the Wildlife Services Directives as part of the WDM Program (USDA 2020).

2 Site Presence

WDM actions require the presence of qualified and properly trained personnel[3] (referred to herein as "wildlife specialists") at the locations where wildlife damage is occurring. Before CDFA and/or participating Counties included in the CDFA WDM Program conduct any WDM activities or methods, a written request for assistance from the land or resource owner/manager[4] for public, private, or tribal lands) must be received. Wildlife specialists may use 4-wheel drive vehicles, all-terrain vehicles (ATVs), snow machines, aircraft, boats, or hoof stock for conveyance when conducting WDM activities and methods. When operating on federally or state-owned lands, wildlife specialists must comply with all applicable laws and regulations, as well as all terms and conditions set forth in any memorandum of understanding (MOU) negotiated with the relevant land management agencies.

3 Technical Assistance (All Species)

Technical assistance may be provided by wildlife specialists when a land or resource owner/manager requests assistance in resolving a conflict with wildlife. Wildlife specialists may provide information, demonstrations, technical assistance, and advice on available and effective WDM techniques. Technical assistance may include demonstrations on the proper use of management devices and information and advice on animal husbandry practices, techniques to modify human behavior, habitat management techniques, and animal behavior modification devices. Deciding which recommendations to suggest requires substantial deliberation. Part of the decision-making process may include an on-site visit and/or consultation with the requestor. Generally, several short and long-term management strategies would be described and recommended. Because the requestor is primarily responsible for implementing these strategies, the recommendations would be based on the abilities of the requestor, the level of risk, need, and practical application. Compliance with applicable federal, state, and local laws and regulations is the responsibility of the land

2 There are Wildlife Services (WS) offices representing all 50 states, the District of Columbia, Guam, and the Virgin Islands.

3 As described in this document, "wildlife specialists" refer to CDFA and/or County personnel (or their agents thereof) that have been specifically trained to carry out WDM activities and methods, including technical assistance as well as operational activities in the field. Wildlife specialists are required to undergo periodic education in current WDM techniques (including use of special equipment such as federally-licensed firearms, pyrotechnics, and specialized traps), and to carry out WDM activities and methods in compliance with local, state, and federal laws.

4 The land or resource owner/manager are also referred to as the 'owner/operator' or 'reporting party.'

or resource owners/managers when self-implementing the activities and methods described as part of technical assistance.

3.1 Modification of Human Behavior

Modification of human behavior may be recommended to prevent and resolve conflicts between humans and wildlife. For example, the elimination of both inadvertent feeding (i.e., improper disposal of garbage/storage of camp food, outdoor pet feeding, and feeding of cat colonies) and intentional feeding of wildlife by members of the public may be recommended. Peri-domestic wildlife species (such as raccoons and striped skunks) adapt well to living near humans, and studies have shown increased density of mesocarnivore species along the urbanization gradient in part due to the capitalization of anthropogenic food sources (Salek et al. 2015). Unnatural densities of these species in proximity to conservation lands may result in damage to native or threatened and endangered (T&E) species. Even with considerable effort from land or resource owners/managers, it can be difficult to consistently enforce no-feeding regulations and to effectively educate all people concerning the potential liabilities of feeding wildlife. Other examples of modifying human behavior could include altering activity periods and walking in groups.

3.2 Habitat Modification

Habitat modification can be an integral part of WDM. Wildlife production and/or presence are often directly related to the type, quality, and quantity of suitable habitat. While wildlife specialists may recommend or be consulted on the types of habitat modifications that could be implemented to lessen or avoid damage, in all cases, the land or resource owners/managers would be responsible for evaluating and implementing habitat modifications.

3.3 Animal Husbandry Modification

Animal husbandry modifications include the level of livestock handling and care, shifts in the timing of breeding and births, changes in herding techniques, livestock species selection, and the use of human or animal guards (e.g., dogs, donkeys, and llamas) to protect livestock.

The level of care or attention given to livestock may range from daily to seasonal. Generally, as the frequency and intensity of livestock handling increases, so does the degree of protection. The risk of depredation is greatest in operations where livestock are left unattended for extended periods. This risk can be reduced when operations permit nightly gathering so that livestock are inaccessible during the hours when predators are most active. This risk diminishes as age and size increase and can be further minimized by holding expectant females in pens or sheds to protect births and by holding newborn livestock in pens for the first two weeks. Shifts in breeding schedules can also reduce the risk of depredation by altering the timing of births to coincide with the greatest availability of natural prey to predators or to avoid seasonal concentrations of migrating predators (such as golden eagles).

The use of human custodians and guarding animals may also provide significant protection in some instances. The presence of herders to accompany bands of sheep on an open range may help ward off predators. Guard dogs have also proven successful in many sheep and goat operations. The supply of proven guarding dogs is generally quite limited, and typically requires that people purchase and rear a pup. Therefore, there is usually a four- to eight-month period of time necessary to raise a guarding dog before it becomes an effective deterrent to predators. Because 25 to 30 percent of dogs are not successful even after training, there is a reasonable chance that the first dog raised as a protector will not be effective. Furthermore, the effectiveness of guarding dogs may not be sufficient in areas where

there is a high density of predators, where livestock widely scatter to forage, or where dog-to-livestock ratios are less than recommended.

Altering animal husbandry to reduce wildlife damage can also be effective, although it has many limitations. For example, nightly gathering may not be possible where livestock are in many fenced pastures and where grazing conditions require livestock to scatter. Hiring extra herders, building secure holding pens, and adjusting the timing of births can be prohibitively expensive. Furthermore, the costs associated with a change in husbandry practices can often exceed any potential savings because the timing of births is often managed to coincide with weather patterns or seasonal marketing of young livestock.

3.3.1 Physical Exclusion

Physical exclusion refers to the separation of damage-causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM.

Barrier fencing is typically used to prevent access to areas containing infrastructure (including road structures and bridges) and valued property such as gardens, fishponds, trees, orchards, dwellings, livestock or poultry pens, and T&E species. Selection of a barrier system depends on the wildlife species being excluded, expected duration of damage, size of the area or facility to be excluded, compatibility of the barrier with other operations (e.g., feeding, cleaning, harvesting, recreational activity, etc.), possible damage from severe weather, and effect on site aesthetics. The barrier system also depends on the resource being protected and its value. Systems can range from relatively simple systems such as metal flashing and hardware cloth to highly complex mesh and grid systems and electric fencing. Barrier systems can initially be very costly to erect and expensive to maintain, but can provide a long-term, highly effective solution to some damage problems.

Electric fencing could be used to alleviate damage caused by wildlife. The application of electrified fencing would generally be limited to site specific application where predation is occurring in a very limited geographic scale. Limits of this application arise where there are multiple land or resource owners/managers along a wetland, pond, or lake, the size of the area is relatively large, or where the area is in proximity to bodies of water. Predator control through judicious use and placement of electric fences and other barriers, as well as by trapping efforts, have reduced losses of adults, eggs, and/or young (USFWS 1985). While electric fencing may be effective in repelling predators in some urban settings, its use is often prohibited in many municipalities for human safety reasons. Problems that typically reduce the effectiveness of electric fences include vegetation on fence, flight capable birds, fencing knocked down by other animals (e.g., deer and dogs), and poor or intermittent power sources.

Tree protectors and sheathing can consist of wrapping hardware cloth, solid metal flashing, or other materials around the trunk of the tree, and are used to protect trees from beavers by physically preventing the semi-aquatic animal from causing damage. Sheathing or tree protectors could also be used in some situations to prevent access to trees canopies to protect nesting birds from predators. However, sheathing may be impractical where there are numerous plants or trees to protect, so it is mostly used in urban settings where only a few trees or objects need protection.

Netting can be useful in preventing birds from accessing resources or forming large roosts that could cause a risk to human health and safety and/or decrease aesthetics. For instance, the ceiling of parking garages can be netted to prevent pigeons and other birds from roosting above cars and dropping debris and feces on cars and people. Netting can be installed in hangers to exclude birds from perching or nesting indoors. Netting can be very successful if done correctly but it can be expensive and requires routine maintenance. Netting is also not practical over large areas.

Overhead wire grids can deter birds from using specific areas where they are causing a nuisance (Johnson 1994). The wires represent an obstacle that is difficult for a flying bird to see/navigate and make the area less attractive to birds. Overhead wire grids are more practical and cost effective than netting for large areas; for example, they can be used to keep some waterfowl out of retention ponds on airfields.

Perch inhibitors can be used to keep birds from perching on sensitive equipment and interfering with function. Perch inhibitors can be anything that render the perching area unusable to birds: zip ties, bird spikes, thin wire strung over the perch, golf tees, etc.

Chemical applications/tactile/taste repellents are materials that are rough and can discourage, reduce, or prevent the gnawing behavior of rodents, tacky or sticky substances to prevent perching, or non-hazardous chemical compounds designed to cause pain or discomfort. Abrasives produce an unpalatable surface which irritates the teeth and mouth of rodents when they attempt to gnaw or chew on the surface. Flexible materials, such as sandpaper, grinder pads, and fine-mesh stainless steel screening can be placed on or over objects (e.g., electrical wiring, plastic piping, fruit trees, etc.) that are susceptible to gnawing rodents. Fine sand can be added and mixed with paint, glue, or other suitable liquid adherents to formulate a paste or heavy mixture that can be brushed-on or applied to a surface to discourage rodent gnawing. This method has had limited success when applied or painted on tree trunks to discourage beaver from cutting down trees. Abrasives are most practical where only a few trees or areas need protection. Primary repellents exemplified by tacky or sticky substances to prevent perching, or chemical compounds designed to affect pain or discomfort, evoke a limb withdraw or escape behavior (Clark and Avery 2013). Taste repellents such as methyl anthranilate and activated charcoal have shown to deter geese from grazing and repel passerines in laboratory feeding trials (Mason and Clark 1992).

Surface coverings could be used to provide hides for T&E species and decrease the success rate of predator detection. For example, clay roof tiles have been placed within California least tern colonies to act as chick shelters (USFWS 2006).

3.3.2 Harassment and Deterrent Methods

Harassment and deterrent devices rely on the use of sound, lights, pursuit, or other methods to frighten and disperse animals from the area to be protected. The success of frightening methods depends on animals' fear of, and subsequent aversion to, offensive stimuli. Once animals become habituated to a stimulus, they often resume their damaging activities. Considerable effort is usually required to consistently apply frightening techniques and then vary them sufficiently to prolong their effectiveness. Over time, some animals learn to ignore commonly used frightening methods that are no longer perceived as threats. In many cases animals frightened from one location become a problem at another.

Distress/predator calls are electronic devices that mimic sounds exhibited when target species are in distress, which is intended to cause a flight response and disperse target animals from the area. This technique is primarily used for avian management. Alarm calls are given by birds when they detect predators, while distress calls are given by birds when they are captured by a predator (Seamans and Gosser 2016). When other birds hear these calls, they believe a predator is present or a bird has been captured (Seamans and Gosser 2016).

Propane exploders/cannons produce noise that is intended to represent a firearm discharge. They are attached to a propane tank and regulated to discharge at certain intervals. Propane cannons work best when the interval of the discharge is random, the cannons are moved regularly, and they are combined with other methods, such as effigies. Although a propane exploder can be an effective dispersal tool for birds in agricultural settings, resident waterfowl in urban areas are more tolerant of noise and habituate to propane exploders relatively quickly.

Pyrotechnics are best described as controlled fireworks and can be safely used in a number of situations involving birds (USDA 2010). Pyrotechnics include, but are not limited to: screamers, bird bombs, CAPA cartridges, and 12-gauge cracker shells. 12-gauge cracker shells are shotgun shells containing an explosive round that is projected up to 200 feet in the air before exploding. Bird bombs and screamers are fired from 6 mm starter pistols; they are used similarly to 12-gauge cracker shells, but they travel a shorter distance. For example, bird bombs travel approximately 75-100 feet before exploding. Screamers are similar to bird bombs, but they whistle in flight, leave a small trail of smoke in their wake, and do not explode. CAPA cartridges are fired from an 18.6 mm launcher and travel approximately 1,000 feet and explode generating a sound of approximately 150 dB at 32 feet.

As with frightening devices and propane exploders, the effects of pyrotechnics on nontarget wildlife need to be considered. For example, special-status birds or birds protected under the Migratory Bird Treaty Act (MBTA) may be disturbed or frightened from nesting sites.

Paintball guns are used as a non-lethal harassment method to disperse wildlife from areas using physical harassment. Paintballs are occasionally used to harass species such as waterfowl, raptors, and doves and to remove swallow nests. Paintballs can be used to produce negative physical and visual stimuli that can aid in the dispersal of birds from areas where conflicts or threats of conflict are occurring. Washable, clear paintballs would be used unless otherwise directed by the state or federal wildlife agency with jurisdiction over the lands where this method is used.

Water spray can be used to harass or disperse wildlife. It can be used to produce negative visual and physical stimuli to disperse birds such as swallows from areas where conflicts or potential conflicts are occurring. High pressure water spray is also used to remove swallow nests from areas where conflict is occurring. Work involving the removal of active nests is always performed under a MBTA depredation permit. Motion triggered sprinklers can also be used to deter deer and birds from damaging landscaping and smaller plantings.

Lasers and lights are used with mixed results to frighten target wildlife. Lights can be used to flush avian predators off hunting perches; however, many animals can become accustomed to such lights over time. Lasers have shown some effectiveness with waterfowl, wading birds, gulls, vultures, and crows (USDA 2003). Lasers have a narrow, targeted beam which are used to depict a novel object approaching the bird that elicits a flight response. Best results are achieved under low-light conditions (i.e., sunset through dawn) and targeting structures or trees proximate to roosting birds, thereby reflecting the beam (USDA 2003; Blackwell et al. 2002).

Scarecrows and effigies often depict predator animals (e.g., alligators, owls), people, or mimic distressed target species (e.g., dead ravens, dead crows) and they are intended to elicit a flight response from target birds, which disperses those birds from the area. Avery et al. (2008) found that effigies could be effective at dispersing crows. When crow aggregations are relatively small, then effigies might suffice, but for large roosts it is likely that reinforcement with additional methods such as pyrotechnics or distress calls will be needed (Avery et al. 2008). Crow or raven effigies are mainly used to protect nesting colonies or individual nests from avian predators. In general, scarecrows would be most effective when they are moved frequently, alternated with other methods, and are well maintained. Scarecrows tend to lose effectiveness over time and become less effective as populations of target species increase (Smith 1999), though they have been used effectively to deter raptors from establishing nests on certain power structures by mimicking utility staff accessing the tower.

Eye-spot balloons and mylar strips and balloons provide visual harassment for wildlife. Eye-spot balloons have large eyes that are intended to give birds a visual cue that a large predator is present. Mylar® tape and flags can also be used to deter birds from certain areas. These materials produce sound and flashes in the sun when wind blows over it that may frighten some species.

Radio-controlled vehicles can be used to haze wildlife from undesirable areas. Radio-controlled boats, cars, and drones can be used to move wildlife off ponds, saturated areas, and areas that are otherwise impassible. These tools are used to provide wildlife a visual stimulus to leave the area and not used to make (physical) contact with wildlife.

Vehicles can be used to pursue animals as a form of harassment. The purpose is to approach the animals with a large object, sometimes with lights flashing and a siren, to scare the birds away from an area. This technique is often used in airports. The vehicle is never used to run over or injure the animal.

Tactile repellent products reportedly deter birds from roosting on certain structural surfaces. Commercially available products such as polybutene present a tacky or sticky surface that the birds avoid. Different formulations, both liquid and gel, may be appropriate for many different situations, such as trees, shrubbery, ledges, beams, windowsills, gutters, cornices, roof lines (perimeters), and air conditioners (Zemsky 1995). The substance does lose its tackiness after approximately one year; moreover, the old material would need to be removed and new material reapplied (Zemsky 1995).

Olfactory repellents are used to deter animals from using specific areas for shelter or feeding. These commercially available products contain strong herbal odors. This smell encourages the sheltering animal to vacate the specific location where applied.

Dogs have been used successfully to disperse birds, especially waterfowl in urban and suburban areas (Seamans and Gosser 2016). Properly trained dogs provide harassment that birds recognize as threats. As with any bird dispersal technique, dogs are more effective when used in combination with other methods, as birds may become habituated to dogs and may no longer react to their presence (Seamans and Gosser 2016).

4 Operational Assistance

The CDFA WDM Program includes WDM activities and methods that would use specialized equipment (i.e., pyrotechnics, specialized traps, and firearms). However, the cost and required expertise or training needed to effectively use specialized equipment, may be a limiting factor. In certain cases, the specific WDM activity or method may require coordination with and assistance from WS-California wildlife specialists.

The majority of operational assistance activities (activities conducted in the field) are anticipated to be performed by wildlife specialists (or their agents) or by WS-California wildlife specialists as part of a cooperative service agreement (CSA) with a County (described in Appendix C-1). Emergency/rapid response operational assistance activities may be conducted by CDFA, Counties, or WS-California wildlife specialists, as appropriate.

4.1 Avian Methods

4.1.1 Physical Exclusion

Physical exclusion refers to the separation of damage causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM. Examples of physical exclusion techniques include:

Netting – see description above in technical assistance.

Overhead wire grids – see description above in technical assistance.

Perch inhibitors – see description above in technical assistance.

Chemical applications/tactile/taste repellents – see description above in technical assistance.

Surface coverings – see description above in technical assistance.

One-way Door Excluders are devices usually used in urban settings to allow an animal to leave an area where it is unwanted by way of a one-way door or a narrowing exit that prevents them from re-entering through the same entrance. They can be used for small mammals, meso-mammals, bats, and some bird species. They are installed over a hole (usually in the side of a house or other building) with the door opening from the inside of the structure outside. Once the animal has exited the door serves as a barrier to re-entrance. Once it is ascertained that no more animals are in the structure, the land or resource owner/manager is usually advised to repair the hole.

4.1.2 Harassment and Deterrent Methods

Distress/predator calls – see description above in technical assistance.

Propane exploders/cannons – see description above in technical assistance.

Pyrotechnics – see description above in technical assistance.

Water spray – see description above in technical assistance.

Lasers – see description above in technical assistance.

Scarecrows and effigies – see description above in technical assistance.

Eye-spot balloons and mylar strips and balloons – see description above in technical assistance.

Radio-controlled vehicles – see description above in technical assistance.

Vehicles – see description above in technical assistance.

Tactile repellent products – see description above in technical assistance.

Olfactory repellents – see description above in technical assistance.

Dogs – see description above in technical assistance. Government-owned and employee-owned trained dogs will accompany wildlife specialists when there is an operational need. Dogs would not be allowed to intentionally kill animals.

Paintball guns – see description above in technical assistance.

4.1.3 Capture Methods

Live capture methods are used to capture individuals causing damage. Most of these methods involve the use of traps set to capture and hold the animal alive until personnel arrive. The animal can then be euthanized or released as appropriate. Some individuals are relocated with the approval of California Department of Fish and Wildlife (CDFW)

and United States Fish and Wildlife Service (USFWS). Any traps set by wildlife specialist shall be checked by the wildlife specialist, the land or resource owner/manager, or their designated agent.

Air cannon/rocket nets are typically used for larger birds, such as waterfowl and turkeys, and use compressed air to propel a net up over birds, which have been baited to a particular site. The habitat must be relatively flat, open, and void of vegetation that could become tangled in the net and allow for target species to escape.

Bow nets/E-Z catch nets are normally used to capture raptors, but may also be used for European starlings, shorebirds, and other species using visual bait and/or conspecific decoys. Bow nets are set on the ground and are remotely triggered from a nearby observation site. Once triggered, the net envelops the target birds. The captured bird is removed from the net as gently and quickly as possible to avoid entanglement and additional stress. Wildlife specialists shall positively identify the target species prior to deploying the trap. These nets are operated by a spring-loaded system with a net between two curved (bowed) rods. When used to capture raptors, a lure animal is placed at the center to attract the raptor to the trap. This method can also be elevated to increase success of capturing certain species. E-Z catch nets are similar to bow nets except that they have a treadle/trigger that is set off by the animal.

Drop nets are nets suspended over a pre-baited site and manually or remotely triggered to drop on target animals. Decoys (live and/or fake) may also be used to enhance the effectiveness of drop nets. Drop nets require specific knowledge of the targeted species' congregation locations and timing to be effective. CDFA/County wildlife specialists would first monitor the pre-baited site and when the target species is in the correct location under the nets, and then activate the net from a nearby location, quickly securing the target wildlife to prevent escape.

Hand nets are used to catch birds in confined areas (e.g., buildings). Most hand nets resemble fishing dip nets with soft netting of various grids and diameters mounted on a long handle. A variation of the hand net is a round net with weights at the edges of the net. It is thrown and is like throw nets used for fishing. Hand nets are a species-specific, live-capture technique.

Mist nets are more commonly used for capturing small-sized birds but can be used to capture larger birds such as ducks and ring-necked pheasants or smaller hawks and owls. Mist nets are fine silk or nylon nets, usually black or tan in color, and range from 3 to 10 feet wide and 25 to 35 feet long. Net mesh size determines the species of birds that can be caught. They are strung between poles in locations where the target birds are known to travel (i.e., along a stream, across an opening in a wooded area) so that the nets form loose pockets. When the bird flies into the nets they are caught up in the pockets. Mist nets can also be used in doorways. Mist nets are monitored by personnel and birds are removed promptly.

Dho-gazza traps employ larger gauge mist nets that are strung between poles with a lure animal placed inside of the nets to attract the target species to the trap. The mist nets are set to breakaway and thus wrap the raptor up in the net. This trap is most often used to capture northern harriers.

Net guns/launchers use a firearm blank or compressed air to propel a weighted net up over birds, which have been baited to a particular site or habituated to the close proximity of human presence.Net guns are handheld and manually discharged while net launchers are ground based and remotely discharged from a nearby observation site.

Padded-jaw foot-hold traps altered for birds. (Full padded-jaw foot-hold description can be found in the Mammalian Methods section). Modified Padded-jaw foot-hold traps can be used for avian species. For avian species the factory supplied springs are weakened or replaced to decrease the amount of pressure, and either surgical tubing or foam is

added for extra padding. These traps are placed where target birds have been observed perching on the ground. The trap is anchored so that the captured bird cannot leave the location.

Pole traps (Verbail or modified padded-jaw foot-hold traps) are traps on the top of a pole and are primarily used to capture raptors. "Pole traps are live traps that can be effective and humane tools for alleviating certain problems caused by raptors" (USFWS 2005). Depending on the species being trapped, the modified padded-jaw foot-hold trap size, pole height, trap placement, and trap location are all taken into consideration by wildlife specialists prior to setting. The padded-jaw foot-hold trap is highly modified with the original springs either replaced or weakened in addition to having off-set jaws, and either surgical tubing or foam rubber securely attached to the already rubberized jaw for extra padding. Traps are attached to a guide rod or thick wire that runs from the trap down the pole to the ground. Once an animal is captured, the trap and raptor slide down the guide to the ground for handling. A Verbail trap consists of a platform or stand wrapped with a nylon cord and associated steel spring placed on top of a pole. When tripped, the cord wraps around the bird's foot and holds it. The steel spring is attached to a guide wire which allows the trap to slide down the pole to the ground.

Bal-chatri traps (BC traps) consist of a small wire cage with monofilament nooses attached to the top and sides of the trap. The monofilament test line (ranging from 8.25-pound test fishing line) and noose size will vary depending on the size of the target species. The trap is baited with a mouse and/or other live bait depending on the size of the target species; the lure animals are protected inside the trap from the target species. Cages are generally constructed of ½ inch wire hardware cloth and may be 2-3 inches tall and 10-14 inches square. A 2 to 4 pound weight (such as large fishing weights or bench press weights) are attached to the trap to prevent the raptor from moving the trap once it is caught. These traps would be deployed in the line of sight of the target raptor and would be constantly monitored by wildlife specialists.

Phai hoop traps have a circular shape and have many upright nooses placed all along its circumference. A lure animal is placed in the center of the hoop. The trap is deployed within sight of a raptor, similar to a BC trap. As the raptor extends its legs to grab the lure, it becomes ensnared by the hoop's nooses.

Pigeon harnesses are a piece of leather or heavy material that fits onto lure bird such as a pigeon or starling like a backpack and allows the lure bird its full range of motion. Heavy weight monofilament line tied into sliding nooses are attached to the backpack and a ground anchor or weight is attached to secure everything to the ground. The pigeon harness is deployed similarly to the BC trap and the nooses that are attached to the harness catch on the targeted raptor's talons, toes and/or feet. This method is effective at capturing peregrine falcons; it is constantly monitored and only used when a target raptor is present.

Funnel traps are used to live-capture waterfowl. The traps can vary in size and are usually constructed of netting or wire mesh. Traps are set up in shallow water and baited; they allow waterfowl to enter the trap but prevent them from exiting. Traps would be checked regularly to address live-captured waterfowl.

Nest box traps are effective in capturing cavity nesting birds, such as European starlings, and operate similar to other live-capture traps. Nest box traps allow birds to enter a nest box, but not exit.

Nest/walk-in traps are similar to box or decoy traps. They are placed over an active nest or baited with food and allow the target bird to pass through a funnel, one-way, or drop-down door that confines the target. Nest and walk-in traps are effective in capturing ground nesting birds such as cormorants, ducks, geese, and ground feeding birds such as rock pigeons and mourning doves.

Swedish goshawk traps are compartment-style traps with a lower bait cage that houses a lure animal. The upper compartment is a trapping mechanism that consists of an "A" frame made of wood or metal along with a trigger that is mounted atop the bait cage. The side panels are generally made of mesh wire or netting. The sides of the "A" are hinged so that the sides are held open in a "H" shape by a trigger that stretches the length of the trap. The trigger mechanism is hinged in the middle. As a raptor enters the trapping mechanism to investigate the lure in the bait trap, it lands on or brushes against the trigger, which collapses and allows the sides to close back into an "A" shape trapping the raptor inside (Meng 1971; Kenward et al. 1983). The doors are held closed by springs. The bait cage can hold multiple lure animals to increase movement and/or visibility of the trap. Lure animals are provided with food and water while in the bait cage.

Cage traps are non-lethal capture devices. The size of the cage trap depends on the size of the targeted species; this helps limit the capture of non-target species by physically excluding them from the trap. Traps are set near signs of damage or in areas where the target species is known to travel and are usually baited with species-specific baits. Cage traps set by wildlife specialists would be checked daily. Cage traps are typically set with a bait or lure to encourage the target species to enter the trap. Baits can be chosen to be selective for target species. A trigger mechanism usually located at the back of the trap is triggered by the animal and the trap closes. The animal is enclosed in the trap and held until it is subsequently released or euthanized. Because the animal is held alive, if a non-target animal is captured, it can usually be released unharmed.

Box traps are similar to cage traps. They are rectangular in shape and either have a door that is triggered when an animal steps on a treadle or is a one-way door. The trap is baited with a food item that encourages the animal to walk through the door or the bait is placed in the expected path of the animal to lure it towards the trap.

Decoy traps are similar in design to the Australian Crow Trap as reported by McCracken (1972) and Johnson and Glahn (1994). Decoy traps are commonly rectangular, and they are generally constructed of a wooden or metal frame and wire mesh or netting to form an enclosure, which can be constructed in a variety of sizes, depending on the target species and the number of birds likely to be captured. Sides go up above the middle panel with the funnels and have perches to encourage birds to stay above the funnels, so they do not try to escape. Decoy traps used by wildlife specialists would target social flocking bird species such as crows, starlings, house sparrows and blackbirds. Live decoy birds of the same species being targeted are usually placed in the trap with sufficient food and water to assure their survival. Perches are configured in the trap to allow birds to roost above the ground and in a more natural position. The feeding behavior and calls of the decoy birds attract other target birds to the trap. In addition, the traps are often baited with food attractants. Openings in the enclosure allow target birds to enter the enclosure to feed on the bait. Openings are generally placed at the top of the enclosure and are generally about the length and width of target bird species with their wings folded so birds can enter but are unable to exit with their wings extended as they are flying upwards toward the openings. Active decoy traps are monitored daily to address captured birds and to replenish bait and water. Depending on design, decoy traps can be portable or permanent. Portable decoy traps generally consist of several parts and panels that require assembly once transported to a location where target animals are active.

Corral traps could be used to live-capture birds, especially waterfowl. Corral traps can be effectively used to live-capture waterfowl during the annual molt when birds are unable to fly. Each year for a few weeks in the summer, waterfowl are flightless as they are growing new flight feathers. This method consists of setting up an enclosure with an open end consisting of several movable panels. The birds are then surrounded by personnel and slowly guided into the corral trap and the panels are closed behind them. This method is labor intensive and requires multiple individuals to participate in the drive.

4.1.4 Lethal Methods

Water spray – see description above in avian harassment and deterrent methods. This method can be lethal to chicks and eggs when used on active nests. A MBTA depredation permit is required to use this method on active nests.

Shooting. Licensed firearms are used to selectively remove individual target animals. Shooting is a very targeted method, and a properly placed gunshot can cause immediate insensibility and a humane death (AVMA 2020). As needed, wildlife specialists may kill animals as quickly and humanely as possible; under some conditions a gunshot may be the only practical method of euthanasia (AVMA 2020). All applicable firearm safety precautions, laws, and regulations governing the use of firearms shall be followed by wildlife specialists when conducting WDM activities. Firearm safety training shall be required prior to use of this approach. The National Rifle Association (NRA) certified instructors and the NRA's curriculum for the basic pistol, rifle, and shotgun certifications are the officially recognized program for firearms safety training. CDFA/Counties would be required to periodically receive updated trainings. Wildlife specialists may use firearms in combination with other WDM techniques and/or modifications listed below.

- ***Calling*** consists of using voice, mouth, handheld, or electronic calls to draw predators into the area. Calling is often used to draw the target species into firearm range.
- ***Night shooting*** may be conducted with spotlights or night vision devices. Night vision devices are undetectable to the surrounding environment. Spotlights are high intensity lights that are used to identify and cause the target species to temporarily pause its movements and/or flush when exposed for a length of time.
- ***Non-lead (non-toxic) ammunition.*** Effective July 1, 2015, California state law (AB711) and subsequent regulations promulgated by the California Fish and Game Commission require the use of nonlead ammunition in a phased approach when taking wildlife for recreation or depredation purposes. Effective July 1, 2019, nonlead ammunition is required for the taking of any wildlife for any reason. More information on the regulations and phased approach can be found at https://www.wildlife.ca.gov/Hunting/Nonlead-Ammunition.
- ***Suppressors.*** Firearms create high intensity sound for short durations. When possible, and without reducing the effectiveness of the methods, CDFA/Counties may use suppressors (silencers) and specific ammunition (subsonic) to minimize the audio report of firearms. Suppressors and subsonic ammunition are most often used with rifles. Shotguns cannot always be suppressed without affecting shot pattern and/or shooting accuracy.

Carbon dioxide (CO2) is sometimes used to euthanize birds that are captured in live traps. Live birds are placed in a container, such as a plastic 5-gallon bucket, or chamber that is then sealed shut. Carbon dioxide gas is released into the bucket or chamber and birds quickly die after inhaling the gas. This method is approved as a euthanizing agent by the American Veterinary Medical Association (AVMA) (AVMA 2013). Carbon dioxide gas is a byproduct of animal respiration, is common in the atmosphere, and is required by plants for photosynthesis. It is used to carbonate beverages for human consumption and is the gas released by dry ice.

Avicides. No avicides shall be directly used by CDFA/Counties wildlife specialists as part of the CDFA WDM Program. Use of DRC-1339 is limited to WDM activities carried out by WS-California wildlife specialists. CDFA/Counties may participate through cooperation or funding.

DRC-1339 is a slow acting avicide that is registered with the U.S. Environmental Protection Agency (EPA) for use on a number of bird species (e.g., ravens, crows, pigeons, gulls, blackbirds, and European starlings), and on various bait carriers, such as grain, meat baits, eggs, sandwich bread, and French fries. DRC-1339 is only available for use in

California under WS-California supervision. DRC-1339 was developed as an avicide because of its differential toxicity to mammals. DRC-1339 is highly toxic to sensitive bird species but only slightly toxic to non-sensitive birds, predatory birds, and mammals. Most bird species that are responsible for damage, including but not limited to starlings, blackbirds, pigeons, crows, magpies, and ravens, are highly sensitive to DRC-1339. Many other bird species such as raptors (Schafer 1981), sparrows, and eagles are classified as non-sensitive. Secondary poisoning has not been observed with baits treated with DRC-1339. Numerous studies show that DRC-1339 poses minimal risk of primary poisoning to non-target species and T&E species (EPA 1995). This can be attributed to relatively low toxicity to species that might scavenge on birds killed by DRC-1339 and DRC-1339's tendency to be almost completely metabolized in the target birds, which leaves little residue to be ingested by scavengers. Secondary hazards of DRC-1339 are almost non-existent. DRC-1339 acts in a humane manner, producing a quiet and apparently painless death.

DRC-1339 is unstable in the environment and degrades rapidly when exposed to sunlight, heat, or ultraviolet radiation. The half-life is about 25 hours, which means it is nearly 100% broken down within a week, and identified metabolites (i.e., degradation chemicals) have low toxicity. DRC-1339 is highly soluble in water, but does not hydrolyze, and degradation occurs rapidly in water. DRC-1339 tightly binds to soil and has low mobility.

Studies continue to document the effectiveness of DRC-1339 in resolving blackbird/starling problems at feedlots (e.g., West and Besser 1976) and dispersing crow roosts in urban/suburban areas (e.g., Boyd and Hall 1987). Glahn and Wilson (1992) noted that grain baiting with DRC-1339 is a cost-effective method of reducing conflicts with blackbirds and sprouting rice.

Active nest destruction is a dispersal technique used to encourage adult birds to leave the area after their nests and eggs are destroyed. In addition to dispersing birds, this method may also reduce the aggressive nature of adult birds during the nesting period. For birds protected under the MBTA, the USFWS permits "active nest destruction" only under the issuance of a depredation permit. This control method is target-specific, with very little chance for the take of non-target species.

Egg addling/oiling are methods of suppressing reproduction in local predating bird populations by destroying egg embryos prior to hatching. Egg addling is conducted by vigorously shaking an egg numerous times, causing detachment of the embryo from the egg sac. Egg oiling is a method for suppressing reproduction of predating birds by placing a small quantity of food grade corn oil on eggs in nests. The oil prevents exchange of gases and causes asphyxiation of developing embryos and has been found to be 96-100% effective in reducing hatchability (Pochop, Cummings, Steuber et al. 1998; Pochop, Cummings, Yoder et al. 1998). The EPA has ruled that use of corn oil for this purpose is exempt from registration requirements under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). To be most effective, the oil should be applied anytime between the fifth day after the laying of the last egg in a nest and at least five days before anticipated hatching. Egg addling and oiling is different than nest destruction in that the incubating birds generally continue incubation and do not re-nest. Egg addling and oiling are only done after positive identification of the nesting species, as such this method is extremely target specific and poses no threat to non-target species.

Snap traps are common household rat or mouse traps usually placed inside structures. Modified snap traps can be used to remove individual European starlings and other cavity nesting birds. These traps are sometimes used to target species-specific offenders entering small cracks where other types of traps will not fit. The trap treadle is placed near the damaged area caused by the offending bird. Positive species identification and monitoring of species activity around the entry point limit the take of non-target species.

Physical Euthanasia methods include shooting, cervical dislocation, decapitation, and stunning. When properly used by skilled personnel, AVMA states that physical methods of euthanasia may result in less fear and anxiety and be more

rapid, painless, humane, and practical than other forms of euthanasia. Shooting may be the quickest and only method available under most field conditions. Manual euthanasia methods may be used to euthanize small birds, rodents and reptiles in limited circumstances as acceptable to AVMA. All euthanasia methods should be performed discretely by properly trained personnel to minimize stress to the animal (AVMA 2020).

4.2 Mammalian Species Methods

4.2.1 Physical Exclusion

Physical exclusion refers to the separation of damage causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM.

Barrier fencing – see description in technical assistance.

Electric fencing – see description in technical assistance.

Tree protectors and sheathing – see description in technical assistance.

Chemical applications/tactile/taste repellents – see description above in technical assistance.

Surface coverings – see description above in technical assistance.

One-way Door Excluders – see description in avian physical exclusion.

4.2.2 Harassment and Deterrent Methods

Pyrotechnics – see description above in technical assistance.

Water spray – see description above in technical assistance.

Lasers – see description above in technical assistance.

Scarecrows and effigies – see description above in technical assistance.

Eye-spot balloons and mylar strips and balloons – see description above in technical assistance.

Vehicles – see description above in technical assistance.

Dogs – see description above in avian harassment and deterrent methods.

Rubber bullets/beanbag rounds may be used to harass or disperse wildlife causing damage or wildlife in proximity to people. This hazing may resolve or prevent human/wildlife interaction.

Fladry/Turbo fladry may be used to discourage deter wolves from entering an area. Fladry is a single strand of polyline with flagging attached (Young et al. 2015). Turbo fladry is electrified as in an electric fence. The key to fladry is that it is most effective when it is installed to be highly visible (UCCE 2019). Since turbo fladry is electrified, it tends to be effective longer (Lance et al. 2010); for example, when a wolf tests the fladry it is shocked. Wildlife specialists may provide guidance and/or assist land or resource owners/managers with the installation of fladry or turbo fladry. Fladry

and turbo fladry are temporary alterations to habitat. Turbo fladry may provide livestock owners' temporary relief (Davidson-Nelson and Gehring 2010) and is probably only effective for a timeframe measured in months (UCCE 2019). It is recommended that once livestock are moved or wolf activity at the site decreases, that the turbo fladry be removed.

4.2.3 Capture Methods

Box traps – see description above in avian methods.

Net guns/launchers – see description above in avian methods.

Hand nets – see description above in avian methods.

Cage traps see additional description above in avian methods. Cage traps used to capture mountain lions are typically constructed of commercial livestock panels made of 3/16-inch galvanized welded rods. The top, sides, front, and bottom panels are welded together, and panel openings are approximately 2-inch x 4-inch. These cage traps may have a treadle-type trigger or trip line and a single-catch, multi-catch, or gravity door.

Large cage traps can be used to capture bobcats and feral dogs. For the purposes of this description, large cage traps are larger than 12-inch x 12-inch x 36-inch, but they do not include culvert traps (see below). Large cage traps vary in size and shape depending on the species being targeted. Bobcat or dog-size cage traps are made of welded wire, utilize a treadle-type trigger or trip line system and close with a spring or gravity door.

Cage traps measuring 12-inch x 12-inch x 32-inch and smaller are typically used to capture smaller animals (e.g., the size of a raccoon). They are often set in urban areas to capture meso-mammals such as raccoons and skunks that are causing damage. While many cage traps are welded wire style traps, some small cage traps are constructed from a tube or a plastic box. The trap functions in a similar way to the more common welded wire style traps.

Clover traps are a type of box trap used to capture deer. They measure approximately 4 feet (height) x 3 feet (width) x 6 feet (length) and are comprised of metal tubing frame covered with a heavy netting. Bait is put at the back of the trap behind a trigger line. When the animal trips the string, the door is released and closes. Some modified designs allow the trap to be collapsed by handlers when the deer is captured to facilitate restraint of the deer and minimize struggling.

Culvert traps are a type of trap constructed of solid material as opposed to welded wire or livestock panels used in large cage traps. They have differing trigger systems but usually utilize swing doors and are often on a wheeled platform or trailer for transport. This type of trap can be used for black bears that are in urban/suburban settings, although they can also be used in rural areas and for other species. Due to the size and weight of most culvert traps, they are primarily restricted to use near roadways, although models exist that may be disassembled and reconstructed in remote areas. The type of bait used depends on the nature of the damage problem and target species. All culvert traps would be checked daily. Non-target animals are generally released uninjured, and target animals are usually euthanized or relocated as appropriate and when authorized by the CDFW.

Corral traps are used to live-capture mammals, primarily feral swine. Corral traps are circular pens 3 to 10 meters in diameter and constructed of panels or cattle fencing, which can be interconnected to expand or contract the size of the corral. Corral traps employ a lift up or side swing head gate or drop-down net to allow access for the feral swine to enter.

Pig brig traps are a circular trap of netting supported by t-posts. After a period of time during which the net is suspended above the ground so that pigs can go in and out of the area and eat bait, a net skirt is attached to earth anchors on the inside of the trap. Pigs are still able to nose their way under the skirt and into the trap, however they are prevented from exiting. This trap allows for multiple captures of animals.

Snares made of wire or cables are among the oldest wildlife management tools and are generally not affected by inclement weather. They can be used effectively to catch most species. Snares may be employed as either lethal or live-capture devices depending on how or where they are set. Most snares are also equipped with a swivel to minimize injuries to the captured animal and reduce twisting and breakage of the snare cable. Breakaway devices can also be incorporated into snares, allowing the loop to break open and release the animal when a specific amount of force is applied. These devices can improve the selectivity of cable restraints to reduce capture of non-target species.

Common types of snares include:

- Neck snares are set to capture an animal by the neck and are usually lethal, but stops can be applied to the cable to make the snare a live-capture device. Snares positioned to capture the animal around the body can be useful live-capture devices. Snares can be effectively used wherever a target animal moves through a restricted lane of travel (i.e., "crawl holes" under fences, trails through vegetation, or den entrances). When an animal moves forward into the loop formed by the cable, the snare tightens, and the animal is held.
- Collarum™ is a non-lethal, spring-powered, modified neck snare device that is primarily used to capture coyotes. The trigger is designed specifically for canines, which use a distinct pulling motion to set off the device. The device uses an attractant and is activated when an animal bites and pulls a cap. The snare is then projected from the ground up and over the head of the coyote. A stop on the device limits loop closure and prevents capture of smaller non-target wildlife. As with other types of snares, the use of the Collarum™ device to capture coyotes is greatly dependent upon finding a location where they frequently travel.
- Foot snares are a spring-powered non-lethal device, activated when an animal places its foot on the trigger pan. In some situations, using hanging snares to capture wildlife is impractical due to the behavior or morphology of the animal, or the location of wildlife conflicts. Neck snares must be set in locations where the likelihood of capturing non-target animals is minimized, but foot snares with built-in pan tension devices can be set to exclude animals lighter than the target animal.
- Foot snares set for bear are usually set with the trigger in a vertical pipe, large enough for a bear's paw, buried vertically, so that the top is flush with the ground. The cable loop is placed around the circumference of the pipe, and bait is placed in the pipe, under the trigger. When the animal reaches into the pipe, it sets off the trigger and a cable loop is propelled onto the animal's leg.

Catch poles are handheld devices used to capture or safely handle animals. A catchpole is a hollow pipe with an internal cable or rope that forms an adjustable noose at one end. The free end of the cable or rope extends through a locking mechanism on the end opposite of the noose. By pulling on the free end of the cable or rope, the size of the noose is reduced sufficiently to hold an animal. For WDM, catch poles are primarily used to capture animals partially restrained by barriers (i.e., a raccoon trapped in a building) or to remove live animals from traps without danger to or from the captured animal.

Suitcase or basket traps are designed to live-capture beaver. The traps are constructed of a metal frame hinged with springs and covered with chain-link fence. When set, the trap is opened to allow an animal to enter and when tripped, the metal frame closes like a suitcase around the animal. These styles of traps are set in the shallows of waterways (i.e., ponds, rivers, creeks, lakes, etc.) near or on the shoreline or bank so that a captured beaver would always have access to air. They are not set underwater where a triggered trap would be totally submersed in water. Basket-type

traps are live-capture traps that would be checked daily by wildlife specialists, the land or resource owners/managers, or their designated agent. These traps are primarily used in rural or restricted access areas but can be set in urban areas if they do not present a hazard to pets (companion animals) or children.

E-zee set or gravity catch traps consist of a welded metal frame fitted with a front grate, wide mesh, and pressure trigger. These traps are set on or near beaver dams where water can flow through the grate. When a beaver brings material to plug the flowing water, the top of the trap is released and drops to surround the animal. These traps have no springs and are considered safer for public access areas.

Padded-jaw foot-hold traps are coil spring traps with rotating jaws. They have centrally attached inline shock springs, swivels to allow for movement, and are equipped with non-hardening rubber on the face of the jaw. These traps come in several sizes depending on the target species. Padded-jaw foot-hold traps are designed to close on an animal's foot and hold the animal without injuring it. They have adjustable pan tension triggers which allow the exclusion of animals smaller than the target species. These traps can be used for live-capture and release or hold for subsequent euthanasia. Padded-jaw foot-hold traps usually permit the release of non-target animals unharmed.

Padded foot-hold traps can only be used in California for the protection of public safety and of T&E species. (In *Nat. Audubon Society v. Davis* (N.D. Cal. 2000) 144 F. Supp. 2d 1160, the United States District Court for the Northern District of California held that Section 3003.1(c) of the California Fish and Game Code, which generally prohibits the use of any steel-jawed leghold trap except when necessary to protect human health or safety, did not apply to federal agencies engaged in wildlife management on federal lands or in conservation efforts under federal law, including the protection of T&E species.) Target animals may be euthanized, released on site, or relocated; non-target species may be released on site.

These traps are placed in the travel paths of target animals, and some are baited or scented, using an olfactory attractant, such as the species' preferred food, urine, or musk/gland oils. The use of baits also helps to facilitate the prompt capture of target predators. This often decreases the total time traps are in the field, thereby lowering risks to non-target animals. In some situations, a draw station—a carcass, or large piece of meat—is used to attract target animals. In this approach, one or more traps are placed in the vicinity of the draw station.

Padded-jaw foot-hold traps set for mountain lions, bobcats, coyotes, and feral dogs are set with dirt or debris (e.g., leaf litter or rotting wood) sifted on top. The traps can be staked to the ground securely, attached to a solid structure (such as a tree trunk or heavy fence post), or used with a drag that becomes entangled in brush to prevent the trapped animal from escaping. Anchoring systems should provide enough resistance that if a larger animal is unintentionally captured, it should be able to either pull free from the trap or be held to prevent escaping with the trap on its foot.

Effective trap placement also contributes to trap selectivity. To minimize risk of capturing non-target animals, the user must be experienced and consider the target species' behavior, habitat, environmental condition, and the habitats of non-target animals. The pan tension, type of set, and attractant used greatly influence both capture efficiency and risks of catching non-target animals. The level of trap success is often determined by the ability of the user, through training, skill, and experience, to adapt the trap's use for specific conditions and species. Traps would be checked daily and are required to follow state laws and regulations regarding the setting and checking of traps.

Trained dogs/hounds are used to trail certain species, identify sites to set equipment where target wildlife might be travelling, to tree specific species of wildlife for capture or removal, and as a decoy to draw target species closer for shooting activities.

- ***Decoy dogs*** are sometimes used to lure coyotes within shooting distance. These dogs are kept under control of personnel and are unlikely to interact with wildlife.
- ***Detection dogs*** are used to identify sites where equipment may be effective by indicating where mountain lions, bears, coyotes, or other predators have traveled, urinated, or defecated. They are kept under the control of personnel and are unlikely to interact directly with wildlife.
- ***Trailing dogs*** can be used to trail mountain lions, bobcat, feral swine, and black bears. Dogs can be trained to find and follow the scent of the target species. Typically the dogs are tracked with GPS collars and stay with the animal until wildlife specialists arrive and then anesthetize, dispatch, or release it, depending on the situation. Dogs are trained to ignore the scents of non-target species.

Telemetry is the monitoring of radio signals sent from a device attached to an animal to monitor an animal's movements or location. The attachment of the transmitter requires the capture and either chemical or physical restraint of the individual. The transmitter is usually a collar (in the case of mammals) or a backpack (in the case of birds). Personnel monitor the receiver on foot, in a ground vehicle, or in an aircraft.

Chemical immobilization is the use of drugs such as telazol (a combination of tiletamine and zolazepam) and ketamine/xylazine to restrain wildlife to allow for activities such as collaring and sample collection. This process can be dangerous both for personnel and the animal and requires training and experience.

These immobilizing agents produce central nervous depression through various means and render the animal unconscious. They are delivered to the target animal with a dart gun, blow gun, or syringe pole depending on the circumstances and the species being immobilized. If the agents are delivered via a dart, the dart is retrieved if possible. Often, the animal is typically treed with dogs or physically restrained by a trap and then the drug is delivered to the animal.

Once the procedures are completed the animal is monitored until it has recovered. For some of the immobilizing drugs, this means allowing the drugs to work through the animal's system. For others, there are antagonists that can be given that reverse the effects of the immobilizing drug such as yohimbine for xylazine.

4.2.4 Lethal Methods

Lethal methods are often most appropriately used by trained and wildlife specialists. Licensed firearms are often used in conjunction with non-lethal methods to attract the animal to an area or to capture the animal and hold it until personnel arrive. Methods used to attract or capture predators prior to lethal removal by firearm can include calling, trained dogs, cage traps, foot/leg snares, padded-jaw foot-hold traps, and body-grip traps.

Shooting – see description above in avian methods.

Neck snares – see description above in mammalian capture methods.

Carbon Dioxide – see description in avian methods.

Aerial WDM operations would not be carried out by CDFA/Counties. Use of aircraft for WDM in California would be limited to WS-California activities. CDFA and Counties may participate in this activity through cooperation or funding. Refer to Appendix C-1.

Aerial Operations. Aircraft, both fixed-wing and rotary-wing (helicopters) are used by WS-California to remove coyotes or pigs. The most frequent aircraft used for aerial shooting and hazing is the fixed-wing aircraft Piper PA-18 Super Cub

and Cub Crafters CC-18 Top Cub and rotary-wing Hughes MD500. WS-California conducts aerial activities on areas only under signed agreements or federal Annual Work Plans and concentrates efforts to specific areas during certain times of the year.

Aerial shooting consists of visually sighting target animals in the problem area and shooting them with a firearm from an aircraft. Aerial shooting is species-specific and can be used for immediate damage relief, providing that weather, topography and ground cover conditions are favorable. Aerial shooting can be effective in removing offending animals that have become trap-shy or are not susceptible to calling and shooting or other methods. This method may also be used proactively to reduce local coyote predations in lambing and calving areas with a history or predation.

Fixed-wing aircraft are useful for aerial shooting over flat and gently rolling terrain. Because of their maneuverability, helicopters have greater utility and are safer over timbered areas or broken land where animals are more difficult to spot. Aerial shooting typically occurs in remote areas with low densities of tree or vegetation cover, where the aerial visibility of target animals is greatest. WS-California spends relatively little time flying and shooting over any one area.

Wildlife Services Directive 2.620 and Wildlife Services aircraft-use policy help ensure that aerial shooting is conducted in a safe and environmentally sound manner, and in accordance with federal and state laws (USDA 2020). State Directors and District Supervisors are responsible for the supervision, management, and compliance for all aviation activities within California, and all aircraft used in WS-California activities through contract, agreement, or volunteer shall have been approved by the office of the Wildlife Services National Aviation Coordinator. Wildlife Services Directive 2.615 guides all Wildlife Services shooting activities (USDA 2020). All efforts are conducted in strict compliance with the Wildlife Services Aviation and Safety Manual, the Federal Aviation Regulations, the Fish and Wildlife Act of 1956 (Airborne Hunting), any applicable State and local laws and regulations, WS-California Aviation Safety Plan, Aviation Communication Plans, and Aviation Emergency Response Plans.

Wildlife Services has an Aviation Training and Operations Center located in Cedar City, Utah. Its mission is to improve aerial operations safety and provide training and guidance for Wildlife Services aviation personnel and aerial activities. The policy and primary focus of WS-California and contract aviation personnel is ensuring well-being through safety and accident prevention efforts. Pilots and aircraft must be certified under established WS-California procedures. Only properly trained WS-California employees are approved crewmembers. Ground crews are often used with aerial operations for safety and for providing assistance with locating and recovering target animals.

Body grip traps (also known as quick-kill traps) can be used to lethally remove beaver and ground squirrels. The body-grip trap is lightweight, easily set, and consists of a pair of rectangular wire frames that close when triggered, killing the captured animal with a quick body blow. Body grip traps are lethal to both target and non-target animals. Body grip traps set for beaver may be used in both urban and rural areas and set location is used to preclude non-target animals from capture.

Snap traps are common household rat or mouse traps. These traps are often used to collect and identify rodent species that cause damage so that species-specific management tools can be applied. If an infestation is minor, these traps may be used as the primary means of management.

Gas cartridges are fumigants used to reduce burrowing wildlife damage. The cartridges are placed in the active burrows of target animals, the fuse is lit, and the entrance is then tightly sealed with soil. The gas cartridges contain two active ingredients, sodium nitrate and charcoal, and once ignited the main combustion product is carbon monoxide. The gas cartridge ingredients are stable in light and are natural plant nutrients. No secondary hazards exist with burrow fumigants because the gases rapidly dissipate (Witmer and Fagerstone 2003). If soils are too porous or too dry, too much gas escapes the burrow system before lethal concentrations are reached (Witmer and Fagerstone 2003). Use of gas cartridges would only be used by qualified wildlife specialists who have been trained to distinguish

dens and burrows of target species from those of non-target species and not in occupied habitats of T&E species as per listed on label.

Euthanasia solution contains two active ingredients (sodium phenytoin and sodium pentobarbital) which are chemically compatible but pharmacologically different. Sodium pentobarbital produces rapid anesthetic action followed by a smooth and rapid onset of unconsciousness. When administered intravenously, sodium phenytoin produces toxic signs of cardiovascular collapse and/or central nervous system depression; hypotension occurs when the drug is administered rapidly. Sodium phenytoin exerts its effects during a deep anesthesia stage caused by sodium pentobarbital. Sodium phenytoin, due to its cardiotoxic properties, hastens the stoppage of electrical activity in the heart, causing a cerebral death in conjunction with respiratory arrest and circulatory collapse. Cerebral death occurs prior to the cessation of cardiac activity. This sequence of events leads to a humane, painless, and rapid euthanasia according to a manufacturer (Schering-Plough). Vet-One Euthanasia solution®, Beuthanasia®-D, and Euthasol® are regulated by the Drug Enforcement Agency (DEA) and the FDA for rapid and painless euthanasia of dogs, but legally may be used on other animals if the animal is not intended for human consumption. All carcasses would be properly disposed of to avoid secondary contact with other target and non-target species.

Physical Euthanasia methods – see description above in avian methods.

4.3 Reptilian Methods

Grid searches are performed for the purpose of locating and removing reptiles (snakes) that predate on protected ground nesting birds. Grid searches involve 1-3 personnel walking in formation a few feet apart (vegetation dependent) through an affected area to search for reptiles. Because this is performed at the request of a management agency to protect T&E species in response to reptilian predation within nesting habitat, wildlife specialists would work closely with land and resource owners/managers to ensure that this technique disturbs the protected species as little as possible. Once reptiles are located, they are captured by hand and euthanized.

Funnel traps are a conical funnel that have at least one access lid or door. The funnel trap is placed on the ground along a naturally occurring linear object or drift fencing (see below). The trap is designed to allow reptiles to enter the trap through the funnel and then confuses the animal once inside making it difficult for the animal to escape the trap. The traps are unselective, but a live mouse can be used as bait to increase their attractiveness to reptilian predators. Funnel trapping can be an efficient sampling technique, although the literature is ambivalent about the relative performance of pitfall[5] (e.g., Vogt and Hine 1982; Enge 2001) versus funnel traps (e.g., Greenberg et al. 1994; Jorgensen et al. 1998) (Ribeiro-Junior et al. 2008). When evidence of reptiles is observed, funnel traps are placed on the borders of the area to be protected to intercept foraging reptiles prior to entering the nesting area.

Tube traps are long cylindrical tubes of PVC or clear rigid plastic tubing capped at one end. Tube traps are usually used in concert with drift fencing. Tube traps are typically not baited. When evidence of reptiles are observed, tube traps are placed on the borders of the area to be protected to intercept foraging reptiles prior to entering the nesting area.

Drift fencing acts as a vertical barrier that blocks the movement of animals across the landscape. There are multiple variations of drift fencing dependent on habitat and target species, it can use plastic mesh or netting attached to wooden stakes. Drift fencing typically guides animals toward a pitfall bucket, funnel trap, or other capture device (Willson and Gibbons 2009). Drift fencing is effective in capturing reptiles. Drift fencing could be used on the outside of a colony or nest area to intercept reptilian predators attempting to access the area.

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5 Pitfall traps can be used along drift fences, where target predators fall into a buried pit (container).

Physical Euthanasia methods – see description above in avian methods.

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Attachment C: Mitigation Monitoring and Reporting Plan

MITIGATION MONITORING AND REPORTING PROGRAM

Project:	California Wildlife Damage Management Project (SCH No. 2020099012)
Date:	August 2024

1 Introduction

This document is the Mitigation Monitoring and Reporting Program (MMRP) for the California Wildlife Damage Management Project (Proposed Project/Proposed Action). This MMRP has been prepared pursuant to Section 21081.6 of the California Public Resources Code, which requires public agencies to "adopt a reporting and monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment." An MMRP is required for the Proposed Project/Proposed Action because the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) has identified significant impacts and measures have been identified to mitigate those impacts.

The mitigation strategies described below are for program-level decisions and are to be used to avoid, minimize, or reduce any potentially significant environmental impacts. Project-level (County) activities will undergo future environmental analysis as required by the California Environmental Quality Act (CEQA), tiering from the EIR/EIS. As part of these second-tier environmental reviews, the lead agency for each of these projects will use the mitigation strategies identified in the program document as starting points to determine their applicability to a specific project and to develop additional mitigation measures for significant adverse impacts identified in the project-specific analysis. Because all the potential actions and impacts for tiered projects cannot be anticipated at a programmatic level, each project needs to select those strategies applicable to the impacts associated with the specific location and type of action. For purposes of CEQA, the mitigation strategies in the Final EIR/EIS also serve as mitigation measures at a programmatic level.

2 Format of Mitigation Monitoring Matrix

The MMRP, as outlined in the following table, describes mitigation timing, monitoring responsibilities, and compliance verification responsibility for all mitigation measures identified in the EIR/EIS. The MMRP is presented in tabular form on the following pages. The components of the MMRP are as follows:

- Mitigation Measures: Identifies the measure(s) required to mitigate impacts.
- Implementation Responsibility: Identifies the party that is responsible for implementation of the mitigation measure.
- Monitoring Responsibility: Identifies the party that is responsible for mitigation monitoring.
- Mitigation Timing: Identifies at which stage of the project mitigation must be completed.

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
Biological Resources			
MM-BIO-1 Wildlife species designated as "Fully Protected" under California Fish and Game Code Sections 3511, 4700, 5050, and 5515 shall not be taken or possessed unless authorized by the CDFW. This exclusion does not apply when such species pose an imminent threat to human health and safety (e.g., potential collision with aircraft); however, non-lethal measures shall be considered before selecting the option of lethal WDM for Fully Protected species.	WS-California wildlife specialists, Counties	CDFA	During WDM activities
MM-BIO-2 Lethal removal of mountain lion in counties where the species is listed under the California Endangered Species Act would only occur under the following circumstances: ▪ The subject mountain lion has been designated by a law enforcement official as an imminent threat to public health or safety. ▪ A depredation permit has been issued by CDFW.	WS-California wildlife specialists, Counties	CDFA	During WDM activities
MM-BIO-3 Minimize the activity area of WDM to the extent feasible by coordinating with land managers and landowners, placing equipment primarily on previously disturbed sites, using vehicles on existing roads and trails to the extent practicable, and avoiding entering wetland areas when the wildlife conflict does not occur in the wetland.	CDFA, WS-California wildlife specialists, Counties	CDFA/Counties	During WDM activities
MM-BIO-4 Proposed Project/Proposed Action installation of electrified fencing and other fencing shall be limited to site-specific applications and shall avoid impeding movement through wildlife migration corridors to the extent feasible.	CDFA, WS-California wildlife specialists, Counties	CDFA/Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
MM-BIO-5 Prior to conducting WDM, the entity responsible for conducting the WDM activity shall ensure that the planned WDM activities do not violate any local policies or ordinances protecting biological resources.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	Prior to WDM activities
MM-BIO-6 If WDM activities under the Proposed Project/Proposed Action receive coverage from an Implementing Entity of an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) for take of species covered under those plans, the entity conducting the WDM activity shall ensure that the WDM activity is conducted in accordance with all requirements and conditions of the Incidental Take Permits, HCP/NCCP, and Implementing Agreement (if applicable) for those plans.	CDFA, WS-California wildlife specialists, Counties	CDFA/Counties	During WDM activities
MM-BIO-7 Entities conducting WDM shall follow the protective measures in WS-California ESA Section 7 compliance.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
Tribal Cultural Resources			
MM-TCR-1 Consulting tribes that have so requested shall be provided with an annual summary of wildlife damage management (WDM) activities that occurred within the counties identified as their tribal cultural resource/tribal cultural place. Consulting tribes shall be provided a reasonable opportunity to review the Proposed Project/Proposed Action activities, review the location of activity implementation on public lands, and provide comment with regard to potential impacts to tribal cultural resources or other resources of Native American cultural value. In the event that a potential resource is identified by a consulting tribe that might be affected, the responsible county government, the CDFA, and/or WS-California shall work with the traditionally culturally affiliated tribe(s) to develop a reasonable and	CDFA, WS-California, Counties	WS-California/CDFA/ Counties	As requested by Native American Tribes

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
feasible strategy to ensure activities avoid, minimize, or otherwise appropriately mitigate impacts. In the event that an agreed strategy cannot be developed, counties, the CDFA, and/or WS-California would make the ultimate determination, ensuring compliance with local, state, and federal regulatory conditions.			
Hazards and Hazardous Materials			
MM-HAZ-1 If the use of WDM hazardous materials in the vicinity of a school is necessary, wildlife specialists will conduct WDM when children are not present, unless public health and safety is at risk. Wildlife specialists shall allow for adequate quarantine time prior to reentry, and will remove any physical materials when WDM is complete.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
Human and Pet Health and Safety			
MM-HPHS-1 Training and/or certification will continue to be required for any firearm or firearm-like device use, including all wildlife specialists (federal, state, regional, and local).	CDFA, WS-California, Counties	CDFA/Counties	Prior to WDM activities
MM-HPHS-2 Wildlife specialists will be vigilant to the presence of livestock guarding animals or licensed companion animals while conducting WDM on private or public lands to avoid unwanted interactions.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
Noise			
MM-NOISE-1 Electronic distress sounds shall not be used continuously for more than 8 hours within 30 feet of an occupied structure during daytime hours (sunrise to sunset).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
MM-NOISE-2 Propane exploders shall not be used within 140 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 1,850 feet of an occupied structure during nighttime hours (sunset to sunrise).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-3 Pyrotechnic devices (i.e., screamer siren, CAPA, etc.) shall not be used within 200 feet of an occupied structure during daytime hours (sunrise to sunset).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-4 Daytime use of ATVs for spraying chemical repellents shall not occur closer than 35 feet from an occupied structure. ATVs shall not be used for nighttime chemical spraying operations.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-5 Trapping activities employing a pick-up truck or ATV shall not be conducted within 25 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 180 feet of an occupied structure during nighttime hours (sunset to sunrise).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-6 The use of rocket or cannon nets shall not occur within 250 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 13,000 feet of an occupied structure during nighttime hours (sunset to sunrise).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-7 Aerial shooting activities occurring during the daytime shall not be conducted closer than 750 feet (as measured on the ground) from an occupied structure unless a suppressor is used. If a suppressor is used, daytime aerial shooting activities could be conducted	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
without any horizontal ground distance separation from an occupied structure.			
MM-NOISE-8 Aerial shooting activities occurring during the nighttime shall not be conducted closer than 22,000 feet (approximately 5 miles) from an occupied structure unless a suppressor is used. If a suppressor is used, Project nighttime aerial shooting activities shall not be conducted closer than 6,250 feet (approximately 1.2 miles) from an occupied sensitive receptor.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-9 For daytime shooting activities involving an 8-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM NOISE-10 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 7,000 feet (without suppressor) or not less than 900 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 3,500 feet (without suppressor) or not less than 225 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 1,300 feet (without suppressor) or not less than 90 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-10 For daytime shooting activities involving a 4-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM NOISE-11 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 5,500 feet (without suppressor) or not less than 650 feet (with suppressor).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
▪ For 12-Gauge Shotgun, not less than 2,700 feet (without suppressor) or not less than 175 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 1,000 feet (without suppressor) or not less than 70 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.			
MM-NOISE-11 For daytime shooting activities involving a 2-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 4,500 feet (without suppressor) or not less than 450 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 2,200 feet (without suppressor) or not less than 125 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 700 feet (without suppressor) or not less than 50 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-12 For daytime shooting activities involving a 30-minute duration, shooting shall not occur at distances from an occupied structure less than indicated below. ▪ For .308 Caliber Rifle, not less than 2,750 feet (without suppressor) or not less than 225 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 1,200 feet (without suppressor) or not less than 70 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 350 feet (without suppressor) or not less than 25 feet (with suppressor).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.			
MM-NOISE-13 For nighttime shooting activities involving an 8-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-14 to MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 18,000 feet (without suppressor) or not less than 5,200 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 12,500 feet (without suppressor) or not less than 2,000 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 7,000 feet (without suppressor) or not less than 900 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 2 feet.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-14 For nighttime shooting activities involving a 4-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-15 to MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 16,500 feet (without suppressor) or not less than 4,200 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 11,000 feet (without suppressor) or not less than 1,500 feet (with suppressor).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
▪ For .22 Caliber Rifle, not less than 5,500 feet (without suppressor) or not less than 650 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 2 feet.			
MM-NOISE-15 For nighttime shooting activities involving a 2-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 14,500 feet (without suppressor) or not less than 3,200 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 9,500 feet (without suppressor) or not less than 1,100 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 4,500 feet (without suppressor) or not less than 450 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-16 For nighttime shooting activities involving a 30-minute duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 11,000 feet (without suppressor) or not less than 2,000 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 6,500 feet (without suppressor) or not less than 550 feet (with suppressor).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
▪ For .22 Caliber Rifle, not less than 2,750 feet (without suppressor) or not less than 225 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.			

Attachment D: Additional Information to Support Impact Determinations

DISCUSSION

Agricultural Resources Discussion

Threshold AG-1

Threshold AG-4

Threshold AG-5

Threshold AG-6

New Agricultural Resources Impacts

Biological Resources Discussion

Threshold BIO-1

Threshold BIO-2

Threshold BIO-3

Threshold BIO-4

Threshold BIO-5

Threshold BIO-6

Threshold BIO-7

Threshold BIO-8

Threshold CU-BIO-1

Threshold CU-BIO-2

Threshold CU-BIO-3

Threshold CU-BIO-4

New Biological Resource Impacts

Tribal Cultural Resources Discussion

Threshold TCR-1

Threshold TCR-2

New Tribal Cultural Resources Impacts

Hazards and Hazardous Materials Discussion

Threshold HAZ-1

Threshold HAZ-2

Threshold HAZ-3

Threshold HAZ-4

Threshold HAZ-5

Threshold HAZ-6

Threshold HAZ-7

Threshold HAZ-8

Threshold HAZ-9

Threshold CU-HAZ-1

Threshold CU-HAZ-2

New Hazards and Hazardous Materials Impacts

Noise Discussion

Threshold NOI-1

Threshold NOI-2

Threshold NOI-3

New Noise Impacts

Public Services Discussion

Threshold PUB-1

New Public Services Impacts

Appendix C
WDM Methods

Appendix C-1
WS-California Methods Descriptions

1 Site Presence

Wildlife Services-California's (WS-California) actions require presence at the locations where the wildlife damage is occurring. Before WS-California conducts any wildlife damage management (WDM), a request must first be received, and *Work Initiation Documents for Wildlife Damage Management* must be signed by the requesting landowner/administrator for private lands, or other comparable documents for public or tribal lands must be in place. WS-California may use 4-wheel drive vehicles, all-terrain vehicles (ATVs), snow machines, aircraft, boats, or hoof stock for conveyance when conducting Integrated Wildlife Damage Management (IWDM) activities. When operating on federally or state-owned lands, WS-California must comply with all applicable laws and regulations, as well as all terms and conditions set forth in any memorandum of understanding (MOU) negotiated with the relevant land management agencies.

2 Technical Assistance (All Species)

Technical assistance is provided by WS-California when a land or resource owner/manager requests assistance resolving a conflict with wildlife. WS-California personnel provide information, demonstrations, technical assistance, and advice on available and effective IWDM techniques. Technical assistance may include demonstrations on the proper use of management devices and information and advice on animal husbandry practices, techniques to modify human behavior, habitat management techniques, and animal behavior modification devices. Deciding which recommendations to suggest to a requestor requires substantial deliberation by WS-California. Part of the decision-making process includes an on-site visit or consultation with the requestor, which may include health and safety procedures for site-specific hazards. Generally, several short and long-term management strategies are described and recommended. Because the requestor is primarily responsible for implementing these strategies, the recommendations are based on the abilities of the requestor, the level of risk, need, and practical application. Compliance with applicable federal, state, and local laws and regulations is the responsibility of the landowner/resource owner when self-implementing the methods described as part of technical assistance.

2.1 Modification of Human Behavior

Modification of human behavior may be recommended to prevent and resolve conflicts between humans and wildlife. For example, WS-California recommends the elimination of both inadvertent feeding (i.e., improper disposal of garbage/storage of camp food, outdoor pet feeding, and feeding of cat colonies) and intentional feeding of wildlife by members of the public. Peri-domestic wildlife species (such as raccoons and striped skunks) adapt well to living near humans, and studies have shown increased density of mesocarnivore species along the urbanization gradient in part due to the capitalization of anthropogenic food sources (Salek et al. 2015). Unnatural densities of these species in proximity to conservation lands may result in damage to threatened and endangered (T&E) species. Even with considerable effort from land managers, it can be difficult to consistently enforce no-feeding regulations and to effectively educate all people concerning the potential liabilities of feeding wildlife. Other examples of modifying human behavior could include altering activity periods and walking in groups.

2.2 Habitat Modification

Habitat modification can be an integral part of WDM. Wildlife production and/or presence are often directly related to the type, quality, and quantity of suitable habitat.). While WS-California may recommend or be consulted on the types of habitat modifications that could be implemented to lessen or avoid damage, in all cases, the property owner would be responsible for evaluating and implementing habitat modifications.

2.3 Animal Husbandry Modification

Animal husbandry modifications include the level of livestock handling and care, shifts in the timing of breeding and births, changes in herding techniques, livestock species selection, and the use of human or animal guards (e.g., dogs, donkeys, and llamas) to protect livestock.

The level of care or attention given to livestock may range from daily to seasonal. Generally, as the frequency and intensity of livestock handling increases, so does the degree of protection. The risk of depredation is greatest in operations where livestock are left unattended for extended periods. This risk can be reduced when operations permit nightly gathering so that livestock are inaccessible during the hours when predators are most active. This risk diminishes as age and size increase and can be further minimized by holding expectant females in pens or sheds to protect births and by holding newborn livestock in pens for the first two weeks. Shifts in breeding schedules can also reduce the risk of depredation by altering the timing of births to coincide with the greatest availability of natural prey to predators or to avoid seasonal concentrations of migrating predators (such as golden eagles).

The use of human custodians and guarding animals can also provide significant protection in some instances. The presence of herders to accompany bands of sheep on an open range may help ward off predators. Guard dogs have also proven successful in many sheep and goat operations. The supply of proven guarding dogs is generally quite limited, and typically requires that people purchase and rear a pup. Therefore, there is usually a four- to eight-month period of time necessary to raise a guarding dog before it becomes an effective deterrent to predators. Because 25 to 30 percent of dogs are not successful even after training, there is a reasonable chance that the first dog raised as a protector will not be effective. Furthermore, the effectiveness of guarding dogs may not be sufficient in areas where there is a high density of predators, where livestock widely scatter to forage, or where dog-to-livestock ratios are less than recommended.

Altering animal husbandry to reduce wildlife damage can also be effective, although it has many limitations. For example, nightly gathering may not be possible where livestock are in many fenced pastures and where grazing conditions require livestock to scatter. Hiring extra herders, building secure holding pens, and adjusting the timing of births can be prohibitively expensive. Furthermore, the costs associated with a change in husbandry practices can often exceed any potential savings because the timing of births is often managed to coincide with weather patterns or seasonal marketing of young livestock.

2.3.1 Physical Exclusion

Physical exclusion refers to the separation of damage-causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM.

Barrier fencing is typically used to prevent access to areas containing infrastructure (including road structures and bridges) and valued property such as gardens, fishponds, trees, orchards, dwellings, livestock or poultry pens, and T&E species. Selection of a barrier system depends on the wildlife species being excluded, expected duration of damage, size of the area or facility to be excluded, compatibility of the barrier with other operations (e.g., feeding, cleaning, harvesting, recreational activity, etc.), possible damage from severe weather, and effect on site aesthetics. The barrier system also depends on the resource being protected and its value. Systems can range from relatively simple systems such as metal flashing and hardware cloth to highly complex mesh and grid systems and electric fencing. Barrier systems can initially be very costly to erect and expensive to maintain, but can provide a long-term, highly effective solution to some damage problems.

Electric fencing could be used to alleviate damage caused by wildlife. The application of electrified fencing would generally be limited to site specific application where predation is occurring in a very limited geographic scale. Limits of this application arise where there are multiple landowners along a wetland, pond, or lake, the size of the area is relatively large, or where the area is in proximity to bodies of water. Predator control through judicious use and placement of electric fences and other barriers, as well as by trapping efforts, have reduced losses of adults, eggs, and/or young (USFWS 1985). While electric fencing may be effective in repelling predators in some urban settings, its use is often prohibited in many municipalities for human safety reasons. Problems that typically reduce the effectiveness of electric fences include vegetation on fence, flight capable birds, fencing knocked down by other animals (e.g., deer and dogs), and poor or intermittent power sources.

Tree protectors and sheathing can consist of wrapping hardware cloth, solid metal flashing, or other materials around the trunk of the tree, and are used to protect trees from beavers by physically preventing the semi-aquatic animal from causing damage. Sheathing or tree protectors could also be used in some situations to prevent access to trees canopies to protect nesting birds from predators. However, sheathing may be impractical where there are numerous plants or trees to protect, so it is mostly used in urban settings where only a few trees or objects need protection.

Netting can be useful in preventing birds from accessing resources or forming large roosts that could cause a risk to human health and safety and/or decrease aesthetics. For instance, the ceiling of parking garages can be netted to prevent pigeons and other birds from roosting above cars and dropping debris and feces on cars and people. Netting can be installed in hangers to exclude birds from perching or nesting indoors. Netting can be very successful if done correctly but it can be expensive and requires routine maintenance. Netting is also not practical over large areas.

Overhead wire grids can deter birds from using specific areas where they are causing a nuisance (Johnson 1994). The wires represent an obstacle that is difficult for a flying bird to see/navigate and make the area less attractive to birds. Overhead wire grids are more practical and cost effective than netting for large areas; for example, they can be used to keep some waterfowl out of retention ponds on airfields.

Perch inhibitors can be used to keep birds from perching on sensitive equipment and interfering with function. Perch inhibitors can be anything that render the perching area unusable to birds: zip ties, bird spikes, thin wire strung over the perch, golf tees, etc.

Chemical applications/tactile/taste repellents are materials that are rough and can discourage, reduce, or prevent the gnawing behavior of rodents, tacky or sticky substances to prevent perching, or non-hazardous chemical compounds designed to cause pain or discomfort. Abrasives produce an unpalatable surface which irritates the teeth and mouth of rodents when they attempt to gnaw or chew on the surface. Flexible materials, such as sandpaper, grinder pads, and fine-mesh stainless steel screening can be placed on or over objects (e.g., electrical wiring, plastic piping, fruit trees, etc.) that are susceptible to gnawing rodents. Fine sand can be added and mixed

with paint, glue, or other suitable liquid adherents to formulate a paste or heavy mixture that can be brushed-on or applied to a surface to discourage rodent gnawing. This method has had limited success when applied or painted on tree trunks to discourage beaver from cutting down trees. Abrasives are most practical where only a few trees or areas need protection. Primary repellents exemplified by tacky or sticky substances to prevent perching, or chemical compounds designed to affect pain or discomfort, evoke a limb withdraw or escape behavior (Clark and Avery 2013). Taste repellents such as methyl anthranilate and activated charcoal have shown to deter geese from grazing and repel passerines in laboratory feeding trials (Mason and Clark 1992).

Surface coverings could be used to provide hides for T&E species and decrease the success rate of predator detection. For example, clay roof tiles have been placed within California least tern colonies to act as chick shelters (USFWS 2006).

2.3.2 Harassment and Deterrent Methods

Harassment and deterrent devices rely on the use of sound, lights, pursuit, or other methods to frighten and disperse animals from the area to be protected. The success of frightening methods depends on animals' fear of, and subsequent aversion to, offensive stimuli. Once animals become habituated to a stimulus, they often resume their damaging activities. Considerable effort is usually required to consistently apply frightening techniques and then vary them sufficiently to prolong their effectiveness. Over time, some animals learn to ignore commonly used frightening methods that are no longer perceived as threats. In many cases animals frightened from one location become a problem at another.

Distress/predator calls are electronic devices that mimic sounds exhibited when target species are in distress, which is intended to cause a flight response and disperse target animals from the area. This technique is primarily used for avian management. Alarm calls are given by birds when they detect predators, while distress calls are given by birds when they are captured by a predator (Seamans and Gosser 2016). When other birds hear these calls, they believe a predator is present or a bird has been captured (Seamans and Gosser 2016).

Propane exploders/cannons produce noise that is intended to represent a firearm discharge. They are attached to a propane tank and regulated to discharge at certain intervals. Propane cannons work best when the interval of the discharge is random, the cannons are moved regularly, and they are combined with other methods, such as effigies. Although a propane exploder can be an effective dispersal tool for birds in agricultural settings, resident waterfowl in urban areas are more tolerant of noise and habituate to propane exploders relatively quickly.

Pyrotechnics are best described as controlled fireworks and can be safely used in a number of situations involving birds (USDA 2010). Pyrotechnics include, but are not limited to screamers, bird bombs, CAPA cartridges, and 12-gauge cracker shells. 12-gauge cracker shells are shotgun shells containing an explosive round that is projected up to 200 feet in the air before exploding. Bird bombs and screamers are fired from 6 mm starter pistols; they are used similarly to 12-gauge cracker shells, but they travel a shorter distance. For example, bird bombs travel approximately 75-100 feet before exploding. Screamers are similar to bird bombs, but they whistle in flight, leave a small trail of smoke in their wake, and do not explode. CAPA cartridges are fired from an 18.6 mm launcher and travel approximately 1,000 feet and explode generating a sound of approximately 150 dB at 32 feet.

As with frightening devices and propane exploders, the effects of pyrotechnics on nontarget wildlife need to be considered. For example, special-status birds or birds protected under the Migratory Bird Treaty Act (MBTA) may be disturbed or frightened from nesting sites.

Paintball guns are used as a non-lethal harassment method to disperse wildlife from areas using physical harassment. Paintballs are occasionally used to harass species such as waterfowl, raptors, and doves and to remove swallow nests. Paintballs can be used to produce negative physical and visual stimuli that can aid in the dispersal of birds from areas where conflicts or threats of conflict are occurring. WS-California uses washable, clear paintballs unless otherwise directed by the state or federal wildlife agency with jurisdiction over the lands where this method is used.

Water spray can be used to harass or disperse wildlife. It can be used to produce negative visual and physical stimuli to disperse birds such as swallows from areas where conflicts or potential conflicts are occurring. High pressure water spray is also used to remove swallow nests from areas where conflict is occurring. Work involving the removal of active nests is always performed under a depredation permit. Motion triggered sprinklers can also be used to deter deer and birds from damaging landscaping and smaller plantings.

Lasers and lights are used with mixed results to frighten wildlife. Lights can be used to flush avian predators off hunting perches. However, most animals rapidly become accustomed to such lights and their long-term effectiveness is questionable. Lasers have shown some effectiveness with waterfowl, wading birds, gulls, vultures, and crows (USDA 2003). Lasers have a narrow, targeted beam which are used to depict a novel object approaching the bird that elicits a flight response. Best results are achieved under low-light conditions (i.e., sunset through dawn) and targeting structures or trees proximate to roosting birds, thereby reflecting the beam (USDA 2003; Blackwell et al. 2002).

Scarecrows and effigies often depict predator animals (e.g., alligators, owls), people, or mimic distressed target species (e.g., dead ravens, dead crows) and they are intended to elicit a flight response from target birds, which disperses those birds from the area. Avery et al. (2008) found that effigies could be effective at dispersing crows. When crow aggregations are relatively small, then effigies might suffice, but for large roosts it is likely that reinforcement with additional methods such as pyrotechnics or distress calls will be needed (Avery et al. 2008). Crow or raven effigies are mainly used to protect nesting colonies or individual nests from avian predators. In general, scarecrows would be most effective when they are moved frequently, alternated with other methods, and are well maintained. Scarecrows tend to lose effectiveness over time and become less effective as populations of target species increase (Smith 1999), though they have been used effectively to deter raptors from establishing nests on certain power structures by mimicking utility staff accessing the tower.

Eye-spot balloons and mylar strips and balloons provide visual harassment for wildlife. Eye-spot balloons have large eyes that are intended to give birds a visual cue that a large predator is present. Mylar® tape and flags can also be used to deter birds from certain areas. These materials produce sound and flashes in the sun when wind blows over it that may frighten some species.

Radio-controlled vehicles can be used to haze wildlife from undesirable areas. Radio-controlled boats, cars, and drones can be used to move wildlife off ponds, saturated areas, and areas that are otherwise impassible. These tools are used to provide wildlife a visual stimulus to leave the area and not used to make (physical) contact with wildlife.

Vehicles can be used to pursue animals as a form of harassment. The purpose is to approach the animals with a large object, sometimes with lights flashing and a siren, to scare the birds away from an area. This technique is often used in airports. The vehicle is never used to run over or injure the animal.

Tactile repellent products reportedly deter birds from roosting on certain structural surfaces. Commercially available products such as polybutene present a tacky or sticky surface that the birds avoid. Different formulations,

both liquid and gel, may be appropriate for many different situations, such as trees, shrubbery, ledges, beams, windowsills, gutters, cornices, roof lines (perimeters), and air conditioners (Zemsky 1995). The substance does lose its tackiness after approximately one year; moreover, the old material would need to be removed and new material reapplied (Zemsky 1995).

Olfactory repellents are used to deter animals from using specific areas for shelter or feeding. These commercially available products contain strong herbal odors. This smell encourages the sheltering animal to vacate the specific location where applied.

Dogs have been used successfully to disperse birds, especially waterfowl in urban and suburban areas (Seamans and Gosser 2016). Properly trained dogs provide harassment that birds recognize as threats. As with any bird dispersal technique, dogs are more effective when used in combination with other methods, as birds may become habituated to dogs and may no longer react to their presence (Seamans and Gosser 2016).

3 Operational Assistance

The IWDM program uses specialized equipment (i.e., pyrotechnics, specialized traps, and federally licensed firearms) when field assistance is requested for the protection of resources by WS-California personnel. While some of these methods can either be recommended as technical assistance or be implemented directly by WS-California personnel, the cost and required expertise or training often preclude the use of many of these methods by outside agency personnel or private citizens not solely dedicated to wildlife conflict management.

3.1 Avian Methods

3.1.1 Physical Exclusion

Physical exclusion refers to the separation of damage causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM. Examples of physical exclusion techniques include:

Netting – see description above in technical assistance.

Overhead wire grids – see description above in technical assistance.

Perch inhibitors – see description above in technical assistance.

Chemical applications/tactile/taste repellents – see description above in technical assistance.

Surface coverings – see description above in technical assistance.

One-way Door Excluders are devices usually used in urban settings to allow an animal to leave an area where it is unwanted by way of a one-way door or a narrowing exit that prevents them from re-entering through the same entrance. They can be used for small mammals, meso-mammals, bats, and some bird species. They are installed over a hole (usually in the side of a house or other building) with the door opening from the inside of the structure outside. Once the animal has exited the door serves as a barrier to re-entrance. Once it is ascertained that no more animals are in the structure, the landowner is usually advised to repair the hole.

3.1.2 Harassment and Deterrent Methods

Distress/predator calls – see description above in technical assistance.

Propane exploders/cannons – see description above in technical assistance.

Pyrotechnics – see description above in technical assistance.

Water spray – see description above in technical assistance.

Lasers – see description above in technical assistance.

Scarecrows and effigies – see description above in technical assistance.

Eye-spot balloons and mylar strips and balloons – see description above in technical assistance.

Radio-controlled vehicles – see description above in technical assistance.

Vehicles – see description above in technical assistance.

Tactile repellent products – see description above in technical assistance.

Olfactory repellents – see description above in technical assistance.

Dogs – see description above in technical assistance. Government-owned and employee-owned trained dogs will accompany the WS-California employee/handler on official duty only when there is an operational need. Dogs will not be allowed to intentionally kill animals. WS-California personnel's dogs are proficient in a specific set of skills necessary to perform functions in a manner that is responsive to its handler's commands.

Paintball guns – see description above in technical assistance.

3.1.3 Capture Methods

Live capture methods are used to capture individuals causing damage. Most of these methods involve the use of traps set to capture and hold the animal alive until personnel arrive. The animal can then be euthanized or released as appropriate. Some individuals are relocated with the approval of California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS). Traps set by WS-California personnel are checked by WS-California personnel, the landowner/manager, or their designated agent.

Air cannon/rocket nets are typically used for larger birds, such as waterfowl and turkeys, and use compressed air to propel a net up over birds, which have been baited to a particular site. The habitat must be relatively flat, open, and void of vegetation that could become tangled in the net and allow for target species to escape.

Bow nets/E-Z catch nets are normally used to capture raptors, but may also be used for European starlings, shorebirds, and other species using visual bait and/or conspecific decoys. Bow nets are set on the ground and are remotely triggered from a nearby observation site. Once triggered, the net envelops the target birds. The captured bird is removed from the net as gently and quickly as possible to avoid entanglement and additional stress. WS-

California personnel positively identify the target species prior to deploying the trap. These nets are operated by a spring-loaded system with a net between two curved (bowed) rods. When used to capture raptors, a lure animal is placed at the center to attract the raptor to the trap. This method can also be elevated to increase success of capturing certain species. E-Z catch nets are similar to bow nets except that they have a treadle/trigger that is set off by the animal.

Drop nets are nets suspended over a pre-baited site and manually or remotely triggered to drop on target animals. Decoys (live and/or fake) may also be used to enhance the effectiveness of drop nets. Drop nets require specific knowledge of the targeted species' congregation locations and timing to be effective. WS-California personnel monitor the pre-baited site and when the target species is in the correct location under the nets, WS-California personnel activate the net from a nearby location and quickly secure the target wildlife to prevent escape.

Hand nets are used to catch birds in confined areas (e.g., buildings). WS-California occasionally uses hand nets for various WDM activities. Most hand nets resemble fishing dip nets with soft netting of various grids and diameters mounted on a long handle. A variation of the hand net is a round net with weights at the edges of the net. It is thrown and is like throw nets used for fishing. Hand nets are a species-specific, live-capture technique.

Mist nets are more commonly used for capturing small-sized birds but can be used to capture larger birds such as ducks and ring-necked pheasants or smaller hawks and owls. Mist nets are fine silk or nylon nets, usually black or tan in color, and range from 3 to 10 feet wide and 25 to 35 feet long. Net mesh size determines the species of birds that can be caught. They are strung between poles in locations where the target birds are known to travel (i.e., along a stream, across an opening in a wooded area) so that the nets form loose pockets. When the bird flies into the nets they are caught up in the pockets. Mist nets can also be used in doorways. Mist nets are monitored by personnel and birds are removed promptly.

Dho-gazza traps employ larger gauge mist nets that are strung between poles with a lure animal placed inside of the nets to attract the target species to the trap. The mist nets are set to breakaway and thus wrap the raptor up in the net. This trap is most often used to capture northern harriers.

Net guns/launchers use a firearm blank or compressed air to propel a weighted net up over birds, which have been baited to a particular site or habituated to the close proximity of human presence.Net guns are handheld and manually discharged while net launchers are ground based and remotely discharged from a nearby observation site.

Padded-jaw foot-hold traps altered for birds. (Full padded-jaw foot-hold description can be found in the Mammalian Methods section). Modified Padded-jaw foot-hold traps can be used for avian species. For avian species the factory supplied springs are weakened or replaced to decrease the amount of pressure, and either surgical tubing or foam is added for extra padding. These traps are placed where target birds have been observed perching on the ground. The trap is anchored so that the captured bird cannot leave the location.

Pole traps (Verbail or modified padded-jaw foot-hold traps) are traps on the top of a pole and are primarily used to capture raptors. "Pole traps are live traps that can be effective and humane tools for alleviating certain problems caused by raptors" (USFWS 2005). Depending on the species being trapped, the modified padded-jaw foot-hold trap size, pole height, trap placement, and trap location are all taken into consideration by APHIS-WS personnel prior to setting. The padded-jaw foot-hold trap is highly modified with the original springs either replaced or weakened in addition to having off-set jaws, and either surgical tubing or foam rubber securely attached to the already rubberized jaw for extra padding. Traps are attached to a guide rod or thick wire that runs from the trap

down the pole to the ground. Once an animal is captured, the trap and raptor slide down the guide to the ground for handling. A Verbail trap consists of a platform or stand wrapped with a nylon cord and associated steel spring placed on top of a pole. When tripped, the cord wraps around the bird's foot and holds it. The steel spring is attached to a guide wire which allows the trap to slide down the pole to the ground.

Bal-chatri traps (BC traps) consist of a small wire cage with monofilament nooses attached to the top and sides of the trap. The monofilament test line (ranging from 8.25-pound test fishing line) and noose size will vary depending on the size of the target species. The trap is baited with a mouse and/or other live bait depending on the size of the target species; the lure animals are protected inside the trap from the target species. Cages are generally constructed of ½ inch wire hardware cloth and may be 2-3 inches tall and 10-14 inches square. A 2-4 pound weight (such as large fishing weights or bench press weights) are attached to the trap to prevent the raptor from moving the trap once it is caught. These traps would be deployed in the line of sight of the target raptor and would be constantly monitored by WS-California personnel.

Phai hoop traps have a circular shape and have many upright nooses placed all along its circumference. A lure animal is placed in the center of the hoop. The trap is deployed within sight of a raptor, similar to a BC trap. As the raptor extends its legs to grab the lure, it becomes ensnared by the hoop's nooses.

Pigeon harnesses are a piece of leather or heavy material that fits onto lure bird such as a pigeon or starling like a backpack and allows the lure bird its full range of motion. Heavy weight monofilament line tied into sliding nooses are attached to the backpack and a ground anchor or weight is attached to secure everything to the ground. The pigeon harness is deployed similarly to the BC trap and the nooses that are attached to the harness catch on the targeted raptor's talons, toes and/or feet. This method is effective at capturing peregrine falcons; it is constantly monitored and only used when a target raptor is present.

Funnel traps are used to live-capture waterfowl. The traps can vary in size and are usually constructed of netting or wire mesh. Traps are set up in shallow water and baited; they allow waterfowl to enter the trap but prevent them from exiting. Traps would be checked regularly to address live-captured waterfowl.

Nest box traps are effective in capturing cavity nesting birds, such as European starlings, and operate similar to other live-capture traps. Nest box traps allow birds to enter a nest box, but not exit.

Nest/walk-in traps are similar to box or decoy traps. They are placed over an active nest or baited with food and allow the target bird to pass through a funnel, one-way, or drop-down door that confines the target. Nest and walk-in traps are effective in capturing ground nesting birds such as cormorants, ducks, geese, and ground feeding birds such as rock pigeons and mourning doves.

Swedish goshawk traps are compartment-style traps with a lower bait cage that houses a lure animal. The upper compartment is a trapping mechanism that consists of an "A" frame made of wood or metal along with a trigger that is mounted atop the bait cage. The side panels are generally made of mesh wire or netting. The sides of the "A" are hinged so that the sides are held open in a "H" shape by a trigger that stretches the length of the trap. The trigger mechanism is hinged in the middle. As a raptor enters the trapping mechanism to investigate the lure in the bait trap, it lands on or brushes against the trigger, which collapses and allows the sides to close back into an "A" shape trapping the raptor inside (Meng 1971; Kenward et al. 1983). The doors are held closed by springs. The bait cage can hold multiple lure animals to increase movement and/or visibility of the trap. Lure animals are provided with food and water while in the bait cage.

Cage traps are non-lethal capture devices. The size of the cage trap depends on the size of the targeted species; this helps limit the capture of non-target species by physically excluding them from the trap. Traps are set near signs of damage or in areas where the target species is known to travel and are usually baited with species-specific baits. Cage traps set by WS-California personnel are checked daily. Cage traps are typically set with a bait or lure to encourage the target species to enter the trap. Baits can be chosen to be selective for target species. A trigger mechanism usually located at the back of the trap is triggered by the animal and the trap closes. The animal is enclosed in the trap and held until it is subsequently released or euthanized. Because the animal is held alive, if a non-target animal is captured, it can usually be released unharmed.

Box traps are similar to cage traps. They are rectangular in shape and either have a door that is triggered when an animal steps on a treadle or is a one-way door. The trap is baited with a food item that encourages the animal to walk through the door or the bait is placed in the expected path of the animal to lure it towards the trap.

Decoy traps are similar in design to the Australian Crow Trap as reported by McCracken (1972) and Johnson and Glahn (1994). Decoy traps are commonly rectangular, and they are generally constructed of a wooden or metal frame and wire mesh or netting to form an enclosure, which can be constructed in a variety of sizes, depending on the target species and the number of birds likely to be captured. Sides go up above the middle panel with the funnels and have perches to encourage birds to stay above the funnels, so they do not try to escape. Decoy traps are commonly used by WS-California to target social flocking bird species such as crows, starlings, house sparrows and blackbirds. Live decoy birds of the same species being targeted are usually placed in the trap with sufficient food and water to assure their survival. Perches are configured in the trap to allow birds to roost above the ground and in a more natural position. The feeding behavior and calls of the decoy birds attract other target birds to the trap. In addition, the traps are often baited with food attractants. Openings in the enclosure allow target birds to enter the enclosure to feed on the bait. Openings are generally placed at the top of the enclosure and are generally about the length and width of target bird species with their wings folded so birds can enter but are unable to exit with their wings extended as they are flying upwards toward the openings. Active decoy traps are monitored daily to address captured birds and to replenish bait and water. Depending on design, decoy traps can be portable or permanent. Portable decoy traps generally consist of several parts and panels that require assembly once transported to a location where target animals are active.

Corral traps could be used to live-capture birds, especially waterfowl. Corral traps can be effectively used to live-capture waterfowl during the annual molt when birds are unable to fly. Each year for a few weeks in the summer, waterfowl are flightless as they are growing new flight feathers. This method consists of setting up an enclosure with an open end consisting of several movable panels. The birds are then surrounded by personnel and slowly guided into the corral trap and the panels are closed behind them. This method is labor intensive and requires multiple individuals to participate in the drive.

3.1.4 Lethal Methods

Water spray – see description above in avian harassment and deterrent methods. This method can be lethal to chicks and eggs when used on active nests. A MBTA depredation permit is required to use this method on active nests.

Shooting. Licensed firearms are used to selectively remove individual target animals. Shooting is a very targeted method, and a properly placed gunshot can cause immediate insensibility and a humane death (AVMA 2020). When needed, WS-California personnel kill animals as quickly and humanely as possible; under some conditions a gunshot may be the only practical method of euthanasia (AVMA 2020). All applicable firearm safety precautions, laws, and

regulations governing the use of firearms are followed by WS-California when conducting IWDM activities. To ensure WS-California employees receive uniform firearms safety training, National Rifle Association (NRA) certified instructors and the NRA's curriculum for the basic pistol, rifle, and shotgun certifications are the officially recognized program for initial WS-California firearms safety training. WS-California personnel periodically receive updated training per the WS Firearms Safety Training Manual. More detailed information on WS-California firearm use, training, and storage can be found in WS Directive 2.615: WS Firearm Use and Safety (USDA 2020). WS-California personnel commonly use firearms in combination with other techniques and/or modifications listed below.

- ***Calling*** consists of using voice, mouth, handheld, or electronic calls to draw predators into the area. Calling is often used to draw the target species into firearm range.
- ***Night shooting*** may be conducted with spotlights or night vision devices. Night vision devices are undetectable to the surrounding environment. Spotlights are high intensity lights that are used to identify and cause the target species to temporarily pause its movements and/or flush when exposed for a length of time.
- ***Non-lead (non-toxic) ammunition.*** Effective July 1, 2015, California state law (AB711) and subsequent regulations promulgated by the California Fish and Game Commission require the use of nonlead ammunition in a phased approach when taking wildlife for recreation or depredation purposes. Effective July 1, 2019, nonlead ammunition is required for the taking of any wildlife for any reason. WS-California has made a transition to using nonlead ammunition when controlling wildlife. Nonlead ammunition will be used whenever feasible when taking wildlife. However, WS-California may use lead ammunition in cases of public safety or in certain situations for employee safety (e.g., in cases of tight spaces; lead ammunition may be used to reduce potential for ricochet) per WS Directive 2.210. In these cases, personnel remove the carcass of the animal and contained lead from the environment. More information on the regulations and phased approach can be found at https://www.wildlife.ca.gov/Hunting/Nonlead-Ammunition.
- ***Suppressors.*** Firearms create high intensity sound for short durations. When possible, and without reducing the effectiveness of the methods, WS-California uses suppressors (silencers) and specific ammunition (subsonic) to minimize the audio report of firearms. Suppressors and subsonic ammunition are most often used with rifles. Shotguns cannot always be suppressed without affecting shot pattern and/or shooting accuracy.

Carbon dioxide (CO2) is sometimes used to euthanize birds that are captured in live traps. Live birds are placed in a container, such as a plastic 5-gallon bucket, or chamber that is then sealed shut. Carbon dioxide gas is released into the bucket or chamber and birds quickly die after inhaling the gas. This method is approved as a euthanizing agent by the American Veterinary Medical Association (AVMA) (AVMA 2013). Carbon dioxide gas is a byproduct of animal respiration, is common in the atmosphere, and is required by plants for photosynthesis. It is used to carbonate beverages for human consumption and is the gas released by dry ice. Therefore, the use of carbon dioxide by WS-California for euthanasia purposes is exceedingly minor and inconsequential to the amounts used for other purposes or generated by other human activities.

DRC-1339 is a slow acting avicide that is registered with the U.S. Environmental Protection Agency (EPA) for use on a number of bird species (e.g., ravens, crows, pigeons, gulls, blackbirds, and European starlings), and on various bait carriers, such as grain, meat baits, eggs, sandwich bread, and French fries. DRC-1339 is only available for use in California under WS-California supervision. DRC-1339 was developed as an avicide because of its differential toxicity to mammals. DRC-1339 is highly toxic to sensitive bird species but only slightly toxic to non-sensitive birds, predatory birds, and mammals. Most bird species that are responsible for damage, including but not limited to starlings, blackbirds, pigeons, crows, magpies, and ravens, are highly sensitive to DRC-1339. Many other bird

species such as raptors (Schafer 1981), sparrows, and eagles are classified as non-sensitive. Secondary poisoning has not been observed with baits treated with DRC-1339. Numerous studies show that DRC-1339 poses minimal risk of primary poisoning to non-target species and T&E species (EPA 1995). This can be attributed to relatively low toxicity to species that might scavenge on birds killed by DRC-1339 and DRC-1339's tendency to be almost completely metabolized in the target birds, which leaves little residue to be ingested by scavengers. Secondary hazards of DRC-1339 are almost non-existent. DRC-1339 acts in a humane manner, producing a quiet and apparently painless death.

DRC-1339 is unstable in the environment and degrades rapidly when exposed to sunlight, heat, or ultraviolet radiation. The half-life is about 25 hours, which means it is nearly 100% broken down within a week, and identified metabolites (i.e., degradation chemicals) have low toxicity. DRC-1339 is highly soluble in water, but does not hydrolyze, and degradation occurs rapidly in water. DRC-1339 tightly binds to soil and has low mobility.

Studies continue to document the effectiveness of DRC-1339 in resolving blackbird/starling problems at feedlots (e.g., West and Besser 1976) and dispersing crow roosts in urban/suburban areas (e.g., Boyd and Hall 1987). Glahn and Wilson (1992) noted that grain baiting with DRC-1339 is a cost-effective method of reducing conflicts with blackbirds and sprouting rice.

Active nest destruction is a dispersal technique used to encourage adult birds to leave the area after their nests and eggs are destroyed. In addition to dispersing birds, this method may also reduce the aggressive nature of adult birds during the nesting period. For birds protected under the MBTA, the USFWS permits "active nest destruction" only under the issuance of a depredation permit. This control method is target-specific, with very little chance for the take of non-target species.

Egg addling/oiling are methods of suppressing reproduction in local predating bird populations by destroying egg embryos prior to hatching. Egg addling is conducted by vigorously shaking an egg numerous times, which causes detachment of the embryo from the egg sac. Egg oiling is a method for suppressing reproduction of predating birds by placing a small quantity of food grade corn oil on eggs in nests. The oil prevents exchange of gases and causes asphyxiation of developing embryos and has been found to be 96-100% effective in reducing hatchability (Pochop, Cummings, Steuber et al. 1998; Pochop, Cummings, Yoder et al. 1998). The EPA has ruled that use of corn oil for this purpose is exempt from registration requirements under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). To be most effective, the oil should be applied anytime between the fifth day after the laying of the last egg in a nest and at least five days before anticipated hatching. Egg addling and oiling is different than nest destruction in that the incubating birds generally continue incubation and do not re-nest. Egg addling and oiling are only done after positive identification of the nesting species, as such this method is extremely target specific and poses no threat to non-target species.

Snap traps are common household rat or mouse traps usually placed inside structures. Modified snap traps can be used to remove individual European starlings and other cavity nesting birds. These traps are sometimes used to target species-specific offenders entering small cracks where other types of traps will not fit. The trap treadle is placed near the damaged area caused by the offending bird. Positive species identification and monitoring of species activity around the entry point limit the take of non-target species.

Physical Euthanasia methods include shooting, cervical dislocation, decapitation, and stunning. When properly used by skilled personnel, AVMA states that physical methods of euthanasia may result in less fear and anxiety and be more rapid, painless, humane, and practical than other forms of euthanasia. Shooting may be the quickest and only method available under most field conditions. Manual euthanasia methods may be used to euthanize small

birds, rodents and reptiles in limited circumstances as acceptable to AVMA. All euthanasia methods should be performed discretely by properly trained personnel to minimize stress to the animal (AVMA 2020).

3.2 Mammalian Species Methods

3.2.1 Physical Exclusion

Physical exclusion refers to the separation of damage causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM.

Barrier fencing – see description in technical assistance.

Electric fencing – see description in technical assistance.

Tree protectors and sheathing – see description in technical assistance.

Chemical applications/tactile/taste repellents – see description above in technical assistance.

Surface coverings – see description above in technical assistance.

One-way Door Excluders – see description in avian physical exclusion.

3.2.2 Harassment and Deterrent Methods

Pyrotechnics – see description above in technical assistance.

Water spray – see description above in technical assistance.

Lasers – see description above in technical assistance.

Scarecrows and effigies – see description above in technical assistance.

Eye-spot balloons and mylar strips and balloons – see description above in technical assistance.

Vehicles – see description above in technical assistance.

Dogs – see description above in avian harassment and deterrent methods.

Rubber bullets/beanbag rounds may be used to harass or disperse wildlife causing damage or wildlife in proximity to people. This hazing may resolve or prevent human/wildlife interaction.

Fladry/Turbo fladry may be used to discourage deter wolves from entering an area. Fladry is a single strand of polyline with flagging attached (Young et al. 2015). Turbo fladry is electrified as in an electric fence. The key to fladry is that it is most effective when it is installed to be highly visible (UCCE 2019). Since turbo fladry is electrified, it tends to be effective longer (Lance et al. 2010); for example, when a wolf tests the fladry it is shocked. WS-California both recommends turbo fladry and sometimes assists landowners with the installation of turbo fladry. Fladry and turbo fladry are temporary alterations to habitat. Turbo fladry may provide livestock owners' temporary

relief (Davidson-Nelson and Gehring 2010) and is probably only effective for a timeframe measured in months (UCCE 2019). It is recommended that once livestock are moved or wolf activity at the site decreases, that the turbo fladry be removed.

3.2.3 Capture Methods

Box traps – see description above in avian methods.

Net guns/launchers – see description above in avian methods.

Hand nets – see description above in avian methods.

Cage traps see additional description above in avian methods. Cage traps used to capture mountain lions are typically constructed of commercial livestock panels made of 3/16-inch galvanized welded rods. The top, sides, front, and bottom panels are welded together, and panel openings are approximately 2-inch x 4-inch. These cage traps may have a treadle-type trigger or trip line and a single-catch, multi-catch, or gravity door.

Large cage traps are occasionally used by WS-California to capture bobcats and feral dogs. WS-California defines large cage traps as being larger than 12-inch x12-inch x 36-inch, but they do not include culvert traps (see below). Large cage traps vary in size and shape depending on the species being targeted. Bobcat or dog-size cage traps are made of welded wire, utilize a treadle-type trigger or trip line system and close with a spring or gravity door.

Cage traps measuring 12-inch x12-inch x 32-inch and smaller are typically used by WS-California for capturing animals the size of raccoon and smaller. They are often set in urban areas to capture meso-mammals such as raccoons and skunks that are causing damage. While many cage traps are welded wire style traps, some small cage traps are constructed from a tube or a plastic box. The trap functions in a similar way to the more common welded wire style traps.

Clover traps are a type of box trap used to capture deer. They measure approximately 4 feet (height) x 3 feet (width) x 6 feet (length) and are comprised of metal tubing frame covered with a heavy netting. Bait is put at the back of the trap behind a trigger line. When the animal trips the string, the door is released and closes. Some modified designs allow the trap to be collapsed by handlers when the deer is captured to facilitate restraint of the deer and minimize struggling.

Culvert traps are a type of trap constructed of solid material as opposed to welded wire or livestock panels used in large cage traps. They have differing trigger systems but usually utilize swing doors and are often on a wheeled platform or trailer for transport. WS-California often uses this type of trap when dealing with black bears that are in urban/suburban settings, although they can also be used in rural areas and for other species. Due to the size and weight of most culvert traps, they are primarily restricted to use near roadways, although models exist that may be disassembled and reconstructed in remote areas. The type of bait used depends on the nature of the damage problem and target species. WS-California implements a daily trap check for all culvert traps. Non-target animals are generally released uninjured, and target animals are usually euthanized or relocated as appropriate and when authorized by the CDFW.

Corral traps are used to live-capture mammals, primarily feral swine. Corral traps are circular pens 3 to 10 meters in diameter and constructed of panels or cattle fencing, which can be interconnected to expand or contract the size

of the corral. Corral traps used by WS-CA employ a lift up or side swing head gate or drop-down net to allow access for the feral swine to enter.

Pig brig traps are a circular trap of netting supported by t-posts. After a period of time during which the net is suspended above the ground so that pigs can go in and out of the area and eat bait, a net skirt is attached to earth anchors on the inside of the trap. Pigs are still able to nose their way under the skirt and into the trap; however they are prevented from exiting. This trap allows for multiple captures of animals.

Snares made of wire or cables are among the oldest wildlife management tools and are generally not affected by inclement weather. They can be used effectively to catch most species. Snares may be employed as either lethal or live-capture devices depending on how or where they are set. Most snares are also equipped with a swivel to minimize injuries to the captured animal and reduce twisting and breakage of the snare cable. Breakaway devices can also be incorporated into snares, allowing the loop to break open and release the animal when a specific amount of force is applied. These devices can improve the selectivity of cable restraints to reduce capture of non-target species. Common types of snares include:

- Neck snares are set to capture an animal by the neck and are usually lethal, but stops can be applied to the cable to make the snare a live-capture device. Snares positioned to capture the animal around the body can be useful live-capture devices. Snares can be effectively used wherever a target animal moves through a restricted lane of travel (i.e., "crawl holes" under fences, trails through vegetation, or den entrances). When an animal moves forward into the loop formed by the cable, the snare tightens, and the animal is held.
- Collarum™ is a non-lethal, spring-powered, modified neck snare device that is primarily used to capture coyotes. The trigger is designed specifically for canines, which use a distinct pulling motion to set off the device. The device uses an attractant and is activated when an animal bites and pulls a cap. The snare is then projected from the ground up and over the head of the coyote. A stop on the device limits loop closure and prevents capture of smaller non-target wildlife. As with other types of snares, the use of the Collarum™ device to capture coyotes is greatly dependent upon finding a location where they frequently travel.
- Foot snares are a spring-powered non-lethal device, activated when an animal places its foot on the trigger pan. In some situations, using hanging snares to capture wildlife is impractical due to the behavior or morphology of the animal, or the location of wildlife conflicts. Neck snares must be set in locations where the likelihood of capturing non-target animals is minimized, but foot snares with built-in pan tension devices can be set to exclude animals lighter than the target animal.
- Foot snares set for bear are usually set with the trigger in a vertical pipe, large enough for a bear's paw, buried vertically, so that the top is flush with the ground. The cable loop is placed around the circumference of the pipe, and bait is placed in the pipe, under the trigger. When the animal reaches into the pipe, it sets off the trigger and a cable loop is propelled onto the animal's leg.

Catch poles are handheld devices used to capture or safely handle animals. A catchpole is a hollow pipe with an internal cable or rope that forms an adjustable noose at one end. The free end of the cable or rope extends through a locking mechanism on the end opposite of the noose. By pulling on the free end of the cable or rope, the size of the noose is reduced sufficiently to hold an animal. For IWDM, catch poles are primarily used to capture animals partially restrained by barriers (i.e., a raccoon trapped in a building) or to remove live animals from traps without danger to or from the captured animal.

Suitcase or basket traps are designed to live-capture beaver. The traps are constructed of a metal frame hinged with springs and covered with chain-link fence. When set, the trap is opened to allow an animal to enter and when

tripped, the metal frame closes like a suitcase around the animal. These styles of traps are set in the shallows of waterways (i.e., ponds, rivers, creeks, lakes, etc.) near or on the shoreline or bank so that a captured beaver would always have access to air. They are not set underwater where a triggered trap would be totally submersed in water. Basket-type traps are live-capture traps checked daily by WS-California personnel, the landowner, or their designated agent. These traps are primarily used in rural or restricted access areas but can be set in urban areas if they do not present a hazard to pets (companion animals) or children.

E-zee set or gravity catch traps consist of a welded metal frame fitted with a front grate, wide mesh, and pressure trigger. These traps are set on or near beaver dams where water can flow through the grate. When a beaver brings material to plug the flowing water, the top of the trap is released and drops to surround the animal. These traps have no springs and are considered safer for public access areas.

Padded-jaw foot-hold traps are coil spring traps with rotating jaws. They have centrally attached inline shock springs, swivels to allow for movement, and are equipped with non-hardening rubber on the face of the jaw. These traps come in several sizes depending on the target species. Padded-jaw foot-hold traps are designed to close on an animal's foot and hold the animal without injuring it. They have adjustable pan tension triggers which allow the exclusion of animals smaller than the target species. These traps can be used for live-capture and release or hold for subsequent euthanasia. Padded-jaw foot-hold traps usually permit the release of non-target animals unharmed.

Padded foot-hold traps can only be used in California for the protection of public safety and of T&E species. (In *Nat. Audubon Society v. Davis* (N.D. Cal. 2000) 144 F. Supp. 2d 1160, the United States District Court for the Northern District of California held that Section 3003.1(c) of the California Fish and Game Code, which generally prohibits the use of any steel-jawed leghold trap except when necessary to protect human health or safety, did not apply to federal agencies engaged in wildlife management on federal lands or in conservation efforts under federal law, including the protection of T&E species.) Target animals may be euthanized, released on site, or relocated; non-target species may be released on site.

These traps are placed in the travel paths of target animals, and some are baited or scented, using an olfactory attractant, such as the species' preferred food, urine, or musk/gland oils. The use of baits also helps to facilitate the prompt capture of target predators. This often decreases the total time traps are in the field, thereby lowering risks to non-target animals. In some situations, a draw station—a carcass, or large piece of meat—is used to attract target animals. In this approach, one or more traps are placed in the vicinity of the draw station. WS Directive 2.450 prohibits the placement of traps closer than 30 feet to the draw station to reduce the risk to non-target animals (USDA 2020).

Padded-jaw foot-hold traps set for mountain lions, bobcats, coyotes, and feral dogs are set with dirt or debris (e.g., leaf litter or rotting wood) sifted on top. The traps can be staked to the ground securely, attached to a solid structure (such as a tree trunk or heavy fence post), or used with a drag that becomes entangled in brush to prevent the trapped animal from escaping. Anchoring systems should provide enough resistance that if a larger animal is unintentionally captured, it should be able to either pull free from the trap or be held to prevent escaping with the trap on its foot.

Effective trap placement also contributes to trap selectivity. To minimize risk of capturing non-target animals, the user must be experienced and consider the target species' behavior, habitat, environmental condition, and the habitats of non-target animals. The pan tension, type of set, and attractant used greatly influence both capture efficiency and risks of catching non-target animals. The level of trap success is often determined by the ability of the user, through training, skill, and experience, to adapt the trap's use for specific conditions and species. WS-

California personnel check these traps daily and follow state laws and regulations regarding the setting and checking of traps and snares per WS Directive 2.450 and 2.210 (USDA 2020).

Trained dogs/hounds are used to trail certain species, identify sites to set equipment where target wildlife might be travelling, to tree specific species of wildlife for capture or removal, and as a decoy to draw target species closer for shooting activities.

- ***Decoy dogs*** are sometimes used to lure coyotes within shooting distance. These dogs are kept under control of personnel and are unlikely to interact with wildlife.
- ***Detection dogs*** are used to identify sites where equipment may be effective by indicating where mountain lions, bears, coyotes, or other predators have traveled, urinated, or defecated. They are kept under the control of personnel and are unlikely to interact directly with wildlife.
- ***Trailing dogs*** are used by WS-California to trail mountain lions, bobcat, feral swine, and black bears. Dogs are trained to find and follow the scent of the target species. The dogs are tracked with GPS collars and stay with the animal until WS-California personnel arrive and then anesthetize, dispatch, or release it, depending on the situation. For instance, WS-California personnel assist CDFW with research by collaring mountain lions and bobcat with new radio telemetry collars, replacing old collars, and monitoring collared mountain lions using dogs. Dogs are trained to ignore the scents of non-target species.

Telemetry is the monitoring of radio signals sent from a device attached to an animal to monitor an animal's movements or location. The attachment of the transmitter requires the capture and either chemical or physical restraint of the individual. The transmitter is usually a collar (in the case of mammals) or a backpack (in the case of birds). Personnel monitor the receiver on foot, in a ground vehicle, or in an aircraft.

Chemical immobilization is the use of drugs such as telazol (a combination of tiletamine and zolazepam) and ketamine/xylazine to restrain wildlife to allow for activities such as collaring and sample collection. This process can be dangerous both for personnel and the animal and requires training and experience.

These immobilizing agents produce central nervous depression through various means and render the animal unconscious. They are delivered to the target animal with a dart gun, blow gun, or syringe pole depending on the circumstances and the species being immobilized. If the agents are delivered via a dart, the dart is retrieved if possible. Often, the animal is typically treed with dogs or physically restrained by a trap and then the drug is delivered to the animal.

Once the procedures are completed the animal is monitored until it has recovered. For some of the immobilizing drugs, this means allowing the drugs to work through the animal's system. For others, there are antagonists that can be given that reverse the effects of the immobilizing drug such as yohimbine for xylazine.

3.2.4 Lethal Methods

Lethal methods are often most appropriately used by trained and certified WS-California personnel. Licensed firearms are often used in conjunction with non-lethal methods to attract the animal to an area or to capture the animal and hold it until personnel arrive. Methods used to attract or capture predators prior to lethal removal by firearm include calling, trained dogs, cage traps, foot/leg snares, and padded-jaw foot-hold traps. In addition, WS-California uses other lethal methods such as body-grip traps to remove wildlife that is causing damage.

Shooting – see description above in avian methods.

Neck snares – see description above in mammalian capture methods.

Carbon Dioxide – see description in avian methods.

Aerial Operations. Aircraft, both fixed-wing and rotary-wing (helicopters) are used by WS-California to remove coyotes or pigs. The most frequent aircraft used for aerial shooting and hazing is the fixed-wing aircraft Piper PA-18 Super Cub and Cub Crafters CC-18 Top Cub and rotary-wing Hughes MD500. WS-California conducts aerial activities on areas only under signed agreements or federal Annual Work Plans and concentrates efforts to specific areas during certain times of the year.

Aerial shooting consists of visually sighting target animals in the problem area and shooting them with a firearm from an aircraft. Aerial shooting is species-specific and can be used for immediate damage relief, providing that weather, topography and ground cover conditions are favorable. Aerial shooting can be effective in removing offending animals that have become trap-shy or are not susceptible to calling and shooting or other methods. This method may also be used proactively to reduce local coyote predations in lambing and calving areas with a history or predation.

Fixed-wing aircraft are useful for aerial shooting over flat and gently rolling terrain. Because of their maneuverability, helicopters have greater utility and are safer over timbered areas or broken land where animals are more difficult to spot. Aerial shooting typically occurs in remote areas with low densities of tree or vegetation cover, where the aerial visibility of target animals is greatest. WS-California spends relatively little time flying and shooting over any one area.

Wildlife Services Directive 2.620 and Wildlife Services aircraft-use policy help ensure that aerial shooting is conducted in a safe and environmentally sound manner, and in accordance with federal and state laws (USDA 2020). State Directors and District Supervisors are responsible for the supervision, management, and compliance for all aviation activities within California, and all aircraft used in WS-California activities through contract, agreement, or volunteer shall have been approved by the office of the Wildlife Services National Aviation Coordinator. Wildlife Services Directive 2.615 guides all Wildlife Services shooting activities (USDA 2020). All efforts are conducted in strict compliance with the Wildlife Services Aviation and Safety Manual, the Federal Aviation Regulations, the Fish and Wildlife Act of 1956 (Airborne Hunting), any applicable State and local laws and regulations, WS-California Aviation Safety Plan, Aviation Communication Plans, and Aviation Emergency Response Plans.

Wildlife Services has an Aviation Training and Operations Center located in Cedar City, Utah. Its mission is to improve aerial operations safety and provide training and guidance for Wildlife Services aviation personnel and aerial activities. The policy and primary focus of WS-California and contract aviation personnel is ensuring well-being through safety and accident prevention efforts. Pilots and aircraft must be certified under established WS-California procedures. Only properly trained WS-California employees are approved crewmembers. Ground crews are often used with aerial operations for safety and for providing assistance with locating and recovering target animals.

Body grip traps (also known as quick-kill traps) are used by WS-California to lethally remove beaver and ground squirrels. The body-grip trap is lightweight, easily set, and consists of a pair of rectangular wire frames that close when triggered, killing the captured animal with a quick body blow. Body grip traps are lethal to both target and non-target animals. Body grip traps set for beaver may be used in both urban and rural areas and set location is used to preclude non-target animals from capture.

Snap traps are common household rat or mouse traps. These traps are often used to collect and identify rodent species that cause damage so that species-specific management tools can be applied. If an infestation is minor, these traps may be used as the primary means of management.

Gas cartridges are fumigants used to reduce burrowing wildlife damage. The cartridges are placed in the active burrows of target animals, the fuse is lit, and the entrance is then tightly sealed with soil. The gas cartridges contain two active ingredients, sodium nitrate and charcoal, and once ignited the main combustion product is carbon monoxide. The gas cartridge ingredients are stable in light and are natural plant nutrients. No secondary hazards exist with burrow fumigants because the gases rapidly dissipate (Witmer and Fagerstone 2003). If soils are too porous or too dry, too much gas escapes the burrow system before lethal concentrations are reached (Witmer and Fagerstone 2003). WS-California uses gas cartridges in ground squirrel burrows and predator dens (EPA Labels-APHIS-ONLY Gas Cartridge (EPA. Reg. No. 56228-2) and Large Gas Cartridge (EPA Reg. No 56228-21)). The WS-California program manufactures gas cartridges at the Pocatello Supply Depot and uses den cartridges specially formulated for these purposes. Use of gas cartridges will only be used by qualified WS-California personal who have been trained to distinguish dens and burrows of target species from those of non-target species and not in occupied habitats of T&E species as per listed on label.

Euthanasia - Sodium pentobarbital produces rapid anesthetic action followed by a smooth and rapid onset of unconsciousness. Pentobarsol™ is a veterinary product regulated by the FDA and results in the "rapid, painless, and humane euthanasia of animals." All carcasses would be properly disposed of to avoid secondary contact with other target and non-target species per WS Directive 2.430.

Physical Euthanasia methods – see description above in avian methods.

3.3 Reptilian Methods

Grid searches are performed for the purpose of locating and removing species of snakes that predate on protected ground nesting birds. Grid searches involve 1-3 personnel walking in formation a few feet apart (vegetation dependent) through an affected area to search for snakes. Because this is performed at the request of a management agency to protect T&E species in response to reptilian predation within nesting habitat, WS-California works closely with cooperators to ensure that this technique disturbs the protected species as little as possible. Once snakes are located, they are captured by hand and euthanized.

Funnel traps are a conical funnel and at least one access lid or door. The trap is placed on the ground along a naturally occurring linear object or drift fencing. The trap is designed to allow wildlife to enter the trap through the funnel and then confuse the animal once inside making it difficult for the animal to escape the trap. The traps are unselective, but a live mouse can be used as bait to increase their attractiveness to reptilian predators. Funnel trapping can be an efficient sampling technique, although the literature is ambivalent about the relative performance of pitfall (e.g., Vogt and Hine 1982; Enge 2001) versus funnel traps (e.g., Greenberg et al. 1994; Jorgensen et al. 1998) (Ribeiro-Junior et al. 2008). When evidence of snakes is observed, funnel traps are placed on the borders of the area to be protected to intercept foraging snakes prior to entering the nesting area.

Tube traps are long cylindrical tubes of PVC or clear rigid plastic tubing capped at one end. National Wildlife Research Center (NWRC) ran trials with PVC traps as an inexpensive alternative to standard live traps on Argentine black and white tegu (Avery and Lowney 2016). "The importance of trap-encounter rate and the economy of PVC-type traps make them excellent for intensive trapping efforts" (Avery and Lowney 2016). Tube traps are usually used in concert with

drift fencing. Tube traps are typically not baited. When evidence of snakes is observed, tube traps are placed on the borders of the area to be protected to intercept foraging snakes prior to entering the nesting area.

Drift fencing acts as a vertical barrier that blocks the movement of animals across the landscape. There are multiple variations dependent on habitat and target species; however, WS-California typically uses 25-meter sections of 24-inch-wide plastic mesh attached to wooden stakes driven into the ground. Drift fencing typically guides animals toward a pitfall bucket, funnel trap, or other capture device (Willson and Gibbons 2009). Drift fencing is effective at aiding in capturing snakes. Drift fencing could be used on the outside of a colony or nest area to intercept reptilian predators attempting to access the area.

Physical Euthanasia methods – see description above in avian methods.

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Appendix C-2
CDFA Methods Descriptions

1 Overview

CDFA recognizes the federal expertise in managing wildlife conflicts that Wildlife Services (WS-California) brings to California.[1] The wildlife damage management (WDM) activities and methods that WS-California *currently* uses are described in detail in Appendix C-1. WS-California Methods Descriptions. Should an individual county enter into a Cooperative Service Agreement (CSA) with WS-California, their WDM would be consistent with the descriptions provided in Appendix C-1.

The following is a description of WDM activities and methods that may be used by CDFA and participating California Counties (and their agents, thereof), *independent* of WS-California. However, these activities and methods directly build upon those previously described, and thus are familiar, proven, and compatible. To ensure consistency in how WDM activities and methods are carried out by CDFA (and participating California Counties), CDFA shall adopt the Wildlife Services Directives as part of the WDM Program (USDA 2020).

2 Site Presence

WDM actions require the presence of qualified and properly trained personnel[2] (referred to herein as "wildlife specialists") at the locations where wildlife damage is occurring. Before CDFA and/or participating counties included in the CDFA WDM Program conduct any WDM activities or methods, a written request for assistance from the land or resource owner/manager[3] for public, private, or tribal lands) must be received. Wildlife specialists may use 4-wheel drive vehicles, all-terrain vehicles (ATVs), snow machines, aircraft, boats, or hoof stock for conveyance when conducting WDM activities and methods. When operating on federally or state-owned lands, wildlife specialists must comply with all applicable laws and regulations, as well as all terms and conditions set forth in any memorandum of understanding (MOU) negotiated with the relevant land management agencies.

3 Technical Assistance (All Species)

Technical assistance may be provided by wildlife specialists when a land or resource owner/manager requests assistance in resolving a conflict with wildlife. Wildlife specialists may provide information, demonstrations, technical assistance, and advice on available and effective WDM techniques. Technical assistance may include demonstrations on the proper use of management devices and information and advice on animal husbandry practices, techniques to modify human behavior, habitat management techniques, and animal behavior modification devices. Deciding which recommendations to suggest requires substantial deliberation. Part of the decision-making process may include an on-site visit and/or consultation with the requestor. Generally, several short and long-term management strategies would be described and recommended. Because the requestor is primarily responsible for implementing these strategies, the recommendations would be based on the abilities of

1 There are Wildlife Services (WS) offices representing all 50 states, the District of Columbia, Guam, and the Virgin Islands.

2 As described in this document, "wildlife specialists" refer to CDFA and/or County personnel (or their agents thereof) that have been specifically trained to carry out WDM activities and methods, including technical assistance as well as operational activities in the field. Wildlife specialists are required to undergo periodic education in current WDM techniques (including use of special equipment such as federally-licensed firearms, pyrotechnics, and specialized traps), and to carry out WDM activities and methods in compliance with local, state, and federal laws.

3 The land or resource owner/manager are also referred to as the 'owner/operator' or 'reporting party.'

the requestor, the level of risk, need, and practical application. Compliance with applicable federal, state, and local laws and regulations is the responsibility of the land or resource owners/managers when self-implementing the activities and methods described as part of technical assistance.

3.1 Modification of Human Behavior

Modification of human behavior may be recommended to prevent and resolve conflicts between humans and wildlife. For example, the elimination of both inadvertent feeding (i.e., improper disposal of garbage/storage of camp food, outdoor pet feeding, and feeding of cat colonies) and intentional feeding of wildlife by members of the public may be recommended. Peri-domestic wildlife species (such as raccoons and striped skunks) adapt well to living near humans, and studies have shown increased density of mesocarnivore species along the urbanization gradient in part due to the capitalization of anthropogenic food sources (Salek et al. 2015). Unnatural densities of these species in proximity to conservation lands may result in damage to native or threatened and endangered (T&E) species. Even with considerable effort from land or resource owners/managers, it can be difficult to consistently enforce no-feeding regulations and to effectively educate all people concerning the potential liabilities of feeding wildlife. Other examples of modifying human behavior could include altering activity periods and walking in groups.

3.2 Habitat Modification

Habitat modification can be an integral part of WDM. Wildlife production and/or presence are often directly related to the type, quality, and quantity of suitable habitat. While wildlife specialists may recommend or be consulted on the types of habitat modifications that could be implemented to lessen or avoid damage, in all cases, the land or resource owners/managers would be responsible for evaluating and implementing habitat modifications.

3.3 Animal Husbandry Modification

Animal husbandry modifications include the level of livestock handling and care, shifts in the timing of breeding and births, changes in herding techniques, livestock species selection, and the use of human or animal guards (e.g., dogs, donkeys, and llamas) to protect livestock.

The level of care or attention given to livestock may range from daily to seasonal. Generally, as the frequency and intensity of livestock handling increases, so does the degree of protection. The risk of depredation is greatest in operations where livestock are left unattended for extended periods. This risk can be reduced when operations permit nightly gathering so that livestock are inaccessible during the hours when predators are most active. This risk diminishes as age and size increase and can be further minimized by holding expectant females in pens or sheds to protect births and by holding newborn livestock in pens for the first two weeks. Shifts in breeding schedules can also reduce the risk of depredation by altering the timing of births to coincide with the greatest availability of natural prey to predators or to avoid seasonal concentrations of migrating predators (such as golden eagles).

The use of human custodians and guarding animals may also provide significant protection in some instances. The presence of herders to accompany bands of sheep on an open range may help ward off predators. Guard dogs have also proven successful in many sheep and goat operations. The supply of proven guarding dogs is generally quite limited, and typically requires that people purchase and rear a pup. Therefore, there is usually a four- to eight-month period of time necessary to raise a guarding dog before it becomes an effective deterrent to predators. Because 25

to 30 percent of dogs are not successful even after training, there is a reasonable chance that the first dog raised as a protector will not be effective. Furthermore, the effectiveness of guarding dogs may not be sufficient in areas where there is a high density of predators, where livestock widely scatter to forage, or where dog-to-livestock ratios are less than recommended.

Altering animal husbandry to reduce wildlife damage can also be effective, although it has many limitations. For example, nightly gathering may not be possible where livestock are in many fenced pastures and where grazing conditions require livestock to scatter. Hiring extra herders, building secure holding pens, and adjusting the timing of births can be prohibitively expensive. Furthermore, the costs associated with a change in husbandry practices can often exceed any potential savings because the timing of births is often managed to coincide with weather patterns or seasonal marketing of young livestock.

3.3.1 Physical Exclusion

Physical exclusion refers to the separation of damage-causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM.

Barrier fencing is typically used to prevent access to areas containing infrastructure (including road structures and bridges) and valued property such as gardens, fishponds, trees, orchards, dwellings, livestock or poultry pens, and T&E species. Selection of a barrier system depends on the wildlife species being excluded, expected duration of damage, size of the area or facility to be excluded, compatibility of the barrier with other operations (e.g., feeding, cleaning, harvesting, recreational activity, etc.), possible damage from severe weather, and effect on site aesthetics. The barrier system also depends on the resource being protected and its value. Systems can range from relatively simple systems such as metal flashing and hardware cloth to highly complex mesh and grid systems and electric fencing. Barrier systems can initially be very costly to erect and expensive to maintain, but can provide a long-term, highly effective solution to some damage problems.

Electric fencing could be used to alleviate damage caused by wildlife. The application of electrified fencing would generally be limited to site specific application where predation is occurring in a very limited geographic scale. Limits of this application arise where there are multiple land or resource owners/managers along a wetland, pond, or lake, the size of the area is relatively large, or where the area is in proximity to bodies of water. Predator control through judicious use and placement of electric fences and other barriers, as well as by trapping efforts, have reduced losses of adults, eggs, and/or young (USFWS 1985). While electric fencing may be effective in repelling predators in some urban settings, its use is often prohibited in many municipalities for human safety reasons. Problems that typically reduce the effectiveness of electric fences include vegetation on fence, flight capable birds, fencing knocked down by other animals (e.g., deer and dogs), and poor or intermittent power sources.

Tree protectors and sheathing can consist of wrapping hardware cloth, solid metal flashing, or other materials around the trunk of the tree, and are used to protect trees from beavers by physically preventing the semi-aquatic animal from causing damage. Sheathing or tree protectors could also be used in some situations to prevent access to trees canopies to protect nesting birds from predators. However, sheathing may be impractical where there are numerous plants or trees to protect, so it is mostly used in urban settings where only a few trees or objects need protection.

Netting can be useful in preventing birds from accessing resources or forming large roosts that could cause a risk to human health and safety and/or decrease aesthetics. For instance, the ceiling of parking garages can be netted to prevent pigeons and other birds from roosting above cars and dropping debris and feces on cars and people. Netting

can be installed in hangers to exclude birds from perching or nesting indoors. Netting can be very successful if done correctly but it can be expensive and requires routine maintenance. Netting is also not practical over large areas.

Overhead wire grids can deter birds from using specific areas where they are causing a nuisance (Johnson 1994). The wires represent an obstacle that is difficult for a flying bird to see/navigate and make the area less attractive to birds. Overhead wire grids are more practical and cost effective than netting for large areas; for example, they can be used to keep some waterfowl out of retention ponds on airfields.

Perch inhibitors can be used to keep birds from perching on sensitive equipment and interfering with function. Perch inhibitors can be anything that render the perching area unusable to birds: zip ties, bird spikes, thin wire strung over the perch, golf tees, etc.

Chemical applications/tactile/taste repellents are materials that are rough and can discourage, reduce, or prevent the gnawing behavior of rodents, tacky or sticky substances to prevent perching, or non-hazardous chemical compounds designed to cause pain or discomfort. Abrasives produce an unpalatable surface which irritates the teeth and mouth of rodents when they attempt to gnaw or chew on the surface. Flexible materials, such as sandpaper, grinder pads, and fine-mesh stainless steel screening can be placed on or over objects (e.g., electrical wiring, plastic piping, fruit trees, etc.) that are susceptible to gnawing rodents. Fine sand can be added and mixed with paint, glue, or other suitable liquid adherents to formulate a paste or heavy mixture that can be brushed-on or applied to a surface to discourage rodent gnawing. This method has had limited success when applied or painted on tree trunks to discourage beaver from cutting down trees. Abrasives are most practical where only a few trees or areas need protection. Primary repellents exemplified by tacky or sticky substances to prevent perching, or chemical compounds designed to affect pain or discomfort, evoke a limb withdraw or escape behavior (Clark and Avery 2013). Taste repellents such as methyl anthranilate and activated charcoal have shown to deter geese from grazing and repel passerines in laboratory feeding trials (Mason and Clark 1992).

Surface coverings could be used to provide hides for T&E species and decrease the success rate of predator detection. For example, clay roof tiles have been placed within California least tern colonies to act as chick shelters (USFWS 2006).

3.3.2 Harassment and Deterrent Methods

Harassment and deterrent devices rely on the use of sound, lights, pursuit, or other methods to frighten and disperse animals from the area to be protected. The success of frightening methods depends on animals' fear of, and subsequent aversion to, offensive stimuli. Once animals become habituated to a stimulus, they often resume their damaging activities. Considerable effort is usually required to consistently apply frightening techniques and then vary them sufficiently to prolong their effectiveness. Over time, some animals learn to ignore commonly used frightening methods that are no longer perceived as threats. In many cases animals frightened from one location become a problem at another.

Distress/predator calls are electronic devices that mimic sounds exhibited when target species are in distress, which is intended to cause a flight response and disperse target animals from the area. This technique is primarily used for avian management. Alarm calls are given by birds when they detect predators, while distress calls are given by birds when they are captured by a predator (Seamans and Gosser 2016). When other birds hear these calls, they believe a predator is present or a bird has been captured (Seamans and Gosser 2016).

Propane exploders/cannons produce noise that is intended to represent a firearm discharge. They are attached to a propane tank and regulated to discharge at certain intervals. Propane cannons work best when the interval of the discharge is random, the cannons are moved regularly, and they are combined with other methods, such as effigies. Although a propane exploder can be an effective dispersal tool for birds in agricultural settings, resident waterfowl in urban areas are more tolerant of noise and habituate to propane exploders relatively quickly.

Pyrotechnics are best described as controlled fireworks and can be safely used in a number of situations involving birds (USDA 2010). Pyrotechnics include, but are not limited to: screamers, bird bombs, CAPA cartridges, and 12-gauge cracker shells. 12-gauge cracker shells are shotgun shells containing an explosive round that is projected up to 200 feet in the air before exploding. Bird bombs and screamers are fired from 6 mm starter pistols; they are used similarly to 12-gauge cracker shells, but they travel a shorter distance. For example, bird bombs travel approximately 75-100 feet before exploding. Screamers are similar to bird bombs, but they whistle in flight, leave a small trail of smoke in their wake, and do not explode. CAPA cartridges are fired from an 18.6 mm launcher and travel approximately 1,000 feet and explode generating a sound of approximately 150 dB at 32 feet.

As with frightening devices and propane exploders, the effects of pyrotechnics on nontarget wildlife need to be considered. For example, special-status birds or birds protected under the Migratory Bird Treaty Act (MBTA) may be disturbed or frightened from nesting sites.

Paintball guns are used as a non-lethal harassment method to disperse wildlife from areas using physical harassment. Paintballs are occasionally used to harass species such as waterfowl, raptors, and doves and to remove swallow nests. Paintballs can be used to produce negative physical and visual stimuli that can aid in the dispersal of birds from areas where conflicts or threats of conflict are occurring. Washable, clear paintballs would be used unless otherwise directed by the state or federal wildlife agency with jurisdiction over the lands where this method is used.

Water spray can be used to harass or disperse wildlife. It can be used to produce negative visual and physical stimuli to disperse birds such as swallows from areas where conflicts or potential conflicts are occurring. High pressure water spray is also used to remove swallow nests from areas where conflict is occurring. Work involving the removal of active nests is always performed under a MBTA depredation permit. Motion triggered sprinklers can also be used to deter deer and birds from damaging landscaping and smaller plantings.

Lasers and lights are used with mixed results to frighten target wildlife. Lights can be used to flush avian predators off hunting perches; however, many animals can become accustomed to such lights over time. Lasers have shown some effectiveness with waterfowl, wading birds, gulls, vultures, and crows (USDA 2003). Lasers have a narrow, targeted beam which are used to depict a novel object approaching the bird that elicits a flight response. Best results are achieved under low-light conditions (i.e., sunset through dawn) and targeting structures or trees proximate to roosting birds, thereby reflecting the beam (USDA 2003; Blackwell et al. 2002).

Scarecrows and effigies often depict predator animals (e.g., alligators, owls), people, or mimic distressed target species (e.g., dead ravens, dead crows) and they are intended to elicit a flight response from target birds, which disperses those birds from the area. Avery et al. (2008) found that effigies could be effective at dispersing crows. When crow aggregations are relatively small, then effigies might suffice, but for large roosts it is likely that reinforcement with additional methods such as pyrotechnics or distress calls will be needed (Avery et al. 2008). Crow or raven effigies are mainly used to protect nesting colonies or individual nests from avian predators. In general, scarecrows would be most effective when they are moved frequently, alternated with other methods, and are well maintained. Scarecrows tend to lose effectiveness over time and become less effective as populations of

target species increase (Smith 1999), though they have been used effectively to deter raptors from establishing nests on certain power structures by mimicking utility staff accessing the tower.

Eye-spot balloons and mylar strips and balloons provide visual harassment for wildlife. Eye-spot balloons have large eyes that are intended to give birds a visual cue that a large predator is present. Mylar® tape and flags can also be used to deter birds from certain areas. These materials produce sound and flashes in the sun when wind blows over it that may frighten some species.

Radio-controlled vehicles can be used to haze wildlife from undesirable areas. Radio-controlled boats, cars, and drones can be used to move wildlife off ponds, saturated areas, and areas that are otherwise impassible. These tools are used to provide wildlife a visual stimulus to leave the area and not used to make (physical) contact with wildlife.

Vehicles can be used to pursue animals as a form of harassment. The purpose is to approach the animals with a large object, sometimes with lights flashing and a siren, to scare the birds away from an area. This technique is often used in airports. The vehicle is never used to run over or injure the animal.

Tactile repellent products reportedly deter birds from roosting on certain structural surfaces. Commercially available products such as polybutene present a tacky or sticky surface that the birds avoid. Different formulations, both liquid and gel, may be appropriate for many different situations, such as trees, shrubbery, ledges, beams, windowsills, gutters, cornices, roof lines (perimeters), and air conditioners (Zemsky 1995). The substance does lose its tackiness after approximately one year; moreover, the old material would need to be removed and new material reapplied (Zemsky 1995).

Olfactory repellents are used to deter animals from using specific areas for shelter or feeding. These commercially available products contain strong herbal odors. This smell encourages the sheltering animal to vacate the specific location where applied.

Dogs have been used successfully to disperse birds, especially waterfowl in urban and suburban areas (Seamans and Gosser 2016). Properly trained dogs provide harassment that birds recognize as threats. As with any bird dispersal technique, dogs are more effective when used in combination with other methods, as birds may become habituated to dogs and may no longer react to their presence (Seamans and Gosser 2016).

4 Operational Assistance

The CDFA WDM Program includes WDM activities and methods that would use specialized equipment (i.e., pyrotechnics, specialized traps, and firearms). However, the cost and required expertise or training needed to effectively use specialized equipment, may be a limiting factor. In certain cases, the specific WDM activity or method may require coordination with and assistance from WS-California wildlife specialists.

The majority of operational assistance activities (activities conducted in the field) are anticipated to be performed by wildlife specialists (or their agents) or by WS-California wildlife specialists as part of a cooperative service agreement (CSA) with a county (described in Appendix C-1). Emergency/rapid response operational assistance activities may be conducted by CDFA, Counties, or WS-California wildlife specialists, as appropriate.

4.1 Avian Methods

4.1.1 Physical Exclusion

Physical exclusion refers to the separation of damage causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM. Examples of physical exclusion techniques include:

Netting – see description above in technical assistance.

Overhead wire grids – see description above in technical assistance.

Perch inhibitors – see description above in technical assistance.

Chemical applications/tactile/taste repellents – see description above in technical assistance.

Surface coverings – see description above in technical assistance.

One-way Door Excluders are devices usually used in urban settings to allow an animal to leave an area where it is unwanted by way of a one-way door or a narrowing exit that prevents them from re-entering through the same entrance. They can be used for small mammals, meso-mammals, bats, and some bird species. They are installed over a hole (usually in the side of a house or other building) with the door opening from the inside of the structure outside. Once the animal has exited the door serves as a barrier to re-entrance. Once it is ascertained that no more animals are in the structure, the land or resource owner/manager is usually advised to repair the hole.

4.1.2 Harassment and Deterrent Methods

Distress/predator calls – see description above in technical assistance.

Propane exploders/cannons – see description above in technical assistance.

Pyrotechnics – see description above in technical assistance.

Water spray – see description above in technical assistance.

Lasers – see description above in technical assistance.

Scarecrows and effigies – see description above in technical assistance.

Eye-spot balloons and mylar strips and balloons – see description above in technical assistance.

Radio-controlled vehicles – see description above in technical assistance.

Vehicles – see description above in technical assistance.

Tactile repellent products – see description above in technical assistance.

Olfactory repellents – see description above in technical assistance.

Dogs – see description above in technical assistance. Government-owned and employee-owned trained dogs will accompany wildlife specialists when there is an operational need. Dogs would not be allowed to intentionally kill animals.

Paintball guns – see description above in technical assistance.

4.1.3 Capture Methods

Live capture methods are used to capture individuals causing damage. Most of these methods involve the use of traps set to capture and hold the animal alive until personnel arrive. The animal can then be euthanized or released as appropriate. Some individuals are relocated with the approval of California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS). Any traps set by wildlife specialist shall be checked by the wildlife specialist, the land or resource owner/manager, or their designated agent.

Air cannon/rocket nets are typically used for larger birds, such as waterfowl and turkeys, and use compressed air to propel a net up over birds, which have been baited to a particular site. The habitat must be relatively flat, open, and void of vegetation that could become tangled in the net and allow for target species to escape.

Bow nets/E-Z catch nets are normally used to capture raptors, but may also be used for European starlings, shorebirds, and other species using visual bait and/or conspecific decoys. Bow nets are set on the ground and are remotely triggered from a nearby observation site. Once triggered, the net envelops the target birds. The captured bird is removed from the net as gently and quickly as possible to avoid entanglement and additional stress. Wildlife specialists shall positively identify the target species prior to deploying the trap. These nets are operated by a spring-loaded system with a net between two curved (bowed) rods. When used to capture raptors, a lure animal is placed at the center to attract the raptor to the trap. This method can also be elevated to increase success of capturing certain species. E-Z catch nets are similar to bow nets except that they have a treadle/trigger that is set off by the animal.

Drop nets are nets suspended over a pre-baited site and manually or remotely triggered to drop on target animals. Decoys (live and/or fake) may also be used to enhance the effectiveness of drop nets. Drop nets require specific knowledge of the targeted species' congregation locations and timing to be effective. CDFA/county wildlife specialists would first monitor the pre-baited site and when the target species is in the correct location under the nets, and then activate the net from a nearby location, quickly securing the target wildlife to prevent escape.

Hand nets are used to catch birds in confined areas (e.g., buildings). Most hand nets resemble fishing dip nets with soft netting of various grids and diameters mounted on a long handle. A variation of the hand net is a round net with weights at the edges of the net. It is thrown and is like throw nets used for fishing. Hand nets are a species-specific, live-capture technique.

Mist nets are more commonly used for capturing small-sized birds but can be used to capture larger birds such as ducks and ring-necked pheasants or smaller hawks and owls. Mist nets are fine silk or nylon nets, usually black or tan in color, and range from 3 to 10 feet wide and 25 to 35 feet long. Net mesh size determines the species of birds that can be caught. They are strung between poles in locations where the target birds are known to travel (i.e., along a stream, across an opening in a wooded area) so that the nets form loose pockets. When the bird flies into the nets they are caught up in the pockets. Mist nets can also be used in doorways. Mist nets are monitored by personnel and birds are removed promptly.

Dho-gazza traps employ larger gauge mist nets that are strung between poles with a lure animal placed inside of the nets to attract the target species to the trap. The mist nets are set to breakaway and thus wrap the raptor up in the net. This trap is most often used to capture northern harriers.

Net guns/launchers use a firearm blank or compressed air to propel a weighted net up over birds, which have been baited to a particular site or habituated to the close proximity of human presence.Net guns are handheld and manually discharged while net launchers are ground based and remotely discharged from a nearby observation site.

Padded-jaw foot-hold traps altered for birds. (Full padded-jaw foot-hold description can be found in the Mammalian Methods section). Modified Padded-jaw foot-hold traps can be used for avian species. For avian species the factory supplied springs are weakened or replaced to decrease the amount of pressure, and either surgical tubing or foam is added for extra padding. These traps are placed where target birds have been observed perching on the ground. The trap is anchored so that the captured bird cannot leave the location.

Pole traps (Verbail or modified padded-jaw foot-hold traps) are traps on the top of a pole and are primarily used to capture raptors. "Pole traps are live traps that can be effective and humane tools for alleviating certain problems caused by raptors" (USFWS 2005). Depending on the species being trapped, the modified padded-jaw foot-hold trap size, pole height, trap placement, and trap location are all taken into consideration by wildlife specialists prior to setting. The padded-jaw foot-hold trap is highly modified with the original springs either replaced or weakened in addition to having off-set jaws, and either surgical tubing or foam rubber securely attached to the already rubberized jaw for extra padding. Traps are attached to a guide rod or thick wire that runs from the trap down the pole to the ground. Once an animal is captured, the trap and raptor slide down the guide to the ground for handling. A Verbail trap consists of a platform or stand wrapped with a nylon cord and associated steel spring placed on top of a pole. When tripped, the cord wraps around the bird's foot and holds it. The steel spring is attached to a guide wire which allows the trap to slide down the pole to the ground.

Bal-chatri traps (BC traps) consist of a small wire cage with monofilament nooses attached to the top and sides of the trap. The monofilament test line (ranging from 8.25-pound test fishing line) and noose size will vary depending on the size of the target species. The trap is baited with a mouse and/or other live bait depending on the size of the target species; the lure animals are protected inside the trap from the target species. Cages are generally constructed of ½ inch wire hardware cloth and may be 2-3 inches tall and 10-14 inches square. A 2 to 4 pound weight (such as large fishing weights or bench press weights) are attached to the trap to prevent the raptor from moving the trap once it is caught. These traps would be deployed in the line of sight of the target raptor and would be constantly monitored by wildlife specialists.

Phai hoop traps have a circular shape and have many upright nooses placed all along its circumference. A lure animal is placed in the center of the hoop. The trap is deployed within sight of a raptor, similar to a BC trap. As the raptor extends its legs to grab the lure, it becomes ensnared by the hoop's nooses.

Pigeon harnesses are a piece of leather or heavy material that fits onto lure bird such as a pigeon or starling like a backpack and allows the lure bird its full range of motion. Heavy weight monofilament line tied into sliding nooses are attached to the backpack and a ground anchor or weight is attached to secure everything to the ground. The pigeon harness is deployed similarly to the BC trap and the nooses that are attached to the harness catch on the targeted raptor's talons, toes and/or feet. This method is effective at capturing peregrine falcons; it is constantly monitored and only used when a target raptor is present.

Funnel traps are used to live-capture waterfowl. The traps can vary in size and are usually constructed of netting or wire mesh. Traps are set up in shallow water and baited; they allow waterfowl to enter the trap but prevent them from exiting. Traps would be checked regularly to address live-captured waterfowl.

Nest box traps are effective in capturing cavity nesting birds, such as European starlings, and operate similar to other live-capture traps. Nest box traps allow birds to enter a nest box, but not exit.

Nest/walk-in traps are similar to box or decoy traps. They are placed over an active nest or baited with food and allow the target bird to pass through a funnel, one-way, or drop-down door that confines the target. Nest and walk-in traps are effective in capturing ground nesting birds such as cormorants, ducks, geese, and ground feeding birds such as rock pigeons and mourning doves.

Swedish goshawk traps are compartment-style traps with a lower bait cage that houses a lure animal. The upper compartment is a trapping mechanism that consists of an "A" frame made of wood or metal along with a trigger that is mounted atop the bait cage. The side panels are generally made of mesh wire or netting. The sides of the "A" are hinged so that the sides are held open in a "H" shape by a trigger that stretches the length of the trap. The trigger mechanism is hinged in the middle. As a raptor enters the trapping mechanism to investigate the lure in the bait trap, it lands on or brushes against the trigger, which collapses and allows the sides to close back into an "A" shape trapping the raptor inside (Meng 1971; Kenward et al. 1983). The doors are held closed by springs. The bait cage can hold multiple lure animals to increase movement and/or visibility of the trap. Lure animals are provided with food and water while in the bait cage.

Cage traps are non-lethal capture devices. The size of the cage trap depends on the size of the targeted species; this helps limit the capture of non-target species by physically excluding them from the trap. Traps are set near signs of damage or in areas where the target species is known to travel and are usually baited with species-specific baits. Cage traps set by wildlife specialists would be checked daily. Cage traps are typically set with a bait or lure to encourage the target species to enter the trap. Baits can be chosen to be selective for target species. A trigger mechanism usually located at the back of the trap is triggered by the animal and the trap closes. The animal is enclosed in the trap and held until it is subsequently released or euthanized. Because the animal is held alive, if a non-target animal is captured, it can usually be released unharmed.

Box traps are similar to cage traps. They are rectangular in shape and either have a door that is triggered when an animal steps on a treadle or is a one-way door. The trap is baited with a food item that encourages the animal to walk through the door or the bait is placed in the expected path of the animal to lure it towards the trap.

Decoy traps are similar in design to the Australian Crow Trap as reported by McCracken (1972) and Johnson and Glahn (1994). Decoy traps are commonly rectangular, and they are generally constructed of a wooden or metal frame and wire mesh or netting to form an enclosure, which can be constructed in a variety of sizes, depending on the target species and the number of birds likely to be captured. Sides go up above the middle panel with the funnels and have perches to encourage birds to stay above the funnels, so they do not try to escape. Decoy traps used by wildlife specialists would target social flocking bird species such as crows, starlings, house sparrows and blackbirds. Live decoy birds of the same species being targeted are usually placed in the trap with sufficient food and water to assure their survival. Perches are configured in the trap to allow birds to roost above the ground and in a more natural position. The feeding behavior and calls of the decoy birds attract other target birds to the trap. In addition, the traps are often baited with food attractants. Openings in the enclosure allow target birds to enter the enclosure to feed on the bait. Openings are generally placed at the top of the enclosure and are generally about the length and width of target bird species with their wings folded so birds can enter but are unable to exit with their

wings extended as they are flying upwards toward the openings. Active decoy traps are monitored daily to address captured birds and to replenish bait and water. Depending on design, decoy traps can be portable or permanent. Portable decoy traps generally consist of several parts and panels that require assembly once transported to a location where target animals are active.

Corral traps could be used to live-capture birds, especially waterfowl. Corral traps can be effectively used to live-capture waterfowl during the annual molt when birds are unable to fly. Each year for a few weeks in the summer, waterfowl are flightless as they are growing new flight feathers. This method consists of setting up an enclosure with an open end consisting of several movable panels. The birds are then surrounded by personnel and slowly guided into the corral trap and the panels are closed behind them. This method is labor intensive and requires multiple individuals to participate in the drive.

4.1.4 Lethal Methods

Water spray – see description above in avian harassment and deterrent methods. This method can be lethal to chicks and eggs when used on active nests. A MBTA depredation permit is required to use this method on active nests.

Shooting. Licensed firearms are used to selectively remove individual target animals. Shooting is a very targeted method, and a properly placed gunshot can cause immediate insensibility and a humane death (AVMA 2020). As needed, wildlife specialists may kill animals as quickly and humanely as possible; under some conditions a gunshot may be the only practical method of euthanasia (AVMA 2020). All applicable firearm safety precautions, laws, and regulations governing the use of firearms shall be followed by wildlife specialists when conducting WDM activities. Firearm safety training shall be required prior to use of this approach. The National Rifle Association (NRA) certified instructors and the NRA's curriculum for the basic pistol, rifle, and shotgun certifications are the officially recognized program for firearms safety training. CDFA/counties would be required to periodically receive updated trainings. Wildlife specialists may use firearms in combination with other WDM techniques and/or modifications listed below.

- ***Calling*** consists of using voice, mouth, handheld, or electronic calls to draw predators into the area. Calling is often used to draw the target species into firearm range.
- ***Night shooting*** may be conducted with spotlights or night vision devices. Night vision devices are undetectable to the surrounding environment. Spotlights are high intensity lights that are used to identify and cause the target species to temporarily pause its movements and/or flush when exposed for a length of time.
- ***Non-lead (non-toxic) ammunition.*** Effective July 1, 2015, California state law (AB711) and subsequent regulations promulgated by the California Fish and Game Commission require the use of nonlead ammunition in a phased approach when taking wildlife for recreation or depredation purposes. Effective July 1, 2019, nonlead ammunition is required for the taking of any wildlife for any reason. More information on the regulations and phased approach can be found at https://www.wildlife.ca.gov/Hunting/Nonlead-Ammunition.
- ***Suppressors.*** Firearms create high intensity sound for short durations. When possible, and without reducing the effectiveness of the methods, CDFA/counties may use suppressors (silencers) and specific ammunition (subsonic) to minimize the audio report of firearms. Suppressors and subsonic ammunition are most often used with rifles. Shotguns cannot always be suppressed without affecting shot pattern and/or shooting accuracy.

Carbon dioxide (CO2) is sometimes used to euthanize birds that are captured in live traps. Live birds are placed in a container, such as a plastic 5-gallon bucket, or chamber that is then sealed shut. Carbon dioxide gas is released into the bucket or chamber and birds quickly die after inhaling the gas. This method is approved as a euthanizing agent by the American Veterinary Medical Association (AVMA) (AVMA 2013). Carbon dioxide gas is a byproduct of animal respiration, is common in the atmosphere, and is required by plants for photosynthesis. It is used to carbonate beverages for human consumption and is the gas released by dry ice.

Avicides. No avicides shall be directly used by CDFA/counties wildlife specialists as part of the CDFA WDM Program. Use of DRC-1339 is limited to WDM activities carried out by WS-California wildlife specialists. CDFA/counties may participate through cooperation or funding.

DRC-1339 is a slow acting avicide that is registered with the U.S. Environmental Protection Agency (EPA) for use on a number of bird species (e.g., ravens, crows, pigeons, gulls, blackbirds, and European starlings), and on various bait carriers, such as grain, meat baits, eggs, sandwich bread, and French fries. DRC-1339 is only available for use in California under WS-California supervision. DRC-1339 was developed as an avicide because of its differential toxicity to mammals. DRC-1339 is highly toxic to sensitive bird species but only slightly toxic to non-sensitive birds, predatory birds, and mammals. Most bird species that are responsible for damage, including but not limited to starlings, blackbirds, pigeons, crows, magpies, and ravens, are highly sensitive to DRC-1339. Many other bird species such as raptors (Schafer 1981), sparrows, and eagles are classified as non-sensitive. Secondary poisoning has not been observed with baits treated with DRC-1339. Numerous studies show that DRC-1339 poses minimal risk of primary poisoning to non-target species and T&E species (EPA 1995). This can be attributed to relatively low toxicity to species that might scavenge on birds killed by DRC-1339 and DRC-1339's tendency to be almost completely metabolized in the target birds, which leaves little residue to be ingested by scavengers. Secondary hazards of DRC-1339 are almost non-existent. DRC-1339 acts in a humane manner, producing a quiet and apparently painless death.

DRC-1339 is unstable in the environment and degrades rapidly when exposed to sunlight, heat, or ultraviolet radiation. The half-life is about 25 hours, which means it is nearly 100% broken down within a week, and identified metabolites (i.e., degradation chemicals) have low toxicity. DRC-1339 is highly soluble in water, but does not hydrolyze, and degradation occurs rapidly in water. DRC-1339 tightly binds to soil and has low mobility.

Studies continue to document the effectiveness of DRC-1339 in resolving blackbird/starling problems at feedlots (e.g., West and Besser 1976) and dispersing crow roosts in urban/suburban areas (e.g., Boyd and Hall 1987). Glahn and Wilson (1992) noted that grain baiting with DRC-1339 is a cost-effective method of reducing conflicts with blackbirds and sprouting rice.

Active nest destruction is a dispersal technique used to encourage adult birds to leave the area after their nests and eggs are destroyed. In addition to dispersing birds, this method may also reduce the aggressive nature of adult birds during the nesting period. For birds protected under the MBTA, the USFWS permits "active nest destruction" only under the issuance of a depredation permit. This control method is target-specific, with very little chance for the take of non-target species.

Egg addling/oiling are methods of suppressing reproduction in local predating bird populations by destroying egg embryos prior to hatching. Egg addling is conducted by vigorously shaking an egg numerous times, causing detachment of the embryo from the egg sac. Egg oiling is a method for suppressing reproduction of predating birds by placing a small quantity of food grade corn oil on eggs in nests. The oil prevents exchange of gases and causes asphyxiation of developing embryos and has been found to be 96-100% effective in reducing hatchability (Pochop,

Cummings, Steuber et al. 1998; Pochop, Cummings, Yoder et al. 1998). The EPA has ruled that use of corn oil for this purpose is exempt from registration requirements under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). To be most effective, the oil should be applied anytime between the fifth day after the laying of the last egg in a nest and at least five days before anticipated hatching. Egg addling and oiling is different than nest destruction in that the incubating birds generally continue incubation and do not re-nest. Egg addling and oiling are only done after positive identification of the nesting species, as such this method is extremely target specific and poses no threat to non-target species.

Snap traps are common household rat or mouse traps usually placed inside structures. Modified snap traps can be used to remove individual European starlings and other cavity nesting birds. These traps are sometimes used to target species-specific offenders entering small cracks where other types of traps will not fit. The trap treadle is placed near the damaged area caused by the offending bird. Positive species identification and monitoring of species activity around the entry point limit the take of non-target species.

Physical Euthanasia methods include shooting, cervical dislocation, decapitation, and stunning. When properly used by skilled personnel, AVMA states that physical methods of euthanasia may result in less fear and anxiety and be more rapid, painless, humane, and practical than other forms of euthanasia. Shooting may be the quickest and only method available under most field conditions. Manual euthanasia methods may be used to euthanize small birds, rodents and reptiles in limited circumstances as acceptable to AVMA. All euthanasia methods should be performed discretely by properly trained personnel to minimize stress to the animal (AVMA 2020).

4.2 Mammalian Species Methods

4.2.1 Physical Exclusion

Physical exclusion refers to the separation of damage causing wildlife from the resource to be protected and is considered one of the earliest forms of WDM.

Barrier fencing – see description in technical assistance.

Electric fencing – see description in technical assistance.

Tree protectors and sheathing – see description in technical assistance.

Chemical applications/tactile/taste repellents – see description above in technical assistance.

Surface coverings – see description above in technical assistance.

One-way Door Excluders – see description in avian physical exclusion.

4.2.2 Harassment and Deterrent Methods

Pyrotechnics – see description above in technical assistance.

Water spray – see description above in technical assistance.

Lasers – see description above in technical assistance.

Scarecrows and effigies – see description above in technical assistance.

Eye-spot balloons and mylar strips and balloons – see description above in technical assistance.

Vehicles – see description above in technical assistance.

Dogs – see description above in avian harassment and deterrent methods.

Rubber bullets/beanbag rounds may be used to harass or disperse wildlife causing damage or wildlife in proximity to people. This hazing may resolve or prevent human/wildlife interaction.

Fladry/Turbo fladry may be used to discourage deter wolves from entering an area. Fladry is a single strand of polyline with flagging attached (Young et al. 2015). Turbo fladry is electrified as in an electric fence. The key to fladry is that it is most effective when it is installed to be highly visible (UCCE 2019). Since turbo fladry is electrified, it tends to be effective longer (Lance et al. 2010); for example, when a wolf tests the fladry it is shocked. Wildlife specialists may provide guidance and/or assist land or resource owners/managers with the installation of fladry or turbo fladry. Fladry and turbo fladry are temporary alterations to habitat. Turbo fladry may provide livestock owners' temporary relief (Davidson-Nelson and Gehring 2010) and is probably only effective for a timeframe measured in months (UCCE 2019). It is recommended that once livestock are moved or wolf activity at the site decreases, that the turbo fladry be removed.

4.2.3 Capture Methods

Box traps – see description above in avian methods.

Net guns/launchers – see description above in avian methods.

Hand nets – see description above in avian methods.

Cage traps see additional description above in avian methods. Cage traps used to capture mountain lions are typically constructed of commercial livestock panels made of 3/16-inch galvanized welded rods. The top, sides, front, and bottom panels are welded together, and panel openings are approximately 2-inch x 4-inch. These cage traps may have a treadle-type trigger or trip line and a single-catch, multi-catch, or gravity door.

Large cage traps can be used to capture bobcats and feral dogs. For the purposes of this description, large cage traps are larger than 12-inch x 12-inch x 36-inch, but they do not include culvert traps (see below). Large cage traps vary in size and shape depending on the species being targeted. Bobcat or dog-size cage traps are made of welded wire, utilize a treadle-type trigger or trip line system and close with a spring or gravity door.

Cage traps measuring 12-inch x 12-inch x 32-inch and smaller are typically used to capture smaller animals (e.g., the size of a raccoon). They are often set in urban areas to capture meso-mammals such as raccoons and skunks that are causing damage. While many cage traps are welded wire style traps, some small cage traps are constructed from a tube or a plastic box. The trap functions in a similar way to the more common welded wire style traps.

Clover traps are a type of box trap used to capture deer. They measure approximately 4 feet (height) x 3 feet (width) x 6 feet (length) and are comprised of metal tubing frame covered with a heavy netting. Bait is put at the back of the trap behind a trigger line. When the animal trips the string, the door is released and closes. Some modified

designs allow the trap to be collapsed by handlers when the deer is captured to facilitate restraint of the deer and minimize struggling.

Culvert traps are a type of trap constructed of solid material as opposed to welded wire or livestock panels used in large cage traps. They have differing trigger systems but usually utilize swing doors and are often on a wheeled platform or trailer for transport. This type of trap can be used for black bears that are in urban/suburban settings, although they can also be used in rural areas and for other species. Due to the size and weight of most culvert traps, they are primarily restricted to use near roadways, although models exist that may be disassembled and reconstructed in remote areas. The type of bait used depends on the nature of the damage problem and target species. All culvert traps would be checked daily. Non-target animals are generally released uninjured, and target animals are usually euthanized or relocated as appropriate and when authorized by the CDFW.

Corral traps are used to live-capture mammals, primarily feral swine. Corral traps are circular pens 3 to 10 meters in diameter and constructed of panels or cattle fencing, which can be interconnected to expand or contract the size of the corral. Corral traps employ a lift up or side swing head gate or drop-down net to allow access for the feral swine to enter.

Pig brig traps are a circular trap of netting supported by t-posts. After a period of time during which the net is suspended above the ground so that pigs can go in and out of the area and eat bait, a net skirt is attached to earth anchors on the inside of the trap. Pigs are still able to nose their way under the skirt and into the trap, however they are prevented from exiting. This trap allows for multiple captures of animals.

Snares made of wire or cables are among the oldest wildlife management tools and are generally not affected by inclement weather. They can be used effectively to catch most species. Snares may be employed as either lethal or live-capture devices depending on how or where they are set. Most snares are also equipped with a swivel to minimize injuries to the captured animal and reduce twisting and breakage of the snare cable. Breakaway devices can also be incorporated into snares, allowing the loop to break open and release the animal when a specific amount of force is applied. These devices can improve the selectivity of cable restraints to reduce capture of non-target species.

Common types of snares include:

- Neck snares are set to capture an animal by the neck and are usually lethal, but stops can be applied to the cable to make the snare a live-capture device. Snares positioned to capture the animal around the body can be useful live-capture devices. Snares can be effectively used wherever a target animal moves through a restricted lane of travel (i.e., "crawl holes" under fences, trails through vegetation, or den entrances). When an animal moves forward into the loop formed by the cable, the snare tightens, and the animal is held.
- Collarum™ is a non-lethal, spring-powered, modified neck snare device that is primarily used to capture coyotes. The trigger is designed specifically for canines, which use a distinct pulling motion to set off the device. The device uses an attractant and is activated when an animal bites and pulls a cap. The snare is then projected from the ground up and over the head of the coyote. A stop on the device limits loop closure and prevents capture of smaller non-target wildlife. As with other types of snares, the use of the Collarum™ device to capture coyotes is greatly dependent upon finding a location where they frequently travel.
- Foot snares are a spring-powered non-lethal device, activated when an animal places its foot on the trigger pan. In some situations, using hanging snares to capture wildlife is impractical due to the behavior or morphology of the animal, or the location of wildlife conflicts. Neck snares must be set in locations where the

likelihood of capturing non-target animals is minimized, but foot snares with built-in pan tension devices can be set to exclude animals lighter than the target animal.

- Foot snares set for bear are usually set with the trigger in a vertical pipe, large enough for a bear's paw, buried vertically, so that the top is flush with the ground. The cable loop is placed around the circumference of the pipe, and bait is placed in the pipe, under the trigger. When the animal reaches into the pipe, it sets off the trigger and a cable loop is propelled onto the animal's leg.

Catch poles are handheld devices used to capture or safely handle animals. A catchpole is a hollow pipe with an internal cable or rope that forms an adjustable noose at one end. The free end of the cable or rope extends through a locking mechanism on the end opposite of the noose. By pulling on the free end of the cable or rope, the size of the noose is reduced sufficiently to hold an animal. For WDM, catch poles are primarily used to capture animals partially restrained by barriers (i.e., a raccoon trapped in a building) or to remove live animals from traps without danger to or from the captured animal.

Suitcase or basket traps are designed to live-capture beaver. The traps are constructed of a metal frame hinged with springs and covered with chain-link fence. When set, the trap is opened to allow an animal to enter and when tripped, the metal frame closes like a suitcase around the animal. These styles of traps are set in the shallows of waterways (i.e., ponds, rivers, creeks, lakes, etc.) near or on the shoreline or bank so that a captured beaver would always have access to air. They are not set underwater where a triggered trap would be totally submersed in water. Basket-type traps are live-capture traps that would be checked daily by wildlife specialists, the land or resource owners/managers, or their designated agent. These traps are primarily used in rural or restricted access areas but can be set in urban areas if they do not present a hazard to pets (companion animals) or children.

E-zee set or gravity catch traps consist of a welded metal frame fitted with a front grate, wide mesh, and pressure trigger. These traps are set on or near beaver dams where water can flow through the grate. When a beaver brings material to plug the flowing water, the top of the trap is released and drops to surround the animal. These traps have no springs and are considered safer for public access areas.

Padded-jaw foot-hold traps are coil spring traps with rotating jaws. They have centrally attached inline shock springs, swivels to allow for movement, and are equipped with non-hardening rubber on the face of the jaw. These traps come in several sizes depending on the target species. Padded-jaw foot-hold traps are designed to close on an animal's foot and hold the animal without injuring it. They have adjustable pan tension triggers which allow the exclusion of animals smaller than the target species. These traps can be used for live-capture and release or hold for subsequent euthanasia. Padded-jaw foot-hold traps usually permit the release of non-target animals unharmed.

Padded foot-hold traps can only be used in California for the protection of public safety and of T&E species. (In *Nat. Audubon Society v. Davis* (N.D. Cal. 2000) 144 F. Supp. 2d 1160, the United States District Court for the Northern District of California held that Section 3003.1(c) of the California Fish and Game Code, which generally prohibits the use of any steel-jawed leghold trap except when necessary to protect human health or safety, did not apply to federal agencies engaged in wildlife management on federal lands or in conservation efforts under federal law, including the protection of T&E species.) Target animals may be euthanized, released on site, or relocated; non-target species may be released on site.

These traps are placed in the travel paths of target animals, and some are baited or scented, using an olfactory attractant, such as the species' preferred food, urine, or musk/gland oils. The use of baits also helps to facilitate the prompt capture of target predators. This often decreases the total time traps are in the field, thereby lowering

risks to non-target animals. In some situations, a draw station—a carcass, or large piece of meat—is used to attract target animals. In this approach, one or more traps are placed in the vicinity of the draw station.

Padded-jaw foot-hold traps set for mountain lions, bobcats, coyotes, and feral dogs are set with dirt or debris (e.g., leaf litter or rotting wood) sifted on top. The traps can be staked to the ground securely, attached to a solid structure (such as a tree trunk or heavy fence post), or used with a drag that becomes entangled in brush to prevent the trapped animal from escaping. Anchoring systems should provide enough resistance that if a larger animal is unintentionally captured, it should be able to either pull free from the trap or be held to prevent escaping with the trap on its foot.

Effective trap placement also contributes to trap selectivity. To minimize risk of capturing non-target animals, the user must be experienced and consider the target species' behavior, habitat, environmental condition, and the habitats of non-target animals. The pan tension, type of set, and attractant used greatly influence both capture efficiency and risks of catching non-target animals. The level of trap success is often determined by the ability of the user, through training, skill, and experience, to adapt the trap's use for specific conditions and species. Traps would be checked daily and are required to follow state laws and regulations regarding the setting and checking of traps.

Trained dogs/hounds are used to trail certain species, identify sites to set equipment where target wildlife might be travelling, to tree specific species of wildlife for capture or removal, and as a decoy to draw target species closer for shooting activities.

- ***Decoy dogs*** are sometimes used to lure coyotes within shooting distance. These dogs are kept under control of personnel and are unlikely to interact with wildlife.
- ***Detection dogs*** are used to identify sites where equipment may be effective by indicating where mountain lions, bears, coyotes, or other predators have traveled, urinated, or defecated. They are kept under the control of personnel and are unlikely to interact directly with wildlife.
- ***Trailing dogs*** can be used to trail mountain lions, bobcat, feral swine, and black bears. Dogs can be trained to find and follow the scent of the target species. Typically the dogs are tracked with GPS collars and stay with the animal until wildlife specialists arrive and then anesthetize, dispatch, or release it, depending on the situation. Dogs are trained to ignore the scents of non-target species.

Telemetry is the monitoring of radio signals sent from a device attached to an animal to monitor an animal's movements or location. The attachment of the transmitter requires the capture and either chemical or physical restraint of the individual. The transmitter is usually a collar (in the case of mammals) or a backpack (in the case of birds). Personnel monitor the receiver on foot, in a ground vehicle, or in an aircraft.

Chemical immobilization is the use of drugs such as telazol (a combination of tiletamine and zolazepam) and ketamine/xylazine to restrain wildlife to allow for activities such as collaring and sample collection. This process can be dangerous both for personnel and the animal and requires training and experience.

These immobilizing agents produce central nervous depression through various means and render the animal unconscious. They are delivered to the target animal with a dart gun, blow gun, or syringe pole depending on the circumstances and the species being immobilized. If the agents are delivered via a dart, the dart is retrieved if possible. Often, the animal is typically treed with dogs or physically restrained by a trap and then the drug is delivered to the animal.

Once the procedures are completed the animal is monitored until it has recovered. For some of the immobilizing drugs, this means allowing the drugs to work through the animal's system. For others, there are antagonists that can be given that reverse the effects of the immobilizing drug such as yohimbine for xylazine.

4.2.4 Lethal Methods

Lethal methods are often most appropriately used by trained and wildlife specialists. Licensed firearms are often used in conjunction with non-lethal methods to attract the animal to an area or to capture the animal and hold it until personnel arrive. Methods used to attract or capture predators prior to lethal removal by firearm can include calling, trained dogs, cage traps, foot/leg snares, padded-jaw foot-hold traps, and body-grip traps.

Shooting – see description above in avian methods.

Neck snares – see description above in mammalian capture methods.

Carbon Dioxide – see description in avian methods.

Aerial WDM operations would not be carried out by CDFA/counties. Use of aircraft for WDM in California would be limited to WS-California activities. CDFA and counties may participate in this activity through cooperation or funding. Refer to Appendix C-1.

Aerial Operations. Aircraft, both fixed-wing and rotary-wing (helicopters) are used by WS-California to remove coyotes or pigs. The most frequent aircraft used for aerial shooting and hazing is the fixed-wing aircraft Piper PA-18 Super Cub and Cub Crafters CC-18 Top Cub and rotary-wing Hughes MD500. WS-California conducts aerial activities on areas only under signed agreements or federal Annual Work Plans and concentrates efforts to specific areas during certain times of the year.

Aerial shooting consists of visually sighting target animals in the problem area and shooting them with a firearm from an aircraft. Aerial shooting is species-specific and can be used for immediate damage relief, providing that weather, topography and ground cover conditions are favorable. Aerial shooting can be effective in removing offending animals that have become trap-shy or are not susceptible to calling and shooting or other methods. This method may also be used proactively to reduce local coyote predations in lambing and calving areas with a history or predation.

Fixed-wing aircraft are useful for aerial shooting over flat and gently rolling terrain. Because of their maneuverability, helicopters have greater utility and are safer over timbered areas or broken land where animals are more difficult to spot. Aerial shooting typically occurs in remote areas with low densities of tree or vegetation cover, where the aerial visibility of target animals is greatest. WS-California spends relatively little time flying and shooting over any one area.

Wildlife Services Directive 2.620 and Wildlife Services aircraft-use policy help ensure that aerial shooting is conducted in a safe and environmentally sound manner, and in accordance with federal and state laws (USDA 2020). State Directors and District Supervisors are responsible for the supervision, management, and compliance for all aviation activities within California, and all aircraft used in WS-California activities through contract, agreement, or volunteer shall have been approved by the office of the Wildlife Services National Aviation Coordinator. Wildlife Services Directive 2.615 guides all Wildlife Services shooting activities (USDA 2020). All efforts are conducted in strict compliance with the Wildlife Services Aviation and Safety Manual, the Federal Aviation Regulations, the Fish and Wildlife Act of 1956

(Airborne Hunting), any applicable State and local laws and regulations, WS-California Aviation Safety Plan, Aviation Communication Plans, and Aviation Emergency Response Plans.

Wildlife Services has an Aviation Training and Operations Center located in Cedar City, Utah. Its mission is to improve aerial operations safety and provide training and guidance for Wildlife Services aviation personnel and aerial activities. The policy and primary focus of WS-California and contract aviation personnel is ensuring well-being through safety and accident prevention efforts. Pilots and aircraft must be certified under established WS-California procedures. Only properly trained WS-California employees are approved crewmembers. Ground crews are often used with aerial operations for safety and for providing assistance with locating and recovering target animals.

Body grip traps (also known as quick-kill traps) can be used to lethally remove beaver and ground squirrels. The body-grip trap is lightweight, easily set, and consists of a pair of rectangular wire frames that close when triggered, killing the captured animal with a quick body blow. Body grip traps are lethal to both target and non-target animals. Body grip traps set for beaver may be used in both urban and rural areas and set location is used to preclude non-target animals from capture.

Snap traps are common household rat or mouse traps. These traps are often used to collect and identify rodent species that cause damage so that species-specific management tools can be applied. If an infestation is minor, these traps may be used as the primary means of management.

Gas cartridges are fumigants used to reduce burrowing wildlife damage. The cartridges are placed in the active burrows of target animals, the fuse is lit, and the entrance is then tightly sealed with soil. The gas cartridges contain two active ingredients, sodium nitrate and charcoal, and once ignited the main combustion product is carbon monoxide. The gas cartridge ingredients are stable in light and are natural plant nutrients. No secondary hazards exist with burrow fumigants because the gases rapidly dissipate (Witmer and Fagerstone 2003). If soils are too porous or too dry, too much gas escapes the burrow system before lethal concentrations are reached (Witmer and Fagerstone 2003). Use of gas cartridges would only be used by qualified wildlife specialists who have been trained to distinguish dens and burrows of target species from those of non-target species and not in occupied habitats of T&E species as per listed on label.

Euthanasia solution contains two active ingredients (sodium phenytoin and sodium pentobarbital) which are chemically compatible but pharmacologically different. Sodium pentobarbital produces rapid anesthetic action followed by a smooth and rapid onset of unconsciousness. When administered intravenously, sodium phenytoin produces toxic signs of cardiovascular collapse and/or central nervous system depression; hypotension occurs when the drug is administered rapidly. Sodium phenytoin exerts its effects during a deep anesthesia stage caused by sodium pentobarbital. Sodium phenytoin, due to its cardiotoxic properties, hastens the stoppage of electrical activity in the heart, causing a cerebral death in conjunction with respiratory arrest and circulatory collapse. Cerebral death occurs prior to the cessation of cardiac activity. This sequence of events leads to a humane, painless, and rapid euthanasia according to a manufacturer (Schering-Plough). Vet-One Euthanasia solution®, Beuthanasia®-D, and Euthasol® are regulated by the Drug Enforcement Agency (DEA) and the FDA for rapid and painless euthanasia of dogs, but legally may be used on other animals if the animal is not intended for human consumption. All carcasses would be properly disposed of to avoid secondary contact with other target and non-target species.

Physical Euthanasia methods – see description above in avian methods.

4.3 Reptilian Methods

Grid searches are performed for the purpose of locating and removing reptiles (snakes) that predate on protected ground nesting birds. Grid searches involve 1-3 personnel walking in formation a few feet apart (vegetation dependent) through an affected area to search for reptiles. Because this is performed at the request of a management agency to protect T&E species in response to reptilian predation within nesting habitat, wildlife specialists would work closely with land and resource owners/managers to ensure that this technique disturbs the protected species as little as possible. Once reptiles are located, they are captured by hand and euthanized.

Funnel traps are a conical funnel that have at least one access lid or door. The funnel trap is placed on the ground along a naturally occurring linear object or drift fencing (see below). The trap is designed to allow reptiles to enter the trap through the funnel and then confuses the animal once inside making it difficult for the animal to escape the trap. The traps are unselective, but a live mouse can be used as bait to increase their attractiveness to reptilian predators. Funnel trapping can be an efficient sampling technique, although the literature is ambivalent about the relative performance of pitfall[4] (e.g., Vogt and Hine 1982; Enge 2001) versus funnel traps (e.g., Greenberg et al. 1994; Jorgensen et al. 1998) (Ribeiro-Junior et al. 2008). When evidence of reptiles is observed, funnel traps are placed on the borders of the area to be protected to intercept foraging reptiles prior to entering the nesting area.

Tube traps are long cylindrical tubes of PVC or clear rigid plastic tubing capped at one end. Tube traps are usually used in concert with drift fencing. Tube traps are typically not baited. When evidence of reptiles are observed, tube traps are placed on the borders of the area to be protected to intercept foraging reptiles prior to entering the nesting area.

Drift fencing acts as a vertical barrier that blocks the movement of animals across the landscape. There are multiple variations of drift fencing dependent on habitat and target species, it can use plastic mesh or netting attached to wooden stakes. Drift fencing typically guides animals toward a pitfall bucket, funnel trap, or other capture device (Willson and Gibbons 2009). Drift fencing is effective in capturing reptiles. Drift fencing could be used on the outside of a colony or nest area to intercept reptilian predators attempting to access the area.

Physical Euthanasia methods – see description above in avian methods.

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[4] Pitfall traps can be used along drift fences, where target predators fall into a buried pit (container).

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Exhibit D

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MITIGATION MONITORING AND REPORTING PROGRAM

Project:	California Wildlife Damage Management Project (SCH No. 2020099012)
Date:	August 2024

1 Introduction

This document is the Mitigation Monitoring and Reporting Program (MMRP) for the California Wildlife Damage Management Project (Proposed Project/Proposed Action). This MMRP has been prepared pursuant to Section 21081.6 of the California Public Resources Code, which requires public agencies to "adopt a reporting and monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment." An MMRP is required for the Proposed Project/Proposed Action because the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) has identified significant impacts and measures have been identified to mitigate those impacts.

The mitigation strategies described below are for program-level decisions and are to be used to avoid, minimize, or reduce any potentially significant environmental impacts. Project-level (County) activities will undergo future environmental analysis as required by the California Environmental Quality Act (CEQA), tiering from the EIR/EIS. As part of these second-tier environmental reviews, the lead agency for each of these projects will use the mitigation strategies identified in the program document as starting points to determine their applicability to a specific project and to develop additional mitigation measures for significant adverse impacts identified in the project-specific analysis. Because all the potential actions and impacts for tiered projects cannot be anticipated at a programmatic level, each project needs to select those strategies applicable to the impacts associated with the specific location and type of action. For purposes of CEQA, the mitigation strategies in the Final EIR/EIS also serve as mitigation measures at a programmatic level.

2 Format of Mitigation Monitoring Matrix

The MMRP, as outlined in the following table, describes mitigation timing, monitoring responsibilities, and compliance verification responsibility for all mitigation measures identified in the EIR/EIS. The MMRP is presented in tabular form on the following pages. The components of the MMRP are as follows:

- **Mitigation Measures:** Identifies the measure(s) required to mitigate impacts.
- **Implementation Responsibility:** Identifies the party that is responsible for implementation of the mitigation measure.
- **Monitoring Responsibility:** Identifies the party that is responsible for mitigation monitoring.
- **Mitigation Timing:** Identifies at which stage of the project mitigation must be completed.

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
Biological Resources			
MM-BIO-1 Wildlife species designated as "Fully Protected" under California Fish and Game Code Sections 3511, 4700, 5050, and 5515 shall not be taken or possessed unless authorized by the CDFW. This exclusion does not apply when such species pose an imminent threat to human health and safety (e.g., potential collision with aircraft); however, non-lethal measures shall be considered before selecting the option of lethal WDM for Fully Protected species.	WS-California wildlife specialists, Counties	CDFA	During WDM activities
MM-BIO-2 Lethal removal of mountain lion in counties where the species is listed under the California Endangered Species Act would only occur under the following circumstances: ▪ The subject mountain lion has been designated by a law enforcement official as an imminent threat to public health or safety. ▪ A depredation permit has been issued by CDFW.	WS-California wildlife specialists, Counties	CDFA	During WDM activities
MM-BIO-3 Minimize the activity area of WDM to the extent feasible by coordinating with land managers and landowners, placing equipment primarily on previously disturbed sites, using vehicles on existing roads and trails to the extent practicable, and avoiding entering wetland areas when the wildlife conflict does not occur in the wetland.	CDFA, WS-California wildlife specialists, Counties	CDFA/Counties	During WDM activities
MM-BIO-4 Proposed Project/Proposed Action installation of electrified fencing and other fencing shall be limited to site-specific applications and shall avoid impeding movement through wildlife migration corridors to the extent feasible.	CDFA, WS-California wildlife specialists, Counties	CDFA/Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
MM-BIO-5 Prior to conducting WDM, the entity responsible for conducting the WDM activity shall ensure that the planned WDM activities do not violate any local policies or ordinances protecting biological resources.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	Prior to WDM activities
MM-BIO-6 If WDM activities under the Proposed Project/Proposed Action receive coverage from an Implementing Entity of an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) for take of species covered under those plans, the entity conducting the WDM activity shall ensure that the WDM activity is conducted in accordance with all requirements and conditions of the Incidental Take Permits, HCP/NCCP, and Implementing Agreement (if applicable) for those plans.	CDFA, WS-California wildlife specialists, Counties	CDFA/Counties	During WDM activities
MM-BIO-7 Entities conducting WDM shall follow the protective measures in WS-California ESA Section 7 compliance.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
Tribal Cultural Resources			
MM-TCR-1 Consulting tribes that have so requested shall be provided with an annual summary of wildlife damage management (WDM) activities that occurred within the counties identified as their tribal cultural resource/tribal cultural place. Consulting tribes shall be provided a reasonable opportunity to review the Proposed Project/Proposed Action activities, review the location of activity implementation on public lands, and provide comment with regard to potential impacts to tribal cultural resources or other resources of Native American cultural value. In the event that a potential resource is identified by a consulting tribe that might be affected, the responsible county government, the CDFA, and/or WS-California shall work with the traditionally culturally affiliated tribe(s) to develop a reasonable and	CDFA, WS-California, Counties	WS-California/CDFA/ Counties	As requested by Native American Tribes

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
feasible strategy to ensure activities avoid, minimize, or otherwise appropriately mitigate impacts. In the event that an agreed strategy cannot be developed, counties, the CDFA, and/or WS-California would make the ultimate determination, ensuring compliance with local, state, and federal regulatory conditions.			
Hazards and Hazardous Materials			
MM-HAZ-1 If the use of WDM hazardous materials in the vicinity of a school is necessary, wildlife specialists will conduct WDM when children are not present, unless public health and safety is at risk. Wildlife specialists shall allow for adequate quarantine time prior to reentry, and will remove any physical materials when WDM is complete.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
Human and Pet Health and Safety			
MM-HPHS-1 Training and/or certification will continue to be required for any firearm or firearm-like device use, including all wildlife specialists (federal, state, regional, and local).	CDFA, WS-California, Counties	CDFA/Counties	Prior to WDM activities
MM-HPHS-2 Wildlife specialists will be vigilant to the presence of livestock guarding animals or licensed companion animals while conducting WDM on private or public lands to avoid unwanted interactions.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
Noise			
MM-NOISE-1 Electronic distress sounds shall not be used continuously for more than 8 hours within 30 feet of an occupied structure during daytime hours (sunrise to sunset).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
MM-NOISE-2 Propane exploders shall not be used within 140 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 1,850 feet of an occupied structure during nighttime hours (sunset to sunrise).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-3 Pyrotechnic devices (i.e., screamer siren, CAPA, etc.) shall not be used within 200 feet of an occupied structure during daytime hours (sunrise to sunset).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-4 Daytime use of ATVs for spraying chemical repellents shall not occur closer than 35 feet from an occupied structure. ATVs shall not be used for nighttime chemical spraying operations.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-5 Trapping activities employing a pick-up truck or ATV shall not be conducted within 25 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 180 feet of an occupied structure during nighttime hours (sunset to sunrise).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-6 The use of rocket or cannon nets shall not occur within 250 feet of an occupied structure during daytime hours (sunrise to sunset) nor within 13,000 feet of an occupied structure during nighttime hours (sunset to sunrise).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-7 Aerial shooting activities occurring during the daytime shall not be conducted closer than 750 feet (as measured on the ground) from an occupied structure unless a suppressor is used. If a suppressor is used, daytime aerial shooting activities could be conducted	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
without any horizontal ground distance separation from an occupied structure.			
MM-NOISE-8 Aerial shooting activities occurring during the nighttime shall not be conducted closer than 22,000 feet (approximately 5 miles) from an occupied structure unless a suppressor is used. If a suppressor is used, Project nighttime aerial shooting activities shall not be conducted closer than 6,250 feet (approximately 1.2 miles) from an occupied sensitive receptor.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-9 For daytime shooting activities involving an 8-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM NOISE-10 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 7,000 feet (without suppressor) or not less than 900 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 3,500 feet (without suppressor) or not less than 225 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 1,300 feet (without suppressor) or not less than 90 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-10 For daytime shooting activities involving a 4-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM NOISE-11 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 5,500 feet (without suppressor) or not less than 650 feet (with suppressor).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
▪ For 12-Gauge Shotgun, not less than 2,700 feet (without suppressor) or not less than 175 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 1,000 feet (without suppressor) or not less than 70 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.			
MM-NOISE-11 For daytime shooting activities involving a 2-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the standards, as prescribed in MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 4,500 feet (without suppressor) or not less than 450 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 2,200 feet (without suppressor) or not less than 125 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 700 feet (without suppressor) or not less than 50 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-12 For daytime shooting activities involving a 30-minute duration, shooting shall not occur at distances from an occupied structure less than indicated below. ▪ For .308 Caliber Rifle, not less than 2,750 feet (without suppressor) or not less than 225 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 1,200 feet (without suppressor) or not less than 70 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 350 feet (without suppressor) or not less than 25 feet (with suppressor).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.			
MM-NOISE-13 For nighttime shooting activities involving an 8-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-14 to MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 18,000 feet (without suppressor) or not less than 5,200 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 12,500 feet (without suppressor) or not less than 2,000 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 7,000 feet (without suppressor) or not less than 900 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 2 feet.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-14 For nighttime shooting activities involving a 4-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-15 to MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 16,500 feet (without suppressor) or not less than 4,200 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 11,000 feet (without suppressor) or not less than 1,500 feet (with suppressor).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
▪ For .22 Caliber Rifle, not less than 5,500 feet (without suppressor) or not less than 650 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 2 feet.			
MM-NOISE-15 For nighttime shooting activities involving a 2-hour duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, reduce the duration of shooting activities until such distance can meet the nighttime standards, as prescribed in MM-NOISE-16, or conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 14,500 feet (without suppressor) or not less than 3,200 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 9,500 feet (without suppressor) or not less than 1,100 feet (with suppressor). ▪ For .22 Caliber Rifle, not less than 4,500 feet (without suppressor) or not less than 450 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities
MM-NOISE-16 For nighttime shooting activities involving a 30-minute duration, shooting shall not occur at distances from an occupied structure less than indicated below; if shorter distances are required, conduct the shooting activity during the daytime following distance/duration restrictions prescribed in MM-NOISE-9 to MM-NOISE-12. ▪ For .308 Caliber Rifle, not less than 11,000 feet (without suppressor) or not less than 2,000 feet (with suppressor). ▪ For 12-Gauge Shotgun, not less than 6,500 feet (without suppressor) or not less than 550 feet (with suppressor).	CDFA, WS-California wildlife specialists, Counties	WS-California/CDFA/ Counties	During WDM activities

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Mitigation Timing
▪ For .22 Caliber Rifle, not less than 2,750 feet (without suppressor) or not less than 225 feet (with suppressor). ▪ For bolt-action .22 Caliber Rifle with integrated suppressor and using sub-sonic ammo, not less than 1 foot.			