NATIONAL CONSERVATION LANDS

Cotoni-Coast Dairies California Coastal National Monument Proposed Resource Management Plan Amendment and Environmental Assessment

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US Department of the Interior
Bureau of Land Management

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BUREAU OF LAND MANAGEMENT
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Dear Reader:

The Bureau of Land Management Central Coast Field Office is releasing this Cotoni-Coast Dairies proposed Resource Management Plan Amendment and Environmental Assessment for the California Coastal National Monument that will provide management direction for Cotoni-Coast Dairies public lands in Santa Cruz County. This announcement begins a 30-day protest period and 60-day Governor's consistency review.

The BLM recognizes the widespread damage caused by the CZU Lightning Complex Fire in Santa Cruz and San Mateo counties, which also burned portions of the Cotoni-Coast Dairies. We sympathize with our neighboring communities as they recover and rebuild. The BLM believes the management actions detailed in this proposed plan amendment will not only aid in that recovery, but strengthen future wildland fire prevention.

First, public access to outdoor recreation is integral to the way of life in Santa Cruz County and enjoying the natural scenic beauty of these public lands can help brighten our spirits and strengthen our bodies. Development of trails proposed in the plan amendment will provide new recreation opportunities for the public to enjoy the panoramic vistas and natural landscape that drew many of us to this area in the first place.

Second, the proposed plan authorizes the BLM to use a wider range of tools to address the impacts of recent wildland fires and help prevent future ones on the Cotoni-Coast Dairies property. These tools include the use of prescribed controlled burns and mechanical treatments to reduce the available fuels that feed wildland fire, as well as treatment of emergent non-native plant infestations and long-term grazing that will prevent encroachment of woody vegetation into the wildland-urban interface.

Third, the proposed amendment establishes goals and objectives for the long-term management of the property, including a phased approach for providing public access that allows the BLM to evaluate the effectiveness of our approach and make adjustments before proceeding with further development. This helps maintain the BLM's multiple use mission, while still allowing for future public involvement and engagement. More information, along with instructions for filing a protest from those who have standing, is available on the project website at: https://go.usa.gov/xEJAw.

The BLM looks forward to continuing to work with our neighboring communities to finalize and implement this plan amendment, which will allow us to share Cotoni-Coast Dairies with North Coast residents and the American people.

Best regards,

Ben Blom
Central Coast Field Manager

1. Introduction

The Bureau of Land Management (BLM) Central Coast Field Office (CCFO) has prepared this Resource Management Plan Amendment and Environmental Assessment to analyze the effects of alternative management approaches on the Cotoni-Coast Dairies unit of the California Coastal National Monument.

The Trust for Public Lands (TPL) purchased the Coast Dairies property in 1998 with contributions provided by the California Coastal Conservancy, the David and Lucille Packard Foundation, the Save-the-Redwoods League, and other non-government entities. In August 1998, the BLM signed a memorandum of understanding with TPL to be a permanent steward of the upland portions of the property. In April 2014, TPL transferred those portions of Coast Dairies, totaling 5,843 acres, into public ownership. The mineral estate underlying the property was retained by the Coast Dairies Land Company.

On January 12, 2017, the property was added to the California Coastal National Monument by Presidential Proclamation No. 9563 and re-named Cotoni-Coast Dairies. The proclamation specifically calls for a management plan to make the area available for public access, consistent with the care and management of the objects identified. The California Coastal National Monument is managed as a component of the BLM's National Conservation Lands, which have been designated by Congress and/or the President, supporting conservation as a part of the BLM's mission.

This planning process advances the Administration's goals identified in Secretarial Order 3366, "Increasing Recreation Opportunities on Lands and Waters Managed by the U.S. Department of the Interior," Secretarial Order 3347, "Conservation Stewardship and Outdoor Recreation," and Secretarial Order 3372, "Reducing Wildfire Risks on Department of the Interior Land Through Active Management." The Bureau of Land Management's (BLM) Central Coast Field Office needs to establish land use decisions through an amendment to the California Coastal National Monument Resource Management Plan, approved in 2005. This Resource Management Plan Amendment was prepared using the BLM's planning regulations (43 Code of Federal Regulations [CFR] Part 1600) and guidance issued under the authority of the Federal Land Policy and Management Act (FLPMA) of 1976. Section 102 of the FLPMA sets forth the policy for periodically projecting the present and future use of public lands and their resources through the use of a planning process. Sections 201 and 202 of the FLPMA are the statutory authorities for land use plans prepared by the BLM. The associated Environmental Assessment is included in this document to meet the requirements of NEPA, the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR Parts 1500-1508), Department of the Interior (DOI) Implementation of the National Environmental Policy Act of 1969 Final Rule (43 CFR Part 46), and the requirements of BLM's NEPA Handbook H-1790-1 (BLM 2008) and Land Use Planning Handbook H-1601-1 (BLM, 2005), as amended by subsequent Instruction Memorandums.

1.1 Purpose and Need

The FLPMA requires the BLM to develop Resource Management Plans that provide for the use of public lands. On January 12, 2017, Presidential Proclamation 9563 added the Cotoni-Coast Dairies unit to the California Coastal National Monument. This proclamation called for the Cotoni-Coast Dairies unit to be available for public access upon the BLM's completion of a management plan.

The current Resource Management Plan for the California Coastal National Monument was completed in 2005, before the addition of onshore units. It provides management direction for approximately 20,000 offshore rocks and islands along the coast of California. While some of the general management direction in the 2005 plan is relevant to onshore units of the National Monument, the purpose of this Resource Management Plan Amendment is to establish land use decisions, management actions, and allowable uses specifically for the onshore Cotoni-Coast Dairies unit of the California Coastal National Monument. The need for the Resource Management Plan Amendment is to provide opportunities for public access and

recreation at Cotoni-Coast Dairies, while ensuring care for the objects and values identified in Presidential Proclamation 9563. These objects include traditional use areas of the indigenous people and archaeological resources, as well as a wide array of habitats and the diversity of wildlife that they support, including forests, shrublands, grasslands, riparian/wetlands, and aquatic systems. There is also a need to establish land use decisions and management actions for other BLM programs, including livestock grazing, fire and fuels, and vegetation management.

1.2 Planning Area Description

The geographic scope of the Cotoni-Coast Dairies Resource Management Plan Amendment (RMPA) comprises 5,843 acres of public land referred to hereafter as Cotoni-Coast Dairies (C-CD) — managed by the BLM as part of the California Coastal National Monument (CCNM) — in Santa Cruz County. Public land resources described in this RMPA/EA are characterized within the context of both the "*planning area*", as well as the "*decision area*."

The *planning area* encompasses the entire Central Coast region regardless of jurisdiction or ownership. Whereas, the *decision area* is only the 5,843 acres of BLM-administered lands within the Planning Area for which the BLM has authority and makes decisions. It is also important to note the BLM does not own minerals within the decision area, so decisions related to minerals are excluded from this planning effort (**Appendix A, Figure 1**).

The C-CD is located approximately ten miles north of the City of Santa Cruz along State Highway 1. It surrounds the small, rural, coastal community of Davenport. Prior to European contact, the Cotoni tribelet of the Costanoan People (also called the Ohlone) inhabited the area - making use of the landscape's diverse resources - for thousands of years. The landscape of C-CD is defined by a prominent series of stair-stepped marine terraces that rise from the coastline on the western edge and culminate in the steep terrain of the Santa Cruz Mountains at the eastern edge. The marine terraces are dissected by six perennial streams that flow from the Santa Cruz Mountains to the ocean. The wide, open terraces provide expansive, sweeping views of the Pacific Ocean. The steep gradient of topography and climate at C-CD produce a wide diversity of niches that support riparian zones and wetlands, grasslands, coastal scrub, oak woodlands, and conifer forest (**Appendix A, Figures 2 & 3**). These diverse habitats in turn, support numerous fish and wildlife species including coho salmon, steelhead, California red legged frogs, mule deer, and mountain lions. Additional information about the Planning Area is provided in Chapter 3, Affected Environment.

1.2.1 Relevant Plans and Amendments

The CCNM RMP (BLM 2005a), which was completed in 2005 when the CCNM consisted of rocks and islands off the California Coast, does not specifically address on-shore units.

The Coast Dairies Long-term Resource Protection and Access Plan (ESA 2004) provides general direction to land managers based on public feedback from individuals, organizations, and local, State, and Federal government agencies. This Plan was incorporated into the Proposed Resource Management Plan for the Southern Diablo Mountain Range and Central Coast of California (BLM 2006), which identified sustainable multiple use management goals and objectives for public lands administered by the BLM CCFO. These included goals and objectives for the 5,843 acres of in Santa Cruz County, California later designated as the C-CD unit of the CCNM.

The Proposed Resource Management Plan for the Southern Diablo Mountain Range and Central Coast of California recommended special area designation, lands available for livestock grazing, wind energy exclusions, a limited vehicle use area designation, visual resources classification, fire management, and

lands and realty actions. However, at the time of the BLM's 2007 Record of Decision the property was not in public ownership yet. Therefore, the Record of Decision did not include any decisions related to C-CD.

Following the transfer of the property into public ownership, BLM approved the Coast Dairies Interim Management Plan on June 4, 2014. The interim management plan provides an interim strategy for access and other land uses that can be implemented to protect natural, cultural, and social resource attributes. The Interim Plan included decisions authorizing two access points and two day-use hiking trails on the property. However, the BLM delayed implementing these actions until a more comprehensive plan could be completed for C-CD that addresses public concerns related to traffic and public health and safety. Decisions made in the interim management plan are incorporated into Alternative A (No Action) of this RMPA.

1.2.2 Grant Deed Language

Prior to the transfer of Coast Dairies to the BLM, the BLM agreed that the property would be managed for open space and public recreation in a manner consistent with the protection and preservation of natural resources, restoration of endangered species and their associated natural habitats, adjacent sustainable agricultural uses, and valid existing rights codified in the following "Upland Parcels Deed Restrictions":

(a) Public recreational access, open space, and grazing priority. The Upland Deed Restricted Parcels shall be protected, used, and managed only for open space, grazing, and public recreational access uses and development in a manner consistent with the protection and preservation of coastal resources. Reclamation and restoration activities that support and facilitate such open space, grazing, and public recreational uses and development (including by allowing areas to be so used and developed in these ways) are allowed. Grazing activities shall be sited, designed, maintained, managed, and operated so as to be coordinated with, and so as to not significantly adversely affect, open space and public recreational access uses and development on the Upland Deed Restricted Parcels.

(b) Timber operations prohibited. Commercial timber operations (as defined in California Public Resources Code 4527) shall be prohibited on the Upland Deed Restricted Parcels. ln addition, removal of redwood trees shall be prohibited on the Upland Deed Restricted Parcels, except to the extent determined to be necessary or desirable for public safety and/or forest health, subject to all applicable authorizations.

(c) Motorized off-road vehicles prohibited. Motorized off-road vehicles shall be prohibited on the Upland Deed Restricted Parcels except to the extent required for property management, (including reclamation/restoration), public health and safety protection, or emergency response, and provided such vehicular use is confined to established and designated roadways as much as possible (i.e., such use outside of such roadways shall be limited to areas that cannot be accessed in any other way).

1.3 Scoping/Issues

Scoping is the term used in the CEQ regulations implementing NEPA (40 CFR 1500 et seq.) to define the early and open process for determining the scope of issues to be addressed in the planning process. The formal public scoping period for the RMPA/EIS began on June 24, 2019, with the publication of a Notice of Intent (NOI) in the Federal Register and ended on August 2, 2019. Two public scoping meetings were held in July 2019 in Santa Cruz, and Davenport, California. The BLM reviewed and categorized the public scoping letters and used the planning issues raised in the scoping comments to help guide the development of the range of alternative management strategies for the RMPA. For a detailed description of the scoping process and the public outreach efforts, please refer to the Scoping Report (BLM 2019).

1.3.1 Issues Addressed

The BLM grouped the issues identified during scoping into comments pertaining to specific resource areas, comments pertaining to alternatives, and general comments that were not resource-specific. The issues identified as being within the scope of the RMPA/EA are included in the Scoping Report (BLM 2019).

The BLM has determined the existing RMP decisions remain appropriate for the offshore rocks and islands, but new decisions are required for the management of the lands added to the CCNM since 2005. The C-CD RMPA/EA would update the CCNM RMP (BLM 2005a) management direction for this on-shore unit [only] to make it consistent with current laws and regulations, and provide BLM with a plan to provide public access on C-CD, while caring for and managing the Monument values listed in Proclamation 9563. The C-CD RMPA/EA does not consider management actions for other on-shore units, nor the rocks and islands that were previously addressed in the CCNM RMP.

The BLM's goal is to have a cohesive set of land use plan decisions for the decision area that includes the following: (1) opportunities for public access and recreation on C-CD, (2) goals and objectives consistent with the care and management of the Monument's objects and values, (3) livestock grazing, fire and fuels, vegetation management, other relevant BLM programs, and (4) measures to address public concerns, particularly those related to public health and safety.

CZU Lightning Complex Fire

The CZU Lightning Complex resulted in an unprecedented level of destroyed and damaged structures within unincorporated Santa Cruz County. Preliminary evaluations estimate $310 million in damage to private structures and $30 million in losses to public infrastructure. The total burned area is 86,509 acres and full containment of the fire is expected on September 28, 2020. The burned areas include 1,052 acres in the Molino, Agua Puerca, and San Vicente watersheds (**Appendix A, Figure 14**).

A summary of the CZU Lightning Complex relevant to the C-CD is included in Chapter 3 (3.1.1 Fire and Fuels) and Chapter 4 (4.15 Cumulative Effects). The BLM will monitor impacts of the fire and retains the flexibility to delay or adjust implementation of components of the RMPA, as necessary, in response to the CZU Lightning Complex or future wildland fires.

1.3.2 Issues Considered but Not Further Analyzed

A. Comments Addressed Through Policy, Regulatory, or Administrative Actions

Policy or administrative actions include those actions that are implemented by the BLM because they are standard operating procedure, because Federal law requires them, or because they are BLM policy. They are issues that are eliminated from detailed analysis in this planning effort. Administrative actions do not require a planning decision to implement because they are a requirement of Federal law or BLM policy. The following issues raised during scoping are administrative actions that are outside the planning document. These actions affect the BLM's decision-making process, as the BLM will work within the scope of these administrative actions when developing reasonable alternative scenarios:

- Resource Inventories: A reliable inventory of natural and cultural resources will be necessary for the management of C-CD to clearly understand the significance and extent of the objects and values this unit of the CCNM is intended to protect. Agencies, organizations, and other participants have emphasized the importance of the research aspect of the C-CD management and expressed interest in being actively involved in the covering of the gaps in the understanding of coastal resources associated with the Monument. Therefore, the BLM will seek the partnerships and funding needed to undertake detailed characterizations of Monument resources. The goal of all resource characterizations efforts will be to

provide information on resource distribution, condition, sensitivity, threats, and trends that will allow managers to focus their efforts to the greatest benefit of resource conservation.

- Revenue and Expenditures: The BLM intends to fully fund and execute implementation of the plan in the most cost-effective manner. The RMPA is designed so that management activities can be adapted to normal fluctuations in state and federal government funding resources. Contributions and grants from sources outside the federal government and state agencies will continue to be sought on order to enhance natural and cultural resources and/or opportunities for recreation.
- Patrol/Law Enforcement: Law enforcement effort on the C-CD unit and adjacent lands will continue under current jurisdictional limits, using existing legal and regulatory authority to achieve the goals of this plan. Nonetheless, the BLM and other agencies have increased coordination between law enforcement entities to improve understanding of regulations, focus resources on certain areas, and/or establish agreements to effectively protect public safety and Monument resources.

B. Comments Outside the Scope or the Plan

Multiple comments suggested that the BLM leave the property as-is, citing concerns including the need to protect and preserve remaining open lands and potential impacts to neighboring communities and local public services. However, the BLM has a mandate to provide public access to the C-CD unit of the CCNM established by the Presidential Proclamation and other federal law. Therefore, these comments are not responsive to the Purpose and Need for this RMPA and fall outside the scope of the RMPA. The BLM also received comments requesting that the BLM take management actions that fall under the authority of other entities, such as improvements to County roads and/or management of visitors accessing beaches from Highway 1. As these actions fall outside the BLM's authority, they are also outside the scope of the RMPA.

C. Non-Federal Actions that are Not Reasonably Foreseeable

Several commenters requested the BLM to thoroughly analyze and discuss impacts (including cumulative impacts) of proposed C-CD development activities on adjacent properties and projects. These include major transportation or infrastructure projects like the development of the North Coast Rail Trail and the San Vicente Redwoods Public Access Plan, which were already approved by other entities in Santa Cruz County. Accordingly, the BLM has identified the likely combined effects of these two projects in Chapter 4, Section 4.20. However, the BLM determined that the effects of the Cemex Reuse Plan are not reasonably foreseeable because this project is still being planned, the outcome is unknown, and it is not likely to be completed over the next 10-15 years. Nevertheless, the BLM is committed to working with the local government and the Davenport community to ensure complimentary management of shared roads and/or trails that may be identified in the final Cemex Reuse Plan, as appropriate.

1.4 Planning Criteria

Planning criteria guide the development of a plan by helping define decision space or sideboards. The planning criteria for this planning effort are that the RMPA will:

1. Recognize valid existing rights, including deed restrictions, rights-of-way, and water rights;
2. Comply with existing law, executive orders, regulations, and BLM policy and program guidance;
3. Ensure consistency with the January 12, 2017, Presidential Proclamation that designated the property as the C-CD Unit of the CCNM (Proclamation 9563);
4. Comply with BLM Rangeland Health Standards and Livestock Grazing Guidelines for Central California;
5. Consider adjoining non-public lands when making management decisions to minimize land use conflicts; and
6. Consider cost effectiveness and feasibility of proposed actions and alternatives.

1.5 Planning Process

When amending an RMP, the BLM uses a nine-step planning process identified in 43 CFR 1600 and the BLM Land Use Planning Handbook (BLM 2005a). The public scoping period initiated the C-CD planning process, and resulted in the development of a Draft RMPA/EA. Release of this Proposed RMPA triggers a 30–day public protest period and 60-day Governor's Consistency Review. The RMPA will not be approved by a Decision Record (DR) until all protests and any consistency issues identified by the Governor's office have been resolved. Following the issuance of a DR, implementation-level decisions shall be subject to a 30-day appeal period to the Interior Board of Land Appeals (IBLA). The final step is implementation of the plan and monitoring. The BLM may alter or delay implementation of the RMPA as necessary to achieve the desired results identified in the RMPA. As management activities are identified or changes are proposed, the BLM will use traditional methods and newer technologies to ensure early coordination with others and meaningful opportunities for public involvement.

1.5.1 Relationship to BLM Policies, Plans, and Programs

This RMPA focuses on the management of the C-CD. While this RMPA will provide management decisions for this unit of the CCNM, the existing 2005 RMP will continue to guide the management decisions for the Monument's offshore rocks and islands.

Table 1-1 highlights the major plans and policies that have led to the present management of C-CD.

Table 1-1. Existing Management Plans for the Central Coast Field Office

Document Title	Year
California Coastal National Monument RMP	2005
Southern Diablo Mountain Range and Central Coast California Approved RMP and Record of Decision	2007
Coast Dairies Interim Management Plan	2014

The preceding plans are incorporated in this RMPA/EA by reference in Chapter 2 and Chapter 3 as appropriate. Other plans, policies and programs that apply to BLM land use planning in general are also described under the Regulatory Framework, below.

1.6 Regulatory Framework

A broad range of federal and state laws guide development of the BLM's amendment to the CCNM RMP. Federal laws that apply to the monument and its planning process are listed in Table 1-2, page 1-15 of the CCNM RMP (BLM 2005a). The responsible governing agency, the trigger that causes the law to apply, the process that is required by the law, and the action required during the RMP preparation process are also included in the table for each law. Key laws with bearing on the planning criteria for the C-CD are described briefly below:

Omnibus Public Land Management Act. In 2009, Public Law 111-11 established the National Landscape Conservation System (NLCS) to conserve, protect and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations including all BLM-administered National Monuments. In 2012, BLM released two relevant Policy Manuals: 6100-National Landscape Conservation System Management; and 6220-National Monuments, Conservation areas, and Similar Designations. The objectives identified in Manual 6100 for NLCS units are to effectively manage valid existing rights and compatible uses; and provide appropriate recreational opportunities, education, interpretation, and visitor services to enhance the public's understanding and enjoyment of the NLCS; use science, local knowledge, partnerships, and volunteers; and showcase

innovative techniques to manage compatible multiple uses within the NLCS for conservation outcomes. The Manual 6220 refers to BLM policy stating discretionary uses will be managed in a manner consistent with the protection of the component's values and may be prohibited when necessary, as documented in this RMPA/EA.

National Environmental Policy Act. This legislation established a national policy to maintain conditions under which people and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. NEPA established the Council on Environmental Quality (CEQ) to coordinate environmental matters at the Federal level and advise the President on such matters. The law requires all Federal actions that could result in a significant impact on the environment to be subject to review by Federal, tribal, State, and local environmental authorities, as well as affected parties and interested citizens.

Federal Land Policy and Management Act. The FLPMA of 1976 establishes the authority and provides guidance for how public lands are to be managed by the BLM. It defines BLM's mission to manage public lands on the basis of multiple use and sustained yield. The FLPMA requires that the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values be protected. It directs the BLM to develop and revise land use plans as needed for the management of public lands.

In order to implement the FLPMA, the BLM developed a Land Use Planning Handbook (H-1601-1) and NEPA Handbook (H-1790-1) that provide guidance on the requirements of the FLPMA, BLM's Planning Regulations (43 CFR 1600), and NEPA. The handbooks direct the BLM in preparing new RMPs, plan revisions, plan amendments, other equivalent plans (e.g., plans adopted from other agencies), and subsequent implementation-level plans. Procedures and requirements are set forth to ensure that the BLM's plans meet regulatory and statutory requirements. To the extent possible, these handbooks integrate land use planning requirements with requirements under NEPA.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Act also known as the California Water Code, Section 7 was created in 1969 and is the law that governs the water quality regulation in California. It established a program to protect the water quality as well as the beneficial uses of water. This act applies to surface water, groundwater, wetlands and both point and nonpoint sources of pollution. There are nine regional water boards and one state water board that has resulted from this act. The act requires the adoption of water quality control plans that contain the guiding policies of water pollution management in California.

National Historic Preservation Act. The National Historic Preservation Act (NHPA) provides for the protection and preservation of cultural resources eligible for and listed on the National Register of Historic Places (NRHP). The NHPA established the National Register of Historic Places, the Advisory Council on Historic Preservation, and the State Historic Preservation Officer.

Archaeological Resources Protection Act. The Archaeological Resources Protection Act (ARPA) was created in 1979 to govern the excavation of archaeological sites on Federal and Indian lands, as well as the removal and disposition of archaeological collections from those sites.

Native American Consultation per Executive Orders 13007 and 13175, et seq. Executive Order E.O. 13007 "Indian Sacred Sites" and E.O. 13175 "Consultation and Coordination with Indian Tribal Governments" establish requirements for meaningful consultation and collaboration with Indian tribal governments in the development of regulatory practices on Federal matters that significantly or uniquely affect their communities.

Paleontological Resources Preservation Act (PRPA). In 2009, Public Law 111-11, also established the PRPA, which states that a person may not "excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage, or otherwise alter or deface any paleontological resources located on

Federal lands unless such activity is conducted in accordance with this Act." Section 6302 dictates that "the Secretary shall manage and protect paleontological resources on Federal land using scientific principles and expertise. The Secretary shall develop appropriate plans for inventory, monitoring, and the scientific and educational use of paleontological resources, in accordance with applicable agency laws, regulations, and policies. These plans shall emphasize interagency coordination and collaborative efforts where possible with non-Federal partners, the scientific community, and the general public."

Endangered Species Act. Management activities on private and public lands are subject to the Federal Endangered Species Act of 1973 (ESA), as amended. The ESA directs project proponents or government agencies, as appropriate, to consult with the U.S. Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) to address the effects of management activities on threatened and endangered species and designated critical habitats.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) is the domestic law that implements the United States' commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. The MBTA is implemented by the USFWS.

Coastal Zone Management Act. The Coastal Zone Management Act (CZMA) (16 USC. 1451 et seq.), provides a crucial link between coastal states and federal activities. The CZMA encourages management of coastal zone areas and provides grants to be used in maintaining coastal zone areas. As an incentive for states to develop management plans for their coastal resources, Congress granted states the ability to review federal agency activities that affect the coastal zone and, in some circumstances, to stop or modify federally permitted activities that are not consistent with the state coastal program. The Act is intended to ensure that federal activities are consistent with state programs for the protection and, where possible, enhancement of the nation's coastal zones. The CZMA applies to actions initiated, permitted, or funded by federal agencies within the coastal zone. As defined in the Act, the coastal zone includes coastal waters extending to the outer limit of state submerged land title and ownership, adjacent shorelines, and land extending inward to the extent necessary to control shorelines. The coastal zone includes islands, beaches, transitional and intertidal areas, and salt marshes. While the coastal zone by definition does not include federal land, the CZMA nonetheless applies to most federal activities or federally permitted activities that are located adjacent to or near the coastal zone, because such activities often affect the coastal zone and the resources therein—both onshore and off shore.

1.7 Overall Vision

The vision to guide long-term management for C-CD is to (a) allow for responsible public access, use, and enjoyment of the property, while protecting the objects and values identified in Presidential Proclamation 9563, (b) provide for sound, long-term stewardship of the property through cost-effective adaptive management designed to conserve and enhance its natural and cultural resource values and provide compatible recreation, and (c) allow for responsive stewardship of the natural and economic resources of the property.

1.8 Summary of Public Comments and the BLM Response in the Proposed RMPA/EA

During the 45-day public comment period (which lasted from February 14 to April 3, 2020), 862 comment submissions were received from individuals, agencies, and organizations. The commenters included federal and state officials; public interest groups; and private citizens. Public comments on the Draft RMPA/EA were assessed both individually and collectively by the BLM. Several of the comments were letters and/or emails containing identical text that had been suggested by environmental groups, neighborhood associations, recreation organizations, and agricultural groups. Each comment letter typically contained multiple individual comments on one or more of the topics addressed in the Draft RMPA/EA. A complete summary of the public comments is provided in **Appendix J**.

The BLM has reviewed the public comments and responded by modifying the proposed action, improving the impact analyses, making factual corrections, or indicating those circumstances which would trigger additional NEPA review.

The following list is an outline of the general comments and various sub-headings that are identified in Section 2 of **Appendix J.** These represent the major issues and concerns expressed during the public comment period on the Draft RMPA/EA. The outline below includes a summary of how the BLM addressed the issues or concerns in the Proposed RMPA/EA.

General Comments

i. Non-NEPA/BLM Issues

a. Outside BLM Jurisdiction or Authority

Many commenters identified issues or concerns that are considered to be outside BLM jurisdiction or authority, including taking responsibility for management of local roads and/or beaches. Other commenters offered ideas that are not within the scope of the RMPA/EA because they do not meet the purpose and need for the plan, like minimizing public access. The scope of the RMPA is described is Chapter 1, Section 1.3.

b. Addressed through Policy Regulations, or Administrative Actions

Several commenters requested the BLM make site- or project-specific decisions or management actions. While the RMPA/EA does include some project-specific decisions related to recreation and travel and transportation management (e.g. the location of parking areas and trails), other decisions addressed through policy, regulations, or administrative actions are typically not included within an RMPA. These include the measures necessary to mitigate impacts of future management activities to comply with the broad range of federal and state laws described in Chapter 1, Section 1.6.

c. Issues Considered but Not Further Analyzed

Commenters frequently suggested BLM complete robust resource inventories on the C-CD property, identify reliable funding sources for BLM management and patrols, and/or cumulative impacts of other regional development activities on neighboring communities. Chapter 1, Section 1.3.2 addresses issues considered but not further analyzed including resource inventories, revenue and cost expenditures, patrol and law enforcement, and non-Federal actions that BLM determined are not reasonably foreseeable.

d. Cited References

Some comments indicated the RMPA/EA decisions are based on outdated information or conflicting information. Chapter 1, Section 1.2.1 describes the relationship to relevant plans and amendments, including the Coast Dairies Long-term Resource Protection and Access Plan (ESA 2004). Appendix H identifies cited references throughout the RMPA/EA.

e. General Comments, Non-Substantive

The BLM noted many general, non-substantive comments conveying challenges due to the document format and length, and/or comments that were unrelated to environmental issues or impacts and/or lacked

substantive input to inform the draft RMPA/EA review (e.g., expressed support or opposition for a particular alternative without additional discussion).

ii. NEPA Process

a. Level of NEPA Documentation

Multiple commenters believed an EA is not the appropriate level of NEPA documentation, and that an environmental impact statement (EIS) should be prepared. Pursuant to 43 CFR 46.305, the BLM considered these public comments and revised the Proposed RMPA and associated EA to describe the details of the agency's preferred alternative (Alternative D) in Chapter 2, incorporated additional analyses of environmental impacts into Chapter 4, and identified mitigation measures in Appendix D. In conclusion, the BLM determined the decision to approve the Proposed RMPA and EA is supported by the agency's Finding of No Significant Impacts (FONSI), and an EIS will not be prepared.

b. Stakeholder Consultation and Public Involvement

Several comments requested more time for stakeholder consultation and public involvement, particularly due to the impacts of COVID-19. As a result, the public comment period was extended for an additional two weeks. Multiple comments also expressed appreciation for the BLM engagement effort and public involvement process through the scoping period.

c. Coordination with Others

The BLM also received comments requesting the BLM provide more details on public involvement through the next stages of ongoing management planning and implementation (e.g., reviewing progress and applying adaptive management measures). Many of these details are provided in Chapter 1, Section 1.5 and Chapter 5, Section 5.2. The BLM will also use traditional methods and newer technologies (i.e. social media) to make announcements about future management activities for the C-CD property and opportunities for public involvement because of the importance of consultation and coordination with others for related projects and planning efforts.

d. Informed Decision

Commenters shared concerns that additional studies (e.g., resource inventories and cumulative impact analyses) are needed before an informed decision can be made to move forward with the RMPA. Chapter 2, Section 2.1 explains the type of decisions that are established in this RMPA as the basis for every on-the-ground action the BLM undertakes to ensure that the public lands are managed in accordance with the intent of Congress as stated in FLPMA (43 U.S.C. 1701 et seq.), and other land laws (i.e., Antiquities Act). Section 2.2 describes the overall management approach, with an emphasis on the deed restrictions, Presidential Proclamation 9536, and the broader goals for the California Coastal National Monument that inform the BLM's future management decisions for the C-CD.

iii. Purpose and Need

a. Statutes, Policies, and Regulations

The BLM received comments expressing concerns that the draft RMPA/EA does not align with the statutes, policies, and regulations to support public access while ensuring protection of the objects and values identified in the Presidential Proclamation (e.g., sensitive habitats, special status species, etc.). Although the RMPA/EA does indicate that public access will have environmental impacts, the discussion provided in Chapter 2, Sections 2.1, 2.2, and 2.3 also provide assurances that the RMPA is designed to prioritize the protection of the CCNM objects and values. As a result, the BLM's concluded that the action alternatives outlined in Chapter 2, and the Preferred Alternative (Alternative D), meet the purpose and need for the RMPA/EA described in Chapter 1, Section 1.1.

iv. Management Alternatives

a. Alternative A

Multiple commenters supported Alternative A because it offered the greatest protection and preservation of natural resources and habitats; however, other commenters conveyed that Alternative A does not offer sufficient public access opportunities or called for the BLM to analyze the status quo as the No Action

Alternative. Pursuant to NEPA, the no action alternative is required to be analyzed even if it does not meet the purpose and need. The RMPA identifies the Interim Management Plan for Cotoni-Coast Dairies as the current management direction in Section 1.2.1 because it was approved in 2014 to establish management goals for the property until a resource management plan is complete.

b. Alternative B

Several commenters also valued the additional level of fuels reduction, vegetation, and invasive species management in Alternative B, but common concerns often related to allowing recreational hunting with habitat/wildlife enhancements and broadcast spraying of herbicides. The BLM's preferred alternative (Alternative D) addresses many of these public concerns because it prohibits aerial herbicide applications and permits archery hunting only in RMZ2.

c. Alternative C

Multiple commenters supported Alternative C because it offered the highest level of public access among the three alternatives. However, the increased proposed recreational activities in Alternative C corresponded with increased concerns about the potential negative environmental, social, and economic impacts. For instance, several commenters indicated they were fine with dogs on leash but were opposed to off-leash areas. Accordingly, the BLM revised the impact analysis for Alternative C in Chapter 4 and developed a preferred alternative to address these concerns, as described below.

d. Management Alternatives

The BLM's Preferred Alternative (Alternative D) is identified in Chapter 2. It addresses many of the public concerns about management alternatives because it prohibits aerial herbicide applications; limits the number of parking areas and trails; imposes restrictions on trail use, camping, and/ or special recreation events; requires dogs to be on leashes and excludes them from specific areas and trails; permits archery hunting only in RMZ2 and excludes provisions for game stocking [i.e. wildlife enhancement]. Furthermore, the BLM's RMPA describes requirements for coordination with others and opportunities for public involvement in future management activities in Chapter 1, Section 1.5.

e. Alternatives Considered but Not Analyzed in Detail

Some organizations recommended alternative management approaches, but they were eliminated from detailed analysis because the BLM determined that they either did not meet the purpose and need for the RMPA/EA (Section 1.1), were covered under alternatives analyzed in the RMPA/EA, or were not practical or feasible alternatives due to technical, economic, and legal and policy considerations. The rationale for alternatives considered but not analyzed in detail is described in Chapter 2, Section 2.20.

v. Alternatives: Menu of Options for Preferred Alternative

a. Land Uses:

i. Agriculture and Grazing

Generally, commenters conveyed support for the benefits and protection of sustainably managed agriculture and grazing operations. As described in Chapter 1, Section 1.2, the Grant Deed requires the C-CD property to be managed only for open space, grazing, and public recreational access uses and development in a manner consistent with the protection and preservation of coastal resources. The BLM's purpose and need (Section 1.1) also says the RMPA is needed to establish land use decisions and management actions for other BLM programs, including livestock grazing. Therefore, the BLM's preferred alternative (Alternative D) is designed to address these concerns by ensuring grazing would be used as a management tool to improve ecosystem health. Furthermore, the BLM is committed to working with grazing operators and other partners to improve the grazing regime, manage fuels, protect wetland and riparian habitats, and improve habitat for salmonids and other wildlife, as described in Chapter 3, Section 3.16.

ii. Acquisition and Easements

The BLM received comments that expressed both support for and concerns with potential land acquisition and easements. To address concerns expressed by Santa Cruz County, the BLM revised the proposed management action (**MA-LAR-1**) to make it clear the Presidential Proclamation 9563 prohibits incorporating any lands into the CCNM that are not already included within the C-CD property's boundaries. The BLM also revised the impact analysis in Chapter 4, Section 4.13.4, to explain that if

adjacent land were proposed to be acquired by the BLM, it would not be subject to the decisions in this RMPA and would need to undergo its own NEPA planning process. Other comments supported the BLM considering opportunities for land acquisition/easements, as this would expand options to design more sustainable and logical public access (e.g., trail networks).

b. Cultural and Heritage Resources

Commenters emphasized a need to protect cultural resources and protect the rights of Tribes. Several specifically mentioned the descendants of the Cotoni People and expressed appreciation for the BLM's engagement with the Amah Mutsun Tribal Band as an advisory partner in the management of the C-CD property. As described in Chapter 4, Section 4.6, the BLM's goals and objectives for cultural resources management program focus on protecting the significance of cultural resources by ensuring they are managed in a manner suited to the characteristics, attributes, and local tribal uses that contribute to their public importance; giving adequate consideration to the effects of land use decisions on cultural properties; towards meeting legal and regulatory obligations through a system of compliance fitted to BLM's management systems; and toward ensuring cultural resources on public land are safeguarded from improper use and responsibly maintained in public interest. The RMPA also says the BLM will continue to consult with federally and non-federally recognized tribes to help address other issues of concern, including but not limited to access rights, disruptions of cultural practices, impacts on visual resources important to the tribes, and impacts on subsistence resources.

c. Fire and Fuels

Overall, comments frequently identified fire management as a major concern. Numerous environmental organizations also expressed strong support the proposed prescribed burning program on Cotoni-Coast Dairies to promote ecological health and reduce the risk of catastrophic wildfire. Therefore, the BLM would expand shaded fuel break projects along Warrenella Road and Bonny Doon Road to mitigate the risks of wildfire and help keep surrounding communities safe under all alternatives for fire management, as described in Chapter 2, Section 2.5.

d. Vegetation Management: Herbicides and Pesticides

Various comments expressed support for general vegetation management, particularly to help reduce wildfire risk and the spread of non-native species. Commenters also requested the BLM further articulate its approach for the use of herbicides and pesticides on the property. In response, the BLM revised Appendix F to include Alternative D and make it clear the RMPA prohibits aerial herbicide treatments. The BLM also revised the impact analysis in Chapter 4, Section 4.3, to explain the use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to riparian areas and wetlands.

e. Biological Resources: Habitat, Wildlife, and Special Status Species

Various comments also expressed support for habitat protection and restoration that is proposed for RMZ 2 and RMZ 4. As described in in Chapter 4, Section 4.4, this would have major long-term benefits across the landscape because it would promote wildlife and special status species protection by sustaining movement corridors and the viability of the habitat to support various species. Proposals for Wild and Scenic River designation are also included under Alternative D, that would support recovery of native fishes and other aquatic species.

f. Services and Facilities: Traffic, Trauma, Toilets, and Trash

As expected, the BLM received several comments concerned with the amenities and services to fully cover what were often referred to as the "4T's" – Traffic, Trauma (police, fire, and rescue response), Toilets, and Trash. Occasionally, "transients" were also identified as a concern. Commenters appreciated management actions that would minimize public access impacts like providing garbage receptacles in closed containers and removed daily. Commenters also valued amenities that supported equitable access to those with limited mobility (e.g., ADA compliant picnic tables). Therefore, the BLM would conduct regular maintenance, patrols, and monitoring to help keep visitors and surrounding communities safe under all alternatives for "Recreation Resources", as described in Chapter 2, Section 2.14. Under Alternative D, the BLM proposes

to use a phased-approach (**MA-REC-16**) to implement the RMPA to ensure the Central Coast Field Office has the capacity and resources to sustain these amenities and services.

g. Access Opportunities:

i. General Access and Allowable Uses

Commenters expressed diverse perspectives on the types and level of allowable recreational activities. Therefore, the range of alternatives and the BLM preferred alternative (Alternative D) opportunities for research, education, and stewardship to enhance awareness and understanding of the Monument and the surrounding landscape. The RMPA also promotes volunteer opportunities.

ii. Parking/Access Fees

The BLM received differing viewpoints related to charging parking or access fees. Therefore Chapter 2, Section 2.14, was updated to explain that prior to establishing fees for these sites, the BLM would ensure that adverse impacts to neighboring communities (i.e. offsite parking) can be minimized through collaboration with Santa Cruz County, neighbors, and other partners.

iii. Access Points and Trail Connectivity

Public comments about access points and trail connectivity tend to focus on the safety concerns for specific local roads similar to comments raised during the scoping period. As a result, the BLM's preferred alternative avoids parking developments along Swanton Road and Bonny Doon Road because they have potential to increase risk to public safety and/or impede emergency service responsiveness. The BLM also incorporated an approach to developing public access to the C-CD that resembles the "Northgate" and "Southgate" recommendations that were submitted by the Davenport North Coast Association and the Rural Bonny Doon Association. Under the Proposed RMPA, the BLM would pursue development of the parking areas in RMZ1 and RMZ 3 during Phase 1 to disperse visitor use and reduce potential for concentration of impacts at a singular parking area and/or trailhead.

iv. Common Recreational Use

As shown in Appendix A on Figure 6D, proposed recreation opportunities for hiking, biking, and equestrian trail use would largely be separated into RMZ1 and RMZ3. Alternative D also precludes public camping, dogs off leash, and paragliding so the benefits to recreation resources are lower than Alternative C, greater than Alternative A, and substantially the same as Alternative B. Based on comments from the County and others, the stacked loop trails that are considered under Alternative D would span smaller portions of RMZ 1 and RMZ 3 than the other action alternatives. For example, the BLM eliminated trail segments under Alternative D that traversed steeper terrain where emergency services would be difficult to provide and recreational use would also impact a wider variety of wildlife habitats. Chapter 4, Section 4.11.6 explains that expanding the opportunities and places for recreation on the North Coast of Santa Cruz would likely reduce the number of recreationists in any given area, allow for a wider variety of recreation experiences, and improve the experience for those users. Therefore, Alternative D offers good potential for new recreational opportunities that would ultimately help relieve the pressures in already crowded areas.

v. Hunting/Shooting

Commenters expressed diverse perspectives about allowing recreational hunting. Several indicated allowing hunting conflicts with management restrictions; but the plain language of the Grant Deed and/or the Presidential Proclamation 9563 does not restrict this activity; and there are numerous National Monument's under the BLM's management that allow hunting licensed by the State of California, including the CCNM. Many shared concerns that hunting/shooting poses public safety risks, particularly due to the property's relative small size and proximity to other properties, or expressed opposition to habitat/wildlife enhancement for the purposes of recreational hunting. In response, the BLM's preferred alternative (Alternative D) would limit hunting to archery only in RMZ 2; and more information was added to Chapter 4, Section 4.11.6, including an example of the special hunt program that CDFW recommended could be established at C-CD.

vi. Environmental Analysis

a. Analysis and Uncertainty

The BLM received multiple comments related to analysis and uncertainty in the Draft RMPA/EA. Upon revision, the BLM has determined there are sufficient descriptions of existing conditions (Chapter 3) and analyses on environmental consequences (Chapter 4) in order to inform the public and the BLM decision-makers about the potential impacts to the human environment from the range of alternatives described in the C-CD Proposed RMPA/EA. At the same time, the BLM acknowledges that there is a high level of uncertainty inherent to estimating visitor use for a National Monument that was transferred into public ownership and offers entirely new opportunities for use and enjoyment. Due to this uncertainty, a phased approach to trail and trailhead development is proposed under Alternative D. In Phase I, the BLM proposes to develop approximately 17 miles of trail and two parking areas while monitoring impacts of visitor use, including parking capacity. The BLM will delay implementation of Phase II if parking capacity or trail mileage is not sufficient to meet public demand. In addition, the BLM has proposed to develop a larger parking area for the northern portion of the property under Alternative D to ensure adequate parking capacity under initial stages of development.

b. Existing Conditions and Environmental Consequences:

Upon revision, the BLM has determined there are sufficient descriptions of existing conditions (Chapter 3) and analyses on environmental consequences (Chapter 4) in order to inform the public and the BLM decision-makers about the potential impacts to the human environment from the range of alternatives described in the C-CD Proposed RMPA/EA.

c. Cumulative Effects:

Upon revision, the BLM has determined there are sufficient descriptions of existing conditions (Chapter 3) and cumulative effects analyses (Chapter 4) in order to inform the public and the BLM decision-makers about the potential impacts to the human environment from the range of alternatives described in the C-CD Proposed RMPA/EA when considered along with other past, present, and reasonably foreseeable actions regardless of who undertakes them.

Chapter 2: Management Alternatives

Chapter 2 describes the three alternatives evaluated in the C-CD Draft RMPA/EA, which included the No Action Alternative (Alternative A) and two action alternatives (Alternatives B and C). Following public review and considering feedback on the draft plan, the BLM developed a "Preferred Alternative" that is also described in Chapter 2 as Alternative D. All the alternatives described in this chapter represent a range of management options to address the scoping issues (presented in Section 1.3 and the BLM's Scoping Report (BLM 2019)) and to achieve the purpose and need for this RMPA. Each section discusses the management goals, objectives, and actions that would apply to the BLM's management under the range of alternatives.

Section 2.1 describes the types of decisions that are included in the RMPA/EA. Section 2.2 describes the overall management approach for C-CD. Section 2.3 explains how the alternatives were developed and provides a summary description of each one.

Acreages presented for each alternative have been calculated using BLM Geographic Information System (GIS) data; the BLM's surface ownership and other data included in the RMPA/EA may differ due to advancement of GIS technology, refinement in the precision of the mapping of various datasets over time, and variations in the selection of data sets utilized for calculations.

2.1 Types of Decisions

2.1.1 Land Use Decisions

The BLM's RMPs and the types of planning decisions included therein, are the basis for every on-the-ground action the BLM undertakes. Land use plans ensure that the public lands are managed in accordance with the intent of Congress as stated in FLPMA (43 U.S.C. 1701 et seq.), and other land laws (i.e., Antiquities Act).

Decisions in land use plans guide future land management actions and subsequent site-specific implementation decisions. These land use plan decisions establish goals and objectives for resource management (desired outcomes) and the measures needed to achieve these goals and objectives (management actions and allowable uses). Proposed land use plan decisions can be protested to the BLM Director but are not reviewable by the Office of Hearings and Appeals.

The BLM's Land Use Planning Handbook (H-1601-1; BLM 2005) provides supplemental guidance to the agency's employees for implementing the BLM land use planning requirements established by Sections 201 and 202 of the Federal Land Policy and Management Act of 1976 (FLPMA, 43 U.S.C. 1711-1712) and the regulations in 43 Code of Federal Regulations (CFR) 1600. The Land Use Planning Handbook includes guidance for preparing, revising, amending, and maintaining land use plans. This Handbook also provides guidance for developing subsequent implementation (activity-level and project-specific) plans and decisions.

Land use plan decisions for public lands fall into two categories: desired outcomes (goals and objectives) and allowable (including restricted or prohibited) uses and measures needed to achieve desired outcomes, which take the form of management actions and allowable uses.

1. Desired Outcomes

Land use plans must identify desired outcomes expressed in terms of specific goals and objectives. Goals and objectives direct the BLM's actions in most effectively meeting legal mandates; numerous regulatory responsibilities; national policy, including the DOI Strategic Plan goals; State Director guidance (see 43

CFR 1610.0-4(b)); and other resource or social needs. Desired outcomes should be identified for and pertain to resources (such as biological, and cultural), resource uses (such as recreation and/or livestock grazing), and other factors (such as social and economic conditions).

2. Allowable Uses & Management Actions

After establishing desired outcomes, the BLM identifies allowable uses (land use allocations) and management actions that are anticipated to achieve the goals and objectives.

a) Allowable uses. Land use plans must identify uses, or allocations, that are allowable, restricted, or prohibited on the public lands. These allocations identify surface lands where uses are allowed, including any restrictions that may be needed to meet goals and objectives. Land use plans also identify lands where specific uses are excluded to protect resource values. Certain lands may be open or closed to specific uses based on legislative, regulatory, or policy requirements or criteria to protect sensitive resource values.

b) Management actions. Land use plans must identify the actions anticipated to achieve desired outcomes, including actions to maintain, restore, or improve land health. These actions include proactive measures (e.g., measures that will be taken to enhance watershed function and condition), as well as measures or criteria that will be applied to guide day-to-day activities occurring on public land. Land use plans also establish administrative designations such as ACECs, recommend proposed withdrawals, land tenure zones, and recommend or make findings of suitability for congressional designations (such as components of the National Wild and Scenic River System).

Appendix C of the BLM's Land Use Planning Handbook provides additional program-specific guidance for developing land use plan decisions.

2.1.2 Implementation Decisions

Implementation decisions generally constitute BLM's final approval allowing on-the-ground actions to proceed. These types of decisions require appropriate site-specific planning and NEPA analysis. Unlike land use plan decisions, implementation decisions are not subject to protest under the planning regulations. Instead, implementation decisions are subject to various administrative remedies, particularly appeals to the Office of Hearings and Appeals (Interior Board of Land Appeals). Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by the specific resource program regulations after the BLM resolves the protests to land use plan decisions and makes a decision to adopt or amend the RMP.

This RMPA/EA includes two types of decisions - land use plan-level and implementation-level decisions - and clearly distinguishes between the two types of decisions. Specifically, this chapter displays a listing of proposed land use plan decisions and implementation decisions under each resource section that are program-specific and have been considered in conjunction with the guidance presented for other resources to maintain an integrated, interdisciplinary approach to planning for the C-CD.

Implementation decisions that would be approved in the Decision Record for this RMPA/EA are labelled as such following the alphanumeric identifier for the "management actions" (MA's). The BLM has prioritized these implementation decisions based on the requirements for specific resource programs upon completion of the RMPA/EA. Figures in **Appendix A** illustrate the major management elements of each alternative. **Appendix D** contains project design features that would apply to all alternatives.

2.2 Overall Management Approach

The BLM's overall management approach is described in this section. Specific management guidance described here will be applied regardless of the alternative selected for each of the resource/use program areas.

2.2.1 Deed Restrictions

In 2014, the BLM agreed to accept donation of C-CD with deed restrictions, including the following:

1. The land shall be used and managed for open space and public recreation in a manner consistent with protection and preservation of natural resources.
2. No commercial timber operations shall be allowed.
3. Except for management, health, safety, or emergency purposes, the use of motorized off-road vehicles shall not be permitted on land outside of established roadways.

A copy of the complete grant title, including the deed restrictions, is available for review and/or download on the BLM's ePlanning website for this RMPA/EA.

2.2.2 Presidential Proclamation Management Directives

Presidential Proclamation 9563 provides the basic framework for management of C-CD. This Proclamation directs that the Secretary of the Interior manage the C-CD through the BLM, pursuant to applicable legal authorities, to implement the purposes of the proclamation. The central purpose is clearly stated as protection of the natural, cultural, and biological resource that the C-CD lands represent. The Proclamation also calls for the property to be available for public access upon completion of a management plan.

2.2.3 CCNM Goals

As a unit of the broader CCNM, the BLM will continue to manage C-CD under relevant goals and objectives that were identified in the 2005 CCNM RMP.

The general goals and objectives identified are, as follows:

Goal 1: Protect the geological formations and the habitat that they provide for biological resources of the CCNM.

Goal 2: Protect the scenic and cultural values associated with the CCNM.

Goal 3: Provide and promote research opportunities to understand the resources and values of the CCNM.

Goal 4: Provide the public with interpretive information and educational initiatives regarding the values and significance of the CCNM and the fragile ecosystems of the California coastline.

Goal 5: Coordinate planning and management activities with the numerous jurisdictions on and adjacent to the CCNM and use the CCNM to help enhance cooperative and collaborative initiatives and partnerships with a variety of communities, agencies, organizations, academic institutions, the public, and other stakeholders.

2.3 Summary Description of Alternatives

The range of alternatives considered in this RMPA/EA is described in detail in Sections 2.4 to 2.18 and depicted on figures provided in the appendices. Alternatives are not management decisions, but instead represent a reasonable approach to managing resources and resource uses. The action alternatives presented in this RMPA/EA reflect a range of development and management use, and resource protections. Each resource section also describes the management goals, objectives, and actions that are common to all alternatives. Section 2.19 presents a comparison of the range of alternatives. Finally, the alternatives that were considered, but eliminated from detailed analysis are described in Section 2.20. Alternatives were eliminated if they did not meet the purpose and need for the RMPA/EA, or if they were not feasible due to technical, legal, or policy considerations.

The BLM used several sources of input to develop alternatives, including existing decisions in the 2005 CCNM RMP (BLM 2005) and the Interim Management Plan for Cotoni-Coast Dairies (BLM 2014). The public scoping process, conducted from June 24, 2019 to August 2, 2019, provided an opportunity for interested members of the public, local governments, and other resource and land management agencies to comment on the planning process and/or management concerns. From the comments received, the BLM identified the key land use decisions to be addressed in the Draft RMPA/EA and incorporated them into the range of alternatives for the following resource programs:

- Upland Terrestrial Vegetation
- Riparian Areas and Wetlands (Aquatic)
- Fish and Wildlife
- Special Status Species
- Cultural Resources
- Geology
- Soil Resources
- Paleontological Resources
- Visual Resources
- Recreation Resources
- Transportation and Travel Management
- Lands and Realty
- Livestock Grazing
- Special Management Areas

The BLM further refined the range of alternatives following the public comment period on the Draft RMPA/EA, including the addition of Alternative D. A summary of public input received during this comment period is available in a summary report posted on the BLM's eplanning website. BLM responses to these comments, including a description of how they were addressed in the Proposed RMPA/Final EA, are included at the end of Chapter 1.

Management Common to All Alternatives

The BLM developed the alternatives to be responsive to issues identified during the scoping period to meet established planning criteria (outlined in Chapter 1) and resource management goals and objectives.

Under all alternatives, the BLM will incorporate Project Design Features described in **Appendix D** to minimize adverse impacts on resource objects and values while providing for a level of resource use and development consistent with current laws, regulations, and BLM policies. For example, the proposed trail alignments would include crossings of streams and other sensitive habitat areas. Therefore, stream crossings would utilize existing infrastructure, or require the construction of new bridges and other conveyances, to

minimize impacts to these sensitive areas. When merited, consultation with the USACE and the Central Coast RWQCB would be integrated into the determination of selected crossings. If the CDFW and/or RWQCB have specific concerns for such work, their recommendations will be integrated into the design.

Where wetlands or streams cannot be avoided, appropriate approvals from the USACE (for impacts to regulated wetlands or areas below the ordinary high-water mark of regulated streams) and/or the Regional Water Quality Control Board (RWQCB) shall be secured prior to initiating work in these areas. The measures included in any such authorizations shall be incorporated into the design.

Trails that are not stable and secure may be closed for public use until maintenance that brings the trail into compliance can be completed. Also, the BLM would close trails under wet weather conditions when continued use of the trails could cause damage to the trails or endanger public safety.

Species-specific surveys and species avoidance and habitat protection measures would result in land use authorizations that minimize impacts on these special status species. For federally listed species, surface disturbance will be prohibited if the USFWS Endangered Species Act Section 7 consultation concludes that the proposed action is inconsistent with the recovery needs of the species as identified in an approved USFWS Recovery Plan.

Similarly, the BLM's protection objectives for cultural resources focuses on protecting the significance of cultural resources by ensuring they are managed in a manner suited to the characteristics, attributes, and uses that contribute to their public importance; giving adequate consideration to the effects of land use decisions on cultural properties; towards meeting legal and regulatory obligations through a system of compliance fitted to BLM's management systems; and toward ensuring cultural resources on public land are safeguarded from improper use and responsibly maintained in public interest.

2.3.1 Summary of Alternative A (No Action Alternative)

Under regulation (40 CFR Part 1502.14 (d)), the BLM must include a No Action Alternative, which represents continuation of current management. Under the No Action Alternative, or Alternative A, the BLM would continue to manage the property under the CCNM RMP (BLM 2005) and the Coast Dairies Interim Management Plan (BLM 2014). The BLM would develop two access points for day-use hiking (**Appendix A, Figure 5A**). The BLM would continue to lead or authorize guided tours as appropriate.

Trail-based recreation opportunities would be limited to day-use hiking for pedestrians on designated trails. Dogs on leashes would be allowed on designated trails. Off-trail use, camping, open flames, and hunting are prohibited under Alternative A. In addition, the BLM would not issue special recreation permits (SRPs) for special events, commercial services, and organized groups. Fees would not be charged for use of facilities on the property.

The BLM would continue to manage livestock grazing as specified in the 2014 Interim Management Plan, replacing and maintaining infrastructure over time to support this program. The BLM would not pursue substantial new vegetation or fuels management programs.

2.3.2 Summary of Alternative B

Under Alternative B, the BLM would increase public access for research, education, and recreational opportunities as compared to Alternative A. Recreation facilities would include four access points (two year-round parking areas, one seasonal parking area, and one pedestrian/bicycle connection to the North Coast Rail Trail). The BLM would work with partners to develop and manage a system of multiple use trails for pedestrians, equestrians, and mountain bikes in Recreation Management Zones (RMZs) 1 and 3

(**Appendix A, Figure 5B**). Recreationists and dogs on leashes would be required to stay on designated trails. RMZs 2 and 4 would be managed as core habitat areas for fish and wildlife, with recreation access limited to guided tours only. Hunting would be allowed in RMZ2 through a special hunt program managed in partnership with the California Department of Fish and Wildlife.

The property would be managed as a day use area, with camping only allowed with specific authorization through a Special Recreation Permit (SRP) or other access permit. Non-competitive SRPs would be allowed as long as they promote understanding and appreciation of CCNM values and do not conflict with public access for the general public. The development of recreation facilities would be phased in over time, beginning in RMZ1, followed by RMZ3 (**Appendix A, Figure 5B**). Pursuant to the Federal Land Recreation Enhancement Act (REA), the BLM may collect fees for use of parking facilities on the property to help pay for upkeep of these facilities.

Grazing management would be similar to Alternative A, but the areas available for grazing would be slightly increased and better defined by vegetation type and drainages. The BLM would pursue new opportunities for restoration of biological resources on the property, including the use of herbicides and re-introduction of prescribed fire to control non-native plant species.

2.3.3 Summary of Alternative C

Alternative C would increase public access for research, education, and recreational opportunities as compared to Alternatives A and B. Recreation facilities would include five access points (three year-round parking areas, one seasonal parking area, and one pedestrian/bicycle connection to the North Coast Rail Trail). Trail-based recreation opportunities would be more extensive than under Alternatives A and B (**Appendix A, Figure 5C**). Dogs on leashes would be allowed on designated trails, with specific off-leash opportunity areas. Hunting would be allowed in RMZ2 through a special hunt program managed in partnership with the California Department of Fish and Wildlife.

The BLM would allow camping on the property at designated hike or ride-in sites on the property. SRPs (competitive and non-competitive) would be allowed if they promote understanding and appreciation of Monument values and do not conflict with public access for the general public. The development of recreation facilities would be phased in over time, beginning in RMZ1, followed by RMZ3 (**Appendix A**). Trail development in RMZ2 and designation of hike-in or ride-in camping areas could occur, but would require subsequent site-specific analysis, design and opportunity for public involvement. Public access in RMZ 4 would be limited to guided tours only. Pursuant to the Federal Land Recreation Enhancement Act (REA), the BLM may collect fees for use of parking facilities on the property to help pay for upkeep of these facilities.

Under Alternative C, more acreage would be available for grazing than under Alternatives A and B, requiring development of new fence and water infrastructure. The BLM would pursue new opportunities for restoration of biological resources on the property, including re-introduction of prescribed fire and application of herbicides for treatment of non-native plant species.

2.4 Summary of Alternative D, the "Preferred Alternative"

The Draft RMPA/EA presented a range of reasonable management actions that were analyzed to assist decision-makers and the public in understanding the potential environmental consequences of each alternative. The three alternatives considered in the Draft RMPA/EA were distinguished by the type and degree of constraints described as allowable uses undertaken to achieve the desired outcomes.

The BLM's preferred alternative consists of elements [i.e. allowable uses, management activities] from across the range of reasonable management alternatives analyzed in the Draft RMPA/EA, including elements of Alternatives A, B, and C. After careful consideration of public comments, the BLM crafted Alternative D from the spectrum of management options already analyzed to meet the purpose and need for this Proposed RMPA/EA.

Under Alternative D, day use facilities/parking areas would be the same as those proposed under Alternative B, with three day use/parking areas (two year-round parking areas, one seasonal parking area), and pedestrian/bicycle connections to San Vicente Redwoods and the North Coast Rail Trail. Trail-based recreation opportunities would consist of trail concepts (with modifications) considered under Alternatives B and C (**Appendix A, Figure 5D**). Dogs on leashes would be allowed on specifically designated trails to protect sensitive habitat areas. RMZs 2 and 4 would be managed as core habitat areas for fish and wildlife, with recreation access limited to guided tours and permitted access only. Archery hunting would be allowed in RMZ2 through a permitted special hunt program managed in partnership with the California Department of Fish and Wildlife.

Similar to Alternatives A and B, the property would be managed for day-use only. Specific exemptions for overnight use could be authorized for traditional cultural practices (tribal groups and organizations), work groups (e.g. California Conservation Corps), research, or educational purposes. Non-competitive SRPs would be allowed as long as they promote understanding and appreciation of CCNM values and do not conflict with public access for the general public.

Pursuant to the Federal Land Recreation Enhancement Act (REA), the BLM may collect fees for use of parking facilities on the property to help pay for upkeep of these facilities under the preferred alternative. Prior to establishing fees, the BLM would work with key partners (e.g. Santa Cruz County, CalTrans) to mitigate safety hazards of offsite parking. This authorization provides the certainty needed to make long-term investments in an integrated system, sustain partnerships, and improve the recreation experience for visitor to the C-CD. Recreation fees collected under REA are reinvested at the collecting site to benefit the visitor through enhanced facilities and services. The BLM may only charge market-rate fees at sites and for activities that meet certain specified criteria. The REA also requires that the Departments establish Resource Advisory Councils (RACs) so the local community, the recreation community, and the general public can provide input into fees established by BLM at C-CD.

Grazing management would be like Alternative B. The BLM would pursue opportunities for restoration of biological resources on the property, including use of herbicides and prescribed fire to control non-native plant species. However, aerial herbicide application would be prohibited.

The BLM proposes to use a two-phased approach to the implementation of public recreation facilities, with implementation of phase two dependent on effective recreation management under Phase 1. Emphasis will be placed on the adequacy of infrastructure to accommodate visitor use, the effectiveness with which the BLM and partners are able to maintain the trail system, and the BLM and partners' ability to address unauthorized trails and trail use, and unauthorized entry into core wildlife areas (RMZs 2 and 4), wetlands and riparian areas.

2.5 Upland Terrestrial Vegetation, including Herbicide Use and Fire

2.5.1 Goals and Objectives

Common to All Alternatives

Goals

1. Restore, maintain, or improve ecological conditions, natural diversity, and associated watersheds of high value, high-risk native plant communities.
2. Systematically remove non-native, invasive plant species, as resources permit.
3. Protect and restore native grasslands, oak woodlands, coastal scrub, and conifer forest, and wetlands and riparian zones,, and control non-native invasive species.
4. Establish a fire management program that is cost-efficient and commensurate with threats to life, property, public safety, and resources.

Objectives

a. Maintain the natural quality and integrity of native vegetation on the CCNM.
b. Restore the quality and integrity of native vegetation where it has been determined to be impaired as a result of human activities or non-native invasive species.

Alternatives B, C and D

Goals

5. Use prescribed fire and mechanical treatments to restore and/or sustain ecosystem health,
6. Cooperate with communities at risk within the wildland-urban interface to develop plans for fire risk reduction,
7. Cooperate with regional partners in fire and resource management across agency boundaries, and reduce wildfires, with a special emphasis in developed areas such as parking and recreation facilities and transportation corridors.
8. Utilize an integrated pest management approach and early-detection rapid response to treat non-native invasive plant species infestations.

Vegetation Management Objectives

c. Provide a mosaic of vegetation communities to protect soils, watersheds, and wildlife.
d. Monitor and evaluate the vegetation health of grasslands, coastal scrub, conifer forest, and wetlands and riparian zones.
e. Restore and expand native vegetation communities with a focus on grasslands, oak woodlands, and conifer forests, including redwoods.
f. Restore disturbed areas to stabilize soils and promote re-establishment of desired native plant communities.

g. Establish a weeds control program to control undesirable non-native, invasive plant species. Prevent the introduction and spread of non-native invasive plant species (early detection and rapid response). Use adaptive management to improve cost-effectiveness and enhance success rate.
h. Utilize prescribed fire as a land management tool for the following purposes:
    - Control of non-native, invasive plant species
    - Improvement of ecological function, including restoration of native coastal grasslands
    - Reduction of fuel load hazards, including in coastal scrub and chaparral vegetation communities
    - Wildlife habitat improvement
    - Restoration of traditional cultural practices

Fire Management Objectives

a. Prioritize firefighter and public safety in all fire-management activities.
b. Provide an appropriate management response for all wildland fires, emphasizing firefighter and public safety.
c. Limit the intensity of wildland fire suppression efforts to the most economical response consistent with the human and resource values that are at risk.
d. Protect sensitive cultural sites from damage by wildland fire and/or fire suppression actions.
e. Reduce the risk of fire in wildland-urban interface communities.
f. Reduce the risk of catastrophic wildland fire through fuels management.
g. Promote greater diversity within plant communities with the use of prescribed fire.
h. Increase the public's knowledge of fire's natural role in the ecosystem and the hazards and risks associated with living in the wildland-urban interface.
i. Educate the public on fire safety and prevention measures.

2.5.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-VEG-1	Develop a non-native, invasive plant species management and control program, consistent with the long-term protection of native plant communities. This program will be designed to reduce competition from non-native plants and encourage the long-term survival of native plant communities.			
MA-VEG-2	Develop educational and interpretive materials that identify the nature and value of vegetation resources of the monument.			

	Alternative A	Alternative B	Alternative C	Alternative D
MA-VEG-3	Use livestock grazing to reduce fine fuel loads and wildfire risk and to control non-native, invasive plant species in grasslands.			
MA-VEG-4	Promote desired vegetation composition and structure for listed species habitat. Focus on grasslands, wetlands, and riparian areas.	Use restoration and revegetation to reduce soil erosion and to promote desired native vegetation composition and structure. Restoration tools may include targeted livestock grazing, prescribed fire, and mechanical treatments. Focus on grasslands, oak woodlands, and conifer forests, including redwoods.		
MA-VEG-5	No similar action	Use prescribed fire as natural land management tool to reduce fuel loads and to promote desired composition and structure. Focus on grasslands, coastal scrub, and chaparral.		
MA-VEG-6	No similar action	Rehabilitate burned areas to mitigate adverse effects of fire on vegetation, soils, water, and cultural resources.		
MA-VEG-7	Removal of invasive plant species by manual means is the preferred method of control and will be used wherever possible. The use of herbicides will be restricted to specific situations when other alternatives are determined to be infeasible or ineffective.	Use BLM approved pesticides to control invasive plant species (all areas of C-CD) and to reduce wildfire risk around infrastructure with use of small scale ground-based pesticide application methods - backpack sprayer (spot spraying); spray boom on motorized vehicle (UTV; broadcast spraying).	Use BLM approved pesticides to control invasive plant species (all areas for C-CD) and to reduce wildfire risk around infrastructure and to maintain fire breaks. Allow use of all scales of ground-based and all scales of aerial pesticide application methods - backpack sprayer (spot spraying); spray boom on motorized vehicle (UTV; broadcast spraying); commercial ag spray booms and equipment (broadcast spraying); UAS (spot	Use BLM approved pesticides to control invasive plant species (all areas of C-CD) and to reduce wildfire risk around infrastructure with use of small scale ground-based pesticide application methods - backpack sprayer (spot spraying); spray boom on motorized vehicle (UTV; Full-sized Vehicle [truck]; broadcast spraying).

	Alternative A	Alternative B	Alternative C	Alternative D
			spraying); helicopter (broadcast spraying).	
Implementation Action: MA-VEG-8	No similar action	Adopt the C-CD Weed Management Plan. and Pesticide Use Proposal (PUP) detailed in **Appendix F**.		

2.6 Riparian Areas and Wetlands (Aquatic), including Herbicide Use

2.6.1 Goals and Objectives

Common to All Alternatives

The BLM determined there is no specific management direction applicable to the C-CD for these resources established in the CCNM RMP (BLM 2005) or IMP (BLM 2014). In lieu of specific goals and objectives, or management actions, the BLM would adhere to existing policy to meet State and Federal regulations to protect riparian areas and wetlands.

Alternatives B, C and D

Goals

1. Protect or enhance naturally functioning riparian areas and aquatic systems.
2. Protect natural wetlands from fill and adverse effects of recreational, agricultural, grazing, and operational activities. Wetlands are areas that meet the definition used by the U.S. Army Corps of Engineers and/or the California Coastal Commission. Additional value may be as habitat for federally or state listed species.
3. Minimize disturbance to the health and proper functioning of the aquatic ecosystem, including links with backwater areas, tributaries, and groundwater systems to provide for increased channel diversity; and contribute sources of needed nutrients and woody debris to the system.

Objectives

a. Riparian areas contain a high diversity of native plant species, provide habitat for a broad variety of terrestrial, avian, and amphibian animal species, and are an essential component of stream ecosystems. All riparian areas within C-CD shall be considered important biological and aesthetic resources and shall receive a high priority for restoration and a high level of protection from disturbance.

b. Delineate wetlands and apply protection measures during project design and implementation. Wetlands shall be delineated by qualified staff or wetland specialists and clearly marked prior to work. Perform activities in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc. Limit or restrict recreational and other activities to minimize impacts to wetland resources.

c. Within 100 feet of the ordinary high-water mark of area waterways, reduce and/or minimize surface disturbance.

d. Ensure that BLM actions do not cause adverse impacts to domestic water supplies in San Vicente, Liddell, and Laguna watersheds. Limit public access within these areas to ensure adequate protection.

2.6.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-RIP-1	No similar action	Restore naturally functioning riparian systems on the property where feasible. Restoration activities may include restoration of natural floodplains, as well as removal of aquatic organism migration barriers and unused infrastructure (e.g. dams, roads).		
MA-RIP-2	No similar action	Within 100 feet of the ordinary high-water mark of area waterways, enforce the following conditions: ● For surface-disturbing activities, consider alternatives that would avoid impacts within this zone. ● Allow facilities (including, but not limited to, riprap, levees, diversion walls, impoundments, bridges, bridge abutments, roads, campsites, buildings, utilities, and other structures) only when they meet the following two criteria: (1) where required for access to/across the stream, for health and safety, or for the maintenance of historic properties; and (2) where it is impractical to locate them outside this zone. ● Seek opportunities to replace, repair, or relocate existing facilities if doing so would have a positive impact to aquatic systems. ● New facilities and development may be constructed only when they meet criteria described above and when located where they do not materially impair the natural function of the stream, impede linkages to tributary inflow and backwater areas, or disrupt contribution or routing of woody debris in the channel. ● Actions within the bed and banks of a stream to construct, replace, repair, or relocate essential facilities (i.e., primary roads and bridges, wastewater collection and treatment, water supply, electrical distribution, and similar		

	Alternative A	Alternative B	Alternative C	Alternative D
		facilities) and facilities that directly protect and enhance resources may be permitted provided that: i. Project design minimizes impacts to the stream, interference with linkages to tributary inflow and backwater areas, and disruption of the contribution or routing of woody debris to the system. ii. The project incorporates mitigation measures to avoid or reduce impacts. iii. The work is scheduled during the appropriate time to minimize take of endangered species.		
MA-RIP-3	No similar action	Temporarily close trails under wet conditions when continued use of trails could lead to trail damage, public safety concerns, or erosion.		

2.7 Fish and Wildlife

2.7.1 Goals and Objectives

Common to All Alternatives

Goals

1. Ensure diverse, structured, resilient, and connected habitat on a landscape level to support viable and sustainable populations of wildlife, fish, and other aquatic organisms.

Objectives

a. Restore habitat that has been adversely affected by human activity or non-native invasive species.

Alternatives B, C and D

Goals

2. Ensure diverse, structured, resilient, and connected habitat on a landscape level to support viable and sustainable populations of wildlife, fish, and other aquatic organisms.
3. Maintain the natural faunal habitat to the extent possible. The natural wildlife habitat is defined as wildlife resources and habitat that are identified in Presidential Proclamation 9563.

4. Develop and allow uses that are compatible with wildlife activity, productivity, and diversity. Maintain and enhance wildlife movement across the Property and between the Property and other natural areas.
5. Balance recreation and access with protection of resources, allowing only low-impact activities in areas with high wildlife use.

Objectives

b. Maintain or enhance viable, healthy, and diverse populations of native and desired species, including special status species, where appropriate.
c. Restore habitat that has been adversely affected by human activity or non-native invasive species.
d. Manage riparian areas to sustain the abundance and diversity of riparian-dependent avifauna.
e. Manage areas of high wintering raptor densities to sustain the abundance and diversity of birds of prey.
f. Conserve habitat for migratory birds and species listed on the U.S. Fish and Wildlife Service (USFWS) list of Birds of Conservation Concern.
g. Nonnative animal species shall be discouraged through appropriate habitat management and, when necessary, by direct control measures.
h. Minimize habitat disturbance in core wildlife habitat areas to reduce habitat fragmentation.

2.7.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-WLD-1	Maintain an inventory of wildlife and wildlife habitat. Other inventory priorities will be established and promoted at the outset, including but not limited to: • Focused annual surveys on selected species and sites based on partnership/stakeholder interest and abilities. • Surveys to determine status regarding invasive wildlife species and their effects on native populations. • Human use of the C-CD and its effects on wildlife habitat and populations.			
MA-WLD-2	A program for control of invasive wildlife species for the C-CD will be developed and implemented where effects on Monument resources, have been documented or are suspected. Priorities for implementation will be given to areas where problems are most acute (e.g., areas where native populations are shown to be in decline as a result of invasive species). This effort will be designed to reduce competition with native wildlife, predation on native vegetation, and degradation of habitat—and will encourage the long-term survival of native or unique monument communities and habitat. BMPs and other measures will be implemented to minimize any adverse effects on non-target species, natural resources, and the human environment. Disturbed areas will be replanted with native plant species where natural recruitment is not expected. This replanting will be designed to reduce erosion and protect visual quality. Temporary			

	Alternative A	Alternative B	Alternative C	Alternative D
	degradation of visual resources also will be avoided through screening of ground disturbance activities where possible.			
MA-WLD-3	BLM, in cooperation with its core-managing partners, will develop and implement measures to restore or improve habitat.			
MA-WLD-4	Educational and interpretive materials will be developed that identify the nature and value of wildlife resources of the monument.			
MA-WLD-5	No similar action	Enhance populations of deer, quail, and turkey to promote hunting opportunities in Recreation Management Zone (RMZ) 2 (**Appendix A, Figures 5B, C**).		No similar action
MA-WLD-6	No similar action	Manage RMZ 2 and 4 as core fish and wildlife protection areas. Within these areas, minimize construction of new facilities to those necessary to support ongoing quarry remediation, traditional cultural practices, and science/research (3261 acres, **Figure 5B**).	Manage RMZ 4 as a core fish and wildlife protection area. Within this area, minimize construction of new facilities to those necessary to support ongoing quarry remediation, traditional cultural practices, and science/research (620 acres, **Figure 5B**).	Manage RMZ 2 and 4 as core fish and wildlife protection areas. Within these areas, minimize construction of new facilities to those necessary to support emergency ingress/egress, valid existing rights, ongoing quarry remediation, traditional cultural practices, and science/research (3,187 acres, **Figure 5D**).

2.8 Special Status Species

2.8.1 Goals and Objectives

Common to All Alternatives

Goals

1. Protect designated Critical Habitat for listed species.
2. Protect and restore habitat necessary to recover populations of special status species

Objectives

a. Coordinate with regional partners to enhance populations and habitat of special status fish, wildlife, and plant species.

Alternatives B, C and D

Objectives

b. All streams with the potential to support salmonids and listed as Critical Habitat shall be managed in a manner to support migration, spawning, and rearing of steelhead and coho salmon.
c. Manage California red-legged frogs and their habitat, in support of species recovery.
d. Avoid or minimize disturbance to streams that contain juvenile steelhead or coho or are listed as critical Habitat for a listed species.
e. Improve the condition of special status species and their habitats to a point where their special status recognition is no longer warranted.

2.8.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-SSS-1	Support efforts to protect spawning and rearing habitat for steelhead and coho salmon in cooperation with the National Marine Fisheries Service			
MA-SSS-2	Support efforts to protect California red-legged frog breeding habitat, as well as habitat for other sensitive, rare, threatened, and endangered species in collaboration with the U.S. Fish and Wildlife Service.			
MA-SSS-3	No similar action	Implement restoration actions with a goal of protecting and improving habitat for special status species. Actions would include habitat enhancement for red-legged frogs and salmonids.		
MA-SSS-4	No similar action	Enhance populations of red-legged frogs, salmonids, and other special status species consistent with approved recovery plans.		

2.9 Cultural and Heritage Resources

2.9.1 Goals and Objectives

Common to All Alternatives

Goals

1. Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations.
2. Provide access to areas for federally recognized Indian tribes as well as non-federally recognized tribal groups, communities, and individuals for the purpose of maintaining traditional values intrinsic to their cultural identities.
3. Fulfill the essential roles that public communication and heritage education play in historic preservation.

Objectives

a. Protect NRHP-eligible and potentially eligible cultural resources from human-caused disturbance or destruction, and from natural disturbance and destruction when appropriate.
b. Obtain scientifically and ethnographically relevant information to inform us about past human activities, to evaluate cultural resources, and for site characterization.
c. Offer ongoing interpretation of cultural resources as a means of enhancing public appreciation.
d. Establish a variety of heritage education programs that promote the public stewardship of cultural resources, including but not limited to conventional outreach efforts within community libraries and civic events.
e. Evaluate and manage all cultural resource properties appropriately using the criteria from **Table 2-9**, below.

Table 2-9. Cultural Resource Allocations and Desired Outcome

Cultural Resource Use Allocations	Desired Outcome
Scientific use	Preserved until research potential is realized
Conservation for future use	Preserved until conditions for use are met
Traditional use	Long-term preservation
Public use	Long-term preservation, on-site interpretation
Experimental use	Protected until used
Discharged from management	No use after recordation; not preserved

Alternatives B, C and D

Objectives

a. Develop and maintain relationships with non-federally recognized Native American groups who may have an interest in stewardship of traditional cultural properties (TCPs). Continue to work in collaboration with Native American groups through already established Memorandums of Understanding.
b. Enforce laws against damage and theft of cultural resources. Administrative and physical measures to protect historic properties in the CCNM will include monitoring of resource condition, surveillance by law enforcement personnel in potential problem areas, public education, and involvement of interested parties in conformance with the Archaeological Resources Protection Act (ARPA).
c. Collaborate with various entities to provide interpretive opportunities.
d. Encourage research that can better define the extent, nature, and value of cultural resources of the monument (discussed in more detail under the "Research" resource use category). Cooperate with California Department of Parks and Recreation, regional information centers of the California Historical Resources Information System (CHRIS), and Native American groups. Additional collaborators may be engaged, including faculty, graduate students, and research associates of the University of California and the California State University systems—and private universities that conduct anthropological research. Partnering with academic institutions to facilitate and encourage research opportunities will help to fill cultural resource data gaps in the CCNM and the Cotoni-Coast Dairies unit.

2.9.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-CUL-2	**Initial Management:** As an interim management action while NRHP determinations are in process, cultural resources will be managed for their information, public, or conservation values per BLM Manual 8100 series, FLPMA, NHPA, and ARPA.			
MA-CUL-2	**Eligibility of CCNM Properties for Listing in the NRHP:** Prepare NRHP nominations as appropriate for cultural resources in the CCNM that are determined by the BLM as eligible for the NRHP and submit the nomination for listing per BLM policy at 8110.3.			
MA-CUL-3	**Cultural Resources Management Plans (CRMPs):** CRMPs that address preservation actions may be prepared for cultural resources as determined to be appropriate for management purposes, including management of site visitation.			

	Alternative A	Alternative B	Alternative C	Alternative D
MA-CUL-4	**Consultation with Tribes:** BLM will consult further with Native American tribes to gather information about traditional use areas and activities that may include elements of the CCNM in order to support the allowable uses as identified below under AU-CUL-1.			
MA-CUL-5	**Education and Interpretation:** An education and interpretation program will be developed around the CCNM's significant cultural properties (discussed in more detail under the resource use "Education and Interpretation"). The program may include printed and web-based material and also may involve public events organized around historic and/or prehistoric themes at or near significant coastal sites.			
MA-CUL-6	**Research:** Research for the purposes of evaluation, site characterization, and scientific investigation is encouraged when such research is consistent with the objectives of the RMP and BLM policy.			
AU-CUL-7	**Native American Uses:** Native American requests to practice traditional activities or participate in interpretive activities on the CCNM will be welcomed and will be approved on a case-by-case basis, consistent with the overriding purpose of monument management—which is preservation of biological, physical, and cultural resources.			
AU-CUL-8	**On-Monument Activities:** On-monument activities that would harm the cultural resources of the monument will be limited or prohibited as appropriate (specific activities are discussed in more detail under the resource uses above "AU-LUA-3 Prohibited Uses."). Post-review discoveries and unanticipated effects to historic properties will be treated according to the terms of the BLM California Statewide Protocol Agreement.			
MA-CUL-9	No similar action.	Manage RMZs 2 and 4 for traditional cultural property values associated with East Liddell Creek and Laguna Creek watersheds. Limit public access within these areas to guided tours emphasizing their cultural and ecological values.		

2.10 Air Quality

2.10.1 Goals and Objectives

Common to All Alternatives

Goals

1. The goal for air quality management is to ensure that BLM authorizations and management activities comply with local, State, and Federal air quality regulations, requirements, State Implementation Plans (SIPs), and Regional Air Board standards and goals.

Objectives

a. Manage prescribed fires to comply with established air quality standards;
b. Coordinate with Regional Air Quality Control Districts on resource management activities to ensure consistency with State air basin plans.

2.10.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-AIR-1.	Incorporate mitigation for activities and projects on BLM lands in order to comply with applicable Federal, State, and local air quality regulations.			
MA-AIR-2.	Manage fires to minimize smoke and coordinate with Federal, State, and local governments in smoke-sensitive areas to comply with local Smoke Management Programs.			
MA-AIR-3:	Coordinate with the Monterey Bay Unified Air Pollution Control District (APCD) to predict impacts on air quality from prescribed burns on Cotoni-Coast Dairies. Develop criteria for prescribed burns with the Monterey APCD to avoid air quality degradation beyond established air quality standards.			

2.11 Geology

2.11.1 Goals and Objectives

Common to All Alternatives

Goals

1. Manage soil on BLM lands such that functional biological and physical characteristics that are appropriate to soil type, climate, and landform are exhibited.
2. Restore watershed function and rectify sediment and soil stability problems to the extent practicable, in cooperation with lessees, adjacent landowners, and regulatory agencies.

Objectives

a. Maintain the natural quality and integrity of geologic resources.
b. Control erosion and sediment transport.
c. Maintain vegetation cover at or above the level necessary to stabilize soils.
d. Using predictive modeling, identify significant localities that may be in conflict with other resource uses.
e. Allow for excavation and data recovery where unique resources exist that are threatened by natural processes or human activity.
f. Foster public awareness and appreciation of geologic resources through educational outreach programs.

2.11.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-GEO-1	**Data Recovery.** Where unique geologic resources exist that are threatened by natural processes or human activity, allow for excavation and data recovery, if it is determined that this action will not adversely affect sensitive biological, physical, or cultural resources or resource values.			
MA-GEO-2	**Education and Interpretation.** Develop educational and interpretive materials that identify the nature and value of physical resources of the monument (discussed in more detail under the resource use "Education and Interpretation").			
MA-GEO-3	**Management Criteria.** Develop criteria for identifying resources requiring protection. Criteria will include, but not be limited to, the unique nature of the resource in question, the sensitivity of the resource to disturbance, and the threat or potential threat to the resource. Identify areas requiring additional management based on the above criteria. This process will be ongoing as information becomes available through research and inventory			
MA-GEO-4	Accommodate permit requests for scientific research by qualified individuals or institutions.			

2.12 Paleontological Resources

2.12.1 Goals and Objectives

Common to All Alternatives

Goals

1. Protect paleontological resources from degradation.
2. Facilitate the appropriate scientific, educational, and recreational uses of paleontological resources such as research and interpretation.

Objectives

a. Control erosion to prevent exposure of fossiliferous geologic formations.
b. Allow for excavation and data recovery where unique resources exist that are threatened by natural processes or human activity.
c. Foster public awareness and appreciation of paleontological resources through educational outreach programs.

2.12.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-PAL-1	**Data Recovery.** Where unique paleontological resources exist that are threatened by natural processes or human activity, allow for excavation and data recovery, if it is determined that this action will not adversely affect sensitive biological, physical, or cultural resources or resource values.			
MA-PAL-2	**Education and Interpretation.** Develop educational and interpretive materials that identify the nature and value of physical resources of the monument (discussed in more detail under the resource use "Education and Interpretation").			
MA-PAL-3	**Management Criteria.** Develop criteria for identifying resources requiring protection. Criteria will include, but not be limited to, the unique nature of the resource in question, the sensitivity of the resource to disturbance, and the threat or potential threat to the resource. Identify areas requiring additional management based on the above criteria. This process will be ongoing as information becomes available through research and inventory.			

2.13 Visual Resource Management

2.13.1 Goals and Objectives

Common to All Alternatives

Goals

1. Where feasible, protect viewsheds from potentially degrading intrusions.
2. Maintain the existing pastoral visual character of C-CD.

Objectives

a. Enhance opportunities for visitors and residents to view the outstanding scenic landscapes characteristic of the CCNM.
b. Minimize new developments within the viewshed of State Highway One.
c. Design new site developments to minimize impacts to coastal vistas.
d. Manage public land actions and activities in a manner consistent with visual resource management (VRM) class objectives.
   - VRM Class I. Any new site developments on BLM lands will be located and designed so that they do not detract from coastal vistas. New facilities will be constructed so that the level of change to the characteristic landscape is very low and does not attract attention.
   - VRM Class II: Retain the character of the landscape: The level of change to the characteristic landscape should be low. Management activities should be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
   - VRM Class III: Partially retain the existing character of the landscape: The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

- VRM Class IV: Provide for management activities that require major modifications of the existing character of the landscape: The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

2.13.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-VRM-1	Complete visual contrast ratings for existing facilities and identify opportunities to reduce existing visual impacts through modifications. Complete visual contrast ratings for proposed surface-disturbing projects to ensure that they meet VRM class objectives.			
MA-VRM-2	**VRM Classification.** Manage the entire C-CD property as VRM Class I	**VRM Classification.** Manage the C-CD property with VRM classes reflecting VRI inventory results (i.e. VRI Class II would be managed as VRM Class II; **Appendix A, Figure 10**). Manage the areas immediately surrounding proposed access points as VRM Class III.		
MA-VRM-3	No similar action	Minimize visual impacts from county-designated scenic roadways (State Highway One, Swanton Road, and Bonny Doon Road). Site and design parking areas to minimize visibility from these roadways. Where these sites could be visible from scenic roadways or neighborhoods, utilize vegetation and/or grading to minimize visual impacts.		

2.14 Recreation Resources

2.14.1 Goals and Objectives

Common to All Alternatives

Goals

1. Provide a range of recreational use opportunities while protecting sensitive natural and cultural resources from human impacts.
2. Provide the public with interpretive information and educational initiatives regarding the values and significance of the CCNM.
3. Provide a variety of experiences and settings for a diversity of users and to meet potential changes in demand while minimizing conflicts with adjacent property owners and among user groups.
4. Coordinate planning and management activities with the numerous jurisdictions on and adjacent to the CCNM and use the CCNM to help enhance cooperative and collaborative initiatives and partnerships with a variety of communities, agencies, organizations, academic institutions, the public, and other stakeholders.

5. Promote sharing of ideas, resources, and expertise to increase the public's appreciation and understanding of natural and cultural resources on BLM public lands; and
6. Disseminate information that will foster responsible behavior in order to achieve the highest possible environmental quality on BLM public lands.

Objectives

a. Visitors will be encouraged to participate in recreational pursuits on the CCNM that are respectful of the biological, cultural, physical, and scenic values of the monument.
b. Construct and maintain appropriate facilities to support recreational uses.
c. Design maps and brochures and educational opportunities to improve visitors' appreciation and understanding of natural and cultural resources on BLM public lands.
d. Create experiences and settings appropriate for the desired outcome within developed and undeveloped recreation areas.
e. Manage recreational facilities to protect natural resources and to meet user needs.

2.14.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-REC-1:	Manage Cotoni-Coast Dairies an Extensive Recreation Management Area (ERMA). Refer to **Appendix A, Figure 5A**.	Designate the entire 5,843-acre Cotoni-Coast Dairies a Special Recreation Management Area (SRMA) with four recreation management zones (RMZ). Refer to **Appendix A, Figure 5B**.	Designate the entire 5,843-acre Cotoni-Coast Dairies a Special Recreation Management Area (SRMA) with four recreation management zones (RMZ). Refer to **Appendix A, Figure 5C**.	Designate the entire 5,843-acre Cotoni-Coast Dairies a Special Recreation Management Area (SRMA) with four recreation management zones (RMZ). Refer to **Appendix A, Figure 5D**.
MA-REC-2:	Allow guided tours, education, and research on the property.			
AU-REC-3:	Allowable uses are limited to non-motorized, non-mechanized recreation activities.	Allowable uses are limited to non-motorized recreation activities.		
AU-REC-4:	Visitors must stay on designated trails.	Visitors must stay on designated trails unless specifically authorized through an SRP or access permit.	Mechanized visitors (e.g. bicyclists) must stay on designated trails, non-mechanized visitors encouraged to stay on	Same as Alternative B

	Alternative A	Alternative B	Alternative C	Alternative D
			designated trails through education and outreach.	
AU-REC-5:	Day use only is allowed.	Camping is allowed by permit only (through an SRP or access permit).	Establish designated hike-in or ride-in primitive camping sites on the property.	Day use only is allowed. Exemptions may be granted for traditional cultural practices (tribal groups and organizations), work groups (e.g. California Conservation Corps), research, or educational purposes only. Campfires would be prohibited year-round to reduce the potential for fire starts.
AU-REC-6:	Dogs are allowed on leash only.		Dogs are allowed off leash in designated areas only. In all other areas, dogs are allowed on leash only.	Dogs are allowed on leash only on trails designated for this use.
MA-REC-7:	No fees or permits are required for parking and/or trail use.	Establish all Day Use Sites as fee areas for parking.		Consistent with the Federal Lands Recreation Enhancement Act (FLREA), consider establishing all developed day use sites as fee areas for parking. Prior to establishing fees for these sites, ensure that adverse impacts to neighboring communities (i.e. offsite parking) can be minimized through collaboration with key partners (e.g. Santa Cruz County, neighboring landowners, CalTrans).

	Alternative A	Alternative B	Alternative C	Alternative D
AU-REC-8:	No Special Recreation Permits (SRP) are issued.	Allow non-competitive SRPs that promote understanding and appreciation of Monument values and visitor use and enjoyment.	Allow competitive and non-competitive SRPs that promote understanding and appreciation of Monument values and visitor use and enjoyment.	Same as Alternative B
AU-REC-9:	No similar action	Prohibit paragliding and hang gliding.	Allow paragliding and hang gliding through issuance of an SRP.	Same as Alternative B
MA-REC-10	No similar action	In RMZ 1, establish a loop trail system, allowing for connectivity to the adjacent San Vicente Redwoods property. Design trails for hiking and mountain biking opportunities. Promote volunteer efforts to support visitor use education, trail maintenance, and foster a healthy public land stewardship etiquette.	In RMZ 1, establish a loop trail system with connectivity to San Vicente Redwoods. Design trails for hiking, mountain biking, and **equestrian** opportunities. Promote volunteer efforts to support visitor use education, trail maintenance, and foster a healthy public land stewardship etiquette.	Same as Alternative B
MA-REC-11	No similar action	In RMZ 3, establish a loop trail system, allowing for connectivity to the North Coast Rail Trail. Design trails with an emphasis on hiking and equestrian opportunities. Promote volunteer efforts to support visitor use education, trail maintenance, and foster a healthy public land stewardship etiquette.		
MA-REC-12	No similar action	In RMZs 2 and 4, the BLM would allow guided tours, education, and research. Provide limited recreation opportunities within these areas to	In RMZs 2 and 4, the BLM would allow guided tours, education, and research. Following reclamation activities associated with abandoned quarries in RMZ 2, seek	In RMZs 2 and 4, emphasize environmental education, research, and traditional cultural practices (in partnership with tribal organizations). Allow for public access for

	Alternative A	Alternative B	Alternative C	Alternative D
		minimize impacts to fish and wildlife.	opportunities to establish trail connectivity between RMZs 1 and 3.	permitted use and guided tours. Provide limited recreation opportunities within these areas to minimize impacts to fish and wildlife.
AU-REC-13	No similar action	Work with CalTrans and relevant other partners to establish connectivity to the North Coast Rail Trail using a pedestrian/bicycle overpass over State Highway One. Refer to **Appendix B, Access Point Concept 7, Yellow Bank Creek Gate**.		
AU-REC-14	No hunting is allowed.	Allow hunting in RMZ 2 (2641 acres) under special conditions through a permitted special hunt established by the California Department of Fish and Wildlife (CDFW) in coordination with the BLM and interested parties. Prior to issuing permits for a special hunt, CDFW must work with the BLM and partners to establish regulations to define the seasons, types of game, take limits, and/or restrictions.	Allow hunting in RMZ 2 (1629 acres) under special conditions through a permitted special hunt established by the California Department of Fish and Wildlife (CDFW) in coordination with the BLM and interested parties. Prior to issuing permits for a special hunt, CDFW must work with the BLM and partners to establish regulations to define the seasons, types of game, take limits, and/or restrictions.	Allow archery hunting in RMZ 2 (approximately 2000 acres) through a permitted special hunt program established by the California Department of Fish and Wildlife (CDFW) in coordination with the BLM and interested parties. Through their special hunt program, CDFW would establish specific days, species and number of permits issued.
MA-REC-15	No similar action	In order to minimize impacts of corvids and gulls on fish and wildlife, locate picnicking sites at day use/parking areas only to concentrate this activity to areas where trash collection can occur on a frequent basis.		
MA-REC-16	No similar action			Develop recreational trails in a phased approach. Prior to beginning implementation of Phase 2

	Alternative A	Alternative B	Alternative C	Alternative D
				in RMZ 1 or 3, ensure the following (see Appendix C for adaptive management strategy): • Sufficient parking is provided for existing and projected use • Trails maintained in good or very good condition • Unauthorized social trails addressed in timely manner • Unauthorized visitation to sensitive habitat areas is infrequent
Implementation Action: MA-REC-17	Establish and designate the following trail in the Molino Creek watershed as open to **hiking** ● Molino Creek Trail: 1.13 miles Refer to **Appendix A, Figure 6A**.	Construct and designate the following trails as open to non-motorized, mechanized, and non-equestrian use in RMZ 1 (**hiking, bicycling**). ● Molino Bank Loop: 1.97 miles ● Agua Puerca Trail: 2.95 miles ● Agua Puerca Loops: 3.29 miles ● Warrenella Loops: 1.85 miles Refer to **Appendix A, Figure 6B**.	Construct and designate the following trails as open to non-motorized use in RMZ 1 (**hiking, bicycling, equestrian**): ● Molino Bank Loop: 1.97 miles ● Agua Puerca Trail: 5.47 miles ● Agua Puerca Loops: 3.29 miles ● Warrenella Loops: 1.85 miles Construct and designate the following trails as open to non-mechanized use (**hiking, equestrian**):	Construct and designate the following trails as open to non-motorized, mechanized, and non-equestrian use in RMZ 1 (**hiking, bicycling**): PHASE ONE ● Molino Bank Loop: 3.04 miles ● Agua Puerca Trail: 4.69 miles PHASE TWO ● Agua Puerca Loops: 3.24 miles ● Warrenella Loops: 3.05 miles

	Alternative A	Alternative B	Alternative C	Alternative D
			● Molino Creek Trail: 1.13 miles Refer to **Appendix A, Figure 6C**.	Refer to **Appendix A, Figure 6D**.
Implementation Action: MA-REC-18	Establish and designate the following trail as open to **hiking** in the Liddell Creek watershed: ● Liddell Creek Trail: 1.67 miles Refer to **Appendix A, Figure 6A**.	Construct and designate the following trails as open to non-mechanized use in RMZ 3 (**hiking, equestrian**): ● Cotoni Trail: 3.21 miles ● Yellow Bank North Loop: 3.03 miles Construct and designate the following trails as open to non-motorized use (**hiking, bicycling, equestrian**). ● Yellow Bank South Loop: 3.22 miles Refer to **Appendix A, Figure 6B**.	Construct and designate the following trails as open to non-mechanized use in RMZ 3 (**hiking, equestrian**): ● Cotoni Trail: 3.21 miles Construct and designate the following trails as open to non-motorized use (**hiking, bicycling, equestrian**): ● Yellow Bank North Loops: 4.71 miles ● Yellow Bank South Loop: 3.22 miles Construct and designate the following trails as open to non-motorized, non-equestrian use (**hiking, bicycling**): ● Bonny Doon Loop: 3.83 miles Refer to **Appendix A, Figure 6C**.	Construct and designate the following trails as open to non-mechanized use in RMZ 3 (**hiking, equestrian**): PHASE ONE ● Cotoni Trail: 1.83 miles ● Yellow Bank North Loop: 3.33 miles PHASE TWO ● Cotoni Trail Extension: 2.79 miles Construct and designate the following trails as open to non-motorized use (**hiking, bicycling, equestrian**). PHASE ONE • Yellow Bank South Loop: 4.61 miles Refer to **Appendix A, Figure 6D**

	Alternative A	Alternative B	Alternative C	Alternative D
Implementation Action: MA-REC-19	No similar action	No similar action, dogs would be allowed on leash on all designated trails.	No similar action, dogs would be allowed on leash on all designated trails. Dogs would be allowed off leash in designated off-leash areas.	Allow leashed-dogs in parking areas and on the following trails: • Agua Puerca Trail • Warrenella Loops. • Yellow Bank North Loop • Yellow Bank South Loop Leashes are to be 6' max.
Implementation Action: MA-REC-20	No similar action	Do not allow for use of e-bikes on routes where motorized vehicles are prohibited. * At their discretion, the Field Manager may provide written authorization to use of e-bikes on trails designated as open to bicycling for individuals requiring accommodation.	Allow for use of low-speed electric bicycles (Class I and Class II, operated in the pedal assist mode) on trails designated as open to bicycling in line with secretarial order 3376 *Increasing Recreational Opportunities through the use of Electric Bikes.*	
Implementation Action: MA-REC-21	Establish a Day Use Site and parking facilities adjacent to Swanton Road at the Molino Creek crossing. No overnight (sunset to sunrise) parking will be allowed.	No similar action	Establish a Day Use Site (parking) at Swanton Road Gate. No overnight (sunset to sunrise) parking will be allowed. Provide for at least one public restroom and trash collection at this site. Refer to **Appendix B, Access Point Concept 1B, Swanton Road Gate**.	No similar action

	Alternative A	Alternative B	Alternative C	Alternative D
Implementation Action: MA-REC-22	Establish a Day Use Site and parking facilities adjacent to Bonny Doon Road at Liddell Creek. No overnight (sunset to sunrise) parking will be allowed.	No similar action		
Implementation Action: MA-REC-23	No similar action	Establish a Day Use Site (parking) at Warrenella Road Gate. No overnight (sunset to sunrise) parking will be allowed. Provide for at least one public restroom and trash collection at this site. Refer to **Appendix B, Access Point Concept A.2, Warrenella Road Gate**. Establish a second Day Use Site (parking) at Warrenella Road Top for seasonal weekend use. No overnight (sunset to sunrise) parking will be allowed. Provide for at least one public restroom and trash collection at this site. Refer to **Appendix B, Access Point Concept B**.		
Implementation Action: MA-REC-24	No similar action	Establish a Day Use Site (parking) at Marina Ranch Road, incorporating parking opportunities for equestrian use. Work with CalTrans and other relevant partners to ensure adequate ingress and egress to this site. No overnight (sunset to sunrise) parking will be allowed. Provide for at least one public restroom and trash collection at this site. Refer to **Appendix B, Access Point Concepts C and D**.		

2.15 Transportation and Travel Management

2.15.1 Alternative A

Common to All Alternatives

Goals

1. Maintain existing roads for administrative purposes.
2. Manage motorized access use to protect resource values, promote public safety, provide responsible motorized access use opportunities where appropriate, and minimize conflicts among various user groups.

Objectives

a. Provide travel routes to and through BLM-managed lands as appropriate to meet resource objectives while providing for private and public access needs.
b. Manage motorized access and mechanized vehicle use in conformance with OHV designations.

Alternatives B, C and D

Objectives

c. Provide transportation facilities to support public access and the recreation program.
d. Close and rehabilitate all roads not required for administrative purposes or public use, subject to available funding.

2.15.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
AU-TTM-1	No similar action.	Designate the entire 5,843-acre Cotoni-Coast Dairies as a “Limited” vehicle use area.		
Implementation Action AU-TTM-2	Designate 17.8 miles of existing roads as limited to authorized motorized use only (**Appendix A, Figure 4**). Designate short ingress/egress routes to proposed access points as open to motorized and non-motorized public uses (**Appendix B**).			
MA-TTM-3	Obtain easement for public access across small portion of Warrenella Road and make capital improvements necessary to support increased vehicle traffic and meet public safety standards.			
MA-TTM-4	Work with Santa Cruz County (Public Works) to make improvements necessary to meet public safety standards and support increased vehicle traffic [and parking] on Cement Plant Rd.			
MA-TTM-5	Obtain easement for public access across agricultural area adjacent to Marina Ranch Road and make capital improvements necessary to support increased vehicle traffic and meet public safety standards.			

2.16 Lands and Realty

2.16.1 Goals and Objectives

Common to All Alternatives

Goals

1. Provide authorizations for uses that are in the public interest while meeting plan goals and minimizing adverse impacts to resource values.

Objectives

a. Manage existing rights-of-way, land use permits, and easements on the monument consistent with protection of the monument resources and public health and safety.
b. Continue to recognize valid, existing rights and uses such as existing easements and other third-party rights. Coordinate with entities to support regular operations and maintenance of roads, utilities, pipelines, or telecommunications facilities within their recognized existing boundaries in a manner consistent with the care and management of the C-CD resource objects and values to be protected.
c. Expansions and/or modifications beyond the recognized existing boundaries shall be authorized only if they are necessary for the operations and maintenance of the facility under valid existing right, and the action is authorized consistent with the care and management of the C-CD resource objects and values..
d. Authorize new rights-of-way consistent with plan goals, BLM Manual 6220 – National Monuments, National Conservation Areas, and Similar Designations, and other applicable law and regulation.
e. Consider acquisition of neighboring lands, or easements, from willing sellers that support C-CD objects and values or provide opportunities for public access to C-CD, consistent with resource management goals and objectives.
f. Unauthorized use of lands would be abated by preventing, detecting, and resolving such uses. Unauthorized use of public land would be resolved through negotiation of liabilities and either termination and removal of facilities or authorization of them on a case-by-case basis. BLM lands affected by unauthorized uses would be rehabilitated as needed at the trespasser's expense. Resolution of newly discovered uses, occupancies, and development are prioritized in order to prevent further degradation or resource damage.

2.16.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-LAR-1	**Presidential Proclamation.** The Presidential Proclamation permits acquisition or exchange of private property and other lands [from willing sellers - within the boundary of the Upland Parcels subject to the Grant Title and Deed Restrictions] to further protect the resources for which the monument was designated. Acquired lands [i.e. in-holdings] will become part of the CCNM and will be subject to the decisions in this RMPA.			
MA-LAR-2	**Consideration of Applications**. Each application for use of CCNM lands will be considered on a case-by-case basis, considering the potential for the use to affect CCNM resources and the consistency of the use with the goals and objectives of this RMPA.			
MA-LAR-3	**Provisions for Facility Construction.** Any facilities to be constructed will be built to applicable standards as determined by the BLM authorized officer. BMPs and other measures will be implemented to avoid adverse effects on natural resources and the human environment. Any new facilities with potential for adverse effects will be subject to additional environmental review under NEPA.			
AU-LAR-4	**General.** Uses of the monument will be allowed consistent with proclamation goals and public safety concerns. The descriptions below further elaborate on allowed and prohibited uses.			
AU-LAR-5	**Allowed Uses.** The following uses will be allowed on the monument:			

	Alternative A	Alternative B	Alternative C	Alternative D
	a. Valid existing rights. Serialize and enter into the automated record all rights-of-way, easements, or other third-party authorizations. b. Emergency uses of the CCNM, such as search-and-rescue operations. Filming, if the activity complies with plan provisions. Permits for commercial filming will be required.			
AU-LAR-6	**Prohibited Uses.** The following uses will not be allowed on the monument: a. All forms of entry, location, selection, sale other than by exchange that furthers the protective purposes of the monument, leasing, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws; and from disposition under all laws relating to mineral and geothermal leasing. This includes locatable mineral, mineral material, and nonenergy leasable mineral exploration and extraction. b. Forest resource extraction. Appropriation, injury, destruction, or removal of any feature of this monument. Exceptions could include uses authorized by permit in association with research or management activities, collection of game species consistent with the State of California recreational hunting regulations, and collection of certain natural materials by Native Americans under BLM permit and consistent with agreements between BLM and Native Americans for the sustainable harvest of natural resources. Exceptions will be allowed only when not in violation of the California Code of Regulations and other Federal and State restrictions, or for emergency or management purposes.			

2.17 Livestock Grazing

2.17.1 Goals and Objectives

Common to All Alternatives

Goal

1. Administer grazing leases consistent with the care and management of the Monument's objects and values.

Objectives

a. Use livestock grazing as a tool to remove and prevent the spread of non-native, invasive plant species, restore and maintain native perennial grasslands, reduce fine fuel loads, and improve habitat for special status species.
b. Assess the ecological health and stability of C-CD to support livestock grazing.

2.17.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-GRZ-1:	Establish cooperative grazing operations, as prescribed below, consistent with legal and regulatory requirements and the protection of threatened and endangered species (**Appendix A, Figures 8A-8C**).			
	Pasture Acres: 1167 Pasture Names: Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, Yellow Bank Number of Head: 149	Pasture Acres: 2229 Pasture Names: Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, Yellow Bank Number of Head: 149	Pasture Acres: 2973 Pasture Names: Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, Yellow Bank Number of Head: 232	Pasture Acres: 2229 Pasture Names: Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, Yellow Bank Number of Head: 149
MA-GRZ-2	No similar action			Consider project-specific proposals for targeted grazing as a management tool to reduce fuel loads and to control non-native plant species.
MA-GRZ-3	No similar action	Where feasible while supporting ongoing grazing operations, fence spring developments and riparian areas to prevent trampling by livestock.		
MA-GRZ-4	No similar action	Install water troughs, tanks, and waterlines for better livestock distribution and forage utilization.		
MA-GRZ-5	No similar action	Construct fences for better livestock distribution and forage utilization.		
MA-GRZ-6	No similar action	Construct corrals/livestock handling facilities so that cattle can be handled safety and efficiently. Locate these facilities to minimize impacts to recreation and biological and cultural resources.		

2.18 Special Management Area – Wild and Scenic Rivers

2.18.1 Goals and Objectives

Alternatives B, C and D

Goal

1. Manage all suitable stream segments consistent with BLM policy to protect free-flowing characteristics, outstandingly remarkable values and to prevent classification impacts.

Objective

a. Manage all suitable stream segments according to their tentative classification (**Appendix E**).

2.18.2 Management Actions and Allowable Uses

	Alternative A	Alternative B	Alternative C	Alternative D
MA-WSR-1:	No similar action	Release all rivers and creeks on the property from further study for wild and scenic river designation. Refer to **Appendix E**.		
MA-WSR-2:	No similar action	Manage perennial segments of the following creek systems on the property as suitable for wild and scenic river designation: San Vicente, Liddell, and Laguna. Refer to **Appendix E**.	Manage perennial segments of the following creek systems on the property as suitable for wild and scenic river designation: Liddell, and Laguna. Refer to **Appendix E.**	Manage perennial segments of the following creek system on the property as suitable for wild and scenic river designation: San Vicente. Refer to **Appendix E.**

2.19 Comparison of Alternatives

A summary comparison of alternatives is presented below. **Table 2.19-1** presents a summary of key recreation allocation decisions included in the RMPA. **Table 2.19-2** provides a comparison of area of proposed development for parking /day use sites. **Table 2.19-3** identifies the total length of trails by RMZ for each alternative, as applicable. For further comparison, **Table 2.19-4** identifies the new length of trail proposed for construction by RMZ and **Table 2.19-5** identifies the length of trails that overlap with existing (baseline) roads. The environmental consequences of allowable uses and management actions proposed under each alternative are presented in Chapter 4.

Table 2.19-1 Summary Comparison of Recreation Allocations/Designations Under Each Alternative

	Alternative A	Alternative B	Alternative C	Alternative D
Special Recreation Management Area (acres)	0	RMZ1 = 1,463 RMZ2 = 2,641 RMZ3 = 1,119 RMZ4 = 620	RMZ1 = 1,463 RMZ2 = 1,629 RMZ3 = 2,131 RMZ4 = 620	RMZ 1 = 1464 RMZ 2 = 2568 RMZ 3 = 1147 RMZ 4 = 619
Number of Access Points	2 Parking Areas	3 Parking Areas (2 year-round, 1 seasonally available), 2 regional trail connections (San Vicente Redwoods, North Coast Rail Trail)	4 Parking Areas (3 year-round, one seasonally available), 2 regional trail connections (San Vicente Redwoods, North Coast Rail Trail)	**Phase 1**: 2 parking areas and 1 regional trail connection (North Coast Rail Trail) **Phase 2**: Allow for 1 additional seasonal parking area and 1 additional regional trail connection (San Vicente Redwoods)
Total Designated Trails (miles)	2.80	19.51	28.66	**Phase 1**: 17.5 **Phase 1 and 2**: 26.6
Designated Trails Available for Hiking (miles)	2.80	19.51	28.66	**Phase 1**: 17.5 **Phase 1 and 2**: 26.6

Miles of Trail Available for Equestrian Use (miles)	0	9.46	24.85	**Phase 1**: 9.7 (RMZ 3 only) **Phase 1 and 2**: 12.5 (RMZ 3 only)
Miles of Trail Available for Mechanized Use (i.e. Bicycle) (miles)	0	13.28	21.12	**Phase 1**: 12.3 **Phase 1 and 2**: 18.6
Camping	Not allowed	By Special Permit Only	Allowed in Designated Areas	Not allowed with exemptions authorized on a case-by-case basis
Dog Rules	Allowed on leash only	Allowed on leash only	Dogs allowed off leash in specifically designated areas	Allowed on leash only on specifically designated trails.
Paragliding/hang gliding	Decision deferred	Not allowed	Allowed under Special Recreation Permit (SRP) only	Not allowed
Fees	No fees	Fees charged for use of parking facilities	Fees charged for use of parking facilities	Consider use of fees, while mitigating offsite impacts through partnership with Santa Cruz County, Cal Trans and neighbors
Area Available for Hunting Under CDFW Special Hunt Regulations (acres)	0	2,641	1,629	2,568; limited to archery only.

Table 2.19-2 Estimated Disturbance Area (acres) for Draft Concepts. Parking Areas included in the Preferred Alternative (Alternative D) are highlighted tan.

	TOTAL	TOTAL	TOTAL	TOTAL
Day Use Site(s)	**Graded area (acres)**	**Graded area (sq ft)**	**Fenced area (acres)**	**Fenced area (sq ft)**
1.B - SWANTON ROAD GATE	1.35	58,761	.	.
A - WARRENELLA ROAD GATE	**1.62**	**70,628**	**2.00**	**86,948**
A.1 - WARRENELLA ROAD GATE	2.32	101,260	4.30	187,124
A.2 - WARRENELLA ROAD GATE	1.61	70,223	3.02	131,626
B - WARRENELLA ROAD-TOP	**1.66**	**72,360**	**4.21**	**183,343**
C &D - MARINA RANCH GATE	**4.75**	**199,204**	**4.21**	**183,343**
E - LIDDELL CREEK AT BONNY DOON ROAD	0.40	17,627	.	.

Table 2.19-3 Proposed Trail Length (miles) in Each RMZ by Alternative.

Alternative A		**RMZ**	**Alternative B**		**RMZ**	**Alternative C**		**RMZ**	**Alternative D**	
Molino Interim	1.13	**#1**	Molino Loop	1.97	**#1**	Molino Interim	1.13	**#1**	Molino Bank Loop (Phase 1)	3.04
Yellow Bank	1.67		Agua Puerca	2.95		Molino Loop	1.97		Agua Puerca Trail (Phase 1)	4.69
			Agua Puerca Mini	1.91		Agua Puerca	5.47		Agua Puerca Loops (Phase 2)	3.24
			Warrenella Lower	1.38		Agua Puerca Mini	1.91		Warrenella Loops (Phase 2)	3.05
			Warrenella Tops	1.85		Warrenella Lower	1.38			
						Warrenella Tops	1.85			
			Subtotal (mi)	10.05		**Subtotal (mi)**	13.70		**Subtotal (mi)**	14.02
		#3	Yellow Bank	1.37	**#3**	Yellow Bank	1.37	**#3**	Cotoni Trail (Phase 1)	1.83
			Yellow Bank N Loops	3.03		Yellow Bank N Loops	4.71		Yellow Bank N Loop (Phase 1)	3.33
			Marina Ranch	1.84		Marina Ranch	1.84		Yellow Bank S Loop (Phase 1)	4.61
			Marina Ranch Loop	3.22		Marina Ranch Loop	3.22		Cotoni Trail (Phase 2)	2.79
						Bonny Doon Loops	3.83			
			Subtotal (mi)	9.46		**Subtotal (mi)**	14.96		**Subtotal (mi)**	12.56
Total(mi)	**2.80**		**Total(mi)**	**19.51**		**Total(mi)**	**28.66**		**Total (mi.)**	**26.58**

2.19-4 New Trail Proposed for Construction by RMZ

Alternatives	RMZ	New trail length (linear feet)	New trail length (miles)	New trail area (square feet*)	New trail area (acres)
A	#1***	0	0.00	0	0.00
A	#2	9,186	1.74	36,744	0.84
B	#1***	56,915	10.78	227,660	5.23
B	#3***	43,172	8.18	172,688	3.96
C	#1***	57,804	10.95	231,216	5.31
C	#3***	67,380	12.76	269,520	6.19
D, Phase 1	#1***	40,404	7.65	161,616	3.71
D, Phase 1	#3***	46,869	8.88	187,476	4.30
D, Phase 2	#1	33,183	6.28	132,732	3.05
D, Phase 2	#3***	10,695	2.03	42,780	0.98
	TOTAL ALT A →	**9,186**	**1.74**	**36,744**	**0.84**
	TOTAL ALT B →	**100,087**	**18.96**	**400,348**	**9.19**
	TOTAL ALT C →	**125,184**	**23.71**	**500,736**	**11.50**
	TOTAL ALT D, Phase 1 →	**87,273**	**16.53**	**349,092**	**8.01**
	TOTAL ALT D, Phase 2 →	**43,878**	**8.31**	**175,512**	**4.03**
	TOTAL ALT D - ALL→	**131,151**	**24.84**	**524,604**	**12.04**

***NOTE: Some proposed trails partially or fully overlap with existing roads. If a length of trail overlaps with existing road, then it is calculated as Existing (baseline) road, rather than New proposed trail

*uniform trail width of 4 ft assumed

2.19-5 Overlap of Exiting Roads and Trails Proposed for Construction by RMZ

		Length of trail that overlaps with existing roads			
Alternatives	RMZ	(linear feet)	(miles)	(square feet*)	(acres)
A	#1***	4,855	0.92	48,550	1.11
A	#2	0	0.00	0	0.00
B	#1***	3,593	0.68	35,930	0.82
B	#3***	6,752	1.28	67,520	1.55
C	#1***	7,559	1.43	75,590	1.74
C	#3***	11,587	2.19	115,870	2.66
D, Phase 1	#1***	417	0.08	4,170	0.10
D, Phase 1	#3***	4,763	0.90	47,630	1.09
D, Phase 2	#1	0	0.00	0	0.00
D, Phase 2	#3***	4,020	0.76	40,200	0.92
	TOTAL ALT A →	**4,855**	**0.92**	**48,550**	**1.11**
	TOTAL ALT B →	**10,345**	**1.96**	**103,450**	**2.37**
	TOTAL ALT C →	**19,146**	**3.63**	**191,460**	**4.40**
	TOTAL ALT D, Phase 1 →	**5,180**	**0.98**	**51,800**	**1.19**
	TOTAL ALT D, Phase 2 →	**4,020**	**0.76**	**40,200**	**0.92**
	TOTAL ALT D - ALL→	**9,200**	**1.74**	**92,000**	**2.11**

*uniform trail width of 10 ft assumed

2.20 Alternatives Considered but Not Analyzed in Detail

The following alternatives were considered as possible management approaches but were eliminated from detailed analysis because the BLM determined that they either did not meet the purpose and need for the RMPA/EA (Section 1.1), were covered under alternatives analyzed in the RMPA/EA, or were not practical or feasible alternatives due to technical, economic, and legal and policy considerations. These alternatives include:

- Close Federal Lands to Public Access
- Recreation Outside of CCNM Boundaries
- Other Access Points
- Other Recommendations for the Preferred Alternative

The specific rationale for dismissing each alternative from further consideration is described below.

2.20.1 Close Federal Lands to Public Access

The BLM considered an alternative that would close Federal lands to public access. This alternative would be contrary to BLM's mission and policies, which dictate management of national conservation lands for resource objects and values, which includes public access to the C-CD. In addition, this alternative is not responsive to the Purpose and Need for this RMPA/EA, which calls for public access on C-CD. Nor is this alternative consistent with the deed restrictions imposed on the BLM upon transfer of the property to the BLM, which calls for the property to be managed for recreational uses. Therefore, an alternative that would close Federal lands to public access has been eliminated from further consideration in this RMPA/EA.

2.20.2 Recreation Outside of CCNM Boundaries

The BLM does not plan to regulate recreation that falls outside of BLM-managed public lands because the BLM does not have the authority to do so. For example, the BLM does not have the authority to dictate management of recreation on adjacent private lands. Because recreation in adjacent areas could in some instances affect monument resources, however, the BLM will work with those entities already responsible for management of recreation access to the coast, including its core-managing partner California State Parks, County Parks, and other entities as appropriate, to participate in decisions regarding recreation adjacent to BLM-managed public lands.

2.20.3 Other Access Points: Mile Marker 30.22, Yellowbank Creek and Davenport Cement Plant

The BLM received public comments on the Draft RMPA/EA encouraging the BLM to evaluate other access point locations, specifically at Yellow Bank Creek and Mile Marker 30.22. The BLM considered these proposals but did not analyze them in detail. It was determined that the potential impacts (beneficial or adverse) of development at these locations are substantially the same as other access points analyzed in the original range of alternatives.

For example, Mile Marker 30.22 is situated between two riparian areas and two existing county roads (Swanton Road and Cement Plant Road) that already intersect Highway 1. Caltrans encouraged the BLM to limit development of additional intersections on Highway 1 due to concerns about public safety and engineering constraints. Therefore, it was determined that the BLM's proposed Warrenella Road Gate access point would accomplish many of the same goals as Mile Marker 30.22, with fewer resource impacts.

Similarly, the proposal to develop a new intersection on Highway 1 and parking at Yellow Bank Creek would result in adverse impacts to sensitive resources, including Federally listed species habitat (California red-legged frog). Additionally, this proposed access point is directly across from public parking areas at Panther Gap approved by the Santa Cruz Regional Transportation Commission (SCCRTC) with the assistance of the Federal Lands Access Program (FLAP). The goal is to connect the North Coast Rail Trail to the C-CD to promote regional trail connectivity and recreation opportunities. Therefore, it was determined that the BLM's proposed Panther Gap/Yellowbank Overpass access point would accomplish many of the same goals as parking adjacent to Yellow Bank Creek, with fewer resource impacts.

The BLM also received comments calling for BLM to utilize the Davenport Cement Plant as an access point to the property. Santa Cruz County recently undertook a Coastal Restoration and Reuse Plan (Santa Cruz County 2019) for this property to develop a vision for reuse of this site. While this plan calls for incorporating public access to C-CD as a component of this site's reuse, the property continues to be owned by a private company, CEMEX. Due to the long-term reclamation and restoration needs of this site and its continued private ownership, the BLM does not consider restoration and reuse of this site to be reasonably foreseeable over the life of this RMPA. Therefore, this alternative was not analyzed in detail.

2.20.4 Other Recommendations for the Preferred Alternative

Numerous organizations conveyed the importance for the BLM to manage the C-CD in a way that compliments other regional conservation lands. In particular, the Davenport North Coast Association (DNCA), the Rural Bonny Doon Association (RBDA), and the Friends of the North Coast (FONC) submitted alternative management proposals that reflect management strategies established for the San Vicente Redwoods Public Access Plan, and other common practices observed at California State Parks or nearby conservation lands, including open space preserves and County Parks. However, many of these provisions are redundant because they are substantially the same as the range of alternatives in the RMPA; or they may be "Addressed through Policy, Regulations, or Administrative Actions", or among the "Issues Considered but Not Further Analyzed" (Chapter 1, Section 1.3.2) that are not feasible due to technical, economic, and legal and policy considerations. Therefore, while components of these alternative management proposals are included in the RMPA/EA range of alternatives, the full proposals have been eliminated from further consideration in this RMPA/EA.

3. Affected Environment

3.1 Introduction

This chapter describes existing conditions for Bureau of Land Management (BLM) resource programs, resource uses, special designations, and the social and economic environment in the Central Coast Field Office (CCFO) Planning Area. The description of the affected environment uses the best and most recent data available.

By describing existing conditions for resource programs in the Planning Area, this chapter serves as the baseline against which Chapter 4 analyzes potential impacts of the alternatives.

The California Coastal National Monument

The California Coastal National Monument (CCNM) extends from the Oregon border near Crescent City, CA approximately 1,100 miles south into Orange County, California. The CCNM spans the administrative boundaries of five (5) BLM Field Offices, including the Arcata, Ukiah, Central Coast, Bakersfield, and Palm Springs Field Office(s).

Presidential Proclamation No. 7264 established the CCNM on January 11, 2000, under the authority of the Antiquities Act of 1906 (34 Stat. 225, 16 U.S.C. 431). The Proclamation directed the BLM to protect "all unappropriated or unreserved lands and interest in the lands owned or controlled by the United States in the form of islands, rocks, exposed reefs, and pinnacles above mean high tide within 12 nautical miles of the shoreline of the State of California."

Following designation of the CCNM, the BLM began developing a CCNM Resource Management Plan (RMP) to establish guidance, objectives, policies and management actions for the offshore rocks, exposed reefs, islands and pinnacles along the 1,100-mile coastline of California. The RMP was completed in September of 2005, establishing management direction for a variety of resources and uses within the monument.

On-Shore Expansion

The CCNM boundary was enlarged by Presidential Proclamation No. 9089 on March 11, 2014. Point Arena-Stornetta Public Lands became the first onshore unit of the CCNM, and the BLM was directed to protect its coastal bluffs and shelves, tide pools, onshore dunes, coastal prairies, riverbanks, and the mouth and estuary of the Garcia River. On January 12, 2017 the CCNM's boundary was further expanded by Presidential Proclamation No. 9563 to include six additional areas along the California coast containing significant scientific or historic resources: Trinidad Head, Waluplh-Lighthouse Ranch, Lost Coast Headlands, Cotoni-Coast Dairies, Piedras Blancas, and Orange County Rocks and Islands.

National Conservation Lands

The CCNM is a component of the BLM's National Conservation Lands (NCL). The mission of the NCL is to conserve, protect, and restore these nationally significant landscapes that are recognized for their outstanding cultural, ecological, and scientific values.

The NCL are part of an active, vibrant landscape where people live, work, and play. They offer exceptional opportunities for recreation, solitude, wildlife viewing, exploring history, scientific research, and a wide range of traditional uses. The NCL sustain these remarkable landscapes of the American spirit for the future.

As stated in the Proclamation, the C-CD contains significant scientific or historic resources that are closely tied to the values of the CCNM. Therefore, it is the landscape aspect that connects the C-CD with the various coastal ecosystems of which it is an important part. The landscape also links the C-CD to the local and regional communities, partners, and the general public. For example, it is the landscape that provides the opportunity for using the C-CD as a focal point to link regional conservation efforts and other coastal initiatives.

To provide a complete ecological perspective to the landscape aspect of the C-CD and effectively manage this unit of the CCNM, all three of the basic dimensions of an ecosystem – physical, biological, and socio-cultural - need to be taken into account. Anything within the landscape can be placed within one of these three ecosystem dimensions, which are discussed briefly below.

The physical dimension is made up of all the non-organic, abiotic elements of an ecosystem. This consists of the non-living material components of the environment, including the topography, geology, soil, nutrients, hydrology, and climate.

The biological dimension is composed of all the living or biotic elements of an ecosystem. This includes all organisms and biological interactions.

This socio-cultural dimension consists of those elements of an ecosystem dealing with the origin, development, organization, and functioning of human societies and cultures. This includes all human-made modifications of the environment, current and past; and involves the land uses, economics, beliefs, lifestyle, and social groups.

3.1.1 Resources Not Considered

This chapter does not provide detail about environmental components that would not be affected or that are not essential to understanding or resolving planning issues. These include the following resources:

Back Country Byways. There are no designated Back Country Byways in the Planning Area.

Forest and Woodland Products. There are no forests managed for forest products on BLM lands in the Planning Area.

Energy and Minerals. There are no federal minerals underlying the BLM lands in the Planning Area and the lands are withdrawn from mineral entry.

Wild Horses and Burros. There are no Wild Horses and Burros Management Areas in the CCFO Planning Area.

3.2 Biological Resources – Vegetation

C-CD supports a wide diversity of native plant communities, as well as communities dominated by introduced non-native plant species (**Table 3.2-1; Appendix A Figure 3**). Vegetation type at C-CD is primarily influenced by soil moisture availability. Upland Terrestrial areas are entirely dependent upon seasonal winter rainfall for soil moisture. Soil moisture is replenished during the winter and drawn down through the spring and summer. In contrast, Riparian Areas and Wetlands have perennial surface flow or ponding or near surface soil moisture year-round. Riparian Areas and Wetlands provide habitat for several rare and endangered aquatic species. Due to the fundamental ecological differences of Upland Terrestrial Vegetation and Riparian Areas and Wetlands, these vegetation types are described separately.

Table 3.2-1. Vegetation type total cover (acres) at C-CD. See **Table 3.2.1-1** for vegetation naming convention and cross-walk to vegetation types described in ESA 2004 and other standard vegetation types including Sawyer et al 2009 and Barbour et al. 2007.

VEGETATION TYPE	** Acres
Upland Terrestrial Vegetation	
Non-native weedy/ruderal patches	185
Non-native grassland	476
Native grassland	314
Coyote brush encroachment	157
Coastal scrub	1,766
Coast live oak woodland	250
Chaparral	57
Broadleaf forest	12
Conifer forest	2,123
*Quarries (Non-native shrubs)	135
Riparian Areas and Wetlands	
Riparian areas	337
Perennial wetlands	7
TOTAL	**5,819**

*Quarries are drastically disturbed areas with a relatively high abundance of non-native shrubs.
** Acres are approximated based on the best available GIS information.

3.2.1 Biological Resources - Upland Terrestrial Vegetation

Dominant upland vegetation types at C-CD are a function of local climate (primarily average annual precipitation), topography (slope and aspect), soils (depth), and hydrology, all of which are involved in water-energy balance and environmental filtering which determines what plant species dominate where on the landscape (**Figure 3.2.1-1**). There is a strong local gradient of average annual precipitation from the lowest elevations on Terrace 2 (26 inches annual average) to the highest elevations in the mountains (43 inches) (ESA 2001, 2004). Due to the maritime climate (temperature buffering) of C-CD being located on the coast, there is little average annual temperature change across all elevations of C-CD. Average annual temperature is about 57°F with only about 15°F difference between the average in winter (50°F) and summer (65°F).

C-CD has dramatic topography owing to its location at the western edge of the Santa Cruz Mountains (geologic uplift) and naturally high rate of downcutting of drainages due to high average annual precipitation (> 50 inches) in the mountains (ESA 2001, 2004). The slope across C-CD varies from virtually level on Terrace 1, to very gentle on Terraces 2 and 3, to very steep in the uplands. Drainages that dissect C-CD in a northeast to southwest direction create a series of steep north-facing and south-facing aspects that act as a primary environmental filter determining plant species distribution and dominance across the landscape.

Distribution of more drought tolerant plant species tend to be associated with lower elevations (lower average annual rainfall), south facing slopes (warmer; more xeric), and shallow and well-drained soils (low water holding capacity). Less drought tolerant (more mesic) plant species occur at higher elevations (higher average annual rainfall), on north facing slopes (cooler; more mesic), and deeper soils (higher water holding capacity).

Dominant vegetation types at C-CD, listed in order of average annual precipitation from low to high, are non-native ruderal patches, non-native grassland, native grassland, coastal scrub, coast live oak woodland, chaparral, broadleaf forest, and conifer forest (**Tables 3.2.1-1 to 3.2.1-3**). Upland vegetation has also been influenced by historic and current land management practices including wildfire, livestock grazing, farming, and quarrying. Prior to European settlement, all the open terraces were dominated by native perennial grassland (Hayes 2002; Hayes and Holl 2003; Minnich 2008). Introduction of non-native annual plant species, intensive livestock grazing, and farming resulted in the invasion of Terrace 2 and portions of Terrace 3 by non-native ruderal patches and non-native annual grassland. The non-native ruderal patches consist of dense, six-foot tall patches of poison hemlock, mustard, and radish. Some areas of Terrace 3 where farming did not occur still support native perennial grasses and forbs, although the percentage cover is less than ten percent. Coastal scrub primarily occurs on steeper slopes around the edges of terraces and higher in elevation above the terraces on warmer, drier, south facing slopes of drainages. Coast live oak woodland, chaparral, broadleaf forest, and conifer (intermixed redwood, Douglas fir and knobcone pine) forest occur on steeper slopes, particularly wetter north facing slopes, in the upland portions of C-CD. The uplands receive the highest average annual precipitation due to high topography and additionally are at the average elevation of the coastal fog belt and intercept substantial fog drip. Historic logging of coast redwood and Douglas fir around 1900 resulted in removal of the old growth forest (ESA 2001, 2004). Virtually all the conifer forest at C-CD is second and third growth.

Wildfire was used historically by Native Americans to manage the coastal grasslands and other vegetation of C-CD (ESA 2001, 2004). Following significant European settlement of C-CD after 1850, wildfire suppression has resulted in greatly increased wildfire return interval. On August 16, 2020, a lightning storm ignited multiple fires across Santa Cruz and San Mateo Counties. Eventually these fires burned together and were collectively renamed the CZU Lightning Complex. The CZU Lightning Complex burned 86,509 acres and is by far the largest wildfire in recent history in the Santa Cruz/San Mateo County region. Prior to 2020, the last major wildfire on or surrounding C-CD was the 7,800-acre Lockheed Fire in 2009. Most of this fire burned lands to the north of C-CD, but it also included a portion of the upper Molino Creek watershed before it was transferred into public ownership. Prior to this fire, the last major wildfire was in 1948. The general lack of wildfire has resulted in thatch accumulation (residual dry matter) in grasslands that has suppressed native annual and perennial grasses and forbs. The lengthened fire return interval and lack of wildfire has also resulted in a decadent condition of coastal scrub, chaparral, and conifer forest. Most of the knobcone pine stands in the conifer forest are decadent with high natural mortality and lack of recruitment due to the lack of wildfire. Knobcone pine is serotinous (closed cone) and requires fire to open cones and release seeds for germination.

Historic farming on Terrace 2 and portions of Terrace 3 resulted in complete disturbance of the native grassland. This resulted in the native grassland being replaced by non-native ruderal patches and non-native grassland. The balance between the highly undesirable non-native ruderal patches and more desirable non-native grassland is greatly influenced by livestock grazing intensity (**Figure 3.2.1-2**). Lower livestock grazing intensity on some terraces has allowed non-native ruderal patches to dominate and coastal scrub (coyote brush) to encroach into the grasslands. Purple starthistle is persistent in some grasslands and is slowly spreading.

Second and third growth of the conifer forest is vigorous and near climax but, does not yet provide the habitat conditions of old growth forest to support marbled murrelets. Sudden Oak Death (SOD) is resulting in persistent, moderate mortality of tanoak in the upper watersheds of East Branch Liddell, Yellow Bank Creek, and West Branch Laguna Creek. SOD poses a threat to other native oak species at C-CD, including coast live oak.

Limestone and shale quarrying in the uplands of San Vicente Creek and Liddell Creek removed the soil and chaparral and forest vegetation. The quarries have been abandoned for more than 20 years. Vegetation recruitment on the quarry floors and on tailings piles has consisted primarily of a mix of non-native annual and perennial grasses and forbs; non-native shrubs including French broom and pampas grass; pioneer native woody species including coyote brush and California sagebrush; and planted (restoration) native trees including knobcone pine and Douglas fir. French broom is slowly spreading along road edges and other disturbed areas in the conifer forest zone.

Figure 3.2.1-1. The influence of topography and precipitation on vegetation types at C-CD. The lowest elevations of C-CD near the coast have the lowest average annual precipitation and the highest elevations inland into Santa Cruz Mountains have the highest average annual precipitation. This gradient in water availability results in dominance of grassland and other herbaceous vegetation at the lower elevations, scrub at middle elevations, and woodland, chaparral, and forest at the highest elevations.

Figure 3.2.1-2. Annual grassland on Terrace 2. Dominated by non-native grassland with limited cover of non-native ruderal patches. Cattle grazing controls the extent of highly undesirable, non-native ruderal patches and maintains non-native grasslands.

Table 3.2.1-1. Herbaceous vegetation types present at C-CD. These vegetation types dominate Terraces 2 and 3, at the lowest average annual precipitation range of C-CD and also the most disturbed due to historic farming and current livestock grazing. Compiled from vegetation types listed in ESA 2001 and 2004 and cross-walked to vegetation types described in Sawyer et al. 2009 and Barbour et al. 2007.

C-CD RMPA →	**NON-NATIVE RUDERAL PATCHES**	**NON-NATIVE GRASSLAND**	**NATIVE GRASSLAND**
ESA 2001, 2004 →	**not identified**	**California annual grassland**	**Native grassland**
Sawyer et al. 2009 & Barbour et al. 2007 ↓	*Brassica* (*nigra*) Semi-Natural Herbaceous Stands	*Avena* (*barbata, fatua*) Semi-Natural Herbaceous Stands	*Danthomia californica* Herbaceous alliance
	Conium maculatum-Foeniculum vulgare Semi-Natural Herbaceous Stands	*Bromus* (*diandrus, hordeaceus*)-*Brachypodium distachyon* Semi-Natural Herbaceous Stands	*Eschscholzia* (*californica*) Herbaceous Alliance
	Brassica nigra	*Lasthenia californica-Plantago erecta-Vulpia microstachys* Herbaceous Alliance	*Juncus patens* Provisional Herbaceous Alliance
	Brassica nigra-Bromus diandrus	*Festuca perrenis* Semi-Natural Herbaceous Stands	*Nassella pulchra* Herbaceous Alliance
	Raphanus sativus	*Avena barbata*	*Danthonia californica*
	Conium maculatum	*Avena barbata-Bromus hordeaceus*	*Eschscholzia californica*
	Foeniculum vulgare	*Lasthenia californica-Lupinus bicolor-Layia platyglossa-Bromus* spp.	*Juncus patens*
		Festuca perrenis	*Nassella pulchra*
		Festuca perrenis-Bromus hordeacesus	*Nassella pulchra-Avena* spp.-*Bromus* spp.
			Nassella pulchra-Festuca perrenis (-*Trifolium* spp.)
			Nassella pulchra/Baccharis pilularis

Table 3.2.1-2. Woody shrub vegetation types at C-CD. Coastal scrub types dominate the steep, dry drainage slopes at the edges of Terraces 2 and 3, at intermediate average annual rainfall for C-CD. Chaparral occurs in the understory of conifer forest. Non-native shrubs occur within drastically disturbed areas of uplands including road edges and quarries. Likewise, non-native trees have been planted in disturbed areas. Compiled from vegetation types listed in ESA 2001 and 2004 and cross-walked to vegetation types described in Sawyer et al. 2009 and Barbour et al. 2007.

C-CD RMPA →	**COASTAL SCRUB**		**CHAPARRAL**	**NON-NATIVE SHRUBS**
ESA 2001, 2004 →	**Coyote brush scrub**	**California sagebrush**	**Mixed chaparral**	**Non-native shub patches**
Sawyer et al. 2009 & Barbour et al. 2007 ↓	*Baccaharis pilularis* Shrubland Alliance	*Artemisia californica* Shrubland Alliance	*Chrysolepis chrysophylla* Shrubland alliance	Broom (*Cystis scoparius*) Semi-Natural Shrublands
	Frangula californica Shrubland Alliance	*Diplacus aurantiacus* Shrubland Alliance	*Heteromeles arbutifolia* Shrubland alliance	*Cortaderia* (*jubata, selloana*) Semi-Natural Herbaceous Stands
	Lupinus arboreus Shrubland Alliance	*Acmispon glaber* Shrubland Alliance	*Chrysolepis chrysophylla-Arctostaphylos glandulosa*	
	Lotus scoparius Shrubland Alliance	*Toxicodendron diversilobum* Shrubland Alliance	*Chrysolepis chrysophylla/Vaccinium ovatum*	
	Morella californica Shrubland Alliance	*Artemisia californica*	*Heteromeles arbutifolia-Artemisia californica*	
	Rosa californica Shrubland Alliance	*Artemisia californica-Diplacus aurantiacus*		
	Rubus (parviflorus,spectabilis,ursinus) Shrubland Alliance	*Diplacus aurantiacus*		
	Baccharis pilularis	*Acmispon glaber*	C-CD RMPA →	**NON-NATIVE TREES**
	Baccharis pilularis /Annual grass-herb	*Toxicodendron diversilobum*/herbaceous	ESA 2004 →	**not identified**
	Baccharis pilularis/Danthonia californica	*Toxicodendron diversilobum-Diplacus aurantiacus*	Sawyer et al. 2009 →	*Eucalyptus* semi-natural Woodland stand
	Baccharis pilularis/Nassella pulchra	*Toxicodendron diversilobum-Baccharis pilularis-Rubus parviflorus*		
	Baccharis pilularis/Scrophularia californica			
	Baccharis pilularis-Artemisia californica			
	Baccharis pilularis-Eriophyllum staechadifolium			
	Baccharis pilularis-Frangula californica-Rubus parviflorus			
	Baccharis pilularis-Toxicodendron diversilobum			
	Frangula californica ssp. *californica* - *Baccharis pilularis* /*Scrophularia californica*			
	Lupinus arboreus			
	Lupinus arboreus/Bromus diandrus			
	Lotus scoparius			
	Morella californica			
	Rosa californica-Baccharis pilularis			
	Gaultheria shallon-Rubus spectabilis-Rubus parviflorus			
	Rubus parviflorus-Rubus spectabilis-Rubus ursinus			
	Rubus parviflorus			
	Rubus spectabilis			
	Rubus ursinus			

Table 3.2.1-3. Woodland and forest vegetation types at C-CD. Woodlands and forests occur at the highest average annual precipitation range and highest elevations of C-CD. Compiled from vegetation types listed in ESA 2001 and 2004 and cross-walked to vegetation types described in Sawyer et al. 2009 and Barbour et al. 2007.

C-CD RMPA →	**COAST LIVE OAK WOODLAND**	**BROADLEAF FOREST**	**CONIFER FOREST**	
ESA 2001, 2004 →	**Mixed evergreen forest**	**Mixed evergreen forest**	**Mixed conifer forest**	
Sawyer et al. 2009 & Barbour et al. 2007 ↓	*Quercus agrifolia* Woodland Alliance	*Arbutus menziesii* Forest Alliance	*Pinus attenuata* Forest Alliance	Sequoia sempervirens Forest Alliance
	Quercus agrifolia /grass	*Lithocarpus densiflorus* Forest Alliance	*Pseudotsuga menziesii* Forest Alliance	*Sequoia sempervirens /Arbutus menziesii*
	Quercus agrifolia /coastal sage scrub	*Umbellularia californica* Forest Alliance	*Pseudotsuga menziesii-Lithocarpus densiflorus* Forest Alliance	*Sequoia sempervirens -Alnus rubra /Rubus spectabilis*
	Quercus agrifolia /chaparral	*Corylus cornuta* var. *californica* Shrubland Alliance	*Pseudotsuga menziesii*	*Sequoia sempervirens-Arbutus menziesii /Vaccinium ovatum*
	Quercus agrifolia /Artemisia californica	*Arbutus menziesii -Umbellularia californica -(Lithocarpus densiflorus)*	*Pseudotsuga menziesii /Corylus cornuta*	*Sequoia sempervirens-Lithocarpus densiflorus /Vaccinium ovatum*
	Quercus agrifolia /Heteromeles arbutifolia	*Lithocarpus densiflorus /Corylus cornuta*	*Pseudotsuga menziesii /Gaultheria shallon*	*Sequoia sempervirens-Pseudotsuga menziesii /Arbutus menziesii*
	Quercus agrifolia /Heteromeles arbutifolia-Toxicodendron diversilobum	*Lithocarpus densiflorus /Gaultheria shallon*	*Pseudotsuga menziesii-Quercus agrifolia*	*Sequoia sempervirens-Pseudotsuga menziesii /Gualtheria shallon*
	Quercus agrifolia /Toxicodendron diversilobum	*Lithocarpus densiflorus /Vaccinium ovatum*	*Pseudotsuga menziesii -Umbellularia californica /Toxicodendron diversilobum*	*Sequoia sempervirens-Pseudotsuga menziesii /Vaccinium ovatum*
	Quercus agrifoli a/Toxicodendron diversilobum -(Corylus cornuta)	*Lithocarpus densiflorus -Arbutus menziesii*	*Pseudotsuga menziesii-Lithocarpus densiflorus*	*Sequoia sempervirens-Pseudotsuga menziesii-Umbellularia californica*
	Quercus agrifolia /Toxicodendron diversilobum /grass	*Lithocarpus densiflorus -Umbellularia californica*	*Pseudotsuga menziesii -Lithocarpus densiflorus /Toxicodendron -(Lonicera hispidula)*	*Sequoia sempervirens-Umbellularia californica*
	Quercus agrifolia-Arbutus menziesii /Corylus cornuta -Rubus spp.	Umbellularia californica	*Pseudotsuga menziesii-Lithocarpus densiflorus /Gaultheria shallon*	*Sequoia sempervirens*
	Quercus agrifolia -Arbutus menziesii	*Umbellularia californica /Toxicodendron diversilobum*	*Pseudotsuga menziesii -Lithocarpus densiflorus /Corylus cornuta*	*Sequoia sempervirens-Lithocarpus densiflorus/Carex globosa-Iris douglasiana*
	Quercus agrifolia-Arbutus menziesii-Toxicodendron diversilobum	*Umbellularia californica-Arbutus menziesii*		
	Quercus agrifolia-Arbutus menziesii-Umbellularia californica	*Umbellularia californica-Lithocarpus densiflorus*		
	Quercus agrifolia-Umbellularia californica/Toxicodendron diversilobum	*Umbellularia californica-Quercus agrifolia/Toxicodendron diversilobum -(Corylus cornuta)*		
	Quercus agrifolia -Arbutus menziesii /Corylus cornuta			
	Quercus agrifolia -Umbellularia californica			
	Quercus agrifolia -Umbellularia californica /Toxicodendron diversilobum			

Grasslands are an important vegetative feature that provides sweeping views of the coast, supports livestock grazing, and is vital BLM Special Status species habitat bordering wetlands (ponds). Woodlands and forest are an important vegetative feature that provide extensive vertical habitat structure and vegetative cover to protect riparian areas and water resources. Upland vegetation condition is slowly trending towards an adverse condition for grasslands and forests.

Key indicators of upland vegetation health include cover, structure, and composition.

Forecast

Changes to annual precipitation and temperature patterns due to climate change will have profound effects on the ecosystems of C-CD. The current projected greenhouse gas emissions scenario model is Relative Concentration Pathway (RCP) 8.5 (Cal-Adapt 2019). Consensus of projected models for RCP 8.5, for C-CD through the year 2100, suggest a sharp increase in average annual temperature from 57°F to 63°F (+6°F; much warmer) and a modest increase in average annual precipitation of 3 to 5 inches (slightly wetter; Field et al. 2016; Thorne et al. 2016 Beck et al. 2018; Cal-Adapt 2019). The much warmer temperature, coupled with only a slight increase in precipitation, would result in substantially greater evapotranspiration rates and may ultimately result in decreased water supply to riparian areas and wetlands.

Coastal regions of California with a current temperature and precipitation regime similar to that projected for C-CD are located between the cities of Oxnard and San Diego, more than 250 airline miles south of C-CD. The Oxnard to San Diego region (Santa Monica Mountains; Elsinore Mountains) therefore, represents a climate analog to the future projected climate for C-CD. Theoretically, if the same plant species and plant communities of C-CD are currently present in the Oxnard to San Diego region, then those plant species and vegetation types should persist at C-CD with projected changes. Non-native ruderal patches, non-native grassland, native grassland, coastal scrub, coast live oak woodland, chaparral, and broadleaf forest containing the same plant species are all common in the Oxnard to San Diego region. Conifer forest with coast redwood and Douglas fir as dominant species is entirely absent from that region. Both coast redwood and Douglas fir are currently already near their southernmost range limits at C-CD. The absolute southern range limit (trailing edge) of both coast redwood and Douglas fir is about 100 airline miles south near the coastal town of Gorda. Coastal areas south of Gorda are outside of the climate niche (envelope) of both conifer species. Therefore, with projected changes to annual precipitation patterns and annual temperatures, both coast redwood and Douglas fir (conifer forest) have a high probability of being extirpated from C-CD. Additionally, the more mesic vegetation types such as broadleaf forest will likely become more limited in extent. Chaparral, coast live oak woodland, coastal scrub, and grasslands will likely expand with some shifts from south to north aspects and upward in elevation to track topographic microclimates.

3.2.2 Fire and Fuels

Fire is an integral part of the ecosystem of California's Central Coast. It has shaped the landscape and has been a part of the human interaction with the land for approximately 11,000 years. The local fuels, weather, topography and ignition patterns have been stable for much of that time. C-CD supports a diversity of vegetation types including grasslands, coastal scrub, oak woodlands, and conifer forest. The fire return intervals and levels of fire dependence for these different vegetation types vary. Historically, the fire return interval for grasslands and coastal scrub was 5–20 years, whereas, the fire return interval for oak woodland and conifer forest was 11–50 years.

The primary source for fire in the area has been human caused for as long as there is a written record. In the absence of human caused fire the primary cause of fire is lightning. This moves the fire return interval up to 100-150 years and mixed to high severity burning. These are often stand replacing fires in drought years under extreme conditions. Fires were regularly ignited by first the local tribes, then loggers, and then farmers from 9,000 BCE until the mid-1940's. Since then fire has more often been excluded and has occurred with a lower frequency and higher intensity of fires.

On August 16, 2020, a lightning storm ignited multiple fires On August 16, 2020, a lightning storm ignited multiple fires across Santa Cruz and San Mateo Counties. Eventually these fires burned together and were collectively renamed the CZU Lightning Complex. The CZU Lightning Complex burned 86,509 acres, and is by far the largest wildfire in recent history in the Santa Cruz/San Mateo County region.

Approximately 1,052 acres of C-CD burned in this fire in the Molino, Agua Puerca, and San Vicente watersheds (**Appendix A, Figure 14**). Full containment of the fire is expected to be accomplished on September 28, 2020. A summary of the effects of the CZU Lightning Complex Fire is provided below.

Prior to 2020, the last major wildfire on or surrounding C-CD was the 7,800-acre Lockheed Fire in 2009. Most of this fire burned lands to the north of C-CD, but it also included a portion of the upper Molino Creek watershed before it was transferred into public ownership. Prior to this fire, the last major wildfire was in 1948. The lack of recurring wildfire has led to increased thatch build up in the non-native annual grasslands and a decadent condition of woody vegetation across C-CD.

Fire pre-suppression work is focused on limiting likely ignition sources and higher fire danger areas. The most likely fire ignition sources are caused by humans. These may be from multiple ignition types including utility infrastructure, recreation, Wildland Urban Interface (WUI), and intentional.

Infrastructure has two main ignition sources including powerlines and roadways. Powerlines are the responsibility of the PG&E utility company to maintain and mitigate fire hazard. The roadways are a combination of responsibilities from either the existing rights-holders, the county of Santa Cruz, and/or the BLM.

In the WUI there are two types of hazards from ignition. Fires may start on the BLM-administered lands and threaten or damage structures, or fires may start on private and result in resource damage on C-CD. In either case there are added hazards to first responders and public from WUI fires.

Fuel Breaks

Fuel breaks are currently constructed and being maintained in two locations at C-CD. From north to south the current fuel breaks include Warrenella Road (which includes several branch roads), and Bonny Doon road. Warrenella Road is a significant road for access and fire suppression. The road forks into three branches maintained at varying levels that may be improved upon for access in the future. There is also a PG&E substation along Warrenella Road that is on private land surrounded by BLM-administered lands. This power substation is currently one of the most likely sources of fire starts (i.e. unintended ignitions).

Bonny Doon road is a county-maintained road that traverses [or bisects] the property connecting the rural community of Bonny Doon to State Highway 1. While it is not designed or maintained primarily for fire use, it would function both as a barrier to spread and for emergency access for suppression in the event of a wildfire.

Current fuels conditions and residential developments in the area make it challenging to use prescribed fire in the same way it has existed on the landscape for the last several thousand years. The C-CD RMPA proposes three primary vegetation management methods including livestock grazing, herbicide use, and prescribed fire. Livestock grazing can reduce fine fuel loads in grasslands and control the encroachment of coyote bush and other shrubs into grasslands. Herbicide application can be used to control vegetation locally around potential ignition sources such as Day Use Sites and utilities. Prescribed fire can also be used to manage vegetative cover and reduce fuel loads. Small to moderate sized prescribed fires reduces fuel loads, improves vegetative structure, and returns nutrients to the soil.

Fire can also be used in conjunction with other management practices to support other functions at C-CD. As an example, undesired brush and woody debris can be disposed of through piling and burning. This can be a benefit to the botany program to reduce weeds or with the archeology program to protect historic structures and sites. Cut and pile techniques have already been used successfully on C-CD to promote meadow restoration and cultural site protection.

Forecast

Increases in the number of extremely dry and extremely wet weather seasons are predicted by the end of the century (Borunda 2018). This type of weather pattern can provide more favorable conditions for wildfire and also lengthen the fire season as the winter rains which historically arrive in October in November are delayed. Santa Ana winds, which typically arrive in October to November can overlap a period of extremely dry vegetation and lead to increased risk and spread of wildfires fires.

The CZU Lightning Complex resulted in an unprecedented level of destroyed and damaged structures within unincorporated Santa Cruz County. Most of the losses near C-CD occurred up Swanton Road and along Empire Grade near Bonny Doon. The fire also damaged a PVC pipeline on private lands in the San Vicente watershed that serves as the sole source of water for the town of Davenport.

Observations of fire behavior on C-CD suggest a mosaic of burn intensities, dependent on fuel type, slope, and aspect. In areas where coastal scrub burned and french broom (non-native shrub) is present, french broom may opportunistically invade and expand. Ingrasslands, conditions should remain the same and even possibly improve in the short term since accumulated thatch has been burned off. Forest and chaparral areas should have little to no adverse impact and be improved over the long term. The wildfire has reduced accumulated fuel loads and will facilitate knobcone pine (closed cone pine) recruitment (new seedlings).
The important ecological role of fire in maintaining habitat diversity, nutrient cycling and wildlife habitat creation, suggests that the CZU Lightning Complex will not have long-term detrimental ecological effects to fish and wildlife. A short-term detrimental impact is anticipated for reptiles, terrestrial amphibians, and small mammals. However, the return to an earlier successional stage may lead to a short-term increase in some species. The potential for increased mobility of post-fire sediment is a concern for breeding salmonids and the California red-legged frog, which may be expected to see a reduction in successful reproduction in the short-term.

Based on the lessons learned from the Lockheed Fire Post Fire Risk Assessment released by the San Mateo-Santa Cruz Unit of California Department of Forestry and Fire Protection on September 30, 2009, the principal concern with the CZU fire area is an increase in the potential for floods, debris torrents, and debris flows. Also of concern is the long-term loss of mechanical support of hillslope materials in the upper portions of the Waddell Creek, Scott Creek (including tributaries), Molino Creek, and San Vicente Creek. In areas where the fire intensity was more severe, hydrophobic soils may have developed from waxy substances released by plant materials into the soil making portions of the slope impervious to water.

Since these drainages are very steep, loose materials may mobilize into sediment laden masses during heavy rains, leading to the accumulation of debris that may flow downstream from the burned areas. The magnitude of post-fire damage will ultimately be determined by the intensity and duration of storms that impact the burn area, particularly during the winter of 2020-21. To help characterize the potential risk from changes in hydrology due to the fire, the United State Geological Survey (USGS) conducted a post-fire debris-flow hazard assessment for the CZU Lightning Complex that is available on-line (USGS website, accessed on September 17, 2020). The areas most vulnerable to flash floods and debris flows are located on private and State lands approximately 5-10 miles north of Cotoni-Coast Dairies, including the Waddell Creek and Scott Creek watersheds and their tributaries. Additionally, there are two moderate basin hazard ratings on private lands adjacent to the Cotoni-Coast Dairies known as the San Vicente Redwoods. The remainder of the burned area in the San Vicente Creek watershed is rated as low basin hazard. Burned areas to the south with low basin hazard ratings include the upper units of Henry Cowell Redwoods State Park and Wilder Ranch State Park. Damage to riparian habitats from emergency fire suppression and clearance for fuel breaks during the CZU Lightning Complex was avoided by keeping the number of access routes, the size of staging areas, and the total area of the response limited to the minimum necessary to respond to the fire. Fire suppression repair was completed in these areas to minimize long-term impacts to resources.

3.3 Biological Resources – Riparian Areas and Wetlands (Aquatic)

Riparian areas and wetlands are distinguished from upland vegetation types by having perennial water availability that is manifested at the surface as flow or ponding. Riparian areas are the interface between upland vegetation and wetlands. The riparian areas of C-CD consist of the six creeks including Molino, Agua Puerca, San Vicente, Liddell, Yellow Bank, and Laguna. These creeks originate in the Santa Cruz Mountains on the northeastern edge of C-CD and flow across C-CD towards the southwest and into the Pacific Ocean. Some portions of the creeks contain wetlands adjacent to the creek channel and on floodplains. Additional wetlands occur as perennial seeps and ponds, primarily located on Terraces 2 and 3. Significant wetlands include ponds on terraces at Molino, Liddell, and Yellow Bank. Additionally, off-channel ponds have been more recently constructed at Yellow Bank Creek.

Riparian areas and wetlands are important for the protection of water resources. Riparian areas and wetlands also contain sensitive vegetation and habitat types that support several BLM Special Status animal species. Wetlands often support a highly diverse plant and animal community and provide critical hydrologic and ecological functions that support ecosystem integrity. Properly functioning wetlands provide flood abatement, sediment retention, groundwater recharge, nutrient capture, and habitat for numerous plant and animal species (ESA 2001).

Riparian areas and wetlands both support hydrophytic (water loving) plant species, however, the plant species and vegetation types they typically support are fundamentally different. The riparian areas, including the creeks of C-CD, are subject to higher flow and have more seasonally variable flow than the wetlands. As a result of higher and more strongly variable flow, riparian area vegetation is dominated by riparian forest and woody plant species (**Table 3.3-1**). Coast live oak may occur on floodplains, arroyo willow typically occurs along the creek banks, and red alder typically occurs within the creek channel or immediately adjacent on the banks. In contrast to riparian areas, the water flow in wetlands of C-CD is generally lower and less variable. Wetland vegetation is typically dominated by herbaceous perennials including rushes, sedges, and cattails (**Table 3.3-2**).

Riparian areas and wetlands of C-CD have been highly altered as a result of historical logging, quarrying, and creek channel and pond modification. All of the creeks have significant channel modifications near their mouths at State Highway 1. The creeks have been effectively dammed by State Highway 1 and the flow has been directed through narrow culverts and tunnels. Historic creek channel modification at Yellow Bank Creek has resulted in channel incision and sedimentation and vegetation overgrowth of former freshwater wetlands there, particularly at lower Yellow Bank Creek. A series of off-channel ponds was constructed by BLM at Yellow Bank Creek in 2018. The ponds were constructed for California red-legged frog habitat in cooperation with the US Fish and Wildlife Service, PG&E, and the Santa Cruz Resource Conservation District. A wetland pond was constructed at Liddell Creek as mitigation for CEMEX activities (ESA 2001, 2004). This pond is in an early successional stage with good willow and emergent vegetation recruitment. Pacific chorus frogs are breeding in it and red-legged frogs have colonized it and are beginning to breed.

Water diversions, livestock grazing, and non-native plant species invasion represent additional current impacts to riparian areas and wetlands. A substantial quantity of water is diverted from upper Liddell Creek to supply the city of Santa Cruz. Water is also diverted from San Vicente Creek for domestic supply for the town of Davenport. Additional diversions of water from riparian areas and wetlands supplies water troughs for cattle at C-CD. The cattle corrals at Yellow Bank Creek are located directly adjacent to the historic creek channel and the floodplain wetlands there are heavily impacted by cattle. Cattle trailing impacts to riparian areas are also evident low on Terrace 2 between Agua Puerca Creek and Molino Creek. Non-native plant species including cape ivy have heavily invaded some riparian areas, particularly San Vicente Creek

and Liddell Creek. Old man's beard (*Clematis vitalba*) has only recently begun to invade San Vicente Creek and is not yet known to have spread to any of the other creeks at C-CD. Localized riparian areas are trending towards an adverse condition due to concentrated impacts from livestock grazing and invasion from cape ivy. Wetlands are relatively stable.

Key indicators of riparian and wetland health include vegetative cover, structure, and composition; bank stability; coarse woody debris; pool dimensions; sediment loads/sedimentation; water temperature; and water chemistry (pH and soluble compounds). Monitoring of macroinvertebrates also provides a quantitative measure of wetland health.

Table 3.3-1. Riparian area and wetland vegetation types at C-CD. Compiled from vegetation types listed in ESA 2001 and 2004 and cross-walked to vegetation types described in Sawyer et al. 2009 and Barbour et al. 2007.

C-CD RMPA →	**RIPARIAN AREAS**			**WETLANDS**
ESA 2001, 2004 →	**Coast live oak riparian forest**	**Red alder riparian forest**	**Central Coast arroyo willow riparian**	**Freshwater seep/ Freshwater wetland**
Sawyer et al. 2009 & Barbour et al. 2007 ↓	*Quercus agrifolia* Woodland Alliance	*Alnus rubra* Forest alliance	*Salix lasiolepis* Shrubland Alliance	*Carex densa* Provisional Herbaceous Alliance
	Quercus agrifolia-Salix lasiolepis	*Alnus rubra/Salix lasiolepis*	*Salix lasiolepis*	*Eleocharis macrostachya* Herbaceous Alliance
		Alnus rubra/Gaultheria shallon	*Salix lasiolepis/Rubus* spp.	*Juncus lescurii* Herbaceous Alliance
				Juncus (*oxymeris, xiphioides*) Provisional Herbaceous Alliance
				Juncus patens Provisional Herbaceous Alliance
				Schoenoplectus californicus Herbaceous Alliance
				Typha (*angustifolia, domingensis, latifolia*) Herbaceous Alliance
				Carex densa
				Eliocharis macrostachya
				Juncus lescurii
				Juncus xiphioides
				Juncus patens
				Schoenoplectus californicus
				Typha latifolia

Forecast

Consensus of projected models for RCP 8.5, for C-CD through the year 2100, suggest a sharp increase in average annual temperature from 57°F to 63°F (+6.0°F; much warmer) and a modest increase in average annual precipitation of 3 to 5 inches (slightly wetter; Cal-Adapt 2019). The much warmer temperature, coupled with only a slight increase in precipitation, would result in substantially greater evapotranspiration rates and may ultimately result in decreased water supply to riparian areas and wetlands.

The BLM and CalFire utilize a Modified Suppression Plan for fire suppression activities within C-CD. This Modified Suppression Plan restricts withdrawals of water on C-CD to prevent impacts to sensitive species and restricts the use of fire retardant in proximity to waterways.

3.4 Biological Resources – Fish and Wildlife

Natural fauna at the C-CD can include any and all elements of a fairly intact ecological interdependent model including: herbivores (black-tailed mule deer); top predators (mountain lion); mesopredators (bobcat, coyote, grey fox, raccoon, badger); small herbivorous mammals (brush rabbit, dusky-footed woodrat, California ground squirrel, deer mice); small carnivorous mammals including mustelids (long-tailed weasel, striped skunk), moles and shrews, and bats.

Other vertebrate groups that play essential ecosystem roles are reptiles (northern and southern alligator lizard, coast and aquatic garter snake, southern pacific rattlesnake, yellow-bellied racer, western fence lizard, northwestern/southwestern pond turtle), woodland salamanders (Ensatina, arboreal salamander, Santa Cruz black salamander, California slender salamander), and aquatic-breeding amphibians (California red-legged frog, Sierra chorus frog, California newt, rough-skinned newt, Pacific giant salamander). Bird species include riparian forms, such as hermit thrush, Wilson's warbler, black-headed grosbeak; grassland species such as grasshopper, white-crowned, golden-crowned and other sparrows; and habitat generalists such as California and spotted towhee, red-tailed hawk, red-shouldered hawk, Northern harrier, great horned owl, western screech owl, various woodpeckers including pileated woodpecker, American robin, brewer's and red-winged blackbirds, and corvids such as scrub and Stellar's jays. Fish include the salmonids: coho salmon, steelhead trout, non-anadromous rainbow trout; as well as other fish species, including: roach, hitch, stickleback, and freshwater sculpin. Invertebrates are also crucial faunal elements, and include both terrestrial and aquatic mollusks (snails, slugs and bivalves), and arthropods (crustaceans including crayfish, leptidopterans, coleopterans, odonates, orthopterans).

Absence of any of these expected species would indicate less-than-desired ecosystem function and biodiversity, but the absence of the remaining top predator (mountain lion) and the primary herbivore (black-tailed mule deer) would be expected to have a major cascading effects on many other wildlife species and flora of CCNM. Aquatic species such as steelhead and coho salmon are key indicators of functioning creeks, as are a host of aquatic invertebrates (odonata, hemipteran, coleopteran, neuropteran).

Coastal species present in southern Santa Cruz County such as California tiger salamander, common garter snake, or legless lizard are not known to be present and are not expected to occur at C-CD.

Fish and Wildife by Habitat Association

Faunal indicator species addressed in the framework of mesohabitats defined in the Vegetation section. Although animal species do not necessarily exist in a one-to-one relationship with the defined vegetation associations, the vegetation model is generally useful for defining the habitats for which these species can indicate ecosystem function and the desired faunal diversity / historical condition.

Key indicators are here generally defined as species that are particularly sensitive to population declines following habitat degradation. Ecosystem indicators are other fauna which, when present, suggest either positive or negative ecosystem function. Native fauna are assumed to suggest positive ecosystem function, whereas nonnative species are assumed to indicate negative ecosystem function, by definition.

Mountain Lions (*Puma concolor*)
Mountain lions are expected in every habitat at C-CD and can be considered an "umbrella species" for the Property. The Puma Project is a well-known scientific research effort led by wildlife ecology expert, Chris Wilmers PhD, and colleagues from UC Santa Cruz that have been studying mountain lions and other wildlife for the last 12 years in this region including on C-CD. As noted in comments on the BLM plan

submitted by Professor Wilmers, PhD the property and the broader region are in the midst of a long-term transition from private property with very little human use, to publicly owned properties with potentially high levels of human use. The comments cite numerous studies, including Smith et al (2017) to demonstrate mountain lions fear people, which results in mountain lions fleeing their kill sites when humans are nearby and possibly killing up to 50% more deer a year as a result of this reduced feeding time at kills (Smith, Wang & Wilmers 2015), and increasing the energetic expenditure of mountain lions (Wang, Smith & Wilmers 2017).

The Puma Project research has also shown that mountain lions usually require a buffer of at 600 meters from human activity to site nurseries to raise their kittens (Wilmers et al. 2013). The undeveloped lands of the Santa Cruz Mountains are a mosaic of land holdings where human recreation is either allowed in some ways or prohibited. Given the documented impacts of human activity on animal communities and the already substantial land area in the Santa Cruz Mountains devoted to recreation, special attention should be given to maintaining large tracts of land with at least a 600-meter buffer from human trails. Especially important will be maintaining drainage bottoms and ridges that wildlife use most for efficient movement on the landscape with large buffers from human activity.

On April 16, 2020, the California Fish and Game Commission (Commission) provided notice that the Central Coast an evolutionarily significant unit (ESU) of mountain lions (*Puma concolor*) is a candidate species under the California Endangered Species Act (CESA). The Commission determined that the amount of information contained in the petition would lead a reasonable person to conclude there is a substantial possibility the requested listing could occur. Therefore, the Department has until April 20201 to prepare a written report indicating whether the petition to list the Central Coast ESU of mountain lions as threatened or endangered under the CESA is warranted. More information is available from the California Office of Administrative Law, reference Notice ID #Z2019-0716-03 and Z2020-0421-01.

Riparian Areas Key faunal indicators include pond turtles, foothill yellow-legged frogs, Pacific giant salamanders, Santa Cruz black salamanders, steelhead trout. Ecosystem indicators may include an intact stream invertebrate fauna, native freshwater molluscs, and native crayfish.

Riparian Areas and Wetlands
Key indicators include California red-legged frog and pond turtle. Ecosystem indicators include native species such as California and rough-skinned newts, Sierra chorus frog, Santa Cruz garter snake, sora rail, invertebrates including coleoptera (Ditiscidae), hemiptera (Belostomatidae), odonata (dragonflies and darners), copepods and eubranchiopods.

Annual grassland, and other open areas
Certain species will be ubiquitous to the unforested areas of C-CD, including western fence lizard, northwestern rattlesnake, and northern harrier.

Non-native ruderal patches / Annual grassland
This habitat is an early successional shrub and nonnative grass and forb community and will tend to have early successional generalist species such as brush rabbit, yellow-bellied racer, gopher snake, pocket gopher, coyote, bobcat, and a mix of native and nonnative invertebrates.

Native grassland
This primordial habitat may be expected to host a diverse community of native insects and rodents. One key indicator would be American badger.

Coastal scrub / Chaparral / ridgetop rock outcrops and barrens

Key indicators could be Blainville's horned lizard and night snake. Ecosystem indicators may include Gilbert's skink, California whiptail, Allen's and rufous hummingbirds.

Coast live oak woodland / Conifer forest
Faunal composition of coast live oak woodland and conifer forest habitats is relatively similar. Key indicators include arboreal salamander. Ecosystem indicators include deer and leaf-litter animals (California slender salamander and micro-arthropods).

Redwood Forest (Conifer forest)
Key indicators should include the marbled murrelet, band-tailed pigeon, banana slug, and Ensatina. Leaf-litter micro-arthropods are ecosystem indicators. It is important to note that Santa Cruz Mountains redwood habitats are depauperate with respect to the more extensive forests to the north. Key indicators of redwood forests north of San Francisco Bay, including northern spotted owl, white-footed vole, redbacked vole, clouded salamander, and torrent salamander and are not historically known from the Santa Cruz Mountains.

Current Status of Fish and Wildlife at C-CD

The undeveloped lands of the Santa Cruz Mountains are a mosaic of land holdings where human recreation is either allowed in some ways or prohibited. Given the documented impacts of human activity on animal communities and the already substantial land area in the Santa Cruz Mountains devoted to recreation, special attention should be given to maintaining large tracts of land with at least a 600-meter buffer from human trails. Especially important will be maintaining drainage bottoms and ridges that wildlife use most for efficient movement on the landscape with large buffers from human activity.

Intact leaf-litter fauna are expected in the oak woodland and redwood forest habitats but have not been sampled. Banana slugs have been recorded from the site but terrestrial snails have not been sampled. Healthy stream invertebrates assemblages are expected from the creeks but have not been sampled. Aquatic molluscs (snails and bivalves, both native and nonnative) and crayfish have not been sampled. California newts, rough-skinned newts, Santa Cruz garter snakes, northwestern rattlesnakes, and coast garter snakes have been positively recorded from C-CD. Many common amphibian species, including the pacific chorus frog, rough-skinned newt, ensatina, California slender salamander, and arboreal salamander and California newt occur or have the potential to occur on-site. The federally threatened California red-legged frog occurs on-site but other species of potential concern including foothill yellow-legged frogs and Santa Cruz black salamanders are not presently known from C-CD. Pacific giant salamanders are likely to occur but have not been documented. Dusky-footed woodrat and long-tailed weasel have been positively documented from C-CD.

The lack of development is conducive to a generally complete fauna composition. Processes that depress native fauna in otherwise undeveloped areas can include non-native species (i.e. brown cowbirds, bullfrogs, and house cats), as well as nonnative vegetation. Bullfrogs have not been documented in any drainage. House cats have been noted in the Mocettini Cheese House "Cheese Barn" and are expected in the environs of the town of Davenport and the small community on Laguna Creek and are expected to have a negative effect on riparian birds. Brown cowbirds are likely present and would also negatively impact riparian birds due to their brood parasitism.

The coastal watersheds and streams support cold water fisheries. Areas with limited or constrained riparian areas typically exhibit warmer temperatures, less stream stability, and lower numbers of native fish. The California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Service (NMFS) published results of salmonid surveys in the San Vicente Watershed Salmonid Recovery Plan (RCD 2014).

Cold water fisheries are found in Molino, Agua Puerca, San Vicente, Liddell, Yellow Bank, Laguna, and 'Y' creeks. Each of these watersheds supports or has the potential to support steelhead and coho salmon, though there are substantial impediments or challenges for salmonid recovery in each creek (see Chapter 3 Sensitive Species - Coho and Steelhead for more information.)

Except for San Vicente Creek, C-CD streams are managed for wild fish stocks and maintained by natural recruitment. The National Marine Fisheries Service, though, has been stocking San Vicente Creek with coho salmon from a hatchery on nearby Scotts Creek since 2009. San Vicente Creek and Laguna Creek will remain the NOAA Fisheries focus for recovery of coho salmon populations (NMFS 2012).

Non-Native Species

Guideline 4 for the development of watershed management plans in the Recovery Plan for the California Red-legged Frog states that lands will be managed to control or eliminate non-native predators of CRLF (USFWS 2002). The non-native predators present in Santa Cruz County are American bullfrog (*Lithobates catesbeianus*), Western mosquitofish (*Gambusia affinis*), white crappie (*Pomoxis annularis*), Red Swamp crayfish (*Procambarus clarkii*) and signal crayfish (*Pacifastacus leniusculus*) (USGS 2019). None of these species except for *P. leniusculus* have been recorded at C-CD, but the American bullfrog has been recorded at Antonelli Pond in Santa Cruz, approximately ten miles east of the property. Nonnative bullfrogs have not been documented on C-CD.

An invasive mollusk, the New Zealand mudsnail (*Potamopyrgus antipodarum*), was recorded in Liddell Creek in August 2018 (USGS 2019). The New Zealand mudsnail is a species that can rapidly colonize an area, reaching very high densities (Alonso and Castro-Diaz 2012). However, the effects of this species are variable depending on the other co-occurring species (Bennett et al. 2015). USGS states that there are no current realized impacts of the New Zealand mudsnail on this creek, but it has the potential to negatively impact native invertebrate populations, reducing biodiversity and altering the carbon and nitrogen cycle of the invaded water body, which in turn could have indirect effects on the creek (Kerans et al. 2005; Alonso and Castro-Diaz 2012). No methods are known to be effective in removing the New Zealand mudsnail from a system once it has been introduced.

Raptors

C-CD also includes habitat of considerable value to raptors. Specific raptor species that utilize habitats present on and adjacent to this site include: golden eagle, hawks (red-tailed, red-shouldered, Swainson's, ferruginous, and sharp-shinned), northern harrier, prairie falcon, American kestrel, owls (short-eared, long-eared, and burrowing), and loggerhead shrikes. Threats to raptors include poisoning, vehicle collisions, habitat loss, illegal hunting, illegal trading and egg collecting, power lines and towers, falconry, a reduced prey base, and disturbance of nesting and roosting sites.

Adult raptors have few predators and may live for up to 20 to 30 years. In common with other long-lived avian species, raptors have a low reproduction rate and high mortality among young birds. Approximately one-quarter of raptors survive their first year, and only half of these will reach maturity and raise their own young. With a reduction in adult survivorship due to the causes mentioned above, the population of the affected species declines as a result.

Forecast

Habitat fragmentation is a key consideration for managing lands for maintaining and increasing wildlife populations. In this area, the most relevant features, in terms of habitat fragmentation include: Highway 1 and other well-travelled paved roads, as well as adjacent residential neighborhoods and businesses.

In the absence of urban or industrial development, the wildlife profile at C-CD is unlikely to experience radical change. Lack of management of ponds could cause local extirpations of some species such as California red-legged frogs and California and rough-skinned newts. Regarding the forecast for coho salmon in this region, NOAA Fisheries notes: "the lack of demonstrably viable populations…and substantial gaps in the distribution of coho salmon throughout the CCC ESU [Central California Coast Evolutionarily Significant Unit] strongly indicate that this ESU is currently in danger of extinction." (NMFS 2012).

The projected models (see section above Biological Resources – Upland Terrestrial Vegetation) indicate the likelihood of much warmer temperatures and only modest increases in precipitation. This could cause greater evapotranspiration and ultimately lead to decreased water supply in riparian area and wetlands which would have a negative effect on aquatic wildlife species.

3.5 Biological Resources – Special Status Species

Special status species include those plant and animal species federally listed as Threatened, Endangered, Proposed, or Candidate, as well as BLM, California Native Plant Society List 1B species, Federal and State of California sensitive plant and animal species. The BLM and the State of California coordinate activities related to the protection and enhancement of federally and state sensitive listed species. These actions include ongoing efforts to survey population levels, protect critical habitats, and determine potential areas for habitat restoration and recovery activities. The BLM also coordinates and consults with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) for activities related to the protection and enhancement of federally listed species on C-CD.

Historic documents discuss copious numbers of the salmonid species in the streams in this general area, which are indicative of long-term declines in the region as compared to current conditions. Recent data suggests salmonid restoration efforts are having a beneficial impact and that there are increasing fish numbers in waterways on-site.

Population size trends are not well known for most of the species on the property or in the surrounding areas. Research and management efforts are currently underway to improve understanding of the status of all listed species. Most of the relevant work documenting current species status has focused on salmonids and red legged frogs.

Migratory Birds
C-CD contains habitats for multiple species of migratory birds. The USFWS Migratory Nongame Birds of Management Concern that are known to occur on or nearby C-CD include the ferruginous hawk (*Buteo regalis*), short-eared owl (*Asio flammeus*), burrowing owl (*Athene cunicularia)*, California thrasher (*Toxostoma redivivum*), loggerhead shrike (*Lanius ludovicianus*), mountain plover (*Charadrius montanus*), and tri-colored blackbird (*Agelaius tricolor*). Marbled murrelet surveys have been conducted extensively in the Scott Creek watershed, but no records exist for C-CD.

Amphibians
Overall frog and salamander numbers are declining and the cause, or causes, have not been determined. However, loss of habitat and habitat degradation, urbanization, pollution, and disease are factors that have been implicated in this decline. The federally threatened California red-legged frog occurs on-site.

California red-legged frog
C-CD is known to support populations of the Federally threatened California red-legged frog (CRLF) and is designated as critical habitat for the species. The US Fish and Wildlife Service's Recovery Plan for California Red-legged Frog (USFWS 2002) designates the entirety of C-CD as "core areas", with Davenport noted as a "hydrologic sub-area." C-CD provides a full range of habitat for the species, including aquatic breeding habitat and upland foraging and estivation habitat. To date the documented breeding habitat has been confined to artificial water bodies. Data from the most recent surveys suggests that CRLF attempts to breed in at least 10 ponds on or adjacent to the property but has only bred successfully in a subset of these in recent years (see Appendix A, Figure 10). Reasons for lack of breeding success are primarily the failure of artificial ponds to hold water long enough for larvae to mature, but in at least one pond breeding failure has been attributed to predation to native newts (BLM, unpubl. Data). CRLF that breed in C-CD ponds may utilize habitat beyond the boundaries of the property; conversely, frogs born off the property likely use upland habitat on C-CD. California red-legged frogs have not been documented in the flowing creeks on the property but likely use them as summer habitat. Stream habitat for CRLF requires large, still pools over 0.5 meters deep and canopy cover, such as from willows. Breeding habitat is enhanced by emergent vegetation such as cattails and tules. Main predators of CRLF include garter snakes, wading

birds such as herons and egrets, and raccoons. The median distance that CRLF travel from their breeding areas is 1.5 meters but frogs have been recorded to travel 1-2 miles via upland habitat at several sites, particularly during the wet season or as suitable habitat dries up (Fellers and Kleeman 2007; USFWS 2002).

Fish

Anglers are prohibited from fishing the coastal streams on C-CD by the CDFW. Habitat for these species has historically included most small coastal stream and rivers along the California coast. These waters seasonally represent spawning and rearing habitats.

Central Coast Coho ESU (Oncorhynchus kisutch)

The Central Coast Coho Evolutionary Significant Unit (ESU) includes all naturally spawned populations of coho salmon from Punta Gorda in northern California south to and including the San Lorenzo River in central California, as well as populations in tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin River system. This species was listed as Threatened under ESA (October 31, 1996) and as Endangered for coho south of San Francisco Bay under the CESA. The Recovery Plan for the Evolutionarily Significant Unit of Central California Coast Coho Salmon was approved on September 01, 2012. The goal under this plan is to improve the viability of the Central California Coast ESU of Coho salmon, and the ecosystems upon which it depends, to the point that it no longer requires ESA protection.

Populations of central coast coho ESU at C-CD represent one of the last remnant populations of coho south of San Francisco Bay. Coho were first documented in San Vicente Creek in 1981 and scores of juvenile coho were found in San Vicente Pond (an agricultural water feature) in 2002. The National Marine Fisheries Service has been stocking San Vicente Creek with coho salmon from a hatchery on nearby Scotts Creek since 2009. Withdrawals from this pond were halted, and ongoing restoration and management of the pond is occurring in consultation with resource agencies. The City of Santa Cruz completes annual salmonid monitoring in Laguna and Liddell Creeks. In 2015 and 2016, juvenile coho were discovered in Laguna Creek. In 2018, juvenile coho salmon were discovered in Liddell Creek.

Six perennial streams on C-CD are considered critical habitat for coho salmon: Molino Creek, Ferrari Creek, San Vicente Creek, Liddell Creek, Yellow Bank Creek, and Laguna Creek (see Appendix A, Figure 11).

Central California Coast Steelhead DPS (Oncorhynchus mykiss)

The Central California Coast DPS (Distinct Population Segment) includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River, excluding the Sacramento-San Joaquin River Basin. This DPS was listed as threatened as Threatened under the ESA on August 18, 1997. The NMFS approved the Coastal Multispecies Final Recovery Plan for California Coastal Chinook Salmon, Northern California steelhead and Central California Coast steelhead in October 2016. The plan is based on the biological needs of the fish and provides the foundation for restoring the populations to healthy levels.

Presence of steelhead is confirmed at three creeks in C-CD (San Vicente, Laguna, and Liddell). Adult steelhead need access to spawning gravel in areas free of heavy sedimentation with adequate flow and cool, clear water. Steelhead utilize gravel that is between 0.5 to 6 inches in diameter, dominated by 2 to 3 inch gravel. Escape cover such as logs, undercut banks, and deep pools for spawning adults is also important. Juvenile steelhead prefer areas including woody debris accumulation such as logs or tree roots. Cover structures such as boulder clusters and root wads provide both summer and winter rearing habit. Surface turbulence (or white water) provides another source of cover during the summer months. As juvenile steelhead grow, pools become an important habitat component. The best pools for habitat are those with abundant escape cover in the form of large woody debris, undercut banks, root masses, and large boulders.

Cool, clean water is essential for the survival of steelhead during all portions of their life cycle. Elevated water temperatures (>70° F) can greatly impair growth rates of juvenile steelhead if adequate food is not available. Warmer water also holds less dissolved oxygen and increases a fish's susceptibility to disease. Within C-CD, San Vicente Creek contains the highest steelhead density, whereas steelhead were least abundant in Liddell Creek.

San Vicente Creek is a relatively productive steelhead stream providing adequate spawning and rearing habitat for the species. The CDFW has funded efforts to increase woody cover features and pool availability, and a concrete dam has been removed to increase available habitat. However, San Vicente Creek has generally high levels of sand and silt, and potentially high stream temperatures due to limited channel shading particularly at lower reaches. No limiting factors were identified during stream surveys of Laguna Creek, but the City of Santa Cruz operates a diversion upstream of the property that is permitted for unrestricted withdrawals. In Liddell Creek, sedimentation due to soil type and mining is reported to be the primary limiting factor to steelhead spawning habitat. Stream surveys in 2001 also detected young-of-the-year/yearlings in all other streams, but some of these were upstream of impassable or difficult-to-pass barriers indicating that some may be landlocked steelhead or rainbow trout.

Tidewater goby, Eucyclobobius newberryi

The tidewater goby is endemic to California and is distributed in brackish water habitats along the coast from Agua Hedionda Lagoon, San Diego County, in the south to the mouth of the Smith River (Tillas Slough), Del Norte County, in the north (Moyle et al. 1995). Although the species was originally believed to be restricted to low-salinity waters (Fed. Reg., 1994), tidewater gobies are capable of living in saline waters reaching over 50 parts per thousand (ppt) (Moyle et al. 1995). The Recovery Plan for the Tidewater Goby was approved on January 23, 2006.

The tidewater goby (*Eucyclobobius newberryi*) occurs in the downstream estuary of Laguna creek in the State managed portion of C-CD. It is not known to occur in the BLM managed portion of the property. Natural processes, including rising sea levels, may lead to the tidewater goby occurring within the BLM managed area. Management decisions should include potential downstream effects to this species. Large populations have been observed in lagoons ranging from fresh water (e.g., Soquel Creek and Pescadero Creek) to ocean salinities (Corcoran Lagoon and Moran Lagoon) (ESA 2001, 2004).

Plants

Special Status plant species are those that are Federally-listed, State-listed, or California Rare Plant Rank (CRPR) list 1B. There are currently no known Special Status plant species at C-CD.

San Francisco popcorn flower (*Plagiobothrys diffusus*; CRPR 1B.1), Santa Cruz clover (*Trifolium buckwestiorum*; CRPR 1B.1), Marsh scorzonella (*Microseris paludosa*; CRPR 1B.2), Choris's popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*; CRPR 1B.2), Santa Cruz microseris (*Stebbinsoseris decipiens*; CRPR 1B.2), and bent flowered fiddleneck (*Amsinckia lunaris*; CRPR 1B.2) have low to moderate potential to occur at C-CD due to occurrence of these species in the vicinity of C-CD and presence of some potential habitat for the species (ESA 2001, 2004; Calflora 2019; CCH 2019; CNDDB 2019; Jepson eFlora 2019). Santa Cruz clover was found in the general area during surveys conducted in 2001, however, surveys in 2017 and 2018 did not locate any special status plant species at C-CD. Sandy soils (Zyante soils) which are the habitat of several rare and endangered plant species (Zyante flora) of the Santa Cruz Mountains, are not present anywhere on C-CD.

Threats to Sensitive Species

Habitat fragmentation can isolate populations and exacerbate challenges faced by special status species. In this area, habitat fragmentation has been most dominantly caused by Highway 1 and other well-travelled paved roads, as well as adjacent residential neighborhoods and businesses. Other deleterious impacts to

sensitive species habitat include invasive grasses and other non-native plants and the disturbance created by historic quarrying and logging and agricultural uses of the land. Waterway connectivity of onsite waterways to the ocean (and thus critical aquatic habitat) has also been adversely affected by the railroad trestle and the construction of Highway 1 and Swanton Road.

Proper public use site design and a better understanding of the current status of sensitive species utilizing the C-CD lands will help reduce the threats to the species. Research and management efforts are currently underway to improve the status of all listed species. Collaborative efforts with other organizations can synergistically improve understanding and management. Adaptive management strategies and techniques can help management to better respond to specific situations.

The BLM has been and will continue to evaluate and implement infrastructure options that are less threatening to wildlife. For example, as BLM installs improved models of signs and fence posts, raptors will not be at potential risk of perishing from getting their talons stuck.

Non-native plants, animals and pathogens can pose direct risks to sensitive species and indirect risks by altering their habitats. The BLM completed an invasive weed control plan (Appendix F).

Forecast

If appropriate restoration activities are undertaken, population sizes of certain species are forecast to increase. For example, removing barriers to fish passage in certain watersheds would be anticipated to increase salmonid numbers.

It is anticipated that invasive plants may increase in abundance on-site without effective treatment methods. This trend is anticipated to continue to adversely affect the wildlife species that depended on the habitats that were present on-site prior to invasive plant invasions.

Consensus of projected models for RCP 8.5, for C-CD through the year 2100, suggest a sharp increase in average annual temperature from 57°F to 63°F (+6.0°F; much warmer) and a modest increase in average annual precipitation of 3 to 5 inches (slightly wetter; Cal-Adapt 2019). The much warmer temperature, coupled with only a slight increase in precipitation, would result in substantially greater evapotranspiration rates and may ultimately result in decreased water supply to riparian areas and wetlands. Additionally, the altered temperature regime may fundamentally disrupt migration, mating, and reproduction cycles of fish and amphibians.

3.6 Cultural and Heritage Resources

For thousands of years people have called the land surrounding C-CD home and utilized the resources found there. Archaeological research in the surrounding coast suggest that California's coast was inhabited as early as 10,000 years ago. Regionally, evidence for the earliest occupation comes from an archaeological site located nearby in the Santa Cruz Mountains. This site indicates that it dates from 8,000 BPE (ESA 2001). Ethnographic accounts indicate the intentional use of wildfire to maintain grasslands to increase seed production and forage and attract game species such as black tailed deer. The nearby ocean and rivers produced marine resources that provided a rich source of food including mussels, salmon, and sea lions. Along the coast of California shell mounds dot the coastline, with remnants of mussel shell from such activities (Krober 1976). C-CD is located within the boundaries of the area inhabited by the *Cotoni* tribelet, part of the Ohlone peoples which occupied the land from the mouth of the San Lorenzo River, north to Año Nuevo Creek, and east as far as Bonny Doon Ridge (Milliken 1995) until sometime during the mission period (AD 1770-1835). Relatively dispersed resources in the area led to seasonal movement along the ecological zones and a relatively prosperous but sparse population density (ESA 2001). Pre-contact cultural resources in C-CD include sites where food gathering and preparation occurred, as well as lithics. The mission period was especially devastating to Native Americans, including the Ohlone. Cotoni, the first part of the monument unit's name reflects that this area was inhabited by the Cotoni tribelet of the Ohlone peoples.

The Mexican Era (1822-1848) followed Mexico's independence from Spain in 1821. Lands once controlled by the missions were divided into land grants. There are three ranchos that made up what is now C-CD. These were Rancho Arroyo de la Laguna, which was originally granted to Gil Sanchez in 1840, Rancho San Vicente was granted to Antonio Radriques in 1839, and Rancho Agua Puerco y las Trancas, granted to Ramón Rodriques and Francisco Alviso in 1843 (ESA 2001). Agricultural products such as tallow and hides were important exports to the United States of America, and were shipped from nearby coastal landings and dog holes (Dana Jr 1964; Delgado 1990).

The American Period (1850-1900) saw a dramatic population increase as people from all over the world traveled to California during the Gold Rush. Agricultural exports, such as produce, dairy, and hides, continued but other important resources were added. These included timber and lime which were crucial for the rapidly increasing cities and development projects created by the influx of people. Ships continued to be the primary method of transporting goods until railroads connected Santa Cruz to San Francisco. There were three landings that aided shipping in the area and were very influential to the development of the surrounding area. These landings are Waddell's Landing, William's Landing, and Davenport's Landing (Jensen 1976). Both the timber industry and lime industry heavily impacted the landscape through deforestation. Lime production required vast amounts of timber during the burning process in lime kilns. Historic examples of lime kilns that were used during this period are located nearby at Wilder Ranch State Park and at the campus of University of California Santa Cruz (Kindon 2018; Spitzer 2015). The "Coast Dairies" name recalls the historic namesake for the property when it was owned by a consortium of Swiss families that managed the property in absentia. The landscape of C-CD has been indelibly shaped by these past ranching and dairying operations as well as logging, farming, mining, and even homesteading. Historic sites related to this land-use legacy remain and help define the significance of this area.

C-CD is ecologically diverse and the topography is extremely varied. Soil types have a limited range but can have very different textures, granularities, and depositional scenarios resulting in a large range of soil compaction conditions that can vary throughout the Management Area. Consequently, any physical protection treatment for archeological resources will have different implementation requirements (e.g., hand vs. equipment installation). There are three types of projects that can be implemented for cultural resources management:

- Protection: For individual cultural properties or for classes of cultural properties requiring similar measures within a manageable spatial unit;
- Information: Such as inventory or test excavations where needed to provide a basis for refining evaluations and allocations to use categories;
- Interpretation: In which cultural properties are developed for public visitation.

In 2016, a Memorandum of Understanding (MOU) was signed between the BLM Central Coast Field Office and the Amah Mutsun Land Trust (AMLT) for C-CD. The purpose of this MOU was to facilitate the preservation and continuity of local Native heritage. The MOU provides assurances that the traditional ceremonies and cultural practices of the Amah Mutsun Tribal Band (AMTB) will continue within its traditional territory. Furthermore, the MOU fosters the perpetuation of Traditional Ecological Knowledge (TEK) and traditional resource and environmental management (TREM) through activities that include landscape and ethnobiological resource stewardship by AMTB members and AMLT affiliates as well as education, interpretation, research, and the sharing of AMTB cultural practices with tribal members and members of the public. The MOU reinforces that AMTB members are encouraged to engage in their traditional ceremonial activities, environmental resources stewardship, and resource gathering practices on public lands and to share elements of their traditions, culture, and history with visitors as appropriate. The involvement of AMTB members and the AMLT in the protection and preservation of shared public resources stimulates increased education opportunities and community involvement. The MOU does not preclude consultation with other California Indian people or affect BLM's option to enter into similar MOUs with other California Indian groups.

The BLM desires to have all cultural resources evaluated and managed. In order to achieve this goal a classification system was created for allocating allowable uses at each site (**Table 3.6-1**). Indicative factors to describe resource conditions are principally based on observed site characteristics and site monitoring by BLM staff and trained Volunteers (California Archaeological Site Stewardship Program). The BLM will continue to use opportunities to enhance existing partnerships with local tribal community and interested public, specifically non-Federally recognized individual Costanoan/Ohlone California Indians, the Amah Mutsun Tribal Band, local community members of Davenport and Bonny Doon, avocational historical societies, and BLM Volunteers who have successfully graduated from the California Archaeological Site Stewardship Program (CASSP).

Table 3.6-1. BLM Cultural Resource Use Allocations and Desired Outcomes Matrix

Use Allocation	Desired Outcome
Scientific use	Preserved until research potential is realized
Conservation for future use	Preserved until conditions for use are met
Traditional use	Long-term preservation
Public use	Long-term preservation, on-site interpretation
Experimental use	Protected until used
Discharged from management	No use after recordation; not preserved

Cultural resources in the area are diverse due to the long inhabitation and use of C-CD lands. Currently there is limited cultural resources research being conducted. Pre-contact sites that are present include chert manufacturing, bedrock mortar, potential habitation sites, and shell midden. Most of the known remaining pre-European contact era ("prehistoric") cultural sites are fair to poor, primarily due to the impacts of historic mining exploration and development activities or ranching/homesteading during the Mexican and American periods.

Historic sites include the Mocettini Cheese House used during the cheese production and aging process, other dairy industry sites including a pole barn and cement features such as troughs and walls, historic

habitation sites, historic era fencing from dairy and mining activities, and part of the old coast road (part of which was re-routed and became California Highway 1) runs through the landscape. These sites, especially those with currently standing infrastructure are sensitive to degradation and collapse through natural a natural aging process and unauthorized visitation/vandalism.

The importance of this area to Native Americans as a place to continue with traditional uses as identified through: clusters of pre-contact sites for activities such as food production; sacred sites; and vegetation types that have traditionally been used by the Ohlone such as hazelnut. The BLM would manage RMZ4 as part of this management plan in collaboration with the Amah-Mutsun Land Trust.

A BLM Class I inventory was conducted in January 2020 for the entire property and a Class III inventory was completed for trails proposed under Alternative D, Phase I. A Class I Inventory uses existing data from cultural resource inventory reports and files to help identify known properties. This serves to look at cultural resources from a landscape level and help determine if additional, more intensive surveys are appropriate in specific areas. Approximately 35% of the property was previously surveyed at a Class I Inventory prior to 2020. AMLT has worked with the BLM to develop a cultural resources sensitivity model for the study area. All areas with high to moderate sensitivity for cultural resources have been subject to pedestrian inventory either at a Class II (reconnaissance) level or Class III (intensive) level.

A BLM Class II Inventory uses statistically based surveys that aim to aid in understanding the properties and distribution of cultural resources in an area. Approximately 2% of C-CD has been surveyed through a Class II Inventory at this time. All areas that would be subject to trail construction, trailhead development, and other high levels of public use under the proposed land use plan have been inventoried as the BLM Class III level. Class III Inventories comprise of intensive field surveys to identify historic properties, consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. Using professional standards, surveys conducted under a Class III Inventory focus on identifying and recording all historic properties within the determined Area of Potential Effect. An estimate of 20% of the entire property has undergone an intensive cultural resource inventory at a BLM Class III. Since a BLM Class III Inventory for the whole property has not been conducted at this time there is the potential to encounter previously undocumented cultural resources in areas that have not been intensively inventoried. Future planning actions will be subject to project specific review, including background record searches, field inventory, tribal consultation, etc.

Forecast

Recommended actions and desired outcomes for the known cultural resources on C-CD encourage the use and monitoring through a unique partnership with the AMLT.

Other opportunities may include the expansion of the partnership with Agricultural History Project to potentially restore or interpret stand-alone structural elements or objects of the Mocettini Cheese House.

3.7 Air Quality

C-CD is located in the North Central Coast Air Basin (NCCAB). The NCCAB is composed of Monterey, Santa Cruz, and San Benito counties and covers an area of more than 5,100 square miles. In the summer, the Pacific High-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. In the fall, north or east winds can develop, transporting pollutants from either the San Francisco Bay area or the Central Valley into the NCCAB. During the winter, air flows in a southeasterly direction out of the Salinas and San Benito Valleys, especially during night and morning hours. The average annual temperatures in degrees Fahrenheit are relatively stable and range from winter lows in the upper 30s to summer highs in the middle 70s.

Federal and state standards have been established for ozone, CO, NO2, sulfur dioxide (SO2), lead, and fine particulates (PM10 and PM2.5). **Table 3.7-1** summarizes the current federal and state standards for each of these pollutants. Standards have been set at levels intended to protect public health. California standards are generally more restrictive than federal standards. Depending on whether the standards are met or exceeded, the local air basin is classified as in "attainment" or in "nonattainment."

As shown in the table below, the NCCAB is in attainment or unclassifiable status for all federal ambient air quality standards (AAQS). For state AAQS, the NCCAB is currently in nonattainment status for respirable particulate matter (PM10), and transitional nonattainment status for ozone. An area is designated transitional nonattainment if, during a single calendar year, the state standard is not exceeded more than three times at any monitoring location within the district.

Table 3.7-1. Federal and State standards for air pollutants.

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	Nonattainment - transitional	No federal standard
	8 Hour		Attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	Nonattainment	No federal standard
	24 Hour		Unclassified[1]
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	Attainment	Attainment
	24 Hour	No state standard	
Carbon Monoxide (CO)	8 Hour	Unclassified	Unclassified/Attainment
	1 Hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No state standard	Attainment
	1 Hour	Attainment	No federal standard
Lead	Calendar Quarter	No state standard	Attainment
	30 Day Average	Attainment	No federal standard
	Rolling 3-month Average	No state standard	Attainment

[1] Unclassified; indicates data are not sufficient for determining attainment or nonattainment.
Attainment = Meeting air quality standards
Nonattainment = Exceeding air quality standards
Source: CARB 2015, USEPA 2017

Populations more sensitive to air pollution than others include children, the elderly, and persons with respiratory diseases. Scattered rural residences are located adjacent to C-CD, including the farm building complexes. According to the Monterey Bay Air Resources District's (MBARD) Guidelines, air quality impacts occur if projects emit more than 82 lbs/day of PM10 nearby or upwind of sensitive receptors. Ozone impacts during construction are less likely to occur because projects using typical construction equipment are accommodated in the emission inventories of federally and state-required air plans.

Forecast

The atmospheric conditions on the North Coast of Santa Cruz County are expected to be consistent with current conditions during the life of the plan (10-15 years). The long-term fluctuation in average annual precipitation and average annual temperature is likely to result in increased aridity with more frequent and severe droughts (Field et al. 2016). The current greenhouse gas emissions scenario model is Relative Concentration Pathway (RCP) 8.5 (Cal-Adapt 2019). Consensus of scientific models for RCP 8.5, for C-CD through the year 2100, suggest a sharp increase in average annual temperature from 57°F to 63°F (+6°F; much warmer) and a modest increase in average annual precipitation of 3 to 5 inches (slightly wetter; Field et al. 2016; Thorne et al. 2016 Beck et al. 2018; Cal-Adapt 2019).

3.8 Geology

Geologic Setting and Stratigraphy.
The C-CD property is completely included in the region of California commonly referred to as the Coast Ranges geomorphic province (CGS 2002). The Coast Ranges geomorphic province is characterized by a series of northwest trending ridges and valleys subparallel to the San Andreas Fault. Figure 13 in Appendix A illustrates the formations of C-CD – which range in age from the from the Cretaceous through the Holocene (Clark 1981; Brabb 1997). The oldest, basement rocks of C-CD are crystalline plutonic and metamorphic rocks of the Salinian Block. These include quartz diorite and marble. Between the Cretaceous (136 MYA) and Late Miocene (5 MYA), the area of C-CD was located beneath the Pacific Ocean. Within the marine environment, sedimentary rock formations were deposited including from oldest to youngest - Butano Sandstone (Eocene), Lompico Sandstone (Middle Miocene), Monterey Formation (Middle Miocene), Santa Margarita Sandstone (Late Miocene), and Santa Cruz Mudstone (Late Miocene). With tectonic uplift of Ben Lomond Mountain, all of these geologic formations were raised above sea level. As tectonic uplift progressed through the Pleistocene (2.5 – 0.5 MYA), wave action along the coastline cut terraces into the Santa Cruz Mudstone and deposited additional geologic material of both marine and terrestrial origins, creating the Coastal Terrace Deposits and Lowest Emergent Coastal Terrace Deposits. Tectonic uplift continues to date at an interpreted rate of between 0.21 m/ky and 0.44 m/ky (Weber and Allwardt 2001) Finally, in most recent geologic time (Holocene; 12,000 YBP to present), erosion has downcut through all of the uplifted and exposed geologic formations, creating Alluvial Deposits, Undifferentiated, along the creek bottoms.

The most easily observed geomorphic feature by the general public at C-CD is a series of three stair-step marine terraces (ESA 2001, 2004). Terrace 1 is elevated about 100 feet above sea level, Terrace 2 is elevated about 300 feet, and Terrace 3 is elevated about 600 feet. It is difficult to determine whether climatic fluctuation or tectonic uplift was predominantly responsible for formation of the terraces (ESA 2001, 2004). Marine terraces form by wave action that erodes away a relatively flat bench. Formation of these terraces is associated with high-energy erosion of a sheer sea cliff and deposition of near-shore marine sediments on the newly eroded bench. As sea level falls or tectonic forces uplift the land surface, the wave-cut platform is raised above sea level and exposed. This uplift also exposes the near-shore sediments that were deposited on the bench during its formation.

Terrace 1, the lowest and youngest terrace, is located at the level of State Highway 1 and Davenport. Only small portions of Terrace 1 are contained within C-CD. Terrace 2 and 3 are well-represented within C-CD. The terraces are incised and eroded by the major drainages of Molino Creek, Agua Puerca Creek, San Vicente Creek, Liddell Creek, Yellow Bank Creek, and Laguna Creek. Terrace 3 is heavily incised and dissected by drainages with only relatively small areas of the flat terrace remaining.

The topographic landscape of the C-CD property is geologically dynamic with aforementioned marine terraces being evidence of the ongoing up-lift of the Santa Cruz Mountain. The current estimated rate of uplift for the Santa Cruz Mountains is between 0.8 and 1.0 cm/yr can be found in numerous publications related to the 1989 Loma Prieta earthquake and Dr. Gerald Weber (UCSC Professor of Geology (emeritus)) has provided an excellent discussion on the rate of uplift for the specific marine terraces located at C-CD in his published field trip for the area (Stoffer and Gordon 2001).

Cave and Karst Resources. The City of Santa Cruz Water Department developed an inventory of karst related rock formations in western Santa Cruz County. The karst study area includes the entire C-CD property and suggest potential for known karst structures in the Laguna Creek watershed (Nolan Associates 2016).

Forecast

Geology at the landscape scale is not significantly affected by land use. Locally, large volumes of limestone and marble were removed from the Bonny Doon quarry (uplands of Liddell Creek) and large volumes of shale were removed from the San Vicente quarry (uplands of San Vicente Creek) for cement production. Relative to the total volume of material contained in the geologic formation, the total quantity of rock removed through quarrying was relatively small. Deed restrictions for C-CD prohibit future quarrying and mining.

Earthquakes on nearby fault lines could produce strong ground movements at C-CD within the next 30 years. Such earthquakes may result in block-slides on the steeper portions of the Santa Cruz Mudstone formations.

3.9 Water Resources

The topography of C-CD, is a series of narrow, steep-sided canyons cut by Liddell, San Vicente, and other creeks into the terraced southwestern slope of Ben Lomond Mountain. Elevations range from near sea level to over 800 m along the crest (Clark 1981). There are six perennial streams at C-CD including Molino Creek, Agua Puerca Creek, San Vicente Creek, Liddell Creek, Yellow Bank Creek, and Laguna Creek. All six of these streams are spring-fed perennial streams and are therefore groundwater dependent systems. As a result, any changes in the regionally supportive groundwater system will have a direct influence on the quantity and quality of the summer baseflows in these streams.

Several of these streams have their watershed entirely or almost entirely on the Property. The larger streams, Laguna Creek and San Vicente Creek, however, have watershed areas that extend beyond C-CD (**Appendix A, Figure 2**). The largest of the watersheds, San Vicente, is about 10 square miles. Hydrology on the property, like most of central California, is marked by winter rains and summer drought. The streams tend to exhibit "flashy" (rapidly rising and falling) winter flows in response to storm events. Stream flow and storm events are intensified by the orographic effect of the Santa Cruz Mountains located to the west. As the dry season progresses and the soil dries out, the streams continue to be fed by seeps and springs.

Average annual precipitation ranges from approximately 40 inches in areas near the coast to nearly 60 inches at the headwaters of the drainages located within C-CD. The upstream migration and spawning of salmonids, and the large flood events that change the form of stream channels, both occur in late fall through early spring. Rainfall during the months of December, January, February, and March have the greatest effect on salmonid migration and spawning.

Precipitation recharges groundwater throughout the watersheds. It is estimated that a total available storage volume of 146,995 acre-feet (181,315,665 m^3) is derived for the groundwater system supporting C-CD. This estimate is based on an assumed watershed surface area of 34.8 square miles (90.1 km^2) or 22,272 acres (9,013 hectares), plus an average saturated thickness of 330 feet (100 meters), and void volume of two (2) percent of the rock mass.

Due to the geologic material in which the groundwater is held (primarily fractured granitic and metamorphic facies) – the character of the water quality at C-CD would be expected to be one of low dissolved solids (< 500mg/L Total Dissolved Solids (TDS).

Molino Creek

Molino Creek represents the northern-most stream located at C-CD and empties into the Pacific Ocean at Scotts Creek Beach. Bank undercut has resulted in localized failures of the section of the creek crossing under Swanton Road. Within the BLM managed portion of C-CD, Molino creek is blocked to salmonid migration by an on-channel reservoir whose outlet culvert is located 6 to 7 feet above the downstream channel. The most inland portion of the stream within becomes increasingly narrow with dense riparian vegetation including alders and willows and has a substrate predominantly cobble substrate. Molino Creek has a relatively small watershed which does not appear to produce sufficient storm run-off to maintain optimal water depths for salmonid spawning throughout the spring, even with the upstream on-channel reservoir being operated as a flow-through system.

About 84 percent of the 1.5 square mile watershed above the Molino Creek monitoring station is underlain by the Santa Cruz Mudstone formation. The Santa Margarita Sandstone underlies about 7 percent of the watershed. The outcrop of the Santa Margarita Sandstone lies along the upper 5,000 feet of Molino Creek. However, there is a ribbon of quartz diorite rock along the stream channel that is about 2,000 feet long and within the sandstone outcrop. The Santa Margarita Sandstone is very erosive if disturbed. Exposures of the

sandstone in the creek have the potential to provide sediment directly to the creek. The highest point in the watershed is 1,690 feet. Eighty-five percent of the watershed lies below 1,030 feet in elevation (Clark 1981).

Agua Puerca Creek

Agua Puerca is also located in the northern portion of C-CD and enters the ocean at Davenport Landing after flowing through the U.S. Abalone facility. The mouth of the creek consists of an old concrete flume which was previously used by a fish farm to guide returning adult salmon back into the farm. The headwaters of Agua Puerca Creek occur within C-CD.

With respect to the geomorphologic and biotic conditions of the stream, Agua Puerca Creek appears to provide adequate habitat for a small salmonid population although the presence of difficult-to-pass and/or impassable migration barriers are likely to be lining factors. As is the case with Molino Creek, the small watershed size of Agua Puerca Creek may also limit water availability.

San Vicente Creek

San Vicente Creek flows through the town of Davenport on its way to the ocean. In order to pass from the ocean to C-CD, salmonids must pass through the railroad crossing (an artificial bore through bedrock) and the Highway 1 crossing (a box culvert). These crossings do appear passable to salmonids during at least parts of the migration season.

Generally high levels may of sand and silt in the creek may create sub-optimal salmonid conditions, and potentially high stream temperatures due to limited channel shading, particularly in the lower reaches. The source of sedimentation was not identified, but old quarries located upstream of C-CD may contribute to these conditions.

Eighty-five percent of the watershed has an elevation of less than 1,960 feet. About 64 percent of the watershed is in the 0-10 percent slope class. Only about 5 percent of the watershed has slopes in excess of 20 percent.

Approximately 61 percent of the watershed is underlain by quartzdiorite, a dense rock that is similar in chemical composition and appearance to granite. Only about 10 percent of the watershed is underlain by the Santa Cruz Mudstone. Therefore, most of the rocks transported by San Vicente Creek will have a density of close to that of solid rock. Consequently, eggs laid by salmonids will be less likely be washed away by flood events compared to eggs laid in a stream dominated by mudstone. In general, a watershed dominated by igneous or metamorphic rocks supplies bed material to its streams that are more suitable for salmonids than a watershed dominated by sedimentary rocks. About 23 percent of the watershed is covered by the Santa Margarita sandstone. However, most of the sandstone is located in the upper watershed on slopes less than 10 percent. The low slope of the Santa Margarita sandstone helps minimize its susceptibility to erosion. Continuous large slide complexes cover both sides of upper San Vicente canyon.

Liddell Creek

Liddell Creek is located south of Davenport and enters the ocean via Bonny Doon Beach and consists of three distinct forks, the main, east, and west branches.

The mouth of the main (middle) branch passes across Bonny Doon Beach after travelling through a bedrock bore (reinforced with concrete) to pass under both Highway 1 and the railroad tracks. The outfall of the tunnel contains two concrete barriers partially closing the opening, presumably to prevent sand build-up inside the bore. This crossing appears to be marginally passable to migrating salmonids during certain hydrologic conditions. Baffles and a fish ladder were constructed in 2001.

All three branches of Liddell Creek are exposed to severe sedimentation, which appears to be the primary limiting factor in this watershed, although the dense canopy cover has also been shown to limit the quality of spawning habitat for salmonids. Contributors to sedimentation include road and bank failure, as well as historic quarry operations. The City of Santa Cruz, which holds senior water rights for Liddell Creek, voluntarily maintains bypass flows sufficient for all salmonid life-stages in Liddell Creek to comply with California Department of Fish and Wildlife regulations.

The highest point in the Liddell Creek watershed has an elevation of about 1,300 feet. Eighty-five percent of the watershed has an elevation less than 660 feet. About 48 percent of the watershed is in the 0-10 percent slope class. Slightly more than 18 percent of the watershed has slopes greater than 20 percent.

The Santa Cruz Mudstone formation underlies about 58 percent of the watershed, and quartz diorite about 16 percent. The bed material in West Liddell Creek can therefore be expected be a mixture of normal rocks derived from the quartz diorite, and density rocks derived from the Santa Cruz Mudstone.

The Santa Margarita Sandstone formation covers about 14 percent of the watershed. Most of the sandstone is on the top of the ridge and is in the 0-10 percent slope class. However, a ribbon of sandstone crosses West Liddell Creek in the vicinity of the conveyor belt. A ribbon of sandstone follows the creek for about 1,600 feet and joins the ribbon that crosses the creek at about the conveyor. The Santa Margarita Sandstone is highly erosive if disturbed and breaks down quickly into sand. The exposure of sandstone along the creek can be expected to contribute some sand to the stream. However, most of the Santa Margarita is away from the stream on the ridges and has a low slope so may not contribute much sand to the creek.

Yellow Bank Creek

Yellow Bank Creek is located south of Davenport between the Liddell Creek and Laguna Creek watersheds. To reach the ocean, the creek passes through two bore tunnels under the railroad tracks and Highway 1, as well as an open portion between the two.

The primary limiting factor in this watershed is the presence of two reservoirs upstream of Highway 1, which appear to be impassable. Upstream of the reservoirs, the watershed provides adequate spawning and rearing habitat.

Laguna Creek

Laguna Creek is located along the southern boundary of C-CD and empties into the Pacific Ocean at Laguna Beach. Prior to reaching the ocean, Laguna Creek meanders through Laguna Creek Marsh. A culvert beneath Highway 1 connects the creek to the ocean.

The section of creek surrounding the culvert provides very good rearing habitat within a relatively deep channel containing an abundance of undercut banks. Upstream from the culvert, the creek becomes considerably narrower and shallower, but provides potential spawning habitat. More upstream, fine substrate materials increase. The City of Santa Cruz operates a diversion site permitted for unrestricted withdrawals upstream of C-CD. The City voluntarily maintains bypass flows sufficient for all salmonid life-stages to comply with California Department of Fish and Wildlife regulations.

Additional details about the surface water features are discussed in the Coast Dairies Long-Term Resource Protection and Use Plan (ESA 2001).

Existing Permitted Water Uses

The Coast Dairies Land Company retained the water rights on C-CD. Future use and allocations would be subject to the review and approval of appropriate local, State, and Federal agencies. Numerous wells, water diversions, and associated infrastructure have been located on C-CD. Notably, the County of Santa Cruz

manages a water intake system immediately upstream of C-CD in the San Vicente watershed that provides domestic water for the town of Davenport. There are also several ponds and water impoundment areas that provide aquatic habitat for listed species on the property.

The City and County of Santa Cruz

The City of Santa Cruz owns the parcel adjacent to C-CD where Liddell Spring is located. They procured the water rights surrounding Liddell Spring, Liddell Creek, and associated water rights, including downstream riparian rights in 1913 and regularly use Laguna Road on C-CD to monitor the associated utilities. The City's easement also includes a water pipeline and access to the waterline for maintenance purposes. This includes an access road with a 10-foot right of way around the pipes. Water rights on C-CD are discussed in Section 5.1 of the Coast Dairies Long-Term Resource Protection and Use Plan (ESA 2001).

Additional research on existing water use and diversions on C-CD was compiled by the Santa Cruz Resource Conservation District in 2013. These studies are not comprehensive, but they indicate demands for water resources posed by development could be a challenge based on water availability in the region.

Forecast

The groundwater system sustains the flora and fauna in the area and base flows of the perennial drainages. Residential development up-gradient of the C-CD and other future demands for the groundwater in the watersheds of C-CD may result in decreased base flows of perennial streams.

3.10 Soil Resources

Soils are the foundation of terrestrial ecosystems. The soil series present at C-CD are largely determined by the geology (parent material), topography, local climate, and vegetation. Soils provide important functions of a substrate for organisms to anchor to and a supply of water and nutrients.

Soil series on the terraces include Elkhorn, Watsonville, and Pfeiffer (Bowman and Estrada 1980; SoilWeb 2019). The soil series on steep slopes of the drainages that incise the terraces is dominated by Bonnydoon. Soil series of the uplands in the woodlands and forest includes Santa Lucia, Ben Lomond, Lompico, and Maymen. Soils of the grassland terraces and woodland and forested uplands are deep – greater than 3 feet – in comparison to that of coastal scrub which are very shallow – less than 1 foot. The soil texture across C-CD is predominately loam and varies from sandy loam to clay loam. The forest soil series Santa Lucia, Ben Lomond, Lompico, and Maymen contain thick A horizons (1 foot) with high organic matter content and well-developed, deep B horizons (2 feet).

Soil series of the quarries is most closely allied to the poorly developed, very shallow, and well-drained (xeric) Bonnydoon soil series. The deep A and B horizons of the Santa Lucia, Ben Lomond, Lompico, and Maymen soil series that were originally present at the sites of the Bonny Doon limestone and San Vicente shale quarries was stripped off and side cast down the hillslopes to expose the bedrock for quarrying. Removal of the topsoil effectively reset the soil formation point back to zero. Natural soil formation processes would require a few to several centuries to rebuild the soil conditions back similar to Santa Lucia, Ben Lomond, Lompico, and Maymen. Deed restrictions for C-CD prohibit future quarrying and mining. Reclamation of the Bonny Doon quarry on the property is ongoing through a lease agreement with CEMEX. There are not currently any reclamation efforts underway for the San Vincente quarry, as abandonment of this site predates current regulations regarding mine and quarry reclamation.

Due to the superficial nature (a thin veneer) of soils over geology (parent material; bedrock), soils can be greatly affected by land use. Soils are the foundation of ecosystems, serving a critical ecological support function of substrate for anchoring and to provide nutrient and water supply (soil moisture) for plant growth. Removal of vegetation can expose soils, resulting in soil erosion and loss of the terrestrial ecosystem function, as well as negative effects to aquatic ecosystems through sedimentation. The erosion hazard of the banks and steep hillsides immediately adjacent to the perennial creeks is rated as high (ESA 2001, 2004). The erosion hazard of well-vegetated coastal scrub, woodland, and forest slopes is rated as moderate. The erosion hazard of coastal grasslands on the gently sloping terraces is rated as low.

Key indicators of soil health include vegetative cover and lack of erosion.

Forecast

Overall, the current condition of soil resources across the entire C-CD is good, except for the Bonnydoon and San Vicente quarries. The deep A and B horizons of the Santa Lucia, Ben Lomond, Lompico, and Maymen soil series that were originally present on the quarry sites were stripped off to expose the limestone and shale bedrock (**Figures 3.10-1** and **3.10-2**). Removal of the topsoil effectively reset the soil formation start point to zero. This has resulted in the remaining, drastically disturbed soil to be most closely allied to the poorly developed, very shallow (low water holding capacity) and well-drained (xeric) Bonnydoon soil series. Due to the low water holding capacity of the Bonnydoon soil series, it is generally only capable of supporting coastal scrub vegetation. Natural soil formation processes would require a few to several centuries to rebuild the soil conditions back similar to Santa Lucia, Ben Lomond, Lompico, and Maymen. Active soil rebuilding through deep amendment with organic matter (surface apply and deep rip 1 to 2 feet)

would greatly accelerate restoration of soil function similar to Santa Lucia, Ben Lomond, Lompico, and Maymen to support conifer forest revegetation.

Figure 3.10-1. Limestone and marble quarry tailings pile in Liddell Creek watershed. Lat. 37.022618, Lon. -122.157659.

Figure 3.10-2. Shale quarry pit in the San Vicente Creek watershed. Lat. 37.029337, Lon. -122.172955.

The trajectory of soils under the current management regime is projected to remain stable. Although the soils within the quarries are drastically disturbed and shallow, the herbaceous and shrub vegetative cover is sufficiently high and the infiltration rate of the underlying shale is sufficiently high, due to the high porosity and fracturing, so as to prevent significant soil erosion. The natural rate of soil formation would require a few to several centuries to rebuild the soil conditions back similar to Santa Lucia, Ben Lomond, Lompico, and Maymen. Active soil rebuilding through deep amendment with organic matter (surface apply and deep rip) would greatly accelerate restoration of soil function similar to Santa Lucia, Ben Lomond, Lompico, and Maymen to support conifer forest revegetation.

3.11 Paleontological Resources

Paleontological records search and literature search. The University of California Museum of Paleontology (UCMP) is the major repository for fossils of California and the western US. UCMP maintains a publicly accessible, online database of their fossil collections (https://ucmpdb.berkeley.edu/). A UCMP database search for all fossil specimen records from Santa Cruz County was conducted. Each record was then evaluated to determine if the fossil specimen locality occurs directly on C-CD or occurs on a rock formation present at C-CD. A literature search revealed the following publication important to assessing the presence and relative abundance of specific fossil types at C-CD: Clark, J.C. (1981) Stratigraphy, paleontology, and geology of the central Santa Cruz Mountains, California Coast Ranges. USGS Professional Paper 1168. Both UCMP records and the USGS publication (Clark 1981) were used to compile fossil type and relative abundance by rock formation present at C-CD (**Table 3.11-1**). This data table was used to classify the PFYC of each rock formation present at C-CD.

Table 3.11-1. Fossil type presence, relative abundance, and resulting PFYC Class for each rock formation present at C-CD. Geologic formations based on Clark (1981) and Brabb (1997). Fossil type presence and relative abundance based on UCMP (2019) and Clark (1981)

					Fossil Type and Abundance							
Geologic formation	**Age (oldest → youngest)**	**General rock type**	**Specific rock types**	**Depositional environment**	**Plant** - Pollen	**Plant** - Stems; Leaf impressions	**Microfossils** - Diatoms; foraminifera	**Invertebrate** - Mollusks, ecinids	**Vertebrate** - Fish scales; shark teeth	**Vertebrate** - Fish bones	**Vertebrate** - Mammal bones	**PFYC**
Salinian Block	Cretaceous	Igneous	Quartz diorite	.	.	.	.	.	.	.	.	**1**
Salinian Block	Cretaceous	Metamorphic	Limestone, Marble	Marine	.	.	.	.	.	.	.	**3**
Butano Sandstone - Lower Sandstone Member	Eocene	Sedimentary	Sandstone	Marine	.	**O**	**C**	.	.	.	.	**3**
Lompico Sandstone	Middle Miocene	Sedimentary	Sandstone	Marine	.	.	**C**	**C**	.	.	.	**3**
Monterey Formation	Middle Miocene	Sedimentary	Mudstone, Siltstone	Marine	**A**	**C**	**A**	**O**	**O**	**O**	.	**5**
Santa Margarita Sandstone	Late Miocene	Sedimentary	Sandstone	Marine	.	.	**A**	**O**	.	**O**	**R**	**5**
Santa Cruz Mudstone	Late Miocene	Sedimentary	Mudstone	Marine	**A**	.	**A**	**O**	**O**	.	.	**3**
Coastal terrace deposits	Pleistocene	Sedimentary	Semi-consolidated alluvium	Marine	.	.	.	.	.	.	.	**3**
Lowest Emergent Coastal Terrace Deposits	Pleistocene	Sedimentary	Semi-consolidated alluvium	Marine	.	.	.	**A**	.	.	.	**3**
Alluvial Deposits, Undifferentiated	Holocene	Sedimentary	Alluvium	Terrestrial	.	**O**	.	.	.	.	.	**2**

R - Rare **O** - Occasional
C - Common **A** - Abundant
. - Not observed/absent

Potential Fossil Yield Classification (PFYC). Based on the data compiled in **Table 3.11-1**, the Potential Fossil Yield Classification system protocol (BLM 2016) was used to assign a class based on the relative abundance of significant paleontological resources and their sensitivity to adverse impacts. Significant paleontological resources are defined as the presence of vertebrate fossils or scientifically significant invertebrate or plant fossils.

Very high potential (PFYC Class 5) was assigned to highly fossiliferous rock units that consistently and predictably produce significant paleontological resources. High potential (PFYC Class 4) was assigned to rock units that are known to contain a high occurrence of paleontological resources. Moderate potential (PFYC Class 3) was assigned to sedimentary rock units where fossil content varies in significance, abundance, and predictable occurrence. Low potential (PFYC Class 2) was assigned to rock units that are not likely to contain paleontological resources. Very Low potential (PFYC Class 1) was assigned to rock units that are not likely to contain recognizable paleontological resources.

Santa Cruz Mudstone and Coastal Terrace Deposits underly more than 80% of the land surface area of C-CD and where the majority of potentially bedrock disturbing activities (trails, roads, parking) are proposed at C-CD. The PFYC Class assigned to both the Santa Cruz Mudstone and Coastal Terrace Deposits is 3 (moderate potential). Clark (1981) states that microfossils and fish scales occur throughout the Santa Cruz Mudstone formation, but that megafossils, including vertebrates are "exceedingly rare." The lack of significant paleontological resources in the Santa Cruz Mudstone is further supported by the lack of fossil records from that rock formation at UCMP. No significant fossils for the Coastal Terrace Deposits were reported by Clark (1981) or are represented by records in the UCMP database. All of the other rock formations of C-CD were assigned a PFYC Class of 3 or less, except for the Monterey Formation (PFYC Class 5) and the Santa Margarita Sandstone (PFYC Class 5). Both the Monterey Formation and the Santa Margarita Sandstone contain vertebrate fossils of occasional or rare abundance. Only two small areas of the Santa Margarita Mudstone occur on C-CD. Both areas are approximately the same size of 2 acres. One of the areas occurs in the extreme northwestern corner of C-CD in RMZ#1 at Molino Creek. The other area occurs in the extreme southwestern corner of C-CD in RMZ #4 at Laguna Creek. The area of Monterey Formation measures approximately 250 acres in size and is located in the southeastern corner of C-CD in RMZ #4 at Laguna Creek.

Large volumes of limestone and marble were removed from the Bonny Doon quarry (uplands of Liddell Creek) and large volumes of shale were removed from the San Vicente quarry (uplands of San Vicente Creek) for cement production (see Figs. 3.10-1 and 3.10-2, above). Quarrying disturbed large volumes of the adjacent, fossiliferous Santa Margarita Sandstone (PFYC Class 5). Deed restrictions for C-CD prohibit future quarrying and mining. Due to the lack of macrofossils known to occur at C-CD, the potential for fossil resources to have been impacted by casual or recreation collection of plant (fossilized wood) or invertebrate (seashell) fossils at C-CD is believed to be insignificant.

Forecast

Despite the high proportion of marine sedimentary rocks underlying C-CD, significant paleontological resources are scarce to rare. Quarrying of shale, limestone, and marble removed large volumes of potentially fossil-bearing rock and disturbed adjacent fossiliferous rock formations (Santa Margarita Sandstone; PFYC 5). Deed restrictions for C-CD prohibit future quarrying and mining. Future management and activities at C-CD, such as trail, road, and parking area construction, may disturb and impact fossil-bearing rock. Due to the scarcity of significant paleontological resources within the core management area (≤ PFYC 3) of C-CD, there is a low probability of adverse impacts to significant paleontological resources. Additionally, due to the lack of macrofossils in geologic formations at C-CD, there is little to no potential for recreational (casual use) collection of plant (fossilized wood) or invertebrate (seashell) fossils at C-CD.

3.12 Visual Resource Management

The BLM's Visual Resource Inventory (VRI) standards were incorporated into the TPL's Resource Protection and Access Plan (ESA 2001, 2004. ref. Figure III-9, p. III-51). The BLM's Central Coast Field Office conducted a supplemental inventory in 2017-2018 in anticipation of the C-CD land use planning evaluation (**Tables 3.12-1** and **3.12-2**). The broad view of the Pacific Ocean and sweeping marine terraces are the key scenic features of C-CD. Specific habitats generally noted as visually appealing include conifer forest, especially redwood groves, oak woodlands, riparian areas and wetlands, and grasslands. All of these habitats are present in multiple areas on-site.

During the resource management process, the visual resource class boundaries and objectives can be established, and the BLM will consider visual resources when authorizing on-site management actions and infrastructure.

Table 3.12-1. Calculated GIS acres for the Visual Resource Inventory (VRI) completed in early 2019 (Refer to Appendix A, Figure 9).

VRI Class	Total BLM Acres
VRI Class I	0
VRI Class II	3,705
VRI Class III	2,028
VRI Class IV	53
BLM Total	**5,786**

Table 3.12-2. Calculated GIS acres for the Visual Resource Inventory (VRI) Scenic Quality Rating Units. Scenic Quality Rating Units were identified using the TPL Resource Protection and Access Plan and were based on similar physiographic and vegetation characteristics (Refer to Appendix A, Figure 9).

Rating	Unit(s)	Total BLM Acres
A (scored 19 or more	3	2,131
B (scored 12-18)	2,4,5,6,7	3,603
C (scored 11 or less)	8	50
BLM Total		**5,784**

Forecast

Planned onsite actions such as remediation of historic quarries as well as offsite actions such as the CEMEX plant rehabilitation will likely positively affect future VRI ratings. Modeled changes in temperature and precipitation will likely result in changes to vegetation structure and water availability which will impact long-term VRI analyses.

3.13 Recreation Resources

The U.S. Department of Interior Secretarial Order 3366, Increasing Recreational Opportunities on Lands and Waters Managed by the U.S. Department of the Interior, was signed in April 2018. Secretarial Order (SO) 3366 directs the BLM to ensure public lands are open and accessible for recreational pursuits by all Americans and visitors to the United States. Accordingly, the C-CD RMPA identifies the opportunities for the development of new recreational opportunities that comply with applicable laws and regulations.

The C-CD lands offer visitors an opportunity for numerous trail-based and non-trail-based activities. Consistent with SO 3366, it is a priority of the BLM to increase recreational opportunities so more Americans can understand, appreciate, and enjoy the unique values of the C-CD unit of the CCNM. These include the BLM's recommendations for developing new and/or increasing and expanding existing recreational opportunities (e.g., hiking, horseback riding, mountain biking). The RMPA also identifies locations where access for recreation should be limited, including areas that may be unsafe, impractical or impossible to access via public roads or trails.

The U.S. Department of Interior Secretarial Order 3376, Increasing Recreational Opportunities through the use of Electric Bikes, was signed in August 2019. The SO directs BLM to adopt the policy that low-speed electric bicycles, as defined by federal law and SO 3376, operated in the pedal assist mode should generally be given the same access as traditional bicycles. Per SO 3376, the BLM is in the process of developing proposed regulation for electric bikes on public lands.

Since the use of electric bicycles (e-bikes) is becoming more popular, both California State (AB1096) and the Department of the Interior (SO3376) established classes of e-bikes as follows:

Class 1: an electric bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour;

Class 2: an electric bicycle equipped with a motor that may be used exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour; and

Class 3: an electric bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 28 miles per hour.

Although e-bikes are operable in the same manner as traditional bicycles, the presence of the small motor has lead to regulatory uncertainty about whether e-bikes should be treated as mechanized or as motorized means of transportation. The Consumer Product Safety Act (Act) defines a "low-speed electric bicycle" to include a "two- or three-wheeled vehicle with fully operable pedals and an electric motor of less than 750 watts (1 h.p,), whose maximum speed on a paved level surface, when powered solely by such a motor while ridden by an operator who weighs 170 pounds, is less than 20 mph" and that "a low-speed electric bicycle (as defined in section 38(b) of the Consumer Product Safety Act) shall not be considered a motor vehicle as defined by section 30102(6) of title 49, United States Code (15 U.S.C. § 2085).

California State law AB1096 provided a default framework under which Class 1 and Class 2 e-bikes are legal on any paved surface where a regular bike is allowed to operate and Class 3 e-bikes are prohibited from Class 1 multi-use bike paths unless specifically authorized by local ordinance.

The Bureau of Land Management also provides opportunities to hunt on more than 99 percent of the public lands under its jurisdiction. In contrast, there are currently no opportunities for hunting on public lands in Santa Cruz County. Therefore, the RMPA considers establishing hunting opportunities on C-CD in coordination with CDFW and our valued partners to allow hunting in a safe and environmentally sound manner. From deer and quail to turkey and feral hogs, there's a range of game species present on the C-CD public lands that may be available for licensed hunters under the CDFW's special hunt program.

Throughout the year, the CDFW offers hunt opportunities designed especially for new hunters, youth hunters, women hunters, mobility-impaired hunters and other individuals who have limited experience or opportunity to hunt on their own. The harvesting of wildlife under this program is carefully regulated to ensure an equilibrium between species' populations, economic feasibility, habitat feasibility, public safety, and demand for recreation opportunities. Participants in the CDFW's special hunt program are chosen by lottery, but applicants must meet certain qualifications. Every hunt specifies a maximum hunting party size -- in most cases, that's two hunters, but family hunts may include up to four people.

Public access to C-CD is currently limited to guided hikes while the BLM develops a management plan for the property. As the regional population grows and visitation increases to the Central California coast the demand for sustainable hiking, biking and equestrian trails is also increasing. C-CD is no exception to this trend. To date, the existing administrative route system depicted in Appendix A (Figure 4) has served as the primary recreation facility for guided hikes and tours of the property.

Forecast

For the next 8-12 years, remediation efforts will be occurring within the central portion of C-CD. Remediation boundaries are approximately Bonny Doon Road to the Southeast and Warrenella Road to the northwest. This reduces the suitability of RMZ2 for trail development as health and safety concerns make it undesirable to have public recreation within this central portion during remediation activities. In 2018, the BLM partnered with the Land Trust of Santa Cruz County to commission an engineering study of potential access points for the property. Some of the considerations regarding access points are highlighted below:

- Access points along the Highway 1 corridor pose challenges due to poor line of sight for entrance and egress at most potential locations, as well as requirements for Caltrans encroachment permits (e.g. acceleration and deceleration lanes).
- Sensitive cultural and natural resources are present throughout the property. In order to mitigate impacts to these areas careful attention needs to be made with regards to parking areas and trail alignments.
- Agricultural lands located between C-CD and State Highway 1 limit some potential parking areas for visitor access.
- San Vicente Redwoods property is currently planning trail development upslope of the northern end of C-CD. Multi-use trails in the Molino Creek area would allow interconnectivity between the two properties.
- Coordination with adjacent California State Parks and San Vicente Redwoods will be necessary to establish connections with regional recreation trails currently in place or developed for future use.
- The North Coast Rail Trail project has the potential to increase visitation to the North Coast of Santa Cruz County, and provides opportunities for regional trail connectivity to the City of Santa Cruz.

Demand for recreation opportunities on the North Coast of Santa Cruz County will continue to grow, as population increases in the San Francisco and Monterey Bay regions. Appendix G of this RMPA/EA describes the BLM's visitor use estimates for C-CD based on comparison with other outdoor recreation destinations in the region.

3.14 Transportation and Travel Management

Regional access to C-CD is provided by Highway 1. Highway 1 provides access to San Francisco to the north and Monterey to the south. Though the highway is oriented in an east-to-west direction at the intersection with Laguna Road, it is primarily aligned in a north-to-south direction for interregional travel. The highway is two lanes wide and the speed limit is 55 mph.

The only other primary transportation routes serving C-CD include Bonny Doon Road and Swanton Road, which are both two-lane county roads. Improved routes on or adjacent to C-CD include Warrenella Road, Cement Plant Road, San Vicente Creek Road., and Laguna Road. The majority of other existing access routes are either farm roads used by existing rights-holders to provide access to other properties, grazing operations, reclamation activities, or maintenance and operations of facilities. These routes are secured by locked gates at public road frontages.

There are two bridges on San Vicente Creek Road over San Vicente Creek. The BLM's engineer team condemned the bridge further upstream on San Vicente Creek. The lower bridge was allowed to remain in use with a 10,000 pound not-to-exceed load rating. While still in use, the lower bridge is scheduled for replacement.

At the Yellow Bank Creek and Laguna Creek portions of C-CD, the two-lane highway is at a level-grade, sufficient to allow a clear line of sight for a minimum of 11 seconds when approaching from the north-bound and/or south-bound directions. There is an existing (unimproved) parking area that is immediately adjacent to the east side of SR 1 and the intersection of Laguna Road. The unimproved parking area has a barrier chain and pylons. There are two points where vehicles enter or exit: onto Highway 1, or onto Laguna Road. Currently, this parking area is primarily used by the public to access the ocean.

There are numerous existing roads in the Yellow Bank Creek and Laguna Creek watersheds, including routes (or ways) used by grazing leaseholders and the City of Santa Cruz Water Department. Appendix A, Figure 4, includes a map of the 28 miles of administrative route network at C-CD. Figure III-5 of the Long-Term Resource Protection and Access Plan (ESA 2004) also depicts the roads that are documented in the project area.

Forecast

The California Department of Transportation (Caltrans) published the Transportation Concept Report (TCR) for State Highway 1 in April 2006. The 2006 TCR and associated Fact Sheet for Highway 1 in Santa Cruz County (Caltrans, September 2007) identify the 17-mile stretch from the City of Santa Cruz to the San Mateo County line as Segment 19. Annual Average Daily Traffic (ADT) for Segment 19 in 2000 was 8,000, and the forecast for 2025 is 12,000 annual ADT. It is expected that there will be increased congestion for Segment 19 by 2025. The TCR says Segment 19 will remain a two-lane conventional highway and that new access points should be minimized.

The TCR identifies Wilder Ranch State Park, Henry Cowell Redwoods State Park, Davenport, and Big Basin Redwoods State Park as the major traffic generators on Segment 19. Appendix G of this RMPA/EA describes the BLM's vehicle trip estimates [and parking needs] for C-CD based on comparison with other outdoor recreation destinations in the region.

3.15 Lands and Realty

The BLM currently administers multiple lease agreements, varying in size from less than an acre to nearly 1,000 acres, and several dozen easements and agreements that existed prior to public ownership of C-CD. Many of the easements in the planning area allow utility service to adjacent private parcels, ingress/egress road access, gas and water pipelines and appurtenant water facilities (City of Santa Cruz) and reclamation of shale and limestone quarries adjacent to the C-CD.

Other examples include an easement to allow access from a County water tank site uphill of Pacific Elementary via Marine View Road. There is another County easement for Davenport Sanitation for an underground freshwater pipeline and appurtenant facilities in proximity to Marine View Road.

The City of Santa Cruz owns the parcel where Liddell Spring is located and has had rights to water in Liddell Creek since 1913. Therefore, the City has an easement across C-CD along Laguna Road that includes a water pipeline and access to the waterline for maintenance purposes.

CalTrans administers Highway 1 and the immediate surrounding area in order to perform maintenance when necessary. Cal Trans has an existing parking area along Laguna Road and may require encroachment permits for ingress and egress to the parking lots connecting with the highway at Marina Ranch Road and Yellow Bank/Panther Gap.

PG&E maintains power line easements on C-CD that originate at their substation on a privately-owned inholding on Warranella Road. These power lines connect to and serve the RMC Davenport Cement Plant exclusively. There are currently 15 documented PG&E easements in the BLM records with additional easements requiring research and documentation.

Portions of the C-CD are encumbered with a lease that originated December 2, 1968, between Cemex, successor of RMC Pacific Materials (RMC), and Coast Dairies Land Company for cement plant and mining operations. The main leasehold, which includes the covered belt conveyor corridor, occupies approximately 766 acres of land. The Cemex plant is no longer in operation and the leased lands are under reclamation.

Forecast

There will be maintenance requests from existing rights holders, which may fall outside of their existing easements and require a new permanent or temporary right-of-way. The BLM would only authorize new land use applications for permits or leases that are consistent with the RMPA and the C-CD objectives and values. The land tenure program may be used to target the acquisition of lands from willing sellers with similar resource values to those currently being managed in the plan amendment area or for public access. Managing the impacts of existing rights consistently with the RMPA and the Monument objectives and values as well as unauthorized occupancy and development on the Monument boundaries are likely to continue to present management issues.

3.16 Livestock Grazing

There are three cooperative agreements for prescriptive livestock grazing on C-CD (**Table 3.16-1**). These cooperative agreements are established for 2-year terms, after which they can be renewed or modified based on resource conditions.

Table 3.16-1. Cooperative agreements for prescriptive livestock grazing at C-CD.

Cooperator	Pasture Acres	Pasture Name(s)	# of Head
Ramirez/Wrankle	190	Marina	
	80	Delones	
Total	**270**		**34**
Pastorino	150	Borego	
	500	Big Ranch (Lower Newtown)	
	100	Upper Newtown	
Total	**750**		**90**
Williams	**180**	Yellow Bank Creek	**25**
TOTAL	**1,200**		**149**

Cattle grazing is authorized year-round under all three cooperative agreements. The number of head includes cows, bulls, and non-nursing steers and heifers. Livestock will be removed or numbers reduced if BLM determines vegetation is at a level that cannot sustain the livestock that are turned out. If vegetation is abundant, BLM may allow an increase in the number of livestock turned out. Every month the grazing cooperators send in an Actual Use Statement (form 4130-5) that includes the number of cattle turned out and the day(s) cattle were moved in or out of the pasture. As part of the Cooperative Agreements, each grazing cooperator agrees to:

- Maintain fences on property.
- Maintain livestock watering facilities in grazed pastures.
- Limit off road ATV use to times when cattle are moved or gathered and fence and water maintenance.
- Maintain existing roads and keep them clear of brush and debris.
- Provide periodic mowing to control invasive vegetation and exotic species.
- Abate severe thistles at the corrals.
- Repair corrals as needed.

Grazing cooperators must contact BLM prior to any major maintenance or improvements to the property for review and approval. The Yellow Bank Creek and Marina pastures use the corrals at Yellow Bank. The cattle in the Delones pasture uses the corrals near Laguna Creek or the corrals on the terrace above Marina Ranch road. The cattle at the Borego, Big Ranch (Lower Newtown), and Upper Newtown pastures use the corrals near the Mocettini Cheese House, north of Warrenella Road.

Cattle have access to portions of Laguna Creek, Yellow Bank Creek, and Molina Creek for water along with seasonal streams and small ponds. Water is also piped to water troughs in the Marina Laguna Creek pastures. Water troughs are also located at the corrals at Yellow Bank and the Mocettini Cheese House.

Forecast

The forecast is that grazing will continue at C-CD. Existing grazing infrastructure on the property is in poor condition and will continue to degrade in the absence of replacement and/or major capital improvement. The BLM will work with cooperators on needs, such as fencing, waterlines, maintenance of existing infrastructure, and potential use of pesticides near corrals, tanks, buildings, gates, or fences to reduce flashy fuels and propagation of invasive plants. The BLM will investigate the utilization of grazing for targeted vegetation management objectives, and work with operators to develop a program where controlled livestock grazing could be used to protect the grasslands and oak woodland habitat, increase habitat biodiversity, control exotic annuals and invasive weeds and protect wetland riparian values.

3.17 Social and Economic Conditions

Most of the population in Santa Cruz County is located centrally in the urban and residential development areas. Land uses in the county are predominately open space, which accounts for approximately 75 percent of the land uses (293,300 acres). This is followed by agricultural lands (54,400 acres or 14 percent), residential land (15,500 acres or 4 percent), developed non-residential uses (5,800 acres or 2 percent), and parks, recreation and open space (5,400 acres or 1 percent). The North Coast area is used widely for recreational purposes, including hiking, running, biking, walking, surfing, and equestrian use.

The small unincorporated community of Davenport has a population of approximately 400 people and includes residences, shops, restaurants, lodging, other visitor serving retail uses and Pacific Elementary School, a small public school (US Census 2010). The City of Santa Cruz was estimated to have a 2016 population of approximately 65,000 (US Census 2017).

The BLM used the Economic Profile System (EPS), created by Headwaters Economics, to evaluate socioeconomic statistics from federal data sources, including the U.S. Census Bureau, Bureau of Economic Analysis, and Bureau of Labor Statistics (Headwaters 2020). The EPS allows BLM to compare socioeconomic indicators of Santa Cruz to the rest of California and the nation. **Table 3.17-1** shows a summary of these indictors for Santa Cruz County.

The County of Santa Cruz was estimated to have a 2018 population of approximately 274,244 (Headwaters 2020). A brief outline of other information provided in the EPS reports is described below, followed by a "Summary Overview" table that compares the socioeconomic statistics for Santa Cruz County, the State of California, and the entire United States (U.S.). Refer to Appendix I for a copy of the EPS Summary Report generated on January 22, 2020.

Standard measures of growth and decline are population, employment, and real personal income. Trends indicate the population, employment, and real personal income in Santa Cruz County increased at a greater rate than the rest of California and the U.S. from 1970 – 2018. Long-term, steady growth of population, employment, and real personal income is generally an indication of a healthy, prosperous economy. Growth can benefit the general population of a place, especially by providing economic opportunities, but it can also stress communities and lead to income stratification. If the population growth trend in this region continues for the next 10 years, Santa Cruz County could see up to 25,000 additional residents in rural and urban locations during the life of this plan (SCCRTC 2019).

Prosperity measures suggest that unemployment is higher, and average earnings per job are lower, in Santa Cruz County than the rest of the State and U.S. Nonetheless, per capita income is higher in the County than both regions of comparison. The per capita income in Santa Cruz County may be higher due to the presence of retirees and people with investment income because it is based on the total population and includes non-labor income sources.

Evaluation of date for 2018 in three sectors show that non-labor income (e.g., government transfer payments, and investment and retirement income) and government employment is like the rest of the State and Country. Non-labor income is already more than a third of all personal income, and this source of income is expected to grow more as the Baby Boomer generation retires. This indicates that Santa Cruz hosts an aging population and/or remains attractive to people with investment income.

While the Services percent of employment is also close to the State and National rates, it is lower in Santa Cruz County. Services consist of a wide mix of jobs including high-wage, high skilled occupations (e.g., doctors, engineers, software developers) and low-wage, low-skilled occupations (e.g., restaurant workers,

tour bus operators). The service sector typically provides services, such as banking and education, rather than creating tangible objects. However, many service sectors such as utilities, engineering, and architecture are closely associated with goods-producing sectors.

Government is a major employer due to the presence of significant public assets, such as State and County Parks, and other government facilities and programs operated by the City of Santa Cruz. Changes in government employment tend to track population trends. As a result, the county and city governments are expected to account for the majority of future job growth in the government sector as additional services are demanded by a population growing at 0.48% annually (SCCRTC 2019).

Various components of the economy are typically associated with the use of public lands, including timber, mining and agriculture, and industries that include travel and tourism. However, the deed restrictions for C-CD preclude resource extraction, so timber and mining are not considered in the RMPA. On the other hand, travel and tourism and agriculture are prevalent in Santa Cruz County as reflected in the percent of employment in both these sectors, which are markedly higher than State and U.S.

It is important to understand the relative size of sectors to put the commodity related economy into perspective. For example, decisions that permit (or restrict) grazing activities have a higher chance of impacting a county with a high percentage of its employment in the commodity sectors. Based on the data it is clear that tourism and recreation continue to stimulate local employment. Communities surrounding C-CD can benefit directly from visitors who spend money in rentals, restaurants, gift shops, and elsewhere. Tourism can also help communities retain and attract capital and spur transitions to more diverse economies.

It is worth noting the C-CD is the only significant federal land ownership in Santa Cruz County. At 5,843 acres, the property accounts for 2.0% of the entire County. As a result, actions on the federal lands are not likely to affect the local economy. For example, the low volume of federal lands demonstrates the County does not depend on payments related to federal lands to supplement economic growth. On the other hand, since these lands are managed primarily for their non-commercial values (i.e., scenery, wildlife, recreation), they potentially play a different economic role than public lands more commonly associated with commodity sectors described above.

According to the EPS reports, residential development of private lands declined (- 3%) in Santa Cruz from 2000 – 2010 compared to more than 15% growth in California and 12% for the entire U.S. This trend demonstrates Santa Cruz County's aversion to converting open space and agricultural land to residential development, which has occurred at a more rapid pace in many other parts of the U.S. On the other hand, almost 60% of the private lands within 500 meters of the public lands (i.e. wildland-urban interface) have been developed in Santa Cruz County; as opposed to less than 20% across the other regions of comparison. The development of homes on private lands adjacent to C-CD poses several challenges including the risk to nearby communities from wildfires; increased danger to wildland firefighters; and the consumption of funds that might otherwise be used for restoration, recreation, research, and other activities.

Table 3.17-1 Summary of Economic Indicators

Summary

Santa Cruz County, CA

Overview

	Santa Cruz County, CA	California	U.S.
Population, 2018	274,255	39,557,045	327,167,434
Trends			
Population % change, 1970-2018	119.8%	97.6%	60.5%
Employment % change, 1970-2018	219.3%	167.4%	119.9%
Personal Income % change, 1970-2018	426.9%	291.2%	222.1%
Prosperity			
Unemployment rate, 2018	4.9%	4.2%	3.9%
Average earnings per job, 2018 (2018 $s)	$60,944	$73,815	$62,321
Per capita income, 2018 (2018 $s)	$69,355	$63,557	$54,446
Economy			
Non-Labor % of personal income, 2018	36.5%	36.2%	37.4%
Services % of employment, 2018	70.8%	75.3%	73.1%
Government % of employment, 2018	13.0%	11.6%	12.2%
Use Sectors^			
Timber % of private employment, 2016	~0.2%	0.3%	0.6%
Mining % of private employment, 2016	~0.0%	0.1%	0.5%
Fossil fuels (oil, gas, & coal), 2016	~0.0%	~0.1%	0.4%
Other mining, 2016	~0.0%	0.1%	0.3%
Agriculture % of employment, 2018	4.4%	1.0%	1.3%
Travel & Tourism % of private emp., 2016	22.3%	16.8%	15.8%
Federal Land*			
Federal Land % total land ownership	2.1%	47.4%	27.5%
Forest Service %	0.0%	20.5%	8.4%
BLM %	2.0%	14.9%	10.5%
Park Service %	0.0%	7.6%	3.4%
Military %	0.0%	3.9%	1.1%
Other %	0.1%	0.5%	4.1%
Federal land % Type A**	100.0%	49.9%	37.6%
Federal payments % of gov. revenue, FY2012			
Development			
Residential area % change, 2000-2010	-3.0%	15.5%	12.3%
Wildland-Urban Interface % developed, 2010	58.8%	17.2%	16.3%

Estimates for data that were not disclosed are indicated with tildes (~).

^Data for timber, mining, and travel and tourism-related are from County Business Patterns which excludes proprietors, and data for agriculture are from Bureau of Economic Analysis which includes proprietors.

* The land ownership data source and year vary depending on the selected geography. See following pages for specifics.

** Federal public lands that are managed primarily for natural, cultural, and recreational features. These lands include National Parks and Preserves (NPS), Wilderness (NPS, FWS, FS, BLM), National Conservation Areas (BLM), National Monuments (NPS, FS, BLM), National Recreation Areas (NPS, FS, BLM), National Wild and Scenic Rivers (NPS), Waterfowl Production Areas (FWS), Wildlife Management Areas (FWS), Research Natural Areas (FS, BLM), Areas of Critical Environmental Concern (BLM), and National Wildlife Refuges (FWS).

Data Sources: Various, see following pages for specifics.

Find more reports like this at headwaterseconomics.org/eps

Data and Graphics | Page 4

4. Environmental Consequences

4.1 Introduction

This chapter analyzes the environmental consequences of implementing the management actions described in Chapter 2. The depth and breadth of the impact analyses presented in this chapter are commensurate with the level of detail of the management actions presented in Chapter 2, and on the availability and/or quality of data necessary to assess impacts. The baseline used for expected impacts is the current conditions in the planning area described in Chapter 3 (Affected Environment). The analysis for the proposed plan amendment is presented by resource and organized into the following sections:

- Summary of goals and management actions that affect the resource;
- Analysis of direct and indirect impacts specific to land use decisions, and then for the implementation decisions subject to appeal; and
- Analysis of cumulative impacts.

If impacts are not discussed, analysis has indicated either that none would occur or that their magnitude would be negligible. No or negligible impacts have been identified for geology, air, prime and unique farmlands, and hazardous materials. Therefore, these resources will not be discussed.

4.1.1 Impact Analysis Methodology

In general, impacts to resources in the planning area are analyzed by determining the effects on a given resource from management actions that would occur for each alternative under the range of alternative described in Chapter 2, including the preferred alternative (Alternative D). Impacts are related to desired future conditions by comparing the impacts from implementation of management actions to achieving the goals and objectives specified for each resource/resource program and to the existing environmental conditions. For management actions that do not achieve the stated goals and objectives or that generally do not meet BLM's multiple use mandate, or that result in significant negative changes to physical or social conditions, the impact is characterized as adverse. For management actions that do achieve goals and objectives, the impact is characterized as beneficial. If a management action does not specifically affect a desired future condition, there is no impact. Finally, if there is not enough specificity to determine whether a management action would achieve the goals and objectives, the impact can only be described in general terms. Where it is practical, quantitative impacts (length and area) are calculated and presented.

4.1.2 Types of Impacts to be Addressed

Direct and Indirect Impacts

Terms referring to the intensity, context (geographic extent), and duration of impacts are used in this chapter. Impacts are not necessarily only negative; positive benefits are specified as such. The standard definitions for terms used in the impacts analysis include the following:

- **Adverse** – the effect is negative.
- **Beneficial** – the effect is positive.
- **Negligible** – the effect is at the lower level of detection; change would be hard to measure.
- **Minor** – the effect is slight but detectable; there would be a small change.
- **Moderate** – the effect is readily apparent; there would be a measurable change that could result in small, but permanent change.

- **Major** – the effect is large; there would be a highly noticeable, long-term, or permanent measurable change.
- **Localized** – the effect occurs in a specific site or area.
- **Temporary** – the effect occurs only during implementation of a management action, at a time scale of a few days to a one month.
- **Short-term** – the effect occurs only for a short time (few months to one year) after implementation of a management action.
- **Long-term** – the effect occurs for an extended period (few years to one decade) after implementation of a management action.
- **Permanent** – the effect is irreversible at the human time scale (several decades); the resource may never revert to current conditions.
- **Direct** – effect that occurs as a result of actions on the resource being addressed.
- **Indirect** – effect that occurs as a result from actions on other resources.

Off-site Impacts and Cumulative Impacts

Off-site impacts are impacts that occur to resources or lands outside the planning area as a result of BLM management actions taking place within the planning area. Cumulative impacts are defined as:

> *The impact on the environment which results from the incremental impact of the action when added to past, present, or reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts can result from similar projects or actions, as well as projects or actions that have similar impacts* (40 CFR 1508.7).

The time frame for the cumulative impacts analysis begins when the RMPA takes effect and extends for the life of the plan.

4.1.3 Incomplete or Unavailable Information

Impacts are quantified where possible. Impacts are sometimes described using ranges of potential impacts or in qualitative terms. In the absence of quantitative data, impacts are described based on the professional judgment of the interdisciplinary team of technical specialists using the best available information. Impacts analysis based on incomplete or unavailable information is identified where applicable in the Introduction for each resource area in this chapter.

4.1.4 Assumptions

Several general assumptions were made to facilitate the analysis of potential impacts. The assumptions listed below are common to all resources. Other assumptions specific to a particular resource are listed under that resource.

- Visitor use is anticipated to be like other nearby destinations for outdoor recreation. As a result, approximately 50,000; 150,000; and 250,000 annual visitors are predicted to recreate within the C-CD under Alternatives A, B, and C), respectively. Under Alternative D, visitation is expected to fall between 150,000 to 250,000 annual visitors. Refer to **Appendix G** for the Cotoni-Coast Dairies Visitor Use and Parking Estimates. Approximately 75% of these visitors are likely to be residents of Santa Cruz County. Many of these visitors would be visiting C-CD in lieu of or in combination with another recreation destination on the North Coast (e.g. Wilder Ranch State Park, Coast Dairies State Park).

- Funding and personnel would be sufficient to implement any alternative described.
- The approved RMPA would be in effect for 15 to 20 years.
- For the purposes of analysis, it is assumed that the BLM will implement both phases of recreation development described in Chapter 2.
- The special hunt program proposed for Alternatives B, C and D would be managed in partnership between the BLM and California Department of Fish and Wildlife (CDFW). The program would be established to meet public demand for this activity, while ensuring public safety by avoiding conflicts with other recreationists and adjacent landowners. The number of hunting permits to be issued - based on a lottery system – would be similar to Canada de Los Osos in Santa Clara County. On that property, the CDFW hosts five permitted-hunts each year with two turkey hunts, two pig hunts and one deer hunt. Each hunt is a two-day period. For C-CD, the BLM and CDFW anticipate the number of hunters for each hunt would be 2-4 people. For native species (deer), CDFW and BLM would partner on baseline and annual surveys in the area to determine how many individuals could be sustainably taken on an annual basis. The impacts analysis, therefore, assumes that annual authorized take of deer will result in a negligible adverse impact on the regional deer population.

4.1.5 Incorporation by Reference

There are numerous reports that are incorporated in this RMPA/EA by reference. In particular, the Coast Dairies Existing Conditions Report, prepared by Environmental Science Associates (ESA 2001). This report synthesized the available scientific information associated with the physical environment and the human environment to support the development of the Trust for Public Land's "Coast Dairies Recommendation for Long-Term Resource Protection and Access Plan" (ESA 2004). Other reports incorporated by reference for a particular resource are listed under that resource section.

4.1.6 Tiering to Other Environmental Review Documents

This EA is tiered to the environmental impact statements (EIS) associated with the CCNM RMP (BLM 2005a) and the CCFO's RMP for the Southern Diablo Mountain Range and Central Coast of California (BLM 2007). The Final EIS for the CCFO RMP provides an overview of impacts that were expected to occur in the Central Coast Management Area, including the C-CD lands before they were added to the California Coastal National Monument. The background and overall impact statement is provided in Chapter 4, with regards to the location or severity of the potential impacts and appropriate mitigation measures.

4.1.7 Organization of Impact Analyses

For each resource, the possible effects from other resource management programs are described and analyzed. Within each section of the resource analysis, effects common to all alternatives are discussed first. Then effects from individual alternatives are described comparatively, to clarify differences between the alternative approaches. The cumulative impacts are identified at the end of the Chapter, as applicable. Where no cumulative impacts are stated, the BLM's analysis determined they would be negligible or nonexistent because the range of alternatives would have no effect on those resources, including but not limited to geology, air quality, paleontological resources, prime and unique farmlands, hazardous materials, social and economic conditions, or environmental justice concerns.

4.2 Biological Resources – Upland Terrestrial Vegetation

4.2.1 Introduction

Biological resources include the plant and animal species and populations, natural communities, and ecosystem processes that occur within C-CD. A diversity of vegetation communities, habitats, and plant and animal species, including special status species, occur in C-CD. This section discusses impacts on vegetation communities and habitat, both common and sensitive, and applicable mitigation. Analysis of the effects of herbicide application on vegetation is provided in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

Vegetation communities may be recognized as sensitive or afforded other special conservation status due to high natural importance; dependence of certain special-status species for habitat, including designated critical habitat; or rarity of the natural community, due either to inherent rarity or to human-related causes. For the purposes of this analysis, sensitive natural communities at C-CD include the following:

- Riparian areas, including any vegetation or habitat that is distinct from surrounding upland terrestrial habitat, and is dependent upon intermittent, seasonal, or perennial soil moisture.
- Habitat or vegetation meeting criteria as wetlands according to State or Federal delineation criteria;
- Habitat or vegetation that may support special-status species of plants, fish, or wildlife;
- Communities recognized by CDFW as sensitive (i.e., as noted in the Natural Communities List (CDFW 2019);
- Habitat designated by USFWS as “critical habitat” for a Federally-listed threatened or endangered species; or
- Habitat recognized as “essential habitat” for a Federally-listed species, even if the habitat is excluded from the final critical habitat designation.

Riparian areas and wetlands represent a particularly sensitive habitat at C-CD and, therefore, are specifically addressed in Section 4.3 Biological Resources – Riparian Areas and Wetlands (Aquatic).

Methods of Analysis

The analysis of direct and indirect effects is focused on species, populations, and habitats within the planning area. Direct impacts are the direct or immediate effects of an action on biological resources. Examples of direct impacts to vegetation include removal or degradation of the vegetation, or direct mortality of wildlife by a vehicle. Indirect impacts are those effects that are caused by or will result from the action, later in time or farther removed in distance, but are still reasonably certain to occur. Examples of indirect effects to native habitat and vegetation include soil erosion, sedimentation, and introduction of non-native species that may compete with native species and cause habitat degradation.

Effects to vegetation may be short-term and temporary or long-term and permanent. See Section 4.1.2 for definitions of these terms specific to this document. Short-term and temporary impacts refer to project effects such as construction-phase disturbance, without long-term or permanent land use conversion, so that vegetation may return to a more natural condition or may be actively revegetated or enhanced within a few years. An example of a short-term and temporary impact is mowing of non-native grassland and weedy/ruderal patches, and since this vegetation type is dominated by annual plant species, it will return to full vegetative cover within a short timeframe. Long-term and permanent impacts would preclude most natural vegetation and habitat function throughout the life of a proposed project, or longer. Examples of long-term, permanent impacts are grading for new trails, roads, and parking lots. The grading will remove

vegetation and topsoil and the constant vehicle and foot traffic will maintain the area free of vegetation long-term – for years to decades.

Potential effects of management actions to vegetation and special-status plant and wildlife species, populations, and habitats were identified by a team of biologists. A GIS data set and overlays of resources and land uses were used to analyze effects. In the absence of quantitative data, best professional judgment was used to provide qualitative information.

Assumptions

Assumptions used in this impact analysis include the following:

- All actions undertaken as part of this RMPA would be assessed in accordance with the National Environmental Policy Act (NEPA) and the Federal Endangered Species Act. If required, consultation with the USFWS would be completed. Project Design Features (PDFs, **Appendix D**), Best Management Practices (BMPs), Standard Operating Procedures (SOPs), and terms and conditions in this RMPA and subsequent NEPA documents and biological opinions will be applied and followed.
- Over time, species distribution may change. Warmer temperatures due to climate change, coupled with only a slight increase in precipitation, would result in substantially greater evapotranspiration rates. Greater aridity and evapotranspiration rates may result in dramatic plant species and vegetation type shifts, increased and drier fuel loads, and increasingly severe wildfires.
- Impacts on special status species would be similar to those discussed for species with no special status. Special status species may be more restricted in distribution, reducing the likelihood that certain activities would interact with them. However, impacts on special status species could be more pronounced due to reduced population sizes and ranges and increasing threats. More emphasis would be placed on avoiding or minimizing project effects on special status species since their populations are already in decline. Similarly, more emphasis would be placed on implementing conservation actions for special status species.

4.2.2 Impacts Common to All Alternatives

Depending on the affected vegetation, the loss of relatively small acreages for activities related to activities (and associated disturbance) affecting sites with little native habitat value would not have substantial impacts to upland, terrestrial vegetation communities. Examples of sites at C-CD with little native habitat value include the quarries (abandoned). Note, however, that vegetation and habitat in the immediate vicinity of infrastructure may support special-status plant and animal species.

In addition to the direct impacts to habitat, management activities could have indirect impacts to surrounding vegetation and habitat. The extent and significance of these indirect habitat effects would be dependent on the sensitivity of adjacent habitat and wildlife it supports. These impacts may include:

- Introduction or spread of non-native plant and wildlife species and/or pathogens;
- Dust and other airborne particulates caused by project activities or vegetation removal;

Long-term changes in average annual precipitation and average annual temperature are likely to result in increased aridity with more frequent and severe droughts (Field et al. 2016). The current ‘business as usual’ greenhouse gas emissions scenario model is Relative Concentration Pathway (RCP) 8.5 (Cal-Adapt 2019). Consensus of scientific models for RCP 8.5, for C-CD through the year 2100, suggest a sharp increase in average annual temperature from 57°F to 63°F (+6°F; much warmer) and a modest increase in average annual precipitation of 3 to 5 inches (slightly wetter; Field et al. 2016; Thorne et al. 2016; Beck et al. 2018; Cal-Adapt 2019).

Vulnerability to the long-term changes in average annual precipitation and average annual temperature varies widely by species, according to ranges of tolerance to abiotic and biotic conditions for each species, and interaction among these inherent ranges and other changes throughout the environment. Retention of biological connectivity and facilitation of wildlife movement among habitat areas (migration corridors) is the primary mitigation strategy to minimize expected effects of these changes to biological resources. Many species or populations may need to move on a regional scale from areas of declining habitat suitability to areas of stable or increasing habitat suitability. The effects of long-term changes in average annual precipitation and average annual temperature will have unavoidable impacts on regional biological connectivity.

The CZU Lightning Complex burned 86,509 acres, and is by far the largest wildfire in recent history in the Santa Cruz/San Mateo County region. Approximately 1,052 acres of C-CD burned in this fire in the Molino, Agua Puerca, and San Vicente watersheds (**Figure 14**). Observations of fire behavior on C-CD suggest a mosaic of burn intensities, dependent on fuel type, slope, and aspect. In areas where coastal scrub burned and french broom (non-native shrub) is present, french broom may opportunistically invade and expand. Ingrasslands, conditions should remain the same and even possibly improve in the short term since accumulated thatch has been burned off. Forest and chaparral areas should have little to no adverse impact and be improved over the long term. The wildfire has reduced accumulated fuel loads and will facilitate knobcone pine (closed cone pine) recruitment (new seedlings).

The PDF's identified in **Appendix D** would benefit vegetation and habitats at the local and landscape scales by eliminating or reducing negative impacts stemming from management activities.

Additionally, site-specific evaluations of proposed ground disturbing activities will include delineations of State or Federal jurisdictional hydrologic features, including wetlands, to determine whether State or Federal permitting may be required.

4.2.3 Impacts of Alternative A (No Action)

Recreation
Long-term, permanent impacts from the construction of new Day Use Sites near Molino Creek and off Bonny Doon road comprises 1.75 acres total. Of the total area of impacts, 1.35 acres is non-native grassland. Long-term, permanent impacts from the construction of new trails comprises 0.84 acres total. Of the total area of impacts, 0.05 acre is coastal scrub and 0.21 acre is conifer forest.

Increased public access may increase the potential for introduction of additional non-native plant species (weeds), thereby potentially resulting in adverse impacts on native vegetation and habitat. In addition, sudden oak death is known to occur in Santa Cruz County and can be spread by recreationists, particularly in moist shoes and tires. The further down the trail the recreationist travels, the greater the likelihood that they will encounter, pick up and spread the pathogen. Lands available to recreation have higher incidence of Sudden Oak Death than lands closed to recreation (Cushman et al. 2008). While Sudden Oak Death has been noted in native trees onsite, all of the locations where it is currently present onsite are not known.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network (**Appendix A: Figure 4, Transportation**) comprises 33.36 acres total. Of the total area of existing impacts to onsite habitats, 0.79 acre is weedy/ruderal patch, 3.01 acres is non-native grassland, 4.21 acres is native grassland, 0.98 acre is coyote brush encroachment, 7.60 acres is coastal scrub, 2.41 acres is coast live oak, 0.04 acre is chaparral, 0.06 acre is broadleaf forest, 7.46 acres is conifer forest, and 3.53 acres is quarries (abandoned).

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank allotments (1,167 acres total) would have long-term, major, beneficial

effects on grasslands. The beneficial effects would include reducing the dominance of weedy/ruderal patches.

The exclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, negative effects on individual plant species and upland terrestrial vegetation habitat, especially in the grassland and coastal scrub vegetation types. Non-native plant species are anticipated to continue to spread, and the spread of these weeds would continue to displace (outcompete) native plant species. The continued exclusion of fire from the wildfire adapted vegetation types would result in continued fuel load accumulation and suppressed regeneration and recruitment.

4.2.4 Impacts of Alternative B

Recreation
Long-term, permanent impacts from the construction of new Day Use Sites including Warrenella Gate, Warrenella Top and Marina Ranch comprises 9.39 acres total. The entire 9.39 acres is non-native grassland. Long-term, permanent impacts from the construction of new trails comprises 9.18 acres total. Of the total area of impacts, 0.74 acre is weedy/ruderal patch, 4.39 acres is non-native grassland, 0.31 acre is native grassland, 0.96 acre is coyote brush encroachment, 1.55 acres is coastal scrub, 0.33 acre is coast live oak woodland, 0.11 acre is chaparral, and 0.62 acre is conifer forest.

Increased public access may increase the potential for introduction of additional non-native plant species (weeds), thereby potentially resulting in adverse impacts on native vegetation and habitat. Increased acres of trails are anticipated to result in higher potential for spread of Sudden Oak Death.

Historically, fire starts associated with recreation has been a very low risk in C-CD. Once areas are open to the public, the chances of accidental ignition could increase. The potential adverse impacts of non-native plant species and excessive fine fuels risk for wildfire may be mitigated with herbicide application and prescribed fire to manage vegetation and fuel loads.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Of the total area of impacts, 0.79 acre is weedy/ruderal patch, 3.01 acres is non-native grassland, 4.21 acres is native grassland, 0.98 acre is coyote brush encroachment, 7.60 acres is coastal scrub, 2.41 acres is coast live oak, 0.04 acre is chaparral, 0.06 acre is broadleaf forest, 7.46 acres is conifer forest, and 3.53 acres is quarries (abandoned).

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank allotments (2,229 acres total) would have long-term, major, beneficial effects on non-native grasslands. The beneficial effects would include reducing the dominance of weedy/ruderal patches and preventing encroachment of coyote brush into grasslands. Installation of water troughs in uplands, and improved fences to better distribute livestock grazing should have moderate to major, long-term, beneficial effects on vegetation health of grasslands.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, beneficial effects on individual plant species and upland terrestrial vegetation habitat, especially in the grassland and coastal scrub vegetation types. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types, such as thistles in grasslands. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to non-target upland terrestrial vegetation. Prescribed fire

would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, control non-native plant species, and to restore native grasslands and coastal scrub.

4.2.5 Impacts of Alternative C

Recreation
Long-term, permanent impacts from the construction of new Day Use Sites including Swanton Gate, Warrenella Gate, Warrenella Top and Marina Ranch comprises 10.74 acres total. The entire 10.74 acres is non-native grassland.

Long-term, permanent impacts from the construction of new trails comprises 11.49 acres total. Of the total area of impacts, 0.77 acre is weedy/ruderal patch, 4.39 acres is non-native grassland, 0.69 acre is native grassland, 0.97 acre is coyote brush encroachment, 3.29 acres is coastal scrub, 0.33 acre is coast live oak, 0.11 acre is chaparral, and 0.70 acre is conifer forest.

Increased public access may increase the potential for introduction of additional non-native plant species (weeds), thereby potentially resulting in adverse impacts on native vegetation and habitat. Sudden Oak Death (SOD) has been documented to occur at C-CD and introducing trails could result in greater spread and higher incidence of SOD in native oaks including tanoak and coast live oak.

Historically, fire starts associated with recreation has been a very low risk in C-CD. Once areas are open to the public, the chances of accidental ignition would increase. The potential adverse impacts of non-native, invasive plant species and excessive fine fuels risk for wildfire may be mitigated with herbicide application and prescribed fire.

Transportation and Travel Management
Continued long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Of the total area of impacts, 0.79 acre is weedy/ruderal patch, 3.01 acres is non-native grassland, 4.21 acres is native grassland, 0.98 acre is coyote brush encroachment, 7.60 acres is coastal scrub, 2.41 acres is coast live oak, 0.04 acre is chaparral, 0.06 acre is broadleaf forest, 7.46 acres is conifer forest, and 3.53 acres is quarries (abandoned).

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank allotments (2229 acres total) would have long-term, major, beneficial effects on non-native grasslands. The beneficial effects would include reducing the dominance of weedy/ruderal patches and preventing encroachment of coyote brush into grasslands. A total of 744 acres and an additional 74 head of cattle (or 296 head of sheep or goats) would be added as new grazing allotments identified as Swanton Road and Liddell Creek. The new grazing allotments would result in additional long-term, major, beneficial effects on non-native grasslands by reducing the dominance of weedy/ruderal patches and preventing encroachment of coyote brush into grasslands. Installation of water troughs in uplands, and improved fences to better distribute livestock grazing should have moderate to major, long-term, beneficial effects on vegetation health of native grasslands.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, beneficial effects on individual plant species and upland terrestrial vegetation habitat, especially in the grassland and coastal scrub vegetation types. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types, such as thistles in grasslands. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to non-target upland terrestrial vegetation. Prescribed fire

would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, control non-native plant species, and to restore native grasslands and coastal scrub.

4.2.6 Impacts of Alternative D (Preferred Alternative)

Recreation
Long-term, permanent impacts from the construction of new Day Use Sites including Swanton Gate, Warrenella Gate, Warrenella Top and Marina Ranch comprises 9.38 acres total. The entire 9.38 acres is non-native grassland.

Long-term, permanent impacts from the construction of new trails comprises 11.61 acres total. Of the total area of impacts, 0.63 acre is weedy/ruderal patch, 5.00 acres is non-native grassland, 0.34 acre is native grassland, 0.82 acre is coyote brush encroachment, 2.09 acres is coastal scrub, 0.25 acre is coast live oak, 0.26 acre is chaparral, and 1.97 acre is conifer forest.

Increased public access may increase the potential for introduction of additional non-native plant species (weeds), thereby potentially resulting in adverse impacts on native vegetation and habitat. Sudden Oak Death (SOD) has been documented to occur at C-CD and introducing trails could result in greater spread and higher incidence of SOD in native oaks including tanoak and coast live oak. The potential adverse impacts of non-native, invasive plant species and excessive fine fuels risk for wildfire may be mitigated with herbicide application and prescribed fire.

Transportation and Travel Management
Continued long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Of the total area of impacts, 0.79 acre is weedy/ruderal patch, 3.01 acres is non-native grassland, 4.21 acres is native grassland, 0.98 acre is coyote brush encroachment, 7.60 acres is coastal scrub, 2.41 acres is coast live oak, 0.04 acre is chaparral, 0.06 acre is broadleaf forest, 7.46 acres is conifer forest, and 3.53 acres is quarries (abandoned).

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank pastures (2,229 acres total) would have long-term, major, beneficial effects on non-native grasslands. The beneficial effects would include reducing the dominance of weedy/ruderal patches and preventing encroachment of coyote brush into grasslands. A total of 744 acres and an additional 74 head of cattle (or 296 head of sheep or goats) would be added as new grazing allotments identified as Swanton Road and Liddell Creek. The new grazing areas would result in additional long-term, major, beneficial effects on non-native grasslands by reducing the dominance of weedy/ruderal patches and preventing encroachment of coyote brush into grasslands. Installation of water troughs in uplands, and improved fences to better distribute livestock grazing should have moderate to major, long-term, beneficial effects on vegetation health of grasslands.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, beneficial effects on individual plant species and upland terrestrial vegetation habitat, especially in the grassland and coastal scrub vegetation types. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types, such as thistles in grasslands. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to non-target upland terrestrial vegetation. Prescribed fire would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, control non-native plant species, and to restore native grasslands and coastal scrub.

4.3 Biological Resources – Riparian Areas and Wetlands (Aquatic)

4.3.1 Introduction

Riparian areas and wetlands are a particularly sensitive vegetation type and habitat at C-CD, supporting several Federally-listed fish and amphibian species. Riparian areas and wetlands are distinguished from upland, terrestrial vegetation types by having perennial water availability that is manifested at the surface as flow or ponding. Riparian areas are the interface between upland, terrestrial vegetation and wetlands. Wetlands often support a highly diverse plant and animal community and provide critical hydrologic and ecological functions that support ecosystem integrity. Properly functioning wetlands provide flood abatement, sediment retention, groundwater recharge, nutrient capture, and habitat for numerous special status plant and animal species (ESA 2001). Analysis of the effects of herbicide application on Water Resources and Quality and Wetland and Riparian Areas is provided in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

Assumptions

Assumptions used in this impact analysis include the following:

- All actions undertaken as part of this RMPA would be assessed in accordance with the National Environmental Policy Act (NEPA) and the Federal Endangered Species Act. Consultation with the USFWS and/or NOAA Fisheries would be completed. Best Management Practices (BMPs), Standard Operating Procedures (SOPs), mitigation measures, and terms and conditions in this RMPA and subsequent NEPA documents and biological opinions will be applied and followed.
- Valid existing rights would be honored, but BMPs, SOPs, stipulations, mitigation measures, and terms and conditions in this RMPA and subsequent NEPA documents and biological opinions will be applied and followed.
- If additional special status species or critical habitat is designated or discovered, the objectives and decisions promoting protection within this RMPA would extend to such species as well.
- Over time, species distribution may change. Management action locations would change accordingly.
- Impacts on special status species would be similar to those discussed for species with no special status. Special status species may be more restricted in distribution, reducing the likelihood that certain activities would interact with them. However, impacts on special status species could be more pronounced due to reduced population sizes and ranges and increasing threats. More emphasis would be placed on avoiding or minimizing project effects on special status species since their populations are already in decline. Similarly, more emphasis would be placed on implementing conservation actions for special status species.

Best Management Practices (BMP) and Standard Operating Procedures (SOP)

The BMPs and SOPs for this RMPA (**Appendix D**):

- Conduct biological surveys prior to disturbance and at the appropriate time of year to detect sensitive species and important biological resources. Conduct surveys in compliance with agency protocols.
- Design stream crossings to minimize adverse impacts to soil, water quality, and riparian vegetation. Maintain natural drainage patterns.
- Minimize erosion and sedimentation. Protect water quality.
- Minimize the introduction and spread of non-native plant and wildlife species.

Method of Analysis

The analysis of direct and indirect effects is focused on species, populations, and habitats within the planning area. Direct impacts are the direct or immediate effects of an action on biological resources. Examples of direct impacts to vegetation include removal or degradation of the vegetation. Indirect impacts are those effects that are caused by or will result from the action, later in time or farther removed in distance, but are still reasonably certain to occur. Examples of indirect effects to native habitat and vegetation include erosion, sedimentation, and introduction of non-native species that may compete with native species and cause habitat degradation.

Effects to vegetation may be short-term and temporary or long-term and permanent. See Section 4.1.2 for definitions of these terms specific to this document. Short-term and temporary impacts refer to project effects such as construction-phase disturbance, without long-term or permanent land use conversion, so that vegetation may return to a more natural condition or may be actively revegetated or enhanced within a few years. An example of a short-term and temporary impact is removal of non-native plant species (e.g. cape ivy), which may produce small disturbed areas in riparian areas. Since riparian vegetation is relatively fast growing, it should return to full vegetative cover within one year. Long-term and permanent impacts would preclude most natural vegetation and habitat function throughout the life of a proposed project, or longer. Examples of long-term, permanent impacts are installation of bridges or hardened low water crossings for trails that cross riparian areas and wetlands. Bridges or hardened low water crossings across creek channels will remove vegetation and the constant vehicle and foot traffic will maintain the area free of vegetation long-term.

4.3.2 Impacts Common to All Alternatives

Projects affecting waters of the State or waters of the U.S. will be subject to permitting under the California Fish and Game Code and Federal Clean Water Act (CWA). Federal CWA permitting is required for projects that would place dredged or fill material into jurisdictional waters of the U.S. State authorization is required if projects would substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

In addition to the direct impacts to habitat, management activities could have several direct or indirect impacts to riparian area and wetland vegetation and habitat. Due to the presence of state endangered aquatic species every effort will be made work with partners to build bridges, boardwalks or other trail features to carry visitors safely across perennial streams and wetlands. Management action MA-RIP-2, which applies to Alternatives B, C and D will reduce impacts to riparian areas from new surface disturbance and/or facilities.

Partnerships can be utilized to reduce the impact of visitors on water quality, soils, and riparian areas will reduce the extent of the impact on the sensitive fish and wildlife it supports.

Recreational users will increase the:

- Introduction or spread of non-native plant and wildlife species and pathogens;
- Dust and other airborne particulates caused by project activities or vegetation removal;
- Siltation and anthropogenic material in waterways (plastics etc.)

Long-term changes in average annual precipitation and average annual temperature are likely to result in increased aridity with more frequent and severe droughts (Field et al. 2016). The current ‘business as usual’ greenhouse gas emissions scenario model is Relative Concentration Pathway (RCP) 8.5 (Cal-Adapt 2019).

Consensus of scientific models for RCP 8.5, for C-CD through the year 2100, suggest a sharp increase in average annual temperature from 57°F to 63°F (+6°F; much warmer) and a modest increase in average annual precipitation of 3 to 5 inches (slightly wetter; Field et al. 2016; Thorne et al. 2016; Beck et al. 2018; Cal-Adapt 2019).

Vulnerability to the long-term changes in average annual precipitation and average annual temperature varies widely by species, according to ranges of tolerance to abiotic and biotic conditions for each species, and interaction among these inherent ranges and other changes throughout the environment. Retention of biological connectivity and facilitation of wildlife movement among habitat areas (migration corridors) is the primary mitigation strategy to minimize expected effects of these changes to biological resources. Many species or populations may need to move on a regional scale from areas of declining habitat suitability to areas of stable or increasing habitat suitability. The effects of long-term changes in average annual precipitation and average annual temperature will have unavoidable impacts on regional biological connectivity.

4.3.3 Alternative A

Recreation
Long-term, permanent impacts from the construction of new Day Use Sites including Swanton Gate and Bonny Doon comprises 1.75 acres total. Of the total area of long-term, permanent impacts, 0.4 acres is riparian area.

Long-term, permanent impacts from the construction of new trails comprises 0.84 acres total. Of the total area of long-term, permanent impacts, 0.59 acre is riparian area. There will be long-term, permanent impacts on one crossing (riparian zone) for the new trail at Liddell Creek – 120 square feet total (0.002 acre). The BLM would incorporate PDF's to minimize or avoid impacts on the streams and the riparian areas which support state endangered species. This total is included in the 0.59 acre of riparian area impact. The new trail at Molino Creek will use an existing feature (earthen dam) to cross the creek and therefore there will be no new impacts at that crossing.

Increased public access will increase the potential for introduction of additional non-native plant species (weeds), thereby displacing native vegetation and potentially resulting in adverse impacts to riparian areas and wetlands.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Reduction of the total area of impacts, 3.20 acres is riparian area and 0.06 acre is perennial wetland. Over time, the effects of the roads on streams or wetlands would be reduced by replacing old culverts to foster habitat connectivity; and the placement of drainage structures to reduce runoff into streams, or other similar activities.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank allotments (1,167 acres total) would have continued, long-term, moderate, localized, negative impacts to riparian areas and wetlands due to degradation (trampling) of vegetation and soil. There is currently no corridor fencing along the majority of the riparian areas and wetlands to prevent cattle trampling impacts. The exclusion of herbicide use as a vegetation management method would have long-term, moderate, adverse impacts on individual species and species habitat in riparian areas and wetlands. Non-native plant species may continue to spread and the spread of these weeds would continue to displace (outcompete) native plant species and modify habitat structure, thereby negatively impacting native plant species.

Special Management Areas
No designation of Special Management Areas would have no effect on riparian areas and wetlands.

4.3.4 Alternative B

Recreation
Long-term, permanent impacts from the construction of new trails comprises 9.18 acres total. Of the total area of impacts, 0.18 acre is riparian area and 0.01 acre is perennial wetlands. There will be long-term, permanent impacts on one new crossing (riparian zone) for the new trail at Agua Puerca Creek – 120 square feet total (0.002 acre). This total is included in the 0.18 acre of riparian area impact. The new trail at Molino Creek will use an existing feature (earthen dam) to cross the creek and the new trail at Yellow Bank Creek will also use an existing feature (earthen dam) to cross the creek. Therefore, there will be no new impacts at those two crossings.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Of the total area of long-term, permanent impacts, 3.20 acres is riparian area and 0.06 acre is perennial wetland. The BLM would seek opportunities to coordinate with other agencies and partners to address sections of roads such as culverts or drainage structures that block fish passage or contribute sediment to the streams.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Installation of fences to exclude cattle from riparian areas and wetlands would have long-term, moderate, localized, beneficial effects by preventing trampling. Along with the fence construction, waterlines, troughs, and water tanks would be installed for cattle use. The inclusion of herbicide use as a vegetation management method would have long-term, moderate, beneficial effects on individual species and species habitat in riparian areas and wetlands. Herbicide use would provide a more targeted method to control specific weeds, such as cape ivy. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to riparian areas and wetlands.

Special Management Areas
Designation of Special Management Areas would have direct beneficial effects on riparian areas and wetlands in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**).

4.3.5 Alternative C

Recreation
Long-term, permanent impacts from the construction of new trails comprises 11.49 acres total. Of the total area of impacts, 0.24 acre is riparian area and 0.01 acre is perennial wetland. There will be long-term, permanent impacts on two new crossings (riparian zones) for the new trails at Agua Puerca Creek and East Liddell Creek– 240 square feet total (0.006 acre). This total is included in the 0.24 acre of riparian area impact. The new trail at Molino Creek will use an existing feature (earthen dam) to cross the creek and the new trail at Yellow Bank Creek will also use an existing feature (earthen dam) to cross the creek. Therefore, there will be no new impacts at those two crossings.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Of the total area of impacts, 3.20 acres is riparian area and 0.06 acre is perennial wetland. The

BLM would seek opportunities to coordinate with other agencies and partners to address sections of roads such as culverts or drainage structures that block fish passage or contribute sediment to the streams.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Installation of fences to exclude cattle from riparian areas and wetlands would have long-term, moderate, localized, beneficial effects by preventing trampling. Along with the fence construction, waterlines, troughs, and water tanks would be installed for cattle use. The inclusion of herbicide use as a vegetation management method would have long-term, moderate, beneficial effects on individual species and species habitat in riparian areas and wetlands. Herbicide use would provide a more targeted method to control specific weeds, such as cape ivy. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to riparian areas and wetlands.

Special Management Areas
Designation of Special Management Areas would have direct beneficial effects on riparian areas and wetlands in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**).

4.3.6 Impacts of Alternative D (Preferred Alternative)

Recreation
Long-term, permanent impacts from the construction of new trails comprises 11.61 acres total. Of the total area of impacts, 0.24 acre is riparian area and 0.01 acre is perennial wetland. There will be long-term, permanent impacts on two new crossings (riparian zones) for the new trails at Agua Puerca Creek and Upper Yellow Bank Creek – 240 square feet total (0.006 acre). This total is included in the 0.24 acre of riparian area impact. The new trail at Molino Creek will use an existing feature (earthen dam) to cross the creek and the new trail at Lower Yellow Bank Creek will also use an existing feature (earthen dam) to cross the creek. The creation of the trails down to the earthen dams will increase erosion and sedimentation of the stream. Therefore, these two crossings will cause soil compaction in the riparian areas and soil loss as the trail is forged across the earthen dam.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Of the total area of long-term, permanent impacts, 3.20 acres is riparian area and 0.06 acre is perennial wetland. The BLM would seek opportunities to coordinate with other agencies and partners to address sections of roads such as culverts or drainage structures that block fish passage or contribute sediment to the streams. This coordination can take place on the BLM lands such as county-maintained bridges, as well as throughout the watersheds, such as improvements that will be made to Highway 1 over time.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Installation of fences to exclude cattle from riparian areas and wetlands would have long-term, moderate, localized, beneficial effects by preventing trampling. Along with the fence construction, waterlines, troughs, and water tanks could be installed for livestock use. The inclusion of herbicide use as a vegetation management method would have long-term, moderate, beneficial effects on individual species and species habitat in riparian areas and wetlands. Herbicide use would provide a more targeted method to control specific weeds, such as cape ivy. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to riparian areas and wetlands. Native Bees are negatively affected by Glyphosate (Motta et al. 2018, Sponsler et al. 2019). Surveys for these bees should be done and the phenology of their nectar sources assessed prior to planning spraying.

Since bees track their nectar sources and these shift as the season progresses a time for spraying could be worked out so as not to impact native bees. These species use wet areas as many of the species they rely on need moisture. Bees will benefit in the long run by restoration of native riparian vegetation.

Special Management Areas

Designation of Special Management Areas would have direct beneficial effects on riparian areas and wetlands in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**).

4.4 Biological Resources – Fish and Wildlife

4.4.1 Introduction

This section discusses impacts on wildlife species, along with applicable mitigation. The analysis of direct and indirect effects is focused on species, populations, individual animals, and habitats within the planning area. Examples of direct, adverse impacts to individual fish and animals include mortality, injury, or displacement; disruption of essential wildlife behaviors such as feeding, breeding, and sheltering; and disturbance to animals and habitat from noise, light, or dust. These impacts may be temporary (spontaneous or seasonal) or permanent (sustained and constant). An example of direct, adverse, temporary impact to fish and wildlife is hunting. Another example of direct, adverse, permanent impacts to fish and wildlife is recurring human and dog presence on recreational trails, which influences wildlife behavior.

Direct, adverse impacts to fish and wildlife habitat includes significant disturbance or modification of physical and biological characters that result in a habitat condition that is suboptimal to entirely unsuitable to support the species. These impacts may be temporary (seasonal) or permanent. An example of indirect, adverse, temporary impact to habitat include seasonal sediment pulses to streams during the winter rainy season, which degrades water quality, which in turn adversely impacts individual aquatic species. An example of direct, adverse, permanent impact to habitat includes stream channel modification, such as culverts and dams, that change the stream bed properties and flow, which in turn adversely impacts upstream migration of aquatic species. Analysis of the effects of herbicide application on Fish and Other Aquatic Organisms and Wildlife is provided in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

Assumptions

The term habitat refers to the biotic and abiotic environment and ecological conditions where a species is found. One major component of most wildlife habitat is vegetation. Vegetation reflects many aspects of habitat, including regional climate, physical structure, and biological productivity and food resources for many wildlife species. Thus, vegetation is a useful overarching descriptor for habitat, and it is the primary factor in analysis of impacts to wildlife habitat. Impacts to vegetation communities and habitat are discussed in the previous sections. Another component of habitat of particular importance to wildlife is water, in the form of the six perennial streams, springs, and ponds onsite, which provide both habitat and drinking water to all of the species utilizing these aquatic habitats. Soils also constitute a major component of habitat.

Riparian areas, besides directly providing high-quality habitat for a host of wildlife species, also act as wildlife corridors allowing animals to migrate and disperse. Migration and dispersal promote the establishment of metapopulations, wherein a number of linked subpopulations are able to recolonize each other following local extirpation or receive increased gene diversity.

Impacts to wildlife and habitat from recreation activities of each alternative would be generally similar with variation depending on the types and degree of activities allowed.

Direct, adverse impacts to populations include effects leading to abandonment of breeding areas, such as a pond or creek in the case of aquatic species, or the cessation of nesting by one or more bird species.

Direct, adverse effects to species include major declines in species, regarded as a whole, as a result of impacts to local populations as described above. For example, the cessation of breeding by California red-legged frogs at C-CD would significantly delay or even preclude the recovery and delisting of the species.

The special hunt program proposed for Alternatives B, C and D would be managed in partnership between the BLM and California Department of Fish and Wildlife (CDFW). The program would be established to meet public demand for this activity, while ensuring public safety by avoiding conflicts with other

recreationists and adjacent landowners. The number of hunting permits to be issued - based on a lottery system – would be similar to Canada de Los Osos in Santa Clara County. On that property, the CDFW hosts five permitted-hunts each year with two turkey hunts, two pig hunts and one deer hunt. Each hunt is a two-day period. For C-CD, the BLM and CDFW anticipate the number of hunters for each hunt would be 2-4 people. For native species (deer), CDFW and BLM would partner on baseline and annual surveys in the area to determine how many individuals could be sustainably taken on an annual basis. The impacts analysis, therefore, assumes that annual authorized take of deer will result in a negligible adverse impact on the regional deer population.

Best Management Practices (BMP) and Standard Operating Procedures (SOP)

The BMPs and SOPs for this RMPA (**Appendix D**):

- Delineate areas where certain recreational uses are authorized or not authorized, considering whether specific areas are known, or predicted, to be of greater importance to native wildlife.
- Use seasonal restrictions to protect nesting raptors.
- Construct all facilities and structures in conformance with wildlife protection guidelines. Design all new facilities with measures to reduce hazards to wildlife.
- Control vehicle speeds on all administrative routes to minimize potential for roadkill, dust, and to protect sensitive animals and habitats. Use existing roads to the greatest extent practicable.

4.4.2 Impacts Common to All Alternatives

When compared to many other areas in the central coast of California, wildlife species at C-CD have been relatively free of influence from development and other human activities over the course of the past century. Historically, row crop agriculture, dairying operations, mining, and timber harvesting have adversely impacted habitats on C-CD. Many of these activities ceased years or even decades before BLM acquired the lands in 2014. Therefore, habitats onsite are considered to be recovering and providing wildlife habitat. It is anticipated the majority of habitat onsite will continue to improve over time if conditions remain suitable and additional impacts are minimized. Since 2014 recreational opportunity for the public have been limited to a handful of guided tours and special events. Therefore, the type and degree of the recreational uses discussed in this plan would introduce novel effects on wildlife populations. Given the land use history of C-CD and connectivity to regional conservation lands, the local populations of native wildlife species will benefit from continuing efforts to sustain large blocks of contiguous habitats in this region.

Habitat fragmentation occurs when development or other disturbance divides habitat that was once contiguous into separate and smaller sections. This indirectly affects wildlife movement and the viability of the habitat to support various species. Fragmentation also increases the proportion of disturbed edge habitat to undisturbed interior habitat (edge effect) (Wilcove et al. 1986). Habitat fragmentation resulting from development of trails and other infrastructure may cause a shift in wildlife species composition. Fragmentation favors common habitat generalists, such as raccoon (*Procyon lotor*) and American crow (*Corvus brachyrhynchos*), over more specialized, and typically rarer species (Brittingham, no date). Development may result in a shift in biological diversity and local declines in some fish and wildlife populations (Gilbert and Chalfoun 2011).

Development activities located on previously disturbed sites or on non-native vegetation would generally have less effect on wildlife movement and habitat fragmentation than activities within or adjacent to disturbed habitats or habitats with native vegetation. Impacts anticipated to different habitat types are described in more detail in previous sections of this chapter. Locating new facilities in proximity to existing roads and infrastructure would also reduce long-term impacts to fish and wildlife. Short-term and temporary effects, such as noise from construction and maintenance, generally would not have important or lasting effects on wildlife movement and habitat fragmentation if adequate PDFs and BMPs are implemented.

The CZU Lightning Complex burned 86,509 acres, and is by far the largest wildfire in recent history in the Santa Cruz/San Mateo County region. Approximately 1,052 acres of C-CD burned in this fire in the Molino, Agua Puerca, and San Vicente watersheds (**Figure 14**). The important ecological role of fire in maintaining habitat diversity, nutrient cycling and wildlife habitat creation, suggests that the CZU Lightning Complex will not have long-term detrimental ecological effects to fish and wildlife. A short-term detrimental impact is anticipated for reptiles, terrestrial amphibians, and small mammals. However, the return to an earlier successional stage may lead to a short-term increase in some species.

Given that recreational use of C-CD has been minimal to date, all four alternatives would increase visitor use through the development and use of trails. This increase in use is anticipated to have adverse impacts on sensitive and other wildlife species. The degree of impact is relative to the degree of recreational use, the types of uses authorized, and the specific areas in which each use will be authorized. Additional factors such as the seasonality of uses are important to consider because several species have limited breeding seasons.

The BLM's deed restrictions prohibit motorized recreation and off-road vehicle use, with the exception of emergencies and authorized uses, which will help minimize long-term impacts on fish and wildlife and their habitats.

There are five main ways that recreationists influence wildlife: 1) harvesting (i.e. hunting and poaching); 2) habitat modification; 3) pollution (litter and human food waste); 4) disturbance (via coming close to wildlife, entering animal's field of view, causing noise near animals); 5) introduced species and pathogen introduction (Knight and Cole 1991; Soulard 2017).

There have been several recent literature reviews evaluating impacts of recreation on wildlife that are informative to the management of C-CD (Reilly et al. 2017; Larson et al. 2016). The studies considered in these reviews indicate that land managers can reduce potential impacts of recreation on wildlife by creating trail-free buffers, and maintaining habitats free of domestic dogs (Reilly et al. 2017).

The extent to which the introduction of parking lots, trails, and recreational usage of these facilities will impact each native wildlife species and their populations currently utilizing C-CD will vary and is not easily predictable. However, the degree of impact of recreation to wildlife associated with the proposed long-term and chronic recreational use is predicted to be highest in the areas which are closest to these proposed trails and parking areas. **Figures 12a, 12b, 12c, and 12d** (**Appendix A**) depict C-CD with buffer zones of 25, 50, 100, 200, and 500 meters surrounding the proposed trails and parking areas for each Alternative. The acreage numbers associated with each scenario are an indication of the areas anticipated to be the most directly affected by recreational uses (**Table 4.2.2-1**). This is not to say that all impacts to wildlife will be confined to these buffer zones. For example, introduction of trash is anticipated to increase corvid numbers, and corvids' ability to fly means that their impact can be felt outside of these buffer zones. Alternative A depicts 1097 acres (18.9% of the overall acreage) that are anticipated to be within the 500 meter buffer zone, which is the least of the three proposed scenarios. Alternative B depicts a greater area of anticipated impact than Alternative A at 2484 acres (42.8% of overall acreage), though a lesser area of anticipated impact than Alternative C, which depicts 3496 acres (60.3% of overall acreage), or Alternative D with 3,106 acres (51.6% of overall acreage).

In addition, each alternative is anticipated to have a different degree of long-term impact on wildlife due to the spatial distribution of the trails and parking areas throughout the habitats existing onsite, since the proposed trail and parking system spreads to different areas under each scenario. The degree of spatial distribution of trails is anticipated to impact wildlife adversely as well, with Alternative A anticipated to have the least impact on wildlife, Alternative B having a higher anticipated impact, and Alternative C having the highest anticipated impact. As depicted in **Table 4.2.2-1**, the impacts to wildlife anticipated with Alternative D, the preferred alternative, are higher than Alternative B, and lower than Alternative C.

Table 4.2.2-1. Area (acres) and Percent of Area Within Buffer Distances of Proposed Recreational Development

Buffer Distance	Alternative A	Alternative B	Alternative C	Alternative D
25 meters	52 (0.9%)	347 (6.0%)	507 (8.7%)	486 (8.3%)
50 meters	106 (1.8%)	653 (11.3%)	943 (16.3%)	866 (14.8%)
100 meters	216 (3.7%)	1,093 (18.9%)	1,615 (27.9%)	1,404 (24%)
200 meters	449 (7.7%)	1,603 (27.6%)	2,364 (40.8%)	1,993 (34.1%)
500 meters	1,097 (18.9%)	2,484 (42.8%)	3,496 (60.3%)	3,106 (51.6%)

Larson et al. (2019) conducted an extensive literature review on the topic of the effects of recreation on vertebrate wildlife species. The results of this meta-analysis were that vertebrate abundance and richness are lower where levels of recreation are higher in the majority (70%) of cases. The study concludes that land managers should set aside areas that are not open to recreation to minimize trade-offs between recreation and wildlife conservation as a means of balancing these dual land uses. Under all alternatives, the BLM would avoid habitat fragmentation or other human-caused disturbances in significant portions of C-CD.

Larsen et al. (2019) also recommend recreation planning at a regional level to be effective at larger scales. Given that C-CD is connected to a broader network of protected areas, including the adjacent San Vicente Redwoods property, the areas currently providing refuge from recreational impacts on BLM lands will continue to provide important habitat and corridors for wildlife movement in this region. Setting aside low-use areas is also consistent with a metapopulation approach to conservation, which entails setting aside islands of occupied habitat linked by corridors.

Introduction of domesticated animals associated with recreation to C-CD is anticipated to provide opportunities for the spread of pathogens to wildlife. For example, one study noted a higher degree of diseases associated with domestic dogs and cats in bobcats and grey foxes in urban zones than in rural zones (Riley 2004). The dusky-footed woodrat (*Neotoma fuscipes*), a Species of Special Concern in California, has been associated with a disease spread among woodrats, horses and dogs (Nieto et al. 2010). Quinn et al. (2012)'s results indicate that badgers, a Species of Special Concern in California, had been exposed to spillover diseases associated with domestic animals. Bobcats, grey foxes, dusky-footed woodrat, and badgers are all species known to utilize areas of C-CD.

Studies reviewed by Gaynor et al. (2018) demonstrate wildlife often shift their activities from daytime to nighttime to seek refuge from daytime human presence and activities, which is a negative impact due to changes such as increased risk of predation and decreased foraging efficiency. All alternatives are predicted to influence wildlife to shift daytime activities to nighttime activities to varying degrees. It is predicted that the overall impacts to wildlife associated with recreation under all Alternatives would be reduced by not including, or by reducing, nighttime recreational activities onsite.

Wildlife species differ in their ability to become habituated to human presence. In general, however, human presence has a less adverse impact on wildlife when it is temporally and spatially predictable. Recreationists who stay on existing trails have a lesser negative impact on wildlife than recreationists who wander from the trail (Miller et al. 2001; Taylor and Knight 2003; Soulard 2017). Several studies have indicated that fear of humans alters wildlife behaviors, which can have cascading effects throughout an ecosystem (Suraci et al. 2019). For example, Smith et al (2017) demonstrates mountain lions fear people, which results in mountain lions fleeing their kill sites when humans are nearby and possibly killing up to 50% more deer a year as a result of this reduced feeding time at kills (Smith, Wang & Wilmers 2015), and increasing the energetic expenditure of mountain lions (Wang, Smith & Wilmers 2017).

On the other hand, recent studies published in the California Fish and Wildlife Journal (Townsend et. al. 2020) examined changes in wildlife trail use and occupancy after a park opened to the public for the first time. To see if wildlife would alter either their use of the trails or the surrounding areas or both in response to visitor use Townsend compared the findings from before and after the park opened to the public. Similar to the BLM's expectations for C-CD, recreational trail use increased sharply after opening and then lessened but remained higher than prior to opening.

According to the study, bobcat (*Lynx rufus*), coyote (*Canis latrans*) and gray fox (*Urocyon cinereoargenteus*) did not alter trail use relative to study area occupancy; black-tailed deer (*Odocoileus hemionus*) and gray squirrel (*Sciurus griseus*) altered trail use, and puma (*Puma concolor*) and wild turkey (*Meleagris gallopavo*) altered both trail and study area use. However, after approximately 9 months of public access, wildlife trail detection rates for all species return to the pre-opening levels, except for the raccoon (*Procyon lotor*) and wild turkey.

There is little research indicating the effect of trail-based recreation on bats. Many species of bats, including little brown bats (*Myotis lucifugus*), are thought to benefit from open habitat edges including trails and other linear features (Krusic et al. 1996; Soulard 2017).

Mule deer, which are found on C-CD, respond more negatively to off-trail recreationists than to on-trail recreationists (Taylor and Knight 2003). Wildlife may be able to become more habituated to on-trail recreation because it is more predictable, occurring frequently and along a predictable spatial line (Knight and Cole 1995a, Whittaker and Knight 1999, Talor and Knight 2003). Ungulates, including mule deer, may also be more adversely impacted by recreationists approaching from above than by recreationists approaching from the same or a lower level of terrain (Taylor and Knight 2003).

Like mule deer, many passerine species show a lesser response to recreationists who are on established trails than to recreationists off of official trails (Miller et al. 2001). In general, birds that forage or nest on the ground have greater responses to the presence of recreationists than birds who forage or nest higher in the canopy (Soulard 2017). Birds may avoid nesting near trails although it is unclear whether this is a result of the presence of the trails or whether it is a result of increased human disturbance along the trail (Miller et al. 1998). Locating trails along the edges of habitats (e.g. along the edges of forests/grasslands) may reduce the impact to bird communities.

Brown-headed cowbirds, a brood-parasitic species, utilize habitat edges and have been observed to utilize trails to access hosts that are less well adapted to brood-parasitism and may therefor lack adequate defense strategies (see Miller et al. 1998). Brood parasitism by brown headed cowbirds can contribute to reductions in other passerine species such as Nuttall's white-crowned sparrow (Trail and Baptista 1993). Although possible, it is not anticipated that planned trails at C-CD will result in significant changes to cowbird abundance or distribution as few researchers outside of eastern deciduous forests have observed changes along trails (see Miller et al. 1998).

Introduction of dogs would be expected to have adverse effects on wildlife, which perceive dogs as a threat and react accordingly, such as by exhibiting vigilance and/or flight behaviors. Studies have shown that, even when on-leash, dogs displace birds, causing direct, short-term, adverse impacts (Banks & Bryant 2007). Literature reviews regarding the influence of dogs on wildlife indicate the majority of studies on this topic demonstrate some level of wildlife disturbance (Weston and Stankowich 2014). Several studies demonstrate population-level disturbance (Gill et al. 1996). Dogs can also cause indirect, adverse impacts on bird populations in the long term because even temporary displacement leaves both birds and their nests vulnerable to predation by predators such as corvids. The presence of dogs also has a short-term, localized, minor adverse impacts on larger mammals such as deer (Taylor et al. 2005). In addition, there are hundreds of pathogens shared between domestic dogs and wildlife (Knobel et al. 2014). The three parasites of most concern to resource managers are rabies virus, canine distemper virus, and canine parvovirus (Knobel et al.

2014). In addition, given that feces are often distributed through stormwater, locations where dogs are authorized or not authorized area important to consider (Hennings 2016).

A free-ranging dog is any dog that is not contained, including wild, feral, stray, and street dogs, or any dogs allowed to come and go freely by their owners. Free ranging dogs have been documented to have adverse impacts on wildlife (Gompper et al. 2014). Therefore, under none of the Alternatives would BLM authorize or condone free-ranging dogs, or any other free-ranging domesticated animals or pets to utilize C-CD, regardless of land and pet ownership proximity to these lands.

Project Design Features

Utilization of Project Design Features (PDF) (**Appendix D**) would benefit native populations and habitats at the local and landscape scales by eliminating or reducing negative impacts stemming from development. Species-specific surveys, species avoidance, habitat protection measures would also minimize impacts of management actions on special status species.

4.4.3 Impacts of Alternative A (No Action)

Recreation
Long-term, permanent impacts to habitat from the construction of new Day Use Sites including Molino Creek Gate and off Bonny Doon Road comprises 1.75 acres total. Of the total area of impacts, 0.4 acre is riparian area and 1.35 acres is non-native grassland.

Long-term, permanent impacts to habitat from the construction of new trails comprises 0.84 acres total. Of the total area of impacts, 0.59 acre is riparian area, 0.05 acre is coastal scrub and 0.21 acre is conifer forest. The trails in the conifer forest will create an open edge effect which may lead to slight modifications in wildlife use and presence in this area. However, the acres affected are small and are likely to have negligible to minor long-term adverse direct impacts to wildlife. Salamander and newt species may benefit slightly from construction of trails in forested environments as the movement of wood from the trail to trail edges can create microhabitats for these species.

There will be long-term, permanent impacts on one new crossing (riparian zone) for the new trail at Liddell Creek – 120 square feet total (0.002 acre). This total is included in the 0.59 acre of riparian area impact. The new trail at Molino Creek will use an existing feature (earthen dam) to cross the creek and therefore there will be no new impacts at that crossing.

Since there are fewer trails and areas available for recreation, it is anticipated that there would be fewer recreationists under Alternative A, than under Alternative B, C, and D (**Appendix G**). The length, dispersal and reach, and influence of trail users onsite to wildlife is lowest under Alterative A (**Table 4.2.2-1** and **Figure 12a**). Therefore, it is anticipated that there would be a lesser degree of disturbance to wildlife under Alternative A because fewer wildlife are likely to be impacted via interaction with recreationists.

Introduction of dogs in Alternative A would be expected to have adverse effects on wildlife, which perceive dogs as a threat and react accordingly, such as by exhibiting vigilance and/or flight behaviors.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Of the total area of existing impacts, 0.79 acre is weedy/ruderal patch, 3.01 acres is non-native grassland, 4.21 acres is native grassland, 0.98 acre is coyote brush encroachment, 7.60 acres is coastal scrub, 2.41 acres is coast live oak, 0.04 acre is chaparral, 0.06 acre is broadleaf forest, 7.46 acres is conifer forest, 3.53 acres is quarries (abandoned), 3.20 acres is riparian area, and 0.06 acre is perennial wetland.

The administrative route network is considered to be part of the environmental baseline conditions. Continued use of this administrative route network would have adverse impacts to wildlife species associated with these habitat types, but the additive effects are anticipated to be negligible if all vehicles are cautious to avoid direct wildlife mortality by driving slowly, and because these administrative routes have already been used infrequently for ranching and agriculture for decades.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
There is currently no corridor fencing along riparian areas and wetlands to prevent cattle from accessing these areas. Under Alternative A, continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank allotments (1167 acres total) would have continued, long-term, moderate, localized, adverse impacts on fish and wildlife species associated with riparian areas and wetlands due to degradation (trampling) of vegetation and soil.

On the other hand, continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank allotments (1,167 acres total) would have long-term, beneficial effects on wildlife species associated with the grasslands by reducing encroachment of woody species onto these grasslands.

The exclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, adverse impacts on fish and wildlife habitat. Non-native plant species will continue to spread, and the spread of these weeds would continue to displace (outcompete) native plant species. No potential direct adverse effects of herbicide chemicals on individual fish or wildlife species would occur, but the potential adverse effects of non-native plant species on their habitat may be greater than that which could occur from direct herbicide exposure on the individual species. The continued exclusion of fire from the wildfire adapted vegetation types would result in continued fuel load accumulation and suppressed regeneration and recruitment, likely resulting in a trend towards slow, long-term habitat degradation.

Special Management Areas
No designation of Special Management Areas would have no effect on fish and wildlife species.

4.4.4 Impacts of Alternative B

Recreation
Long-term, permanent impacts to habitat from the construction of new Day Use Sites at Warrenella Road Gate, Warrenella Road Top and Marina Ranch Gate comprises 8.03 acres of total graded area. There would be an additional 2.42 acres within the area proposed to be fenced around these day use facilities, which are located on non-native grassland. All three sites are in close proximity to existing disturbances (Cement Plant Road, US Highway One and the PG&E power substation), which will minimize (but not eliminate) permanent, adverse impacts from habitat fragmentation.

Long-term, permanent impacts from the construction of new trails comprises 9.18 acres total. Of the total area of impacts, 0.74 acre is weedy/ruderal patch, 4.39 acres is non-native grassland, 0.31 acre is native grassland, 0.96 acre is coyote brush encroachment, 1.55 acres is coastal scrub, 0.33 acre is coast live oak woodland, 0.11 acre is chaparral, and 0.62 acre is conifer forest. There will be long-term permanent adverse impacts to wildlife species associated with these habitat types, but the effects would be minor due to application of the measures outlined in **Appendix D** and because this represents only a small percent of the overall habitat for fish and wildlife at C-CD.

Of the total area of impacts, 0.18 acre is riparian area and 0.01 acre is perennial wetlands. There will be long-term, permanent adverse impacts on fish and wildlife at one new crossing (riparian zone) for the new trail at Agua Puerca Creek – 120 square feet total (0.002 acre). This total is included in the 0.18 acre of

riparian area impact. However, effects would be minor due to application of the measures outlined in **Appendix D** and because this represents only a small percent of riparian and aquatic habitat at C-CD. The new trail at Molino Creek will use an existing feature (earthen dam) to cross the creek and the new trail at Yellow Bank Creek will also use an existing feature (earthen dam) to cross the creek. Therefore, there will be no new impacts at those two crossings.

Compared to Alternative A, there would be an increased number of visitors under this alternative (**Appendix G**). Studies have shown that human disturbance to birds increases as the number of visitors increases (Beale and Monaghan 2004). The requirement that visitors stay on designated trails, with associated education and enforcement, may reduce this impact, particularly for species which are more likely to become habituated to human presence. Studies have shown that human disturbance to birds increases as the number of visitors increases (Beale and Monaghan 2004) and that some bird species have increased predation and decreased nest survival and nest density near trails (Miller et al. 1998; Reidy et al. 2009)). Trail placement and educational programs that encourage recreationists to stay on designated trails may help reduce the impacts of recreation on wildlife as wildlife exhibit less disturbance from recreationists on trail than off-trail (Mallord et al. 2006; Miller et al. 2001; Taylor and Knight 2003; Soulard 2017).

The length, dispersal and reach, and influence of trail users onsite to wildlife is higher under Alternative B than under Alterative A (**Table 4.2.2-1** and **Figure 12b**). Therefore, it is anticipated that there would be a greater degree of disturbance to wildlife under Alternative B because more wildlife is likely to be impacted via interaction with recreationists. On the other hand, under Alternative B the BLM would prohibit trail and recreation facility development within a large portion of C-CD (RMZs 2 and 4 = 3,261 acres, 56%) and manage these areas as core wildlife protection zones. The protected area of RMZ2 would connect to adjacent protected areas on the adjacent San Vicente Redwoods property. This would have a long-term permanent beneficial impact on fish and wildlife species.

However, the establishment and use of trails may help to reduce the adverse impact on wildlife, particular for species which more readily habituate to human presence, as this may help limit disturbance more than open access to the same corridors (Mallord et al. 2006; Miller et al. 2001; Taylor and Knight 2003; Soulard 2017).

Mountain bikers are expected to have a similar to slightly lower impact on wildlife disturbance than hikers (Soulard 2017; Taylor and Knight 2003). Horses can attract brown-headed cowbirds and potential predators of some songbirds, particularly where corrals and stables are present (Huddart and Stott 2019). Introduction of these two uses under Alternative B would result in additional impacts as compared to Alternative A.

The presence of dogs under Alternative B would have similar effects on native wildlife as Alternative A.

Camping will result in adverse impacts to wildlife. The degree of severity corresponds to the degree of camping authorized. Campsites and associated facilities would introduce impacts which negatively impact wildlife by generating trash, as well as introducing daytime and nighttime noise, and nighttime light. Trash attracts high numbers of corvids and predators (e.g. skunks, raccoons, bobcats, coyotes, mountain lions). As camping is proposed for very limited purposes under Alternative B this will have a minor impact on wildlife but will be greater impact on wildlife than the no camping scenario proposed under Alternative A.

The special hunt program proposed for Alternative B would be managed in partnership between the BLM and California Department of Fish and Wildlife (CDFW). The number of hunting permits to be issued - based on a lottery system – would be similar to Canada de Los Osos in Santa Clara County. On that property, the CDFW hosts five permitted-hunts each year with two turkey hunts, two pig hunts and one deer hunt. Each hunt is a two-day period. For C-CD, the BLM and CDFW anticipate the number of hunters for each

hunt would be 2-4 people. For native species (deer), CDFW and BLM would partner on baseline and annual surveys in the area to determine how many individuals could be sustainably taken on an annual basis. Therefore, the annual authorized take of deer would only have minor adverse impacts on the C-CD deer population. Hunting of non-native species (pigs and turkeys) would be considered a beneficial effect on fish and wildlife.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Impacts would be the same as described for Alternative A.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank allotments (2229 acres total) would have long-term, beneficial impacts on wildlife associated with grasslands. The beneficial effects would include enhanced diversity and structure of the grassland community (Hayes and Holl 2003). Installation of water troughs in uplands, and improved fences to better distribute livestock grazing should have moderate to major, long-term, beneficial effects on wildlife species associated with grasslands due to better distribution of livestock and enhanced utilization of available forage.

Installation of fences, to exclude cattle from riparian areas and wetlands would have long-term, moderate, localized, beneficial effects on fish and wildlife species associated with these habitats by preventing trampling. Installation of waterlines, troughs, and tanks to provide water for cattle instead of having them access riparian areas and wetlands, would have long-term, moderate, localized, beneficial effects on fish and wildlife species associated with these habitats by preventing trampling.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, beneficial effects on fish and wildlife habitat. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types (habitat), such as thistles in grasslands and cape ivy in riparian areas and wetlands. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse direct impacts to individual fish and wildlife species and their habitat. Prescribed fire would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, control non-native plant species, and to restore native grasslands and coastal scrub, thereby improving habitat for wildlife species.

Special Management Areas
Designation of Special Management Areas would have direct beneficial effects on fish and wildlife species in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**).

4.4.5 Impacts of Alternative C

Recreation
Long-term, permanent impacts from the construction of new Day Use Sites including Swanton Gate, Warrenella Gate, Warrenella Top and Marina Ranch comprises 10.74 acres total. The entire 10.74 acres is non-native grassland. In addition, all four sites are located in close proximity to existing disturbance (Swanton Road, Cement Plant Road, US Highway One and the PG&E power substation), which will minimize (but not eliminate) permanent, adverse impacts from habitat fragmentation.

Long-term, permanent impacts from the construction of new trails comprises 11.49 acres total. Of the total area of impacts, 0.77 acre is weedy/ruderal patch, 4.39 acres is non-native grassland, 0.69 acre is native grassland, 0.97 acre is coyote brush encroachment, 3.29 acres is coastal scrub, 0.33 acre is coast live oak, 0.11 acre is chaparral, 0.70 acre is conifer forest, 0.24 acre is riparian area, and 0.01 acre is perennial wetland. There will be long-term permanent impacts to wildlife species associated with these habitat types, but the effects would be minor due to application of the measures outlined in **Appendix D** and because this represents only a small percent of the overall habitat for fish and wildlife at C-CD.

There will be long-term, permanent adverse impacts on fish and wildlife from two new crossings (riparian zones) for the new trails at Agua Puerca Creek and East Liddell Creek– 240 square feet total (0.006 acre). This total is included in the 0.24 acre of riparian area impact. However, effects would be minor due to application of the measures outlined in **Appendix D** and because this represents only a small percent of riparian and aquatic habitat at C-CD. The new trail at Molino Creek will use an existing feature (earthen dam) to cross the creek and the new trail at Yellow Bank Creek will also use an existing feature (earthen dam) to cross the creek. Therefore, there will be no new impacts at those two crossings.

Overall, there would be more miles and acres of trail under Alternative C than under Alternatives A and B (**Table 2**). It is reasonable to assume that there would also be more recreationists under Alternatives C than under Alternatives A, or B (**Appendix G**), with a correspondence increase in adverse impacts to wildlife through disturbance. While mountain bikers would be limited to designated trails under Alternative C, hikers and horseback riders would not be limited to designated trails. Therefore, impacts are anticipated to be greater than Alternatives A and B. Studies have shown that human disturbance to birds increases as the number of visitors increases (Beale and Monaghan 2004) and that some bird species have increased predation and decreased nest survival and nest density near trails (Miller et al. 1998; Reidy et al. 2009)). Trail placement and educational programs that encourage recreationists to stay on designated trails may help reduce the impacts of recreation on wildlife as wildlife exhibit less disturbance from recreationists on trail than off-trail (Mallord et al. 2006; Miller et al. 2001; Taylor and Knight 2003; Soulard 2017).

The length, dispersal and reach, and influence of trail users onsite to wildlife is higher under Alternative C than under Alternatives A and B (**Table 4.2.2-1** and **Figure 12b**). Therefore, it is anticipated that there would be a greater degree of disturbance to wildlife under Alternative C because more wildlife is likely to be impacted via interaction with recreationists. Under Alternative C the BLM would allow for some future trail development within RMZ 2, while prohibiting development within RMZ4 and manage this areas as a core wildlife protection zone (RMZs 2 and 4 = 2,249 acres, 38%). As this protection zone is smaller than that proposed under Alternative B and would not the contiguous with adjacent protected lands in San Vicente Redwoods, the beneficial effects of this action would be less than what is proposed under Alternative B.

Mountain bikers are expected to have a similar to slightly lower impact on wildlife disturbance than hikers (Soulard 2017; Taylor and Knight 2003). Horses can attract brown-headed cowbirds and potential predators of some songbirds, particularly where corrals and stables are present (Huddart and Stott 2019). The use of e-bikes under this alternative is anticipated to increase the number of mountain bikers on all trails designated for biking. As a result, the adverse impacts of introducing these uses under Alternative C is anticipated to be greater than under Alternative B.

The presence of dogs would have adverse effects on wildlife, since wildlife perceive dogs as a threat and react accordingly, exhibiting vigilance and/or flight behaviors. The establishment of off-leash areas is anticipated to have a greater adverse impact than Alternative B on smaller mammals, such as ground squirrels and field mice, which are subject to predation by dogs.

Camping would result in adverse impacts to wildlife, with the degree of severity of impact corresponding to the degree of camping authorized. As there is currently no camping authorized onsite, campsites would introduce and generate trash, light at night, and noise during the day and night. Trash attracts high numbers of corvids and predators (e.g. skunks, raccoons, bobcats, coyotes, mountain lions). Therefore, establishment of campground areas as proposed under Alternative C, are anticipated to have greater impacts than the more temporary, permitted camping opportunities proposed under Alternatives B, and a much greater impact on wildlife than the no camping scenario proposed under Alternative A. The degree of disturbance associated with campsites is anticipated to decrease to the degree that any campsites are located in closer proximity to areas with existing anthropogenic impacts, such as relatively busier roads, and residential areas, rather than areas further in the interior which currently have little to no visitation. Measures to reduce impacts associated with camping include: not authorizing campfires, and adherence to a rigorous Leave-No-Trace policy.

The impact of hunting on fish and wildlife for Alternative C would be the same as Alternative B.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Impacts would be the same as those described for Alternative A.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Installation of fences to exclude cattle from riparian areas and wetlands would have long-term, moderate, localized, beneficial effects by preventing trampling, and reduction of sediment and manure into waterways. Installation of waterlines, troughs, and tanks to provide water for cattle instead of having them access riparian areas and wetlands, would have long-term, moderate, localized, beneficial effects on fish and wildlife species associated with these habitats by preventing trampling.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods are anticipated to have long-term, major, beneficial effects on fish and wildlife habitat. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types (habitat), such as thistles in grasslands and cape ivy in riparian areas and wetlands. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse direct impacts to individual fish and wildlife species and their habitat. Prescribed fire would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, potentially help control non-native plant species, and potentially help restore native grasslands and coastal scrub, thereby improving habitat for wildlife species.

Special Management Areas
Designation of Special Management Areas would have direct beneficial effects on fish and wildlife species in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**). This beneficial effect would be less than what is proposed under Alternative B because fewer creeks (Liddell Creek, Laguna Creek) would be considered suitable under this alternative.

4.4.6 Impacts of Alternative D (Preferred Alternative)

Recreation
Long-term, permanent impacts from the construction of new Day Use Sites including Swanton Gate, Warrenella Gate, Warrenella Top and Marina Ranch comprises 9.384 acres total. The entire 9.38 acres is non-native grassland. All three sites are located in close proximity to existing disturbances (Cement Plant

Road, US Highway One and the PG&E power substation), which will minimize (but not eliminate) permanent, adverse impacts from habitat fragmentation.

Long-term, permanent impacts from the construction of new trails comprises 11.61 acres total. Of the total area of impacts, 0.24 acre is riparian zone, 0.01 acre is perennial wetland, 0.63 acre is weedy/ruderal patch, 5.00 acres is non-native grassland, 0.34 acre is native grassland, 0.82 acre is coyote brush encroachment, 2.09 acres is coastal scrub, 0.25 acre is coast live oak, 0.26 acre is chaparral, and 1.97 acre is conifer forest. There will be long-term permanent impacts to wildlife species associated with these habitat types, but the effects would be minor due to application of the measures outlined in **Appendix D** and because this represents only a small percent of the overall habitat for fish and wildlife at C-CD.

There will be long-term, permanent impacts on two new crossings (riparian zones) for the new trails at Molino Creek and Upper Yellow Bank Creek – 240 square feet total (0.006 acre). This total is included in the 0.24 acre of riparian area impact. However, effects would be minor due to application of the measures outlined in **Appendix D** and because this represents only a small percent of riparian and aquatic habitat at C-CD. The new trail at Molino Creek will use an existing feature (earthen dam) to cross the creek and the new trail at Yellow Bank Creek will also use an existing feature (earthen dam) to cross the creek. The creation of the trails down to the earthen dams will increase erosion from the banks and sedimentation of the stream. Therefore, these two crossings will cause soil compaction in the riparian areas and soil loss as the trail is forged across the earthen dam.

Overall, there would be more miles and acres of trail under Alternative D than under Alternatives A and B and less than under Alternative C (**Table 2.**) It is reasonable to assume that there would also be similar number of recreationists under Alternatives C and D, and more than under Alternatives A or B (**Appendix G**), with a corresponding level of adverse impacts from recreationists adversely impacting wildlife through disturbance. The requirement that visitors stay on designated trails, with associated education and enforcement, may reduce this impact, particularly for species which are more likely to become habituated to human presence. Studies have shown that human disturbance to birds increases as the number of visitors increases (Beale and Monaghan 2004) and that some bird species have increased predation and decreased nest survival and nest density near trails (Miller et al. 1998; Reidy et al. 2009)). Trail placement and educational and management programs that encourage and require recreationists to stay on designated trails may help reduce the impacts of recreation on wildlife as wildlife exhibit less disturbance from recreationists on trail than off-trail (Mallord et al. 2006; Miller et al. 2001; Taylor and Knight 2003; Soulard 2017).

The length, dispersal and reach, and influence of trail users onsite to wildlife in Alternative D is lower than Alternative C, but higher than Alternatives A and B (**Table 4.2.2-1** and **Figure 12d**). Therefore, it is anticipated that there would be a greater degree of disturbance to wildlife under Alternative C than under Alternatives A and B, but less than Alternative D, because more wildlife is likely to be impacted via interaction with recreationists. Under Alternative B the BLM would prohibit trail and recreation facility development within a large portion of C-CD (RMZs 2 and 4 = 3,187 acres, 55%) and manage these areas as core wildlife protection zones. The protected area of RMZ2 would connect to adjacent protected areas on the adjacent San Vicente Redwoods property. This would have a long-term permanent beneficial impact on fish and wildlife species.

Mountain bikers are expected to have a similar to slightly lower impact on wildlife disturbance than hikers (Soulard 2017; Taylor and Knight 2003). Horses can attract brown-headed cowbirds and potential predators of some songbirds, particularly where corrals and stables are present (Huddart and Stott 2019). The use of e-bikes under this alternative may is anticipated to increase the number of mountain bikers in all trails designated for biking, more remote regions of trails which would exacerbate the impacts of mountain biking on wildlife, perhaps especially on more remote regions of trail. As a result, the adverse impacts of introducing these uses under Alternative D is anticipated to be similar to Alternative C.

The presence of dogs would have adverse effects on wildlife, since wildlife perceive dogs as a threat and react accordingly, exhibiting vigilance and/or flight behaviors. Under Alternative D, dogs would be allowed on-leash only on specifically designated trails. As a result, adverse impacts from dogs would be less under Alternative D than proposed under Alternatives B and C.

Camping will result in adverse impacts to wildlife, with the degree of severity of impact corresponding to the degree of camping authorized. As camping is proposed in very limited scenarios under Alternative D, adverse impacts would be minor and similar to Alternative B.

The impact of hunting on fish and wildlife for Alternative D would be the same as Alternative B.

Transportation and Travel Management
Long-term, permanent impacts from continued use of the Administrative route network comprises 33.36 acres total. Impacts would be the same as those described for Alternative A.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Installation of fences to exclude cattle from riparian areas and wetlands would have long-term, moderate, localized, beneficial effects by preventing trampling, and reduction of sediment and manure into waterways. Installation of waterlines, troughs, and tanks to provide water for cattle instead of having them access riparian areas and wetlands, could have long-term, moderate, localized, beneficial effects on fish and wildlife species associated with these habitats by preventing trampling.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods are anticipated to have long-term, major, beneficial effects on fish and wildlife habitat. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types (habitat), such as thistles in grasslands and cape ivy in riparian areas and wetlands. The use of appropriate herbicide formulations, establishing buffer zones from sensitive species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse direct impacts to individual fish and wildlife species and their habitat (**Appendix F**). Native Bees are negatively affected by glyphosate (Motta et al. 2018, Sponsler et al. 2019). Surveys for these bees should be done and the phenology of their nectar sources assessed prior to planning spraying. Since bees track their nectar sources and these shift as the season progresses a time for spraying could be worked out so as not to impact native bees. Rodeo has been shown to affect larval stages of frogs and to interfere with the protective microbial film on the skin of frogs (Krynak and Benard 2017). This has the potential to expose frogs to many diseases including chytrid (McCoy and Peralta 2018). Freshwater zooplankton (found in wetlands and ponds) show toxicity dependent on the levels of application (Huarica et al. 2020). Prescribed fire would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, potentially help control non-native plant species, and potentially help restore native grasslands and coastal scrub, thereby improving habitat for wildlife species.

Special Management Areas
Designation of Special Management Areas would have direct beneficial effects on fish and wildlife species in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**). This beneficial impact would be lesser than under Alternatives B and C because only one creek (San Vicente Creek) would be suitable under this alternative.

4.5 Biological Resources - Special Status Species

4.5.1 Introduction

This section discusses impacts on special status plant and animal species, along with applicable mitigation.

Methods of Analysis

The analysis of direct and indirect effects is focused on species, populations, and habitats within the planning area. Direct impacts are the direct or immediate effects of an action on biological resources. Examples of direct impacts to special status animals and their habitat include mortality, injury, or displacement; interference with movement or migration; disruption of essential behaviors such as feeding, breeding, and sheltering; and disturbance from noise, light, or dust. Examples of direct impacts to special status plants are primarily limited to mortality or injury. Examples of indirect effects to native habitat of special status animals and plants include erosion, sedimentation, introduction of pathogens, and introduction of non-native species that may compete with native species and cause habitat degradation.

The impact discussion presented for each alternative focuses on the particular impacts of that alternative and builds on the discussion of generalized impacts that would occur under all alternatives. Analysis of the effects of herbicide application on Special Status Species is provided under Water Resources and Quality, Wetland and Riparian Areas, Fish and Other Aquatic Organisms, and Wildlife Resources in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

Assumptions

Impacts to wildlife and habitat are discussed in the previous section. The effects of each alternative to special status species habitat would be generally similar, as would applicable mitigation. The assumptions used for biological effects analysis in general are incorporated by reference here. Additional assumptions used in this impact analysis include the following:

- Species-specific surveys and species avoidance and habitat protection measures would result in land use authorizations that minimize impacts on these special status species.
- For federally listed species, surface disturbance will be prohibited if the USFWS Endangered Species Act Section 7 consultation concludes that the proposed action is inconsistent with the recovery needs of the species as identified in an approved USFWS Recovery Plan.
- Other actions to conserve, restore, and enhance special status species habitat would also continue to be implemented. These proactive measures include direction to retain and acquire important native habitat, especially for federally listed species; to implement recovery plans and secure areas important for recovery (e.g., compensation lands); to maintain, enhance, and restore native habitat and native populations, including riparian and sensitive species; to maintain linkage between areas of natural habitat; to improve the knowledge base of the species and lands under BLM management; to conduct research focused on special status species; and to manage all public lands appropriately.

Project Design Features (PDF's)

The PDF's described in **Appendix D** include, but are not limited to the following:

- Minimize habitat disturbance and reduce the potential for take of federally listed species.
- Extend protective measures for federally listed species to candidate and proposed species.
- Conduct surveys for federally listed species and important habitat features for listed species.

4.5.2 Impacts Common to All Alternatives

Direct or indirect impacts to special status wildlife include take, mortality, injury, loss or degradation of occupied habitat, or disturbance that may affect normal behavior patterns such as breeding, feeding, sheltering, migration, or dispersal. Wildlife, including special status wildlife, could be exposed to hazards such as vehicle strikes, nest disturbance, entrapment, collision, electrocution, and hazardous materials.

Special Status Plant Species

There are no currently known populations of Federally listed or BLM sensitive plant species on C-CD. Although a few species have been recorded in nearby properties, there is low potential for them to occur on C-CD because of a lack of necessary soil or habitat type.

California Red-legged Frog

California red-legged frogs (CRLF) are vulnerable to anthropogenic disturbances beyond those described above. Introduction of nonnative predators and competitors such as nonnative fish and bullfrogs can potentially extirpate a breeding population. Introductions by recreational visitors has been implicated in the spread of nonnatives to other protected areas. Introduction of pathogens such as *Batrachochytridium dendrobatidis*, also known as the amphibian chytrid fungus or Bd, can also impact a breeding population and is a major concern of CRLF experts. New research suggests that even expansion of populations of native amphibians such as newts (California newt, *Taricha torosa* and Rough-skinned newt, *Taricha granulosa*) already present elsewhere on C-CD could have adverse effects on CRLF reproduction (Kiemnec et al (in prep)).

Red-legged frogs may be most negatively impacted if a trail traverses within 150 meters of their habitat as this is the median distance from which they move from breeding areas (Bulger et al. 2003; Fellers and Kleeman 2007). Red-legged frogs disperse and seasonally migrate across upland habitat and are subject to vehicle strikes when they cross roads or trails (Westphal unpubl. data). Buildings or other vertical structures, including cement curbs, may limit their movements. Red-legged frogs may move as far as two miles from breeding habitat and therefore have the potential to be negatively impacted by trails and roads that occur within 2 miles of breeding habitat (Bulger et al. 2003).

Central Coast Coho and Central California Coast Steelhead

Management actions identified in the alternatives are designed to promote protection and enhancement of habitat for salmonids, including measures to reduce sources of soil loss and erosion, instream habitat enhancement projects, and restoration of riparian areas. Partnerships with federal, state and many other partners will assist in development of sustainable trails that do not impact streams after the initial construction of the trails. Examples of the types of trail structures that could be developed as funding allows include bridge, boardwalks, railings, hardening of trail surfaces and drainage structures to funnel water away from the streams. All of these actions would have major, long-term, and beneficial effects on fisheries through improved habitat quantity and quality. Upslope sediment reduction would reduce the amount of fine sediment that deposits in pools and spawning habitat, which decreases suitability of salmonid habitat and may adversely affect survival of juvenile fish. Instream habitat enhancement would provide more rearing, holding, and spawning habitat.

Riparian area restoration would enhance the function of riparian areas to provide increased filtering capacity, increased nutrient input to streams, and increased stream cover and large wood recruitment potential. Restoration activities and prescribed treatments would be screened (as presented in Section 2.2 Overall Management Approach) to ensure that they benefit riparian dependent species, and methods would be constrained so that treatments do not retard or prevent attainment of fisheries goals and objectives. Increased access opportunities for researchers are key elements for the awareness, understanding, and appreciation of the values of the C-CD streams for listed fish species.

When management projects are implemented; PDF's and best management practices to reduce erosion and retain soil will reduce the potential effects on critical fish habitat. The BLM anticipates that improvements due to restoration of riparian vegetation, elimination of invasive vegetation, and selective thinning to reduce fire danger should improve the overall habitat for these listed species. Bridge building to cross streams, and boardwalks in wetland areas should reduce erosion. Hardening paths near streams and roads will reduce erosion as well as allow for a large number of visitors. Trail construction and/or road maintenance can be done to minimize stream bank soil and eliminate stream bed disturbance. Similarly, the development of range improvement projects (i.e. water pipelines, fencing, or corrals) for livestock grazing is expected result in lower sediment transport and beneficial impacts aquatic habitat and listed fish species.

The CZU Lightning Complex burned 86,509 acres, and is by far the largest wildfire in recent history in the Santa Cruz/San Mateo County region. Approximately 1,052 acres of C-CD burned in this fire in the Molino, Agua Puerca, and San Vicente watersheds (**Figure 14**). The potential for increased mobility of post-fire sediment is a concern for breeding salmonids and the California red-legged frog, which may be expected to see a reduction in successful reproduction in the short-term.

Table 4.5-1 displays the mileage of proposed trails within a range of buffer distance of steelhead critical habitat. Potential minor short-term disturbances that may be associated with the resource management actions are expected to be minimized by implementing PDF's identified in **Appendix D**.

Table 4.5-1. Length (miles) of Proposed Trail Development Within Proximity to Steelhead Designated Critical Habitat.

Buffer Distance	Alternative A	Alternative B	Alternative C	Alternative D
25 meters	1.23	0.10	0.32	0.21
50 meters	1.75	0.44	0.84	0.58
100 meters	1.78	1.63	2.48	2.28

Table 4.5-2. Area (acres) of Trail-Related Disturbance Within 200 m or 500 m of Steelhead Designated Critical Habitat.

200 meters	449 (7.7%)	1,603 (27.6%)	2,364 (40.8%)	1,993 (34.1%)
500 meters	1,097 (18.9%)	2,484 (42.8%)	3,496 (60.3%)	3,016 (51.6%)

The impacts of construction and development of recreation facilities would be screened through the Section 7 consultation process to ensure that they are consistent with attainment of goals and objectives for special status species. The PDF's identified in **Appendix D** would also be required to implement the decisions in this RMPA. Erosion and sediment control measures would be implemented during construction to reduce the potential for sediment and chemical-laden runoff to adversely impact sensitive species habitat. Care will be taken to minimize effects on riparian areas as these are filters for upslope sediment and protect streams.

4.5.3 Impacts of Alternative A (No Action)

Recreation

Day use hiking on the Molino Pasture Trail and the Liddell Creek Trail has the potential to affect habitat for listed species. For example, Alternative A would increase the length of trails and visitor use in the floodplains of Liddell Creek compared to Alternative B, C and D (**Table 4.5-1**).

Introductions and spread of non-native plant, aquatic wildlife species, and/or pathogens are anticipated to impact native aquatic species adversely, including these special status fish species. For example, the New Zealand mud snail (*Potamopyrgus antipodarum*) has been documented in Liddell creek. This species is a growing concern among fish biologists in this region. Recreational activities or other development activities that may occur at proposed stream crossings have potential to facilitate the spread of the New Zealand mud snail and other aquatic invasive species within the six watersheds at C-CD. (NOAA Fisheries Southwest Fisheries Science Center 2019, Western Regional Panel of the Aquatic Nuisance Species Task Force (USFWS 2012), and California Department of Fish and Wildlife (2012).

Under this alternative, two existing trails within the Liddell creek riparian corridor and near Molino Creek would be utilized for recreational hiking. At both locations small parking areas would be constructed. The total area created in the establishment of parking areas under Alternative A are approximately 0.25 acres each. The proximity of the parking area could increase the potential that both trail construction and recreationists would cause bank erosion and increased sedimentation into Molino creek. The Liddell creek trail runs parallel to Liddell creek. Although the trail would be buffered from the edge of the creek, there is high potential that recreationists would be able to access the creek through social trails. This could lead to bank erosion and increased sedimentation which could degrade spawning and rearing habitat for steelhead which have been documented in both Liddell creek and in Molino creek. Coho, which have been reported in Liddell Creek, could be adversely impacted as well.

Under this alternative, the Molino creek parking area would occur within the Molino creek riparian area. In order to access the Molino Pasture Trail, the BLM would work with partners to utilize existing infrastructure or construct a new stream crossing to discourage visitors from entering Molino Creek. The parking area adjacent to Molino Creek off Swanton Road, and the parking area off Bonny Doon Rd. adjacent to Liddell Creek, would be designed to avoid substantially altering the existing drainage patterns in the selected area. For example, the proposed parking areas would include storm water drainage systems. All storm water drainage as a result of the project would be managed on site and would not exceed the capacity of any storm water drainage system.

The BLM anticipates that consultation with USFWS and NMFS, as well as PDF's identified in **Appendix D,** will result in minor adverse short-term and long-term impacts of recreation management actions on special status species habitats in the Molino Creek watershed and in the Liddell Creek watershed.

Transportation and Travel Management

Under Alternative A, the BLM would maintain approximately 28 miles [34 acres] of existing network of roads that are considered administrative routes that are necessary for management and other valid uses. The BLM's PDFs for transportation management activities are summarized in **Appendix D**. The effects of travel management would be mitigated by observing seasonal restrictions on unimproved roads and implementing projects prior to winter weather (November and December) to minimize and avoid impacts to listed species habitats.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire

Under this alternative, existing programs would be continued to control non-native plant species. However, the potential benefits to native riparian plant species associated with Alternative A are less than other action alternatives because current management is limited to manual methods of vegetation management that generally cause more ground disturbance and potential sedimentation to streams. Future implementation projects would be screened and modified to ensure that they are consistent with attainment of special status species goals and objectives.

The impact of grazing on ponds and streams in the existing allotments would continue. Under current management, changes to the grazing practices would be limited due to the lack of management direction provided in the CCNM RMP (BLM 2005a) and the IMP (BLM 2014). As a result, there would be limited opportunity to implement range improvement projects that are designed to discourage and/or exclude

livestock from entering riparian areas and wetlands. As a result, the BLM expects that habitat for listed species would be less protected under Alternative A than Alternatives B, C or D.

The maintenance, creation, or retirement of artificial ponds for the purposes of grazing is a major effect on populations of pond breeding amphibians and would be expected to continue under this alternative.

The exclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, adverse impacts on individual special status species habitat. Non-native plant species may continue to spread and the spread of these weeds would continue to displace (outcompete) native plant species and degrade habitat. No potential direct, adverse affects of herbicide chemicals on individual special status species would occur based on the standard operating procedures identified in the BLM's proposed WMP (**Appendix F**). The continued exclusion of fire from the wildfire adapted vegetation types would result in continued fuel load accumulation and suppressed regeneration and recruitment, likely resulting in a trend towards slow, long-term habitat degradation.

Alternative A would continue the BLM's existing agreement with California Department of Forestry and Fire Protection (CALFIRE) for fire suppression in the C-CD. The North Coast of Santa Cruz County is a direct protect area (CDPA) for CALFIRE, so the BLM has developed a Modified Suppression Plan in coordination with CALFIRE to minimize impacts to listed species habitats from fire suppression strategies and practices. Fire suppression activities can result in adverse impacts to aquatic habitats for frogs and fish through construction of dozer lines and new road construction, retardant drops and water withdrawals. However, fire suppression may benefit fisheries because current forest fuel loads are higher now than during the last 150 years or more. When wildland fires now occur in watersheds, the fires are dramatically different from those that occurred in the past. Many present-day wildfires tend to become stand replacement fires in areas that 100 years ago would only carry small low-intensity ground fires. Fish populations that have evolved in these areas may not be able to survive the intense wildfires that can occur in these areas today. Thus, protection of aquatic habitat from the impacts of stand replacing wildfire may outweigh the short-term impacts of suppression activities.

Special Management Areas
No designation of Special Management Areas would have no effect on special status species.

4.5.4 Impacts of Alternative B

Recreation
The development and use of 20 miles of trails for hiking, mountain biking, and horseback riding may affect habitat for listed species due to initial construction and occasional maintenance needs. Closure of trails under wet weather conditions will minimize adverse impacts from trails on habitat for special status species. Development of parking facilities may adversely impact listed species over the long term if no bridges are built to keep visitors out of the streams and to direct them onto the trails. Construction of parking facilities would have negligible effects where PDF's are used to minimize and avoid take of listed species and their associated habitats.

Alternative B would result in higher use numbers in RMZs 1 and 3 compared to Alternative A, but less visitor use numbers than Alternatives C and D (**Appendix G**). Under Alternative B, the Agua Puerca trail would cross Molino creek and Agua Puerca creek, the Cotoni trail would cross Yellow Bank creek at two locations and would parallel the creek for approximately 1 mile. The crossings at Molino and Agua Puerca Creeks are above existing fish barriers that limit upstream migration of steelhead. Yellow Bank Creek is not designated steelhead critical habitat. Under Alternative B, recreational development would be precluded within a significant portion of C-CD (RMZs 2 and 4 = 3,261 acres, 56%). This would preclude development within proximity to streams with documented occurrences of coho (San Vicente, Laguna, and Liddell Creeks). It also would preclude adverse impacts to steelhead or steelhead critical habitat within those creeks.

Under Alternative B trails come within 50 meters of red-legged frog breeding habitat in 6 locations and within 25 meters of habitat in 5. If recreational trails are near ponds or streams, it can be expected that dogs will enter the water. Dogs that enter the water may disrupt egg masses or frogs. Additionally, users entering multiple bodies of water may spread invasive species such as New Zealand Mud snail. Recreationists may also introduce unwanted pets such as crayfish, aquarium fish, bullfrogs, or turtles. The introduction of any of these species would be expected to have negative impacts on frogs.

To reduce these potential effects, dogs would be required to be on leashes. Additionally, visitors to C-CD would be required to stay on the trail system. Where large numbers of visitors are anticipated, the BLM would design trails to keep visitors away from the ponds using natural barriers or fencing and signage. In this way the potential adverse impacts of trail use would be managed consistent with special status species goals and objectives. Therefore, the BLM anticipates that with the help from partners, that the recreation management actions would have minimal effects on the habitat and negligible effect on individuals of special status species.

Transportation and Travel Management

Under Alternative B, the BLM would maintain approximately 28 miles [34 acres] of existing network of roads that are considered administrative routes that are necessary for management and other valid uses. The PDF's for transportation management activities are summarized in **Appendix D**. The effects of travel management would be mitigated by observing seasonal restrictions on unimproved roads, and implementing projects prior to winter weather to minimize and avoid impacts to listed species habitats.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, beneficial effects on special status species habitat. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types (habitat), such as thistles in grasslands and cape ivy in riparian areas and wetlands. The use of appropriate herbicide formulations, establishing buffer zones from special status species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to special status species. Prescribed fire would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, control non-native plant species, and to restore native grasslands and coastal scrub, thereby improving habitat for special status species. Herbicide use and prescribed fire on Federally-listed species would be further analyzed and mitigated through Section 7 consultation.

The maintenance, creation, or retirement of artificial ponds for the purposes of grazing is a major effect on populations of pond breeding amphibians and would be expected to continue under this alternative.

Special Management Areas

Designation of Special Management Areas would have direct beneficial effects on fish and wildlife species in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**). All three of the creeks identified as suitable segments under this alternative are considered habitat for California red-legged frog, coho and steelhead.

4.5.5 Impacts of Alternative C

Recreation
Similarly to Alternative B, under Alternative C, the Agua Puerca trail would cross Molino creek and Agua Puerca creek and the Cotoni trail would cross Yellow Bank creek at two locations and roughly parallel the creek for approximately 1 mile. In addition, under Alternative C, the BLM would establish additional trails that would cross Liddell creek and add an additional crossing of Agua Puerca creek.

Alternative C would result in higher visitation numbers in RMZs 1 and 3, compared to Alternatives A and B (**Appendix G**). Despite increased visitation, the BLM anticipates that recreation management actions would have negligible adverse impacts on special status species habitats due to application of measures included in **Appendix D**. The crossings at Molino and Agua Puerca Creeks are above existing fish barriers that limit upstream migration of steelhead. Yellow Bank Creek is not considered steelhead critical habitat. Under Alternative C, recreational development would be precluded within a smaller portion of C-CD (RMZs 2 and 4 = 2,249 acres, 38%) than Alternative B or D. This would preclude development within proximity to Laguna Creek.

Under Alternative C, trails are within 50 meters of red-legged frog breeding habitat in 8 locations and within 25 meters in 7 locations. If recreational trails are near ponds or streams, it can be expected that dogs will enter the water. Dogs that enter the water may disrupt egg masses, cause flight reactions in adult frogs and tadpoles, or bite or eat frogs. Horses may also be ridden or led to water bodies where they may startle adult frogs and trample egg masses. Horses may also increase the risk of the establishment of social trails, which would increase visitation by humans and dogs. Users entering multiple bodies of water may spread invasive species such as New Zealand Mud snail and pathogens such as *Batrachochytrium dendrobatidis*. Recreationists have introduced unwanted pests such as nonnative fish, crayfish, or turtles into publicly accessible streams and ponds within protected areas in California's Bay Area. The introduction of any of these species would be expected to have negative impacts on frogs and other native aquatic species. Therefore, BLM will seek to educate members of the public on this topic whenever possible. Appropriate signage may aid in reducing the potential for this to happen at C-CD.

Transportation and Travel Management
Under Alternative C, the BLM would maintain approximately 28 miles [34 acres] of existing network of roads that are considered administrative routes that are necessary for management and other valid uses. The BLM's standards and BMP's for transportation management activities are summarized in **Appendix D**. The effects of travel management would be mitigated by observing seasonal restrictions on unimproved roads, and implementing projects prior to winter weather (November and December) to minimize and avoid impacts to listed species habitats.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, beneficial effects on special status species habitat. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types (habitat), such as thistles in grasslands and cape ivy in riparian areas and wetlands. The use of appropriate herbicide formulations, establishing buffer zones from special status species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to special status species.

Prescribed fire would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, control non-native plant species, and to restore native grasslands and coastal scrub, thereby improving habitat for special status species. Herbicide use and prescribed fire on Federally-listed species would be further analyzed and mitigated through Section 7 consultation.

The maintenance, creation, or retirement of artificial ponds for the purposes of grazing is a major effect on populations of pond breeding amphibians and would be expected to continue under this alternative.

Special Management Areas
Designation of Special Management Areas would have direct beneficial effects on fish and wildlife species in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**). Both creeks identified as suitable segments under this Alternative (Liddell and Laguna Creeks) are considered habitat for California red-legged frog, coho and steelhead.

4.5.6 Impacts of Alternative D (Preferred Alternative)

Recreation
Under Alternative D, the proposed trails in RMZ 1would cross Molino Creek and Agua Puerca Creek. There is an existing crossing over Molino Creek that consists of an earthen dam from a former ranch road built over a culvert. A new pedestrian bridge at the stream crossing over Agua Puerca Creek would avoid adverse impacts to the aquatic habitat from trail use.

In RMZ 3, the Cotoni trail would cross Yellow Bank Creek at one location in the upper watershed. A new pedestrian bridge at the stream crossing over Upper Yellow Bank Creek would avoid adverse impacts to the aquatic habitat from trail use.

Alternative D would result in similar annual visitor use estimates as Alternative C (see **Appendix G**). With the application of measures included in **Appendix D**, the BLM anticipates that recreation management actions would minimize or avoid adverse impacts on special status species habitats. Recreational development would be precluded within a significant portion of C-CD (RMZs 2 and 4 = 3,187 acres, 55%). This would preclude development within proximity to streams with documented occurrences of coho salmon (San Vicente, Laguna, and Liddell Creeks). It also would preclude adverse impacts to steelhead or steelhead critical habitat within those creeks.

Under Alternative D, trails within red-legged frog breeding habitat are the same as Alternative C. If recreational trails are near ponds or streams, it can be expected that dogs will enter the water. Dogs that enter the water may disrupt egg masses, cause flight reactions in adult frogs and tadpoles, or bite or eat frogs. Horses may also be ridden or led to water bodies where they may contribute to erosion, startle adult frogs, or trample egg masses. Horses may also increase the risk of the establishment of social trails, which would increase visitation by humans and dogs. Users entering multiple bodies of water may spread invasive species such as New Zealand Mud snail and pathogens such as amphibian chytrid fungus (*Batrachochytrium dendrobatidis*). Recreationists have introduced unwanted pests such as nonnative fish, crayfish, or turtles into publicly accessible streams and ponds within other protected areas in California's Bay Area. If the introduction of any of these species occurs, it would be expected to have negative impacts on frogs and other native aquatic species. Therefore, BLM will seek to educate members of the public on this topic whenever possible. Appropriate signage may aid in reducing the potential for this to happen at C-CD.

Under all Alternatives discussed in this plan, BLM plans to introduce dog-walking as an onsite use. Given the recognition of the likely direct and indirect impacts of dogs on wildlife, BLM will not include dog-

walking on all trails throughout the site. Under Alternative D, all trails and other areas such as parking lots and their surroundings will have "on-leash" at all times requirements. BLM will prepare onsite signage and subsequent maps to clarify to recreationists the areas where dogs are and are not allowed onsite. Dogs will be not be allowed to enter any streams or ponds onsite. Dogs will not be allowed within the Molino Creek drainage, or to the west of the planned pedestrian/bike bridge over Molino Creek. This measure will aid in protecting the ecological integrity of the area to the west of Molino Creek, which is known to host listed (red-legged frog, steelhead), and rare species (badger and raptors). The trail which BLM created though oak and redwood grove, and scrub will not be open to dogs, given the high number of woodrat nests surrounding the trail, as well as the use of these area by wildlife species such as pumas.

Transportation and Travel Management

Under Alternative D, the BLM would maintain approximately 28 miles [34 acres] of existing network of roads that are considered administrative routes that are necessary for management and other valid uses. The PDF's for transportation management activities are summarized in **Appendix D**. The effects of travel management would be mitigated by observing seasonal restrictions on unimproved roads and implementing projects prior to winter weather to minimize and avoid impacts to listed species habitats.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, major, beneficial effects on special status species habitat. While livestock grazing will be the primary large-scale vegetation management method used, the inclusion of herbicide use and prescribed fire would provide additional, effective vegetation management methods. Herbicide use would provide a more targeted method to control specific weeds in specific vegetation types (habitat), such as thistles in grasslands and cape ivy in riparian areas and wetlands. The use of appropriate herbicide formulations, establishing buffer zones from special status species and their habitats, and following herbicide label instructions and standard operating procedures during application will minimize any potential adverse impacts to special status species (**Appendix F**). Rodeo has been shown to affect larval stages of frogs and to interfere with the protective microbial film on the skin of frogs (Krynak and Benard 2017). This has the potential to expose frogs to many diseases including chytrid (McCoy and Peralta 2018). Freshwater zooplankton (found in wetlands and ponds) show toxicity dependent on the levels of application (Huarica et al. 2020). Prescribed fire would provide a broad vegetation management tool, in addition to livestock grazing, in order to reduce fuel loads, control non-native plant species, and to restore native grasslands and coastal scrub, thereby improving habitat for special status species. Herbicide use and prescribed fire on Federally-listed species would be further analyzed and mitigated through Section 7 consultation.

The maintenance or creation of artificial ponds for the purposes of grazing would have major beneficial effects on populations of pond breeding amphibians under this alternative.

Special Management Areas

Designation of Special Management Areas would have direct beneficial effects on fish and wildlife species in stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**). The creek identified as a suitable segment under this Alternative (San Vicente Creek) is considered habitat for California red-legged frog, coho salmon, and steelhead.

4.6 Cultural and Heritage Resources

4.6.1 Introduction

The goals for cultural resource management in the CCNM are identified in the CCNM RMP (BLM 2005a). Cultural resources include prehistoric and historic archaeological sites, artifacts and rock art, sacred sites and other culturally sensitive locations, buildings and structures, landscaping, historic trails and districts, and rural landscapes. Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to "take into account the effects of Federal actions on historic properties".

The BLM National Programmatic Agreement (PA) between the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (SHPO) provides alternative procedures for implementing 36 CFR 800. The California Statewide Protocol Agreement with California and Nevada SHPOs implements the National PA.

The BLM's protection objectives for cultural resources management program focuses on protecting the significance of cultural resources by ensuring they are managed in a manner suited to the characteristics, attributes, and uses that contribute to their public importance; giving adequate consideration to the effects of land use decisions on cultural properties; towards meeting legal and regulatory obligations through a system of compliance fitted to BLM's management systems; and toward ensuring cultural resources on public land are safeguarded from improper use and responsibly maintained in public interest.

Not all cultural resources are significant and qualified for consideration under the NHPA and other regulations. Significant resources are designated as "historic properties" and are defined in 36 CFR 800.16(1) as "any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP)."

The BLM is unable to quantify impacts on cultural and heritage resources from the range of alternatives because the exact timing and/or location of future management activities is not available or attainable. Therefore, the evaluation of such impacts is described qualitatively based on current resource conditions. The RMPA is a planning document, and indirect and cumulative effects of leasing and development inform the planning decision. A qualitative analysis for these impacts, as opposed to a quantitative analysis is appropriate because it provides a reasonable forecast of effects, but does not speculate on the direct effects on cultural and heritage resources from the range of alternatives presented in the RMPA.

A comprehensive survey of the planning area has been conducted for cultural resources at BLM Cultural Resources Inventory (Class I, Class II, and Class III). In areas with moderate to high sensitivity for cultural resources the intensive (Class III) and reconnaissance (Class II) was conducted to reliably analyze impacts to cultural resources under the range of alternatives. Analysis of the effects of herbicide application on Cultural Resources is provided in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

Assumptions

Cultural resources can potentially occur anywhere at C-CD, which has not been completely inventoried. Some yet to be identified cultural resources may be determined significant and qualify for consideration under the NHPA and/or have religious and cultural significance to tribes. Significant resources identified pursuant to the NHPA are designated as "historic properties" and are defined in 36 CFR 800.16(1) as "any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP)." Archaeological components of historic properties on Federal lands are identified through survey, research, and often test excavations to determine their NRHP eligibility. Culturally sensitive locations may be identified through consultation with tribes and outreach to other Native American individuals and groups. Not all sites or places of cultural value may qualify as

historic properties under the NHPA, but may be considered part of the environment for purposes of NEPA review and addressed under such authorities as AIRFA and Executive Order 13007, Sacred Sites.

Given the above considerations, the analysis of historic properties is based on the following assumptions:

- Archaeological sites are highly sensitive to impacts, which are irreversible, and result in irretrievable loss.
- Archaeological resources derive their data value from the context of the artifacts and physical features contained within the site. Therefore, disturbance of the arrangement of the site contents effectively destroys the information it contains.
- Unless determined otherwise, all cultural resources including archeological sites are treated as historic properties and afforded the associated emphasis on preservation through avoidance of any potential adverse effect.
- Information about archaeological resources and historic properties including historic properties that are traditional cultural properties must be held confidential (NHPA, Section 304 [a], Archaeological Resource Protection Act [ARPA], Section 9[a]).
- Certain management activities proposed under the alternatives have the potential to cause irreversible disturbance and damage to non-renewable historic properties. The BLM will avoid, minimize, or mitigate effects to these resources from authorized uses through project avoidance, redesign, and, if necessary, mitigation (such as data recovery investigations), in accordance with the Protocol Agreement with the California and Nevada State Historic Preservation Offices (Revised 2019) or the Section 106 regulations. The Project Design Features (PDFs), listed below, such as fencing, protective barriers, or site capping will be implemented to avoid and minimize adverse effects to historic properties.
- The BLM will not approve activities that may adversely affect any historic properties (including those properties requiring consideration under the American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other cultural resource related statutes, regulations, and executive orders) until it completes its obligations under Section 106 NHPA, NEPA, and other authorities. The BLM may require modification to proposals to protect such properties or disapprove any activity that is likely to result in adverse effects that cannot be avoided, minimized, or mitigated.
- The BLM will continue to implement government-to-government consultation with federally and non-federally recognized tribes on a case-by-case basis for site-specific proposals which would help determine other issues of concern, including but not limited to access rights, disruptions of cultural practices, impacts on visual resources important to the tribes, and impacts on subsistence resources.

Project Design Features

The PDF's relevant to the treatment of cultural resources in **Appendix D** include:

- No construction or surface-disturbing activities shall occur without prior written authorization of the authorized BLM officer based, in part, on completion of compliance with Section 106 of the NHPA and other related authorities.
- Identification, safe avoidance, or mitigation of potential adverse effect on historic properties shall be required on public land as a condition of a lease or permit.
- Where avoidance or adequate protection is not feasible and the property is significant for the scientific data it may contain, initiate a data retrieval (excavation) of sites. Additional analysis and consultation under NEPA and NHPA would be required before data retrieval could occur.

- Surface disturbance will be minimized and proposed developments will utilize previously disturbed areas (with no identified NRHP-eligible cultural resources) when feasible.
- Resource protection may include installation of fencing, protective barriers, or site capping to minimize surface disturbance or impacts on culturally sensitive resources; the potential of certain protective measures (e.g., fencing) that may draw unwanted attention to sites or inadvertently restrict access to traditional use areas shall be considered.
- BLM will continue open dialogue and share information through consultation with federally recognized tribes and with other Native Americans and ethnic groups that have cultural ties to lands proposed for development.
- The presence or absence of cultural properties will be determined prior to the approval of any surface-disturbing activity through such means as cultural resource field inventories, archival research, oral history, or other data gathering means deemed appropriated and evaluations of identified resources shall be evaluated and appropriate treatment measures identified for all project areas subject to surface disturbance or visual intrusions.
- When cultural properties are present, the project would be redesigned or modified to the extent feasible to safely avoid impacting cultural sites or steps taken to adequately mitigate impacts through project redesign or data recovery.
- During periods of high rainfall and runoff or when soils are wet and muddy, soil-disturbing activities shall be avoided to minimize impacts to nearby culturally sensitive resources vulnerable to soil erosion.

Additional archaeological or cultural surveys and further consultation with tribes will be required in the event a proposed project or its location is changed or modified after the consultation, initial survey is completed; the inventory, associated documentation, and necessary compliance would be completed prior to project approval.

4.6.2 Impacts Common to All Alternatives

Many of the ground disturbing actions identified in the range of alternatives could affect prehistoric and historic-era cultural resources or access to culturally sensitive areas. In regard to Section 106, many of the actions could also result in adverse effect determinations for purposes of compliance with Section 106 of the NHPA.

According to 36 CFR 800.5(a)(1), “an undertaking has an effect on a historic property when the undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register…” An effect is considered adverse when the effect on a National Register-eligible property may diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling or association. These effects are commonly caused by direct impacts of soil-disturbing activities or indirect impacts through visual or auditory intrusions. Adverse effects include the physical destruction of all or part of the property.

Adverse effects on historic properties resulting from management actions include, but are not limited to:

- Physical destruction or damage to all or part of the property;
- Alteration of the property that is not consistent with the Secretary’s Standards for the Treatment of Historic Properties (36 CFR part 68);
- Removal of the property from its historic location;
- Isolation of the property from or alteration of the property’s setting when that character contributes to the property’s qualifications for listing in the National Register;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;

- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe; or
- Unauthorized collection of artifacts.

If ground disturbance from development is proposed for areas with NRHP-eligible cultural resources, these potential adverse effects would be avoided or greatly minimized through project redesign. The most likely sites to be encountered during management activities are prehistoric archaeological sites. For this area, the most common site types include residential occupation sites, often found in proximity of water sources such as coastal streams and small special use sites found in upland settings. The larger residential sites may also include human burials. Native American traditional use locations and built-environment sites are much less likely to be encountered. Avoidance of recorded, eligible cultural resources, or areas that are known to be important due to their traditional cultural use, is considered to be the most effective protection measure for these resources.

When avoidance of adverse effects on historic properties is not feasible or when they inadvertently occur in spite of site protection through the Project Design Features and other preservation management practices, procedures identified in the Protocol Agreement and the 36 CFR 800 shall be employed as necessary to resolve adverse effects.

4.6.3 Impacts of Alternative A (No Action)

Compliance with Section 106 of the NHPA is intended to promote the protection and preservation of those cultural sites determined to be historic properties so that authorized use of public lands would not result in adverse impacts to NRHP-eligible archaeological sites, traditional cultural properties, sacred sites, or built-environment resources. However, when avoidance of adverse impacts is not feasible due to overriding project or land use considerations, PDF's may be implemented as outlined above in Section 4.6.1. Such an analysis recognizes the importance of consultation with Native American tribes and other concerned parties on specific undertakings involving various authorized land uses. Authorized uses with highest potential to directly affect historic properties and other culturally sensitive areas include construction of new parking and transportation facilities, vegetation management actions, livestock grazing, and recreational trail use. These impacts under this Alternative are minor and limited.

Recreation
Recreation under Alternative A utilizes already established trails and routes for recreation opportunities. With less new ground disturbance there are fewer opportunities to negatively impact cultural resources. Access and use of cultural resources is minor and localized. BLM cultural resources Class III investigations were conducted of established trails under this alternative prior to utilization of routes. No cultural resources were identified within the existing trail network. So, it would be unlikely to have direct impacts to cultural resources.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Grazing can have both beneficial and adverse effects for cultural resources. Routine grazing can reduce excess vegetation and provide better access to cultural resources for research needs. Installation of fences to exclude cattle from cultural resources would have long-term, moderate, localized, beneficial effects on cultural resources by preventing impacts related to trampling and congregating of cattle, and trailing. (Douglass: 2012). If it is determined that measures such as fencing would be needed, further review would be done at that time.

Under the No Action Alternative, proposed vegetation treatments would be limited to livestock grazing and mechanical fuel reduction. The lack of herbicide application and prescribed fire would likely result in continued expansion of weed populations. Potential indirect effects of weed spread on cultural resources includes competition with native plant species used for traditional uses. Adverse effects of undesirable

weeds (thistles, etc.) on access to cultural sites for research or traditional practices would be long-term minor to cultural resources.

Special Management Area
No designation of Special Management Areas would have no effects on cultural values.

4.6.4 Impacts of Alternative B

Recreation
Under Alternative B, the area of potential effect for the proposed parking lots near Warrenella Road includes the Mocettini Cheese House. However, the proposed parking area under this alternative is located outside this historic site. The proposed location of the parking would maintain the integrity of the historic era landscape that is integral to the historic site's setting. Placing parking and visitor access at this site will increase the site's visibility, which could have a long-term positive impact on the site through interpretation and increased public appreciation of Swiss dairy history in Santa Cruz County and Davenport. Permanent minor to moderate negative effects such as vandalism and looting on the site may occur through increased visibility and access to the structure which can be minimized through administrative efforts such as law enforcement patrols and cultural resource monitoring.

The creation of additional trails in RMZ 1 and RMZ 3 increases access to areas that contain cultural resources as compared to Alternative A. Trails identified in Alternative B would be designed to avoid sensitive cultural resources and minimize impacts to cultural resources. Trail creation under this alternative should have minor impacts to cultural resources through cultural resource avoidance and physical protection measures. A cultural resources Class III inventory was conducted of the proposed trail alignments under Alternative B. A total of 10 cultural resources were identified during the course of the Class III investigation of the trail alignment. The BLM had not full evaluated the resources found during the inventory. The BLM is treating the resources as NRHP eligible under Criterion D for its scientific research potential. The proposed trail alignment was rerouted to avoid direct effects to the resource. To reduce potential impacts to cultural resources, segments of the originally proposed trail alignments have been adjusted to avoid negative impacts to cultural resources. Indirect effects (related to increased future access) are not anticipated generally for the Phase 1 trail system. Therefore, construction and the use of the Phase 1 trail system would not impact cultural resources. Recreation is primarily limited to established trails and social trails are discouraged, again minimizing long term impacts from public access.

Under Alternative B dispersed camping opportunities are offered through the BLM's special recreation permit (SRP) system. Since this Alternative does not have established camping areas, this has the potential to have a minor adverse impact on cultural resources. Not every area that could be utilized for camping may have a complete BLM Class III Inventory prior to usage, so unknown resources could be impacted negatively, but could also have a beneficial impact if visitors report resources for further research and foster an appreciation for cultural resources and heritage.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Grazing would increase in this Alternative, potentially increasing the locations where grazing impacts reach as compared to Alternative A. Grazing can provide moderate positive impacts to cultural resources through vegetation clearance to increase native and traditional use plants. It can also increase access to areas for scientific research and traditional uses. Like Alternative A, fencing and administrative measures, such as exclusion of sensitive areas, will be used to protect cultural resources from negative impacts.

Prescribed fire could occur within identified cultural sites at C-CD. Proposals for prescribed fire would be developed in coordination with partners, including the Amah Mutsun Land Trust, to ensure cultural resource protection at the sites. Prescribed fire can have lasting positive effects for cultural resources by

promoting traditional uses and increase native vegetation while having no adverse effects. Herbicide application would not occur within the identified core cultural sites area, unless it is determined in coordination with partners that herbicide application would be no potential for adverse effects on cultural sites or Native American use sites.

Special Management Area
Designation of Special Management Areas would have long-lasting direct beneficial effects on cultural values associated with stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**). The designation would increase protection to pre-contact sites and traditional use plants as identified by the Amah Mutsun through establishing authorized access and use in the designated areas.

4.6.5 Impacts of Alternative C

Recreation
Recreation under Alternative C would see an increase in access across C-CD. With the forecasted visitation at C-CD and substantially increased access to the property, the likelihood of moderate permanent negative impacts to cultural resources is high. Sites such as pre-contact food preparation and vegetation collection sites as well as historic era habitation sites are sensitive to modification of site formation, unauthorized artifact collection, and feature modification through vandalism and unauthorized use (McBrearty: 2019). Like Alternative B, prior to approving the Final RMPA, a cultural resources Class III investigation has been conducted in the Area of Potential Effect from the construction associated with RMPA implementation decisions to minimize or avoid negative impacts to Historic Properties. Increased visitation could provide a significant long-term positive impact for cultural resources through fostering stewardship through heritage education opportunities.

Unlike Alternative A and B, pedestrian access is not limited to designated trails. Avoidance of sensitive cultural resources through trail planning can encourage people to avoid sensitive or un-inventoried areas but off-trail hiking would not be prohibited. Therefore, adverse impacts to cultural resources under Alternative C are greater than Alternatives A and B.

Camping opportunities under Alternative C consist of designated hike-in or ride-in primitive camping sites. This would limit the dispersion of potential effects on cultural resources by establishing specific areas that camping would be allowed. There is no SRP system to limit visitors to the camping sites, which could allow for overflow of visitors into uninventoried areas of the property, especially around the established camp sites. Unauthorized camping could have a minor adverse impact on cultural resources from the unauthorized overflow. This option does have a positive impact on cultural resources by having the most opportunities to the public for overnight visitation and enjoyment of the cultural landscape.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Grazing would increase in this Alternative, potentially increasing the locations of where grazing impacts reach (see Alternative A). The PDF's and potentially resulting effects identified for Alternative A would remain the same for Alternative C. The types of impacts to cultural resources would be the same as described for Alternative B. The PDF's identified as common to all alternatives would reduce the potential impacts of livestock grazing, herbicide use, and prescribed fire.

Special Management Area
Designation of Special Management Areas would have direct long-lasting beneficial effects on cultural values associated with stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**). The designation would increase protection to pre-contact sites

and traditional use plants as identified by the Amah Mutsun through establishing authorized access and use in the designated areas.

4.6.6 Impacts of Alternative D (Preferred Alternative)

Recreation
Recreation under Alternative D would see an increase in access across the western and eastern portion of the C-CD unit as compared to Alternatives A and B. With the forecasted visitation at C-CD and substantially increased access to the property, the likelihood of moderate permanent negative impacts to cultural resources is moderate. The central portion of the C-CD unit focuses on resource protection and promotion, thus lessening the impact to cultural and natural resources. Sites such as pre-contact food preparation and vegetation collection sites as well as historic era habitation sites are sensitive to modification of site formation, unauthorized artifact collection, and feature modification through vandalism and unauthorized use (McBrearty: 2019). A BLM cultural resources Class III investigation has been conducted in the Area of Potential Effect for the proposed construction associated with RMPA Phase I implementation decisions to minimize or avoid negative impacts to Historic Properties. Prior to implementing the proposed Phase II decisions, a cultural resources Class III investigation will be completed to minimize or avoid negative impacts to Historic Properties. In many cases, trail construction methods utilize the sides of hills where the slope is steep and there is less probability of encountering cultural resources. Trail construction methods employed would also reduce erosion from water, which benefits cultural resources by reducing soil movement and modification of site formation

Similar to Alternative B, hiking is limited to designated trails only, thus reducing the likelihood of visitors entering sensitive or uninventoried areas. Camping opportunities under Alternative D focuses on providing opportunities to camp using a special permit system. Unlike the camping through permitting under Alternative B, Alternative D focuses on providing opportunities to organizations and groups that focus on cultural and natural resource research, education, and furthering traditional cultural practices. This Alternative has positive impacts to cultural resources through the focus on these key elements, the ability to reduce potential impacts to known cultural resources by focusing camping opportunities outside known cultural sites, and fostering an appreciation for cultural resources and heritage.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have long-term, beneficial effects on cultural resources. When managed appropriately, livestock grazing, herbicide use, and prescribed fire would provide long lasting positive effective vegetation management to reduce non-native plants and restore native habitat which is important to traditional use. The vegetation management program proposed under Alternative D would reduce the severity and intensity of wildfire within the C-CD unit. Such wildfire can cause damage to sensitive cultural resources such as historic-era built environment and archaeological sites.

Special Management Areas
Designation of Special Management Areas would have long-lasting direct beneficial effects on cultural values associated with stream segments determined to meet criteria for eligibility and suitability for Wild and Scenic River System (**Appendix E**).

4.7 Water Resources

4.7.1 Introduction

The County of Santa Cruz is experiencing a lack of sustainable water supply due to groundwater overdraft and diminished availability of streamflow. Because of this, coordinated water resource management has been of primary concern to the County and to the various water agencies. As required by state law, each of the County's water agencies serving more than 3,000 connections must update their Urban Water Management Plans (UWMPs) every five years, with the most recent updates completed in 2016.

Therefore, County staff are working with the water agencies on various integrated regional water management programs to provide for sustainable water supply and protection of the environment. Effective water conservation programs have reduced overall water demand in the past 15 years, despite continuing growth. In August 2014, the Board of Supervisors and other agencies adopted the Santa Cruz Integrated Regional Water Management (IRWM) Plan Update 2014, which identifies various strategies and projects to address the current water resource challenges of the region. Other efforts underway or under consideration are stormwater management, groundwater recharge enhancement, increased wastewater reuse, and transfer of water among agencies to provide for more efficient and reliable use.

The County is also working closely with water agencies to implement the Sustainable Groundwater Management Act of 2014. By January 2020, Groundwater Sustainability Plans will be developed for two basins in Santa Cruz County that are designated as critically overdrafted—Santa Cruz MidCounty and Corralitos - Pajaro Valley. These plans will require management actions by all users of each basin to reduce pumping, develop supplemental supplies, and take management actions to achieve groundwater sustainability by 2040. A management plan for the Santa Margarita Basin will be completed by 2022, with sustainability to be achieved by 2042.

Analysis of the effects of herbicide application on Water Resources and Quality is provided in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

Assumptions

The conceptual trail alignments would include crossings of ephemeral drainages and intermittent to perennial streams that may be considered jurisdictional by the USACE, RWQCB, and CDFW. The C-CD Access Plan would include trail design guidelines for new trails and for trails to be developed from existing roads located within C-CD property.

Potential siltation from the project would be addressed through implementation of PDF’s [i.e. erosion control requirements]. No water quality standards or waste discharge requirements would be violated during construction or operation of the proposed trail systems.

The total impervious area created in the establishment of parking areas, trail creation and CXT type restroom structures located at the parking areas would not place any substantial demands on groundwater. The proposed parking areas would include storm water drainage systems. The proposed trails would not substantially alter the existing drainage patterns in the selected area.

Stream crossings should ideally be designed and constructed to freespan the channel and be anchored above the top of bank. Crossings of regulated streams that avoid work below the ordinary high-water mark do not require a permit from the USACE. When merited, consultation with the CDFW and the Central Coast RWQCB would be integrated into the determination of selected crossings, even in situations where the crossings are located above the top of bank. If the CDFW and/or RWQCB have specific concerns for such work, their recommendations will be integrated into the design.

Where wetlands or streams cannot be avoided, appropriate approvals from the USACE (for impacts to regulated wetlands or areas below the ordinary high-water mark of regulated streams) and/or the RWQCB

and the CDFW (for impacts to regulated wetlands, riparian vegetation, or areas below the top of bank of regulated streams) shall be secured prior to initiating work in these areas. The measures included in any such authorizations shall be incorporated into the design.

Trails that are not stable and secure may be closed for public use until maintenance that brings the trail into compliance can be completed. Implementation of the PDF's identified in **Appendix D** would minimize and/or avoid water quality impacts to the ephemeral drainages and intermittent to perennial streams.

All storm water drainage as a result of the project would be managed on site and would not exceed the capacity of any storm water drainage system.

Table 4.7-1 below shows the number of miles of new trails in the six main watersheds of C-CD.

Table 4.7-1. Proposed Trail Distances Within C-CD Watersheds

Watershed Name	Alternative A	Alternative B	Alternative C	Alternative D
Scott Creek	0.07 miles	1.03 miles	1.10 miles	1.77 miles
Molino Creek	0.85 miles	1.87 miles	3.16 miles	5.35 miles
Agua Puerca Creek	0	5.63 miles	7.59 miles	6.29 miles
San Vicente Creek	0	0.63 miles	0.71 miles	0.63 miles
Liddell Creek	1.67 miles	1.56 miles	6.09 miles	2.57 miles
Yellow Bank Creek	0	6.69 miles	7.66 miles	8.65 miles
Laguna Creek	0	1.21 miles	1.21 miles	1.35 miles

4.7.2 Impacts Common to All Alternatives

As proposed day use areas under all alternatives would disturb one or more acres during construction, the proposed actions described would be required to comply with the National Pollutant Discharge Elimination System (NPDES) Permit and submit Permit Registration Documents to the State Water Resources Control Board (SWRCB) prior to the start of construction of the parking areas and trails. The Permit Registration Documents would need to include a Notice of Intent and a site-specific construction Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would describe the incorporation of BMPs to control sedimentation, erosion, and hazardous materials contamination of runoff during construction.

The proposed developments would require the establishment of construction protocols and maintenance guidelines that would ensure that the parking areas and proposed trails are stable and secure to the degree feasible through erosion prevention. In addition, the adaptive management strategies related to watershed protection would further ensure impacts would be less than significant.

Trails that do not meet these standards or comply with the protocols may be closed for public use until maintenance that brings the trail into compliance can be completed. With implementation of the guidelines and construction protocols and BMPs identified in the SWPPP, any water quality impacts during construction would be less than significant. Management guidelines included in MA-RIP-2 will also limit development of facilities within proximity (less than 100 feet) of perennial waterways on C-CD.

The CZU Lightning Complex burned 86,509 acres, and is by far the largest wildfire in recent history in the Santa Cruz/San Mateo County region. Approximately 1,052 acres of C-CD burned in this fire in the Molino, Agua Puerca, and San Vicente watersheds (**Figure 14**). Based on the lessons learned from the Lockheed Fire Post Fire Risk Assessment released by the San Mateo-Santa Cruz Unit of California Department of Forestry and Fire Protection on September 30, 2009, the principal concern with the CZU fire area is an increase in the potential for floods, debris torrents, and debris flows.

Also of concern is the long-term loss of mechanical support of hillslope materials in the upper portions of the Molino and San Vicente watersheds. In areas where the fire intensity was more severe, hydrophobic soils may have developed from waxy substances released by plant materials into the soil making portions of the slope impervious to water. Since these drainages are very steep, loose materials may mobilize into sediment laden masses during heavy rains, leading to the accumulation of debris that may flow downstream from the burned areas. The magnitude of post-fire damage will ultimately be determined by the intensity and duration of storms that impact the burn area, particularly during the winter of 2020-21.

To help characterize the potential risk from changes in hydrology due to the fire, the United State Geological Survey (USGS) conducted a post-fire debris-flow hazard assessment for the CZU Lightning Complex that is available on-line (USGS website, accessed on September 17, 2020). The areas most vulnerable to flash floods and debris flows are located on private and State lands approximately 5-10 miles north of Cotoni-Coast Dairies, including the Waddell Creek and Scott Creek watersheds and their tributaries. Additionally, there are two moderate basin hazard ratings on private lands adjacent to the Cotoni-Coast Dairies known as the San Vicente Redwoods. The remainder of the burned area in the San Vicente Creek watershed is rated as low basin hazard. Burned areas to the south with low basin hazard ratings include the upper units of Henry Cowell Redwoods State Park and Wilder Ranch State Park.

4.7.3 Impacts of Alternative A (No Action)

Recreation
The proposed Liddell Creek trail system would have more indirect minor adverse impacts on water resources than other alternatives because it has the greatest length of trail situated in the riparian corridor. As a result, there is more potential for off-trail use and dogs entering into the creek. Adverse impacts would be concentrated in the Molino and Liddell Creek watersheds (Table 4.7-1). The potential adverse impacts to water resources under Alternative A would be reduced with implementation of the PDFs described in **Appendix D**. The proposed parking areas would be situated within a 100-year flood hazard area. Therefore, the proposed projects on Bonny Doon Road and Swanton Road could impede or redirect flood flows.

Livestock Grazing
Under Alternative A, livestock grazing would be authorized on 1,167 acres. The proximity of livestock to perennial waterways at Molino, Agua Puerca, Yellow Bank and Laguna Creeks will continue to have moderate adverse impacts on water quality in those waterways.

Special Management Areas
No designation of Special Management Areas would have no effect on water resources.

4.7.4 Impacts of Alternative B

Recreation
Under Alternative B, recreation impacts from trails would be concentrated in Agua Puerca and Yellow Bank Creek watersheds, with some impacts within the Laguna, Liddell, and Molino Creek watersheds (Table 4.7-1). Through incorporation of PDFs (**Appendix D**), impacts from sediment are anticipated to be minor. There would be fewer miles of trail in riparian areas under Alternative B as compared to Alternative A. Therefore, adverse impacts to water resources are expected to be less under Alternative B than under Alternative A.

Livestock Grazing
Under Alternative B, livestock grazing would be authorized on more acres (2,229 acres) than Alternative A, but the number of head would be the same as Alternative A. The proximity of livestock to perennial waterways at Molino, Agua Puerca, Yellow Bank and Laguna Creeks will continue to have moderate adverse impacts on water quality in those waterways. Actions under Alternative B to exclude livestock

from riparian areas and springs will minimize these adverse impacts and have a long-term beneficial impact on water resources.

Special Management Areas
Designation of Special Management Areas would have a positive long-term impact on water resources in the Laguna, Liddell, and San Vicente Creek watersheds.

4.7.5 Impacts of Alternative C

Recreation
Under Alternative C, recreation impacts from trails would be greater than Alternative B and more widespread across the property. The greatest impacts would be in the Agua Puerca, Liddell, and Yellow Bank Creek watersheds (Table 4.7-1). Through incorporation of PDFs (**Appendix D**), impacts from sediment are anticipated to be less than significant. There would be fewer miles of trail in riparian areas under Alternative C as compared to Alternative A, but more impacts due to stream crossings than Alternative B. Therefore, impacts to water resources are expected to be less than Alternative A but more than Alternative B.

Under Alternative C, off-trail hiking and off-leash dogs would be allowed on C-CD. This could result in moderate adverse impacts to water resources where users access riparian, wetland, and spring areas.

Livestock Grazing
Under Alternative C, livestock grazing would be authorized on more acres (2,973 acres) than Alternatives A and B. The proximity of livestock to perennial waterways at Molino, Agua Puerca, Yellow Bank, Liddell and Laguna Creeks will have moderate adverse impacts on water quality in those waterways. Actions under Alternative C to exclude livestock from riparian areas and springs will minimize these adverse impacts and have a long-term beneficial impact on water resources.

Special Management Areas
Designation of Special Management Areas would have a positive long-term impact on water resources in the Laguna and Liddell watersheds.

4.7.6 Impacts of Alternative D

Recreation
Under Alternative B, recreation impacts from trails would be greater than Alternative B but less than Alternative C. Impacts would be concentrated in Agua Puerca and Yellow Bank Creek watersheds (Table 4.7-1). Through incorporation of PDFs (**Appendix D**), impacts from sediment are anticipated to be less than significant. There would be fewer miles of trail in riparian areas under Alternative D as compared to Alternative A. Therefore, impacts to water resources are expected to be less under Alternative D.

Livestock Grazing
Under Alternative D, livestock grazing would have similar impacts as described under Alternative B. The use of targeted grazing for fuel reduction could have a long-term moderate beneficial impact by reducing the potential for catastrophic wildfire, with subsequent erosion and sedimentation.

Special Management Areas
Designation of Special Management Areas would have a positive long-term impact on water resources in the San Vicente Creek watershed.

4.8 Soil Resources

Protection of soil resources involves controlling erosion and sediment transport, maintaining vegetation cover, and protecting biological and physical characteristics of soils. Analysis of the effects of herbicide application on Soil Resources is analyzed in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

4.8.1 Introduction

The management goal for soil resources established by the CCNM RMP (BLM 2005a) is to prevent soil erosion and compaction and maintain soil function in order to support vegetation and habitat. Soils are the foundation of terrestrial ecosystems and provide important functions of substrate anchorage for organisms and supply water and nutrients.

To achieve this goal, the CCNM RMP (BLM 2005a) established the following objectives:

- Prevent soil erosion and compaction
- Maintain soil fertility, water infiltration and retention, and vegetative cover

Project Design Features (PDF)

Implementation of the PDFs developed to protect soil resources will reduce soil disturbance, restrict access during wet weather, and require maintenance at specific sites. The soil protective PDFs include:

- Minimize soil disturbance by limiting developments to the smallest area possible and by using previously disturbed areas and existing roads to the extent practicable.
- Minimize surface disturbance and design disturbed areas on steep slopes to prevent surface water from concentrating to reduce erosion and sedimentation.
- Restrict access and suspend authorized projects during wet weather when soil resources will be detrimentally affected by rutting, compaction, and increased erosion.
- Minimize fire control lines, including both handline and dozer line, to the width necessary to effectively stop fire spread. Rehabilitate lines by smoothing out berms and installing waterbars prior to the rainy season.
- Assess the need for soil stabilization following wildfires. Use the Emergency Stabilization and Rehabilitation process to determine and implement needed actions.
- Actively patrol public lands to prevent unauthorized off-road travel. If unauthorized routes are found, block access to minimize further soil disturbance and reduce the potential for erosion through rehabilitation action.
- New facilities shall be designed to maintain natural drainage and runoff patterns.
- The BLM retains the flexibility to delay or adjust implementation of components of the RMPA, as necessary, in response to the wildland fires.

4.8.3 Impacts of Alternative A (No Action)

Recreation

Long-term, permanent impacts to soil from the construction of new Day Use Sites including Swanton Gate and Bonny Doon comprises 1.75 acres total. Potential adverse impacts to soil may include topsoil removal during construction and subsequent compaction from vehicle traffic.

Long-term, permanent impacts to soil from the construction of new trails comprises 0.84 acres total. Potential adverse impacts to soil may include topsoil removal during construction and subsequent compaction and erosion from foot, hoof, and bicycle traffic.

Transportation and Travel Management
Continued long-term, permanent impacts to soils from continued use of the administrative route network comprises 33.36 acres total. Potential adverse impacts to soil may include compaction and erosion from vehicle traffic.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Uneven cattle grazing distribution and congregation has resulted in localized trampling in some areas of C-CD, in particular in the drainages (riparian areas) and lowest elevations. The soil in these areas exhibits minor to moderate compaction and erosion.

The exclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have little to no effect on soil. Alternative vegetation management methods including livestock grazing and mowing would continue. Since both grazing and mowing generally only reduce the stature of herbaceous vegetation and not remove it, vegetative cover would remain to protect the soil from erosion.

Special Management Areas
No designation of Special Management Areas would have no effect on soils.

4.8.4 Impacts of Alternative B

Recreation
Long-term, permanent impacts to soil from the construction of new Day Use Sites including Warrenella Gate, Warrenella Top and Marina Ranch comprises 9.39 acres total. Potential adverse impacts to soil may include topsoil removal during construction and subsequent compaction from vehicle traffic.

Long-term, permanent impacts to soil from the construction of new trails comprises 9.18 acres total. Long-term, permanent impacts to soil from the construction of new trails comprises 0.84 acres total. Potential adverse impacts to soil may include topsoil removal during construction and subsequent compaction and erosion from foot, hoof, and bicycle traffic.

Transportation and Travel Management
Continued long-term, permanent impacts to soils from continued use of the Administrative route network comprises 33.36 acres total. Potential adverse impacts to soil may include compaction and erosion from vehicle traffic.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Installation of water troughs in uplands and improved fences to better distribute livestock grazing should have moderate to major, long-term, beneficial effects on soils by reducing congregation and trampling that cause soil compaction and erosion.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have short-term, minor, localized adverse effects on soil. Herbicide application and prescribed fire would remove vegetative cover for a short period of time, possibly resulting in soil erosion if the vegetative cover doesn’t recover within a few years. Since most vegetation management will be focused on grasslands and coastal scrub, which rapidly regains vegetative cover within a few years, the probability from adverse effects to soil in these vegetation types is anticipated to be low. Areas with persistently low vegetative

cover and increased potential for soil erosion can be treated with erosion control measure including seeding with sterile barley, native plant seeding, and installation of straw rolls and straw bales.

Special Management Areas
Designation of Special Management Areas would have no direct effect on soils.

4.8.5 Impacts of Alternative C

Recreation
Long-term, permanent impacts to soils from the construction of new Day Use Sites including Swanton Gate, Warrenella Gate, Warrenella Top and Marina Ranch comprises 10.74 acres total. Potential adverse impacts to soil may include topsoil removal during construction and subsequent compaction from vehicle traffic.

Long-term, permanent impacts to soils from the construction of new trails comprises 11.49 acres total. Potential adverse impacts to soil may include topsoil removal during construction and subsequent compaction and erosion from foot, hoof, and bicycle traffic.

Transportation and Travel Management
Continued long-term, permanent impacts to soils from continued use of the Administrative route network comprises 33.36 acres total. Potential adverse impacts to soil may include compaction and erosion from vehicle traffic.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Installation of water troughs in uplands and improved fences to better distribute livestock grazing should have moderate to major, long-term, beneficial effects on soils by reducing congregation and trampling that cause soil compaction and erosion.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have short-term, minor, localized adverse effects on soil. Herbicide application and prescribed fire would remove vegetative cover for a short period of time, possibly resulting in soil erosion if the vegetative cover doesn't recover within a few years. Since most vegetation management will be focused on grasslands and coastal scrub, which rapidly regains vegetative cover within a few years, the probability from adverse effects to soil in these vegetation types is anticipated to be low. Areas with persistently low vegetative cover and increased potential for soil erosion can be treated with erosion control measure including seeding with sterile barley, native plant seeding, and installation of straw rolls and straw bales.

Special Management Areas
Designation of Special Management Areas would have no direct effect on soils.

4.8.6 Impacts of Alternative D (Preferred Alternative)

Recreation
Long-term, permanent impacts to soils from the construction of new Day Use Sites including Swanton Gate, Warrenella Gate, Warrenella Top and Marina Ranch comprises 9.38 acres total. Potential adverse impacts to soil may include topsoil removal during construction and subsequent compaction from vehicle traffic.

Long-term, permanent impacts to soils from the construction of new trails comprises 11.61 acres total. Potential adverse impacts to soil may include topsoil removal during construction and subsequent compaction and erosion from foot, hoof, and bicycle traffic.

Transportation and Travel Management
Continued long-term, permanent impacts to soils from continued use of the Administrative route network comprises 33.36 acres total. Potential adverse impacts to soil may include compaction and erosion from vehicle traffic.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Installation of water troughs in uplands and improved fences to better distribute livestock grazing should have moderate to major, long-term, beneficial effects on soils by reducing congregation and trampling that cause soil compaction and erosion.

The inclusion of herbicide use and prescribed fire as large-scale vegetation management methods would have short-term, minor, localized adverse effects on soil. Herbicide application and prescribed fire would remove vegetative cover for a short period of time, possibly resulting in soil erosion if the vegetative cover doesn't recover within a few years. Since most vegetation management will be focused on grasslands and coastal scrub, which rapidly regains vegetative cover within a few years, the probability from adverse effects to soil in these vegetation types is anticipated to be low. Areas with persistently low vegetative cover and increased potential for soil erosion can be treated with erosion control measure including seeding with sterile barley, native plant seeding, and installation of straw rolls and straw bales.

Special Management Areas
Designation of Special Management Areas would have no direct effect on soils.

4.9 Paleontological Resources

4.9.1 Introduction

Paleontological resources include any fossilized remains, traces, or imprints of organisms preserved in or on the Earth's crust. The goals for paleontological resource management in the CCNM are identified in the CCNM RMP (BLM 2005a), and include inventory and monitoring, protection, data recovery, research, and education and interpretation. The same goals of the CCNM RMP are required by Federal agencies under the Paleontological Resources Preservation Act (PRPA) of 2009.

The analysis of direct and indirect effects to paleontological resources is focused on rock formations where fossils are known or suspected to occur within the planning area. The Potential Fossil Yield Classification (PFYC) system was used to rank rock formations at C-CD based on the presence, type, and abundance of significant paleontological resources and the potential for land uses to impact the them.

Types of Impacts

Impacts to paleontological resources may be direct or indirect. Direct impacts are the direct or immediate effects of an action on paleontological resources. Direct impacts to paleontological resources include construction and earth moving activities that impact fossil-bearing bedrock and degrade or destroy the fossils contained within. Indirect impacts are those effects that are caused by or will result from the action, later in time or farther removed in distance, but are still reasonably certain to occur. Examples of indirect effects to paleontological resources include permanent vegetation removal that results in long-term, excessive soil erosion, thereby exposing potentially fossil bearing bedrock at the surface and subjecting it to accelerated erosion and weathering.

Assumptions

Assumptions used in this impact analysis include the following:

- Paleontological resources are sensitive to impacts, which are irreversible, and result in irretrievable loss.
- Paleontological resources derive their data value from their integrity and context within the geologic formation. Therefore, destruction and/or position disturbance of paleontological resources effectively destroys the information they contain.
- Paleontological resources in the planning area have been buried, destroyed, or altered by natural agents (erosion and deposition) and human activity. Such disturbance from natural and human agents is likely to continue.
- Management activities have the potential to cause irreversible disturbance and damage to paleontological resources. The BLM could mitigate impacts to these resources from authorized uses through project avoidance, redesign, and, if necessary, data recovery investigations, in accordance with Handbook H-8270-1 and BLM IM 2016-124.

Project Design Features

- No construction activities shall occur without prior written authorization of the authorized BLM officer based, in part, on completion of compliance with PRPA. Paleontological survey, monitoring, and mitigation may be necessary before or during surface disturbing activities.
- When significant paleontological resources are identified as being present, the project could be redesigned or modified to the extent feasible to avoid impacts.
- Where avoidance or adequate protection of scientifically significant paleontological resources is not feasible, salvage, excavation, and collection may be conducted. Scientifically significant paleontological

resources shall be deposited at a BLM approved repository, such as the University of California Museum of Paleontology (UCMP).

4.9.2 Impacts Common to All Alternatives

Construction activities including grading, digging, and trenching often result in disturbance deep into the soil profile and may disturb and expose the underlying bedrock. Unimproved dirt trails, roads, parking areas, and support pads for infrastructure in relatively level areas are typically constructed by removing topsoil to expose the more stable subsoil and bedrock for support. Construction of these features on slopes typically requires cut and fill with high probability of removing the entire soil profile and disturbing and exposing bedrock. Erosion of unimproved dirt trails, roads, parking areas, and infrastructure support pads may result in further exposure and erosion of the underlying potentially fossil-bearing bedrock. Additionally, maintenance of these features from grading, drainage ditch clearing, and bank stabilization may result in further disturbance of potentially fossil-bearing bedrock.

Potential impacts to significant paleontological resources can be mitigated by field surveys to assess the presence and abundance of fossils. If significant paleontological resources are discovered, the project can be redesigned or relocated. Finally, if adverse impacts to paleontological resources can't be avoided, then fossil salvage, excavation, and collection may be conducted. Paleontological resources monitoring is conducted during construction activities that disturb rock formations with PFYC ≥ 3.

Recreation
All new trail, road, and parking area construction is located entirely within areas of C-CD underlain by PFYC ≤ 3 rock formations. For the construction of the majority of these new features, it is anticipated that disturbance will not be deeper than the soil profile which is 1 to 3 feet deep. For the construction of features on landscapes where potentially fossil-bearing bedrock may be disturbed (e.g. some lengths of new trail on slopes), paleontological resource monitoring will be conducted. Following the construction phase, casual paleontological resource monitoring will be conducted long-term where the constructed features exposed bedrock and regular maintenance will be conducted through grading, drainage ditch clearing, and bank stabilization.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
Vegetation management would have no impacts on paleontological resources. It is not anticipated that any vegetation management activities will result in permanent vegetation removal anywhere at C-CD.

Special Management Areas
Designation of Special Management Areas would have no impacts on paleontological resources.

Transportation and Travel Management
Regular maintenance of the BLM C-CD Administrative route (road) network and utilities, pipelines, telecommunications, and other rights-of-ways roads will include road bed grading, clearing of drainage ditches, and occasional road bank stabilization. Casual paleontological resource monitoring will be conducted long-term where these constructed features exposed bedrock and disturbance of the bedrock will continue to occur with regular maintenance.

4.10 Visual Resource Management

This section describes the types of potential impacts the range of alternatives could have on visual resources in the planning area, and it addresses the types of mitigation that could be implemented to lessen the degree of the impacts, where applicable. Analysis of the effects of herbicide application on Visual Resources is analyzed in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

4.10.1 Introduction

A visual resource impact analysis involves determining whether the potential visual impacts from proposed surface-disturbing activities or developments meet the class management objectives established for the area or whether design adjustments may be required.

Assumptions

The impact analysis is based on the following assumptions:

- The public would continue to value landscape appearance as a resource to be managed in the CCNM.
- The infrastructure associated with management activities would remain relatively unchanged over the life of the RMPA.
- Recreational use would continue to increase over the life of the RMPA, increasing the value of unmodified landscapes.
- Existing infrastructure as described in Chapter 3, Lands and Realty and in Chapter 3 Livestock Grazing:
  - *Would be inconsistent with the VRM Class I objective;*
  - *Would likely be inconsistent with the VRM Class II objective;*
  - *May be inconsistent with the VRM Class III objective; and*
  - *Would be consistent with the VRM Class IV objective.*

Impacts to visual resources are considered major if they substantially change or degrade the character of the landscape as seen from sensitive viewsheds, or if the allowable modifications conflict with VRM objectives. While topography can allow for some landscape modifications, many types of disturbance, such as roads and built structures, can impact the landscape depending on their size, distance, topographic position, presence or absence of screening, and contrast with surrounding conditions.

Types of Impacts

Construction of recreational facilities would promote the types of visible landscape contrasts associated with recreation. The equipment necessary for clearing vegetation and grading landforms during the construction and maintenance phases would result in direct, short-term contrasts of an episodic and transient nature. Movement and activity of construction machinery would draw the observer's attention to form and color contrasts. Construction equipment and activities would promote the occurrence of traffic and dust resulting in short-term landscape contrasts. The actions of parking and route construction would result in long-term contrasts in form, line, color, and texture. Form and color contrasts would diminish somewhat as areas transition from construction to the operational phase, largely due to the absence of large equipment movement and activity. Utility corridors, fuel breaks, and other linear areas cleared of vegetation would result in contrasts in line, color, and texture that could also result in long-term contrast.

Restoring ponds near routes and trails may draw the eye of the casual observer and could increase landscape contrasts in different ways depending on the relationship of water and vegetation surrounding the ponds.

The RMPA is a planning document, and indirect and cumulative effects of development inform the planning decision. A qualitative analysis for these impacts, as opposed to a quantitative analysis is appropriate because it provides a reasonable forecast of effects, but does not speculate on the direct effects to visual resources from the range of alternatives presented in the RMPA.

4.10.2 Impacts Common to All Alternatives

For all alternatives, management activities would minimize the change to the characteristic landscape to the extent practicable in accordance with the VRM Class Objective for that location.

Recreation
Recreational trails would have a negligible to minor adverse impact on scenic quality with the use of appropriate project design features (**Appendix D**).

Vegetation Management, including Livestock Grazing
Continued grazing of 149 head of cattle in the Marina, Delones, Borego, Big Ranch (Lower Newtown), Upper Newtown, and Yellow Bank allotments would have no impact on scenic quality. Changes to livestock use could have indirect minor to moderate, beneficial to adverse impacts on scenic quality depending on effects to vegetation and water quality. Changes to livestock infrastructure could have direct minor to moderate, beneficial to adverse impacts on scenic quality. Implementation of SOPs and mitigation measures could be utilized to minimize potential adverse impacts to have negligible impacts on VRI ratings.

Transportation and Travel Management
Continued long-term, permanent impacts from continued use of the Administrative route network would have no impact on scenic quality and is consistent with current VRM objectives.

Special Management Areas
Designation of Special Management Areas would have no direct effect on scenic quality as there would be no visual change to the landscape.

Project Design Features and Best Management Practices
Project Design Features (PDF's) include the types of measures that could be implemented to lessen the degree of potential adverse visual impacts from development (**Appendix D**). These measures incorporate the fundamental principles in the VRM system upon which the VRM BMPs are based and include proper site selection, minimizing visual contrast, reducing unnecessary surface disturbance, exercising proper color selection, and restoration of impacted landscapes.

4.10.3 Impacts of Alternative A (No Action)

Under Alternative A, all lands would be managed under Visual Resources Management (VRM) Class I with the exception of the two access points identified in the Interim Management Plan which will be managed as a VRM class III. Implementation of Designated trails would be consistent with Class I objectives if appropriate PDF's are utilized. Under this alternative there would be negligible, adverse impacts to scenic quality. The implementation of the two access points and trails would be consistent with the VRM class ratings with the use of project design features.

Neither of these access points is visible from key observation points along US Highway One. Both access points would be visible from the county-designated scenic byways on Bonny Doon and Swanton Roads.

4.10.4 Impacts of Alternative B

Under this alternative, the Warrenella Road Gate and Marina Ranch parking areas are located within a VRM Class III objective. The areas currently rate as a VRI Class II rating and the parking areas would have

a localized moderate to major adverse impact on scenic quality. Under this alternative these areas *would be consistent* with the VRM Class III objective. Use of PDF's would reduce the impacts on scenic quality to a very localized impact area surrounding the footprint of the parking area, such that the parking areas would not dominate the view of the casual observer from the upper terraces or from the access roads. Under this alternative, the Warrenella Road (Top) parking area is also managed with a VRM Class III objective. This parking area would have a minor impact on scenic quality because the proximity to the existing substation means that the addition of a parking area will cause a low change to the characteristic landscape.

The three proposed parking areas would be largely obscured from key observation points along US Highway One due to topography and vegetative screening. Improvements to the access road to the Marina Ranch Gate access point would be visible from US Highway One and would have a moderate adverse impact on visual resources. None of the proposed parking areas would be visible from county-designated scenic byways on Bonny Doon and Swanton Roads.

4.10.5 Impacts of Alternative C

Under Alternative C, the Swanton and Yellow Bank access points will be managed as a VRM Class III objective. These sites are located within a current VRI Class II rating and the parking areas would have a localized moderate to major adverse impact on scenic quality. The Swanton access point would be seen from Swanton Road but the use of Mitigation Measures could reduce the impact to negligible levels outside the footprint of the parking area. The Yellow Bank parking area would include a pedestrian bridge that would be visible from State Highway 1. Although Mitigation Measures could reduce the impact substantially, there will be a minor to moderate direct adverse impact to scenic quality. Topographical features would result in negligible impacts to scenic quality from the upper terraces. Both access points *would be consistent* with a VRM Class III objective with the implementation of PDF's.

The three proposed parking areas would be largely obscured from key observation points along US Highway One due to topography and vegetative screening. None of the proposed parking areas would be visible from county-designated scenic byways on Bonny Doon and Swanton Roads.

4.10.6 Impacts of Alternative D (Preferred Alternative)

Under Alternative D, the Yellow Bank access points will be managed as a VRM Class III objective to accommodate a connection with the North Coast Rail Trail. The BLM and other partners would design an overpass (or underpass) that would avoid significant impacts to the scenic quality of the region. Other sites proposed for development are located in areas with current VRI Class II ratings, including Warrenella Road, and Marina Ranch Road. Construction of these parking areas would have short-term (moderate) adverse impacts on scenic quality, but PDF's (**Appendix D**) to retain the contours and contrast of the surrounding landscape and provide visual screening would mitigate these effects within a few years. Although there will be a minor long-term adverse impact to scenic quality with proximity of the proposed parking areas, the BLM's management of the Marina Ranch Road, Warrenella Road, and Yellow Bank access points *would be consistent* with a VRM Class III objective with the implementation of PDF's.

4.11 Recreation

4.11.1 Introduction

Recreational resources include day-use facilities, multi-use trails systems, camping areas, dispersed recreation areas, and access roads. This Chapter analyzes the impacts of recreation on recreation resources based on implementation of the actions described in Chapter 2. For reference, **Table 2.19-2** provides a comparison of area of proposed development for parking /day use sites; **Table 2.19-3** identifies the total length of trails by RMZ for each alternative, as applicable; **Table 2.19-4** identifies the new length of trail proposed for construction by RMZ; and **Table 2.19-5** identifies the length of trails that overlap with existing (baseline) roads.

Assumptions

- The BLM would provide adequate visitor services and information, meet Universal Accessibility Standards, and stress compliance with "leave no trace" principles.
- Cooperative assistance agreements, resource protection measures including exclusionary fencing and barrier construction, interpretation and education, and law enforcement would have major long-term beneficial impacts on recreation resources.
- Special recreation permits (SRPs) would ensure authorized activities are compatible with other recreational users in that zone.
- Trail locations, educational programming, and signage would be used to reduce potential for trespassing from public land onto private land.
- Enforcing regulations for visitor safety or resource protection would help to reduce conflicts with other users and would ensure additional protection of sensitive resource areas.
- Under all alternatives, the BLM would close trails under wet weather conditions when continued use of the trails could cause damage to the trails or endanger public safety.
- The BLM retains the flexibility to delay or adjust implementation of components of the RMPA, as necessary, in response to wildland fires.
- Analysis of the effects of herbicide application on Recreation is analyzed under Recreation, Social and Economic Values, and Human Health and Safety in the Weed Management Plan (**Appendix F**).
- Refer to **Appendix G** for the Cotoni-Coast Dairies Visitor Use and Parking Estimates.

Project Design Features

Example of PDF's relevant to the recreation management in **Appendix D** include:

Gates and fences would be installed to block vehicular access, resulting in long-term beneficial effects on recreation from a new trail system for a wide range of visitors and opportunities for recreation.

All alternatives would utilize signage and interpretive information to provide education for visitor's safety and resource protection. These measures would result in long-term moderate beneficial impacts, reducing the likelihood of trespassing onto private land and health risks to visitors (such as poison oak, ticks, etc.).

Visitor use following extreme weather can cause damage to trail surfaces. Extreme conditions also create a higher potential for accidents between user groups due to decreased braking/stopping ability. Closing trails under wet weather conditions when continued use of the trails could cause damage to the trails or endanger public safety would have long-term beneficial effects on recreation because it would preserve the trail system and promote public safety.

Public use of parking area and trails would be limited to daylight hours. The construction and operation of the proposed parking area and trails would be implemented in multiple phases.

The proposed parking areas would be designed to control storm water drainage and meet ADA standards.

Trail design guidelines are intended to facilitate the design and construction of trails. For example, The BLM would improve existing roads to address erosion and reduce disturbance of the surrounding landscape. Likewise, appropriate crossing structures would be installed at stream crossings, such as bridges or culverts.

New trails would be created where existing routes are not able to provide desired recreational experience. The BLM would limit the amount of new trails in riparian areas, and routes would generally be located such that drainage areas are crossed at locations above the ordinary high water mark of stream banks to avoid sedimentation issues.

Boundary fences, gates, and appropriate signage would be installed at entrance points for C-CD roads and trails. This would allow BLM to close access to trails to the public when needed. Fencing would be designed to ensure wildlife passage.

Most trail construction would occur by hand with limited use of heavy machinery or vehicles. The use of heavy machinery or vehicles would be limited to areas with existing vehicular access (such as former logging roads) with the exception of the parking area, which would require the use of standard construction machinery and equipment.

Some activities would require a special recreation use permit if they are either (1) identified as commercial use, (2) would take place outside of daylight hours, or (3) would not be limited to designated public access trails and use areas. Permits will also be required for non-commercial groups with more than 20 individuals, any special events (such as organized trail runs), or any off-trail activities.

Signage and visitor education would instruct visitors to pack out and/or properly dispose of all waste. The BLM would also use outreach and education to increase compliance with parking, litter, dogs, and the introduction of non-native plants and animals.

Monitoring would inform the adaptive management strategies and decisions to ensure the protection of natural resources on the property.

4.11.2 Impacts Common to Alternatives

Each of the alternatives would allow for a different level of facility development, but the overall approach to C-CD management includes integrating preservation, restoration, and livestock grazing along with enabling research, education, and recreation. Providing access for research, education, and recreation is also a component of the deed restrictions and presidential proclamation for the C-CD unit of the CCNM. Facilities that could be added include development to primitive areas. Impacts would depend on the location and extent of constructed facilities; resulting in long-term minor adverse impacts if only a few facilities were added on or adjacent to previously disturbed, and long-term moderate adverse impacts if more facilities were constructed. The RMPA also seeks to protect cultural resources and permit some level of access to special areas. If during implementation, a special resource is encountered or if a special study is under way, recreation may be restricted from that area for a limited time. The restricted area would likely be small and also fenced or otherwise marked as restricted.

Under all alternatives, the BLM would incorporate policies, design guidelines, construction standards, trail maintenance guidelines, and rules and regulations to reduce and/or avoid impacts to the environment as a result of construction and operation of the proposed parking area and trails to the extent feasible. As a result, the RMPA is expected to increase recreation opportunities; protect open space and cultural resources; and conserve natural resources. The BLM would also enforce policies to sustain a healthy and safe environment for visitors to C-CD.

A range of alternatives were considered for the location of trails that are the most sustainable over the long-term. Options for allowable uses were considered by eliminating uses that were already prohibited under the C-CD deed restrictions, the CCNM RMP (BLM 2005), or California State regulations for hunting and

fishing. Recreational activities prohibited under the range of alternatives include motorized off-highway vehicle use, target shooting, and fishing.

Commonly, visitors seek destinations like C-CD for the purpose of use and/or enjoyment. Conflicts between user groups on multi-use trails are inevitable with a growing population and increased pressure for places to recreate. With proper design, a variety of trail experiences, education, stewardship from the trail community and adequate signage these conflicts can be greatly reduced. Conflicts near trailheads are inherently higher due to increased congestion near parking areas. Each contact can result in a potential conflict.

Policies ensuring that Universal Accessibility Standards under the Americans with Disabilities Act would have a long-term moderate beneficial impact on recreation. Visitors with disabilities would have an improved recreational experience at C-CD, given improved access to recreational trails and other facilities.

The use of exhibits and interpretive facilities is an important and positive mechanism for directing visitors to areas most able to withstand recreational activities. Guided tours and other educational activities would be used as teaching tools to promote awareness and appreciation for C-CD.

Additionally, web-based and print media would be an effective tool for assisting recreationists in planning visits to the public lands. Establishing expected behaviors and actions before a visitor arrives is the best way to minimize impacts between users/individual recreationists and natural/cultural resources. For example, the requirement to keep dogs on a leash reduces negative impacts between visitors with dogs and other recreationists; hikers moving downhill need to yield to hikers going uphill; and hikers passing or trail running need to verbalize their intentions and pass where safe to do so.

4.11.3 Impacts of Alternative A (No Action)

Recreation

Public lands designated as Extensive Recreation Management Areas (ERMAs) are typically managed for more dispersed recreation with less oversight of facilities (e.g., trails, parking areas). The designation of an ERMA is an administrative action and does not result in any direct physical environmental impacts.

This alternative has the lowest potential for visitor conflicts because there's only one allowable use on trails (hiking). This alternative also has the lowest potential for direct adverse impacts from off-trail use and/or hunting because they are prohibited under this alternative.

Demand for public land recreation is largely be driven by external factors related to population and the competition for recreation space. The speed at which recreation use grows can be affected by the extent to which BLM management results in favorable recreational opportunity and promotes the use of public lands for recreation. Due to the small size of proposed parking lots, limited number of proposed trails, and low number of proposed allowable uses, recreation management under Alternative A are considered to be inadequate to meet current demand and expectations within the region. The absence of new, adequate recreation facilities proposed under Alternative A would result in a long-term, moderate, adverse impacts on recreation opportunities in the planning area as regional recreation demand continues to grow. For example, conflicts can arise where poor signage or lack of facilities result in uncontrolled parking, poor sanitation, and other undesirable visitor behaviors. In addition, the lack of connectivity under Alternative A to adjacent regional trail systems could lead to conflict between the BLM and neighboring land managers.

Recreation fees would not be implemented under Alternative A. This would have an adverse impact on the BLM's ability to monitor, patrol, and implement needed facility repairs and maintenance on the property. As the recreational development proposed under Alternative A is not nearly as extensive as other alternatives, this impact is anticipated to be minor.

Vegetation Management, including Livestock Grazing

Management actions for biological resources under Alternative A may preclude recreational activities at certain times. This includes restricting recreational activities near ponds, wetlands, or restoration sites to restrict visitors and pets from entering sensitive habitats. Other existing or planned developed water sources (i.e., rangeland improvement projects) would attract native and non-native wildlife species and special status species. The indirect impact would cause potential recreational user limitations. These restrictions are generally limited to very small areas, and may or may not be limited to a certain time frame. While restricting recreation to a reduced area, even temporarily, would create additional burden on the surrounding recreation areas, the intent of these restrictions is to enhance the biological or ecological resources in the area, which in the long-term should enhance the recreation user's experience.

The presence of livestock grazing operations in close proximity to the Molino Creek trail could result in minor adverse impacts to recreationists who are unaccustomed to the presence of livestock. However, due to the short length of trail in proximity to grazing operations, this impact is anticipated to be minor.

Transportation and Travel Management

Under Alternative A, the ability of the public to access the C-CD is extremely limited, especially those areas far from other public roads or in areas where the terrain is difficult to access by foot or the distance to the destination is too great. The proposed parking areas under this alternative are smaller than the other alternatives, and located in areas that are relatively difficult to access.

Special Management Areas

There would be no direct or indirect impacts from special area management under Alternative A.

4.11.4 Impacts of Alternative B

Recreation

Designation of C-CD as an SRMA would allow the BLM to plan, expand, or restrict certain uses. Because of the popularity of these areas and the proximity to large urban centers, the ability to plan is critical. This would provide long-term beneficial impacts to recreation.

Alternative B would allow for additional recreational opportunity over current management, including improved hiking, mountain biking, dog walking, horseback riding, and hunting opportunities at C-CD. Implementation of a seasonal parking area at Warrenella Road Top would provide a unique experience for mobility-impaired visitors to view expansive ocean views.

The BLM would coordinate with CDFW to establish the only public hunting opportunity in Santa Cruz county. Hunting would be limited to RMZ 2 and administered similar to other special hunts in California to avoid conflicts with other recreationists. For example, the BLM and CDFW would restrict the number of hunting permits to issue - based on a lottery system - to address potential concerns associated with public safety. Furthermore, the BLM would provide notice to hunters and other recreationists during the open season to inform and educate visitors when and where hunting activity is allowed in RMZ 2. To avoid potential impacts on adjacent properties; the BLM would publish maps that delineate areas in RMZ 2 that are closed to hunting near the community of Davenport, CA. These maps would be issued to licensed hunters that are permitted under the CDFW special hunt program to access C-CD.

Expanding the opportunities and places for recreation on the North Coast of Santa Cruz would likely reduce the number of recreationists in any given area, allow for a wider variety of recreation experiences, and improve the experience for those users. Alternative B offers good potential for new recreational opportunities that would ultimately relieve the pressures on crowded areas for the near to long-term, which the BLM considers a moderate beneficial impact.

The stacked loop trails that are considered under this alternative would span portions of RMZ 1 and RMZ 3. These trails would mainly traverse the marine terraces and distribute hikers and mountain bikers across the grassland habitats with limited stream crossings in the lower portions of the Molino Creek and Agua Puerca watersheds in RMZ 1. The trails in RMZ 3 would traverse the marine terraces and distribute hikers and equestrians across the grassland habitats with limited stream crossings in the lower portions of the Yellow Bank Creek and Laguna Creek watersheds in RMZ 1.

Maintaining the leash requirements for dogs would reduce disturbance to wildlife and other visitors. However, this alternative would result in more impacts from dogs because there are more miles of trails and opportunities for recreationists to bring their dogs on trails. For visitors unaccustomed to dogs, this could have a minor adverse impact as a result of additional conflict, while other visitors would benefit because dogs provide an extra sense of security; and the BLM expects that dog walking would be a popular activity at C-CD.

Mountain bikers "prefer to bike in natural/remote settings" (Nielsen et al. 2019). Alternative B would have a positive impact on the availability of natural/remote bike trail availability in Santa Cruz County. Connectivity to the San Vicente Redwoods, along with the addition of several new trails and parking areas will have positive impacts on recreational availability and accessibility and should decrease the parking pressure on San Vicente Redwoods and surrounding neighborhoods. New allowable uses would also be introduced on the trail systems under Alternative B, including mountain bike riding opportunities in RMZ 1 and equestrian use in RMZ 3. Introducing these new trail uses would increase the potential for conflicts with hikers, but it would prevent conflicts between mountain bikers and horses because the trails for each use are located in separate recreation management zones.

Mountain bikes and horses can decrease trail longevity (over a long period of time), particularly on natural surface trails such that trails will require more maintenance than trails utilized only by hikers (see Nielsen et al. 2019). This impact could be mitigated by working with partners to address trail maintenance needs. In addition, trail closures under wet weather conditions could minimize damage to trails.

Alternative B would allow BLM the flexibility to establish visitor use fees. The Proposed Resource Management Plan for the Southern Diablo Mountain Range and Central Coast of California and Final EIS (BLM 2006) suggests fees may exclude or detract certain visitors from participating in the activity for which the use fee is established. While this could adversely impact the population who cannot afford the fee, this would also have a minor beneficial impact in instances where overcrowding leads to less enjoyment of the activity or to environmental impacts. Fees may also provide services desired by recreationists, which the BLM considers a major beneficial impact.

PDF's, including proper and well-placed signage, would reduce conflicts significantly. Facilities would increase the demand for law enforcement, because the parking and day use areas would need to be included in patrol routes for law enforcement jurisdictions but they are in a rural area with limited patrols.

Vegetation Management, including Livestock Grazing

Alternative B would result in more trail use and development occurring in existing grazing allotments than under Alternative A. The Final EIS (BLM 2006) explains the presence of cattle near recreation sites may or may not affect the activities occurring at the site. Some observers enjoy seeing cattle on the landscapes, while the signs of livestock grazing, such as fences, manure, and stock ponds, may impact the natural aesthetic for some visitors and impair the ability to enjoy the scenery and/or the solitude of the area they are visiting. There can also be competition for shade during summer months. Additionally, the presence of livestock close to recreation users can cause some conflict, as there can be more frequent encounters on heavily used trails. Installation of fencing and use of natural barriers could help minimize some of the potential conflict between recreationists and livestock.

Transportation and Travel Management
Under Alternative B, the parking and day use areas would be greatly improved from Alternative A, especially in proximity to Warrenella Road, and the Yellow Bank Creek and Laguna Creek watersheds where the terrain is difficult to access. The proposed parking areas under this alternative are larger and located in areas that would have moderate long-term beneficial impacts on recreation resources in the planning area because they would accommodate the demand for vehicle trips and parking associated with recreation for up to 150,000 annual visitors at C-CD. The potential for conflicts with existing users on Warrenella Road would be reduced by limiting public access to weekends and seasonal closure of the Warrenella (Top) parking and day use area.

Special Management Areas
The Wild and Scenic River inventory process would identify where special management attention would be required to protect and prevent irreparable damage to outstandingly remarkable values associated with eligible river segments on C-CD. Under Alternative B, San Vicente Creek, Liddell Creek, and Laguna Creek would be recommended for WSR designation, and as such would result in a moderate beneficial impact to the recreation resources in those areas due to the elevated stature of the rivers in the national system.

4.11.5 Impacts of Alternative C

Recreation
The potential impacts of Alternative C are the same as Alternative B except that hikers, mountain bikers and equestrians would all be allowed on the trails in RMZ 1 and RMZ 3. These multiple use trails would bring diverse uses and increased visitation and likely result in a higher potential for conflicts between user groups because Alternative C has the greatest number of miles of trail available to hikers, bikers and equestrians.

The stacked loop trails that are considered under Alternative C would span larger portions of RMZ 1 and RMZ 3 than the other alternatives. As a result, the trails under this alternative would traverse steeper terrain and take visitors to remote portions of the property where emergency services would be difficult to provide. Recreational use in these areas would also impact a wider variety of wildlife habitats.

Under Alternative C, Class 1 and Class 2 low-speed electric bicycles (e-bikes) operated in the pedal assist mode would be allowed on trails that are designated as open to bicycle use. The use of an e-bike enables a biker to go faster up hills and go for a longer distance while exerting the same amount of energy as a biker on a traditional bicycle. This can lead to the perception that less skilled riders are given an unfair advantage and are likely to ride too fast and cause accidents (Nielsen et al. 2019). The advantage provided by an e-bike is anticipated to open the opportunity to more riders, which can have a beneficial impact on recreational opportunity for users who might not otherwise be able to utilize the trails and a potential adverse impact of additional riders leading to increased user congestion and conflict. The use of e-bikes can reduce the use of cars and the implementation of the North Coast Rail Trail (NCRT) may allow more riders to access C-CD via bike reducing the congestion in parking areas. The NCRT will allow the use of Class 1 and Class 2 e-bikes. The use of e-bikes is not expected to change the longevity of trails relative to more traditional bikes.

Because the San Vicente Redwoods Public Access Plan does not allow for e-bikes on their biking trails, in areas where trails connect between C-CD, the potential use of e-bikes under Alternative C and D may lead to regulatory conflicts. Appropriate signage and education should reduce the issue to relatively negligible levels.

Removing the leash requirements for dogs in certain areas under Alternative C would increase disturbance to wildlife and other visitors. This alternative would also result in more impacts from dogs because there are more miles of trails and opportunities for recreationists to bring their dogs on trails. However, the

impacts on recreation resources would be similar to Alternative B because the BLM would educate dog owners to avoid/minimize conflicts on designated routes or off-leash opportunity areas. Off-leash areas may have increased potential for conflict with other recreationists and other dogs. If these off-leash areas are located such that multiple user groups are not passing them to access trails, it will reduce the likelihood of conflict.

Under Alternative C, the BLM would reduce the potential effects of special recreation use permits (SRPs) by establishing initial maximum duration of permitted events that involve trail use; and developing recreation user education and awareness programs to inform the participants of the C-CD objects and values, encourage safe and environmentally responsible behavior, and increase patrol in areas with existing or new facilities, or in areas where heavy recreation use could impede restoration efforts or other existing land use activities.

Impacts associated with recreation fees would be the same as those described under Alternative B.

Vegetation Management, including Livestock Grazing
The impacts of biological resources management are the same as Alternative B.

Transportation and Travel Management
Under Alternative C, the parking and day use areas would be slightly improved from Alternative B, especially in proximity to Swanton Road where the terrain is difficult to access. The proposed parking areas under this alternative are larger and located in areas that would have major long-term beneficial impacts on recreation resources in the planning area because they would accommodate the demand for vehicle trips and parking associated with recreation for up to 250,000 annual visitors at C-CD.

Special Management Areas
The impacts of wild and scenic river recommendation are similar to Alternative B where special management attention would be required to protect the outstandingly remarkable values associated with San Vicente Creek and Laguna Creek due to the elevated stature of the rivers in the national system.

4.11.6 Impacts of Alternative D (Preferred Alternative)

Recreation

Under Alternative D, the potential for visitor use conflicts would be similar to Alternative B because there are less miles of multiple use trails available than Alternative C. As shown in **Appendix A** on **Figure 7D**, proposed recreation opportunities for mountain biking and equestrian trail use would predominantly be separated into RMZ1 and RMZ3. Hikers would be allowed on all the trails in RMZ1 and RMZ3. Equestrian trail use would be prohibited in RMZ 1 to avoid conflicts with mountain bikers on multiple use trails. Similarly, mountain bikes (and e-bikes) would be prohibited on all the trails in RMZ3, *except* for the Yellow Bank South Loop Trail. As a result, there would be long-term benefits to recreation resources because the preferred alternative would allow C-CD visitors to take advantage of regional trail connectivity with the San Vicente Redwoods in RMZ 1 and the North Coast Rail Trail in RMZ 3.

However, the preferred alternative would prevent horseback riders from accessing the San Vicente Redwoods trail connection. Alternative D also precludes public camping, dogs off leash, and paragliding so the benefits to recreation resources are lower than Alternative C, greater than Alternative A, and substantially the same as Alternative B.

Based on comments from the County and others, the stacked loop trails that are considered under Alternative D would span smaller portions of RMZ 1 and RMZ 3 than Alternative C. For example, the BLM excluded trail segments under Alternative D that traversed steeper terrain where emergency services would be difficult to provide and recreational use would also impact a wider variety of wildlife habitats.

Under Alternative D, Class 1 and Class 2 low-speed electric bicycles (e-bikes) operated in the pedal assist mode would also be allowed on trails that are designated as open to bicycle use in RMZ1. The use of e-bikes is not expected to change the longevity of trails relative to more traditional bikes. The advantage provided by an e-bike is anticipated to open the opportunity to more riders, which can have a positive impact on recreational opportunity for users who might not otherwise be able to utilize the trails. Once the Panther Gap/Yellow Bank parking area and overpass are complete, there would be an increase in the number of cyclists accessing RMZ 3, including many that would arrive on e-bikes via the connection with the North Coast Rail Trail.

Allowing the use of e-bikes would reduce the number of visitors arriving in automobiles and reduce congestion in parking areas. The NCRT will allow the use of Class 1 and Class 2 e-bikes. However, the San Vicente Redwoods Public Access Plan does not allow for e-bikes on trails so the proposed use of e-bikes under Alternative D may increase conflicts in areas where trails connect with neighboring properties. Appropriate signage and education would minimize these impacts.

Under Alternative D, the BLM proposes to enforce leash requirements on all trails where dogs are allowed. The preferred alternative also prohibits dogs on certain trails to avoid disturbance to wildlife and other visitors. As a result, this alternative would have less recreational benefits for dog owners than Alternative C because there are less miles of trails and opportunities for recreationists to bring their dogs on trails. On the other hand, this would provide a moderate beneficial impact for users that are unaccustomed to dogs or would prefer a recreational experience that doesn't include dogs.

Under Alternative D, the BLM would reduce the potential effects of special recreation use permits (SRPs) by establishing initial maximum duration of permitted events that involve trail use; and developing recreation user education and awareness programs to inform the participants of the C-CD objects and values, encourage safe and environmentally responsible behavior, and increase patrol in areas with existing or new facilities, or in areas where heavy recreation use could impede restoration efforts or other existing land use activities. BLM will prefer events and activities that help develop the public appreciation of onsite resources.

The Federal Lands Recreation Enhancement Act (REA) provides authority for BLM to charge recreation fees and reinvest a majority of those fees into enhancing visitor services and facilities at the site of collection. This authorization provides the certainty needed to make long-term investments in an integrated system, sustain partnerships, and improve the recreation experience for visitor to the C-CD. Recreation fees collected under REA are reinvested at the collecting site to benefit the visitor through enhanced facilities and services. The REA also limits fee authority to locations with specific kinds of infrastructure and services. For example, the BLM may only charge market-rate fees at sites and for activities that meet certain specified criteria. Moreover, certain fees may *not* be charged for general access, dispersed areas with low or no investment, undesignated parking, or picnicking along roadsides or trails. The REA also requires that the Departments establish Resource Advisory Councils (RACs) so the local community, the recreation community, and the general public can provide input into fees established by BLM at C-CD.

Impacts from fees under Alternative D would be the same as those described for Alternative B. These fees are needed to support visitor use services and facilities, and they would provide a major beneficial impact to recreation resources in the region.

With regards to hunting, the preferred alternative still includes BLM coordination with CDFW to establish a public hunting opportunity in Santa Cruz County. However, hunting would be limited to archery only in RMZ 2. The CDFW would establish a special hunt program for Cotoni-Coast Dairies to ensure public safety and avoid conflicts with other recreationists. The BLM and CDFW estimate the number of hunting permits to be issued - based on a lottery system – would be similar to Canada de Los Osos in Santa Clara County. For example, there the CDFW hosts five permitted-hunts each year with two turkey hunts, two pig hunts and one deer hunt. Each hunt is a two-day period. For the Cotoni-Coast Dairies, the BLM anticipates the number of hunters for each hunt would be 2-4 people. The BLM, CDFW, and other partners would need to do some baseline surveys for deer in the area to determine how many individuals could be taken based on an annual survey.

Furthermore, the BLM would provide notice to hunters and other recreationists during the open season to inform and educate visitors when and where hunting activity is allowed in RMZ 2. To avoid potential impacts to residents of adjacent properties; the BLM would publish maps that delineate areas in RMZ 2 that are closed to hunting near agricultural operations and the communities of Bonny Doon and Davenport, CA. These maps would be issued to licensed hunters that are permitted under the CDFW special hunt program to access C-CD.

Expanding the opportunities and places for recreation on the North Coast of Santa Cruz would likely reduce the number of recreationists in any given area, allow for a wider variety of recreation experiences, and improve the experience for those users. Therefore, Alternative D offers good potential for new recreational opportunities that would ultimately help relieve the pressures in crowded areas for the near to long-term, which the BLM considers a moderate beneficial impact.

Vegetation Management, including Livestock Grazing

The impacts of biological resources management are the same as Alternative B.

Transportation and Travel Management

Under Alternative D, the parking and day use areas would be in locations similar to Alternative B, since the preferred alternative excludes development of parking facilities in proximity to Swanton Road and Bonny Doon Road. The BLM made other slight design improvements to address issues identified in public comments on the range of alternatives analyzed in the draft RMPA. For example, the proposed parking area at Warrenella Road Gate has more vehicle spaces and avoids direct impacts to Warrenella Road. The extra vehicle parking will also be good for accommodating organized groups with buses or vans This small change would have major long-term beneficial impacts on recreation resources in the planning area because they would accommodate the demand for vehicle trips and parking associated with recreation for up to 250,000 annual visitors at C-CD.

The extra spaces for regular vehicles were incorporated into the Warrenella Road Gate parking area because equestrian use and trailer parking is not being considered in RMZ 1 under this alternative. Nevertheless, the new design is the same size (~1.62 ac.) as the previous Warrenella Road Gate proposal that was analyzed in the Draft RMPA for both action alternatives B and C (~1.61 ac.).

Special Management Areas

The impacts of wild and scenic river recommendation are similar to Alternative B and C where special management attention would be required to protect the outstandingly remarkable values associated with San Vicente Creek due to the elevated stature of the rivers in the national system.

4.12 Transportation and Travel Management

This section focuses on BLM roads and trails that provide access to, and through, BLM public lands. There is considerable overlap of travel management and all BLM uses on public lands. For example, many users of public lands are there for recreation. For visitors, a route system may serve as either a route to a destination or as the recreation location itself. For destination recreation, vehicle routes are the means to get to a starting point to engage in the activity, such as a parking area or trailhead.

To reduce the duplication of narrative between travel management and the other sections of this RMPA/EA, this section addresses only public travel and access concerns.

4.12.1 Introduction

Assumptions

The following assumptions were used to complete the analysis for transportation and access impacts from the proposed Resource Management Plan Amendment (RMPA):

- Future environmental analyses would be conducted, as appropriate, for project- and site-specific actions proposed in the CCNM.
- Table 2.19-2 provides the estimated disturbance for Draft Concepts and parking areas included in the Preferred Alternative (Alternative D).
- Refer to **Appendix K** for the Final Traffic Study for the Cotoni-Coast Dairies Project, prepared by W-Trans (Weinberger 2020).

4.12.2 Impacts Common to All Alternatives

New access roads would most likely be located within, or adjacent to, existing agricultural fields.

In general, the heavy equipment and materials needed for development do not pose unique transportation challenges. New access roads or improvements may be necessary if new sites are not served by existing roadways, or access routes are not built to support heavy truck traffic up to the Federal limit of 80,000 pounds gross vehicle weight for the National Network (Title 23 Code of Federal Regulations [CFR] Part 658). In addition, a small number of one-time oversized and overweight shipments may be required for larger earthmoving equipment used in site preparation.

The construction of short new road segments for ingress and egress to parking areas is not considered to have secondary maintenance and system management impacts, as the BLM would maintain these road segments to ensure site access for day use. Changes in the level and types of traffic could result in secondary impacts on the County if added sign maintenance or patrol becomes warranted in order to institute restrictions on Swanton Road, Cement Plant Road, or Bonny Doon Road.

User conflicts could potentially occur in areas where there is public non-motorized and motorized use within the same travel ways. It is anticipated that vehicle traffic on roads would increase incrementally over time, and may increase periodically as a result of road closures redirecting traffic to open roadways.

It is possible that portions of roads and trails could be fenced or marked to prohibit public use. Because most access in the planning area is dependent on motor vehicles, the location of travel routes and the potential loss of access to recreation assets is considered a land use conflict.

Traffic Generation

Activities under the range of alternatives may increase traffic on nearby roads. Once operational, the recreation opportunities would generate a substantial amount of weekly and/or daily vehicle trips. The primary impact of concern would be any performance degradation of roadways providing key access to the

parking areas on the Monument. However, the distance of parking areas from major roads will to some extent determine the potential for traffic to change local circulation patterns or degrade local roads and cause congestion problems, especially from RV's and heavy-duty trucks.

An important aspect when considering traffic volume increases over existing conditions is the life cycle of the RMPA. As the availability of recreation opportunities increases, new activities (and any adverse impacts) may occur in addition to existing activities (and any adverse impacts). Therefore, the BLM hired consultants from W-Trans to evaluate traffic operation issues associated with the range of alternatives considered in the Cotoni-Coast Dairies RMPA for public access and recreation opportunities. The focus of this investigation was to determine the extent of improvements needed at the various access alternative sites as well as to discuss potential traffic congestion due to the project. They examined trip generation of the proposed project alternatives, and provided an assessment of traffic facility needs as a result of the additional traffic expected to be generated by the project. Refer to **Appendix K** for the Final Traffic Study for the Cotoni-Coast Dairies Project, prepared by W-Trans (Weinberger 2020).

Existing Mitigation Strategies

The primary management strategy is that public vehicle use on all BLM lands would be "limited" to designated routes, except as noted. Existing BLM standards regarding road design, construction, and maintenance are described in BLM Manual 9113. An access road siting and management plan should be prepared incorporating these standards, as appropriate. Generally, roads should be required to follow natural contours; be constructed in accordance with standards described in BLM Manual 9113; and be reclaimed to BLM standards. As described in BLM Manual 9113, BLM roads should be designed to appropriate standards no higher than necessary to accommodate their intended function.

4.12.3 Impacts of Alternative A, B, and C

W-Trans calculated vehicle trip information was determined based on data from the RMPA and ITE Trip Generation Manual. It is estimated that during the weekday p.m. peak hour Alternatives A, B, and C would respectively generate 16, 31, and 44 trips. For the weekend midday peak hour, this would be 40, 80, and 111 trips, respectively (Weinberger 2020) (**Appendix K**).

These volumes were added to existing volumes for each location on Highway 1 where an intersecting road or driveway would carry project traffic for each of the three alternatives. It was found that left-turn lanes, right-turn lanes, and right-turn tapers would not be warranted for any of the alternatives under volumes resulting from adding project trips to existing volumes.

Future volumes were determined using the anticipated growth rate to 2040 from the AMBAG RTDM. Under these future volumes, turn lanes and tapers would continue to not be warranted for the study intersections. However, a northbound left-turn lane would be warranted for Highway 1/Panther Beach Parking Access with the addition of Alternative B or C traffic to the future volumes. It is noted that the Panther Beach parking area uniquely would be on the west side of Highway 1, whereas the other study parking areas would be on the east side (**Appendix K**).

The peak hour traffic signal warrant was assessed for volumes at Highway 1/Bonny Doon Road as Bonny Doon Road has the highest traffic volume of any road intersecting Highway 1 that would carry project traffic. With the addition of the maximum expected traffic generated by the project at any of the access locations, a traffic signal would not be warranted for existing volumes with the addition of Alternative A traffic. It was found that a signal would be warranted for this location under future volumes without or with the addition of Alternative A traffic(**Appendix K**) .

Sight distance was assessed for each proposed parking area driveway and where public roadways that would be used by project traffic intersect with Highway 1, except for the Warrenella Road Top parking area as it was inaccessible at the time of this study. All locations have adequate sight distance in both directions, except the Liddell Creek parking area on Bonny Doon Road. For this location, it is recommended that the parking lot connection be moved or that vegetation be cleared such that sufficient sight distance is achieved (**Appendix K**). This only affects Alternative A, as Alternatives B and C do not include a parking area at Liddell Creek.

4.12.4 Impacts of Alternatives D (Preferred Alternative)

The impacts of the preferred alternative would be similar to those described above for other action alternatives because the BLM anticipates similar levels of visitor use and demands for parking under Alternative D that are described for Alternatives B and C in **Appendix G**.

The BLM proposes to improve existing transportation infrastructure to ensure sustainable management and visitor use and enjoyment in RMZ 1 and RMZ 3. For example, the Warrenella Road is approximately 2.65 miles long. Segment A, which begins at the intersection with Cement Plant Road, is.1.83 miles long, 24-feet wide with a paved surface. Segment B is 0.82 miles long, 12-feet wide with a native, unpaved surface. The proposed improvements are limited to work within Road Segment A. The pavement of Road Segment A is in poor condition with large sections of missing and broken pavement, potholes, and severe alligator cracking. Most of the ditches, culverts and drainage features within Road Segment A are in poor condition. The direct impacts of the BLM's management includes temporary adverse impacts to through traffic from the removal of remaining pavement to prepare and compact subgrade. On the other hand, there would be long-term beneficial impacts from adding graded aggregate base (GAB), hot mix asphalt (HMA), and drainage system improvements along Warrenella Road. These include regrading and cleaning ditch lines, repairing /improving erosion control features and riprap outlet structures, and replacing sixteen 18"-24" CMP culverts with HDPE culverts. Additional PDF's include line striping, road signage, gates, and fencing both sides of Warrenella Road to reduce negative impacts of upgrades to Warrenella Road.

Under the preferred alternative, the BLM also proposes to upgrade an existing agricultural road to provide public access to parking facilities and recreational trails in RMZ 3. The proposed Marina Ranch Road project entrance connection is within State right-of-way and will require approval from CalTrans. Culvert installation (36" RCP) under HWY 1 is included in this project. The direct impacts of the BLM's management includes temporary adverse impacts to through traffic from the construction of acceleration and deceleration lanes on Highway 1 that would be mitigated through PDF's established by CALTRANS to meet public safety standards during highway construction periods.

Additional minor adverse short-term impacts would result from the construction of new trailhead facilities at Warrenella Road Gate, Warrenella Road Top, and Marina Ranch Gate. In order to mitigate the likely effects of future vehicle use, these parking facilities would be designed to include aggregate-surfaced parking lot and access roads, concrete vault toilets, animal resistant waste receptacles, picnic shelters, kiosks, signage, fencing, and gates that would be closed at night.

4.13 Lands and Realty

4.13.1 Introduction

Land tenure adjustments and land use authorizations are BLM activities that may occur for all alternatives. Alternative A represents the "No Action" alternative required by NEPA and would continue the current management under the CCNM RMP (BLM 2005a) and the IMP (BLM 2014). All alternatives would recognize all third party acquired easements, existing land use authorizations and rights of ways on C-CD.

Management actions authorized through the lands and realty program require subsequent analysis at the project level to determine site-specific resources issues and alternatives for implementation. Therefore, the Land and Realty program would not result in any direct environmental impacts to the human environment under any alternatives. Other programs and resources would be affected by failure to complete the required resources screening and analysis prior to any land use authorization.

4.13.2 Impacts Common to All Alternatives

Authorizations and permits would specify site specific mitigation measures to reduce or eliminate potential impacts to air quality, soil, water, biological, recreation, visual, rangeland, energy and minerals, cultural, paleontological, social/economic, transportation/access, hazardous materials, and public safety resources.

For all alternatives, the potential for acquisition of lands or easements from willing sellers would assure more efficient management of public lands and greater preservation and enhancement of C-CD objectives and values in important areas.

All existing third-party rights would continue to be managed in accordance with the rights that were granted.

4.13.3 Impacts of Alternative A (No Action)

Under the no action alternative, existing management actions would have a minor adverse impact on administration of lands and realty because they would only allow acquisition of lands for efficient management of public lands and to reduce conflicts with other public and private landowners within C-CD. Land tenure adjustments would be implemented if the FLPMA and other applicable Federal laws and regulations are met, and if the BLM management objectives for the management area, such as impacts or loss to species/habitats or other resource impacts, are not compromised.

Management of resources would be maintained at current levels. This alternative would not modify allowable uses to address emerging issues on public lands.

Impacts from new activities, expanded rights-of-way (ROWs), or construction of utility sites and related facilities outside of designated or established corridors would vary depending on the approval of applications with appropriate mitigation measures. Similarly, allowable impacts from permit applications for commercial filming, or other uses would be considered on a case-by-case basis to determine if they are consistent with protection of C-CD objectives and values. Rehabilitation of roads not required for administrative purposes and resolution of unauthorized uses of public lands would have long-term beneficial impacts on other resources.

4.13.4 Impacts Common to Alternatives B, C and D

Land Acquisition/Exchanges

Under all the alternatives, the BLM would only consider acquisition or exchange of private property and other lands from willing sellers with a focus on lands within the boundary of the C-CD. The Presidential Proclamation directs the BLM to consider acquiring these lands to protect the resources for which the monument was designated, but there are only a few small private inholdings, so the impacts of transferring these lands into public ownership would be negligible. Furthermore, acquired lands within the boundary of the C-CD would be subject to the deed restrictions and they would become part of the CCNM and subject to the decisions in this RMPA.

In rare instances, the BLM may consider acquisition of neighboring lands, or easements, from willing sellers that support C-CD objects and values or provide opportunities for public access to C-CD, consistent with resource management goals and objectives. However, lands acquired outside of the C-CD boundary would not become part of the CCNM and they would not be subject to this RMPA.

Under the Proposed Plan, public access easements would need to be acquired for Warrenella road top and Marina Ranch gate. Therefore, the BLM entered into an agreement with the Trust for Public Lands (TPL) on June 3, 2020 to grant two 45-foot roadway easements (to accommodate the roadway, drainage and fencing) along existing easements are currently for administrative use and do not allow for public access. By acquiring these easements there would be moderate long-term benefits for management efficiency and improved access to public lands.

One of the public easements would grant public access over the lower portion of Warrenella Road for managed public access, all in a manner consistent with the purpose and terms of the Conservation Easement, and the existing deed restrictions for the C-CD property.

The other roadway easement would grant public access over the agricultural parcel in the Marina Ranch Road area, all in a manner consistent with the purpose and terms of the Conservation Easement, and the existing deed restrictions.

The BLM's agreement with TPL includes efforts to identify appropriate management and maintenance requirements and conditions designed to protect the landowner's rights, obligations and agricultural interests relating to the Warrenella Road area and Marina Ranch Road area. Therefore, the long-term (minor) adverse effects on existing rights holders and adjacent lands from establishing public easements onto C-CD would be mitigated.

According to the BLM's agreement with TPL, the BLM's responsibility includes improving and expanding the existing roadways in the Warrenella Road area and Marina Ranch Road area. Additional details include the following general understandings:

(a) BLM will prepare all surveys, easement descriptions, secure permits, design, construct and maintain improved and expanded roadways in the Warrenella Access Area and Marina Ranch Gate Access Area;
(b) Fencing, gates, etc. will separate agricultural uses from public use.
(c) The Warrenella Access Area and the Marina Ranch Gate Access Area are not to be used to support new or augmented residential or commercial uses, but the Warrenella Access Area may be used to support the existing level of residential and commercial activity.
(d) Roadways within the Warrenella Access Area and Marina Ranch Gate Access Area shall be

designed and maintained to reasonably minimize impacts to the agricultural and other uses of the Ag Parcels and the rural character of the area, and may, with the agreement of the Parties, be designed and engineered in compliance with BLM standard road specifications.
(e) Easements describing the Warrenella Access Area and Marina Ranch Gate Access Area will be prepared and recorded to grant public access with new legal descriptions showing the 45 foot width, which will include and fully contain the roadway, drainage and fencing, and related management needs.

Land Use Authorizations

Impacts from new activities, expanded rights-of-way (ROWs), or construction of utility sites and related facilities outside of designated or established corridors would vary depending on the approval of applications with appropriate mitigation measures. Provisions for new facilities require them to be built to applicable standards as determined by the BLM authorized officer. BMPs and other measures will be implemented to avoid adverse effects on natural resources and the human environment. Any new facilities with potential for adverse effects will be subject to additional environmental review under NEPA. Similarly, applications for use of CCNM lands will be considered on a case-by-case basis, considering the potential for the use to affect CCNM resources and the consistency of the use with the goals and objectives of this RMPA. Commercial filming, search-and-rescue operations, or other uses would be allowed on a case-by-case basis with appropriate mitigation measures. Prohibited uses outlined in Chapter 2, closing and rehabilitation of roads not required for administrative purposes, and resolution of unauthorized uses of public lands would have major long-term indirect beneficial impacts on other resources.

Nonetheless, allowing public access to the Warrenella Road top would increase potential risk to Pacific Gas and Electric who have a substation on a small 0.011-acre inholding parcel. The parcel is currently not fenced, so public access could result in moderate adverse short-term effects from vandalism. Public use of Warrenella Road would also result in moderate long-term adverse impacts on other existing rights holders due to the increased seasonal traffic. These adverse impacts would be mitigated by establishing seasonal restrictions and controlled public access to Warrenella Road Top and by requiring fees to park at C-CD, which will allow for increased monitoring and patrol of this area.

4.14 Social and Economic Conditions

4.14.1 Introduction

This section presents an analysis of social and economic impacts of the management alternatives considered in this RMPA/EA. This analysis discusses potential effects to existing social patterns, employment, labor income, and important sectors in Santa Cruz County, with an emphasis on the North Coast. Environmental justice impacts to communities within the localized study area are also discussed.

Continued employment patterns can be seen as a benefit to the local community. Other economic benefits are also present, although some are not easily measured or tied to economic activity. Examples of where effects are difficult to quantify are equity effects, impacts to social values, and non-market values.

In order to accurately portray the relationship of current BLM management and the community, the scope of analysis for social and economic effects from changes on C-CD extends beyond the immediate vicinity of the BLM-administered lands. Therefore, the local study area includes small towns like Davenport and Bonny Doon as well as the City of Santa Cruz. Environmental justice impacts are evaluated by identifying populations, communities or groups that contain a high number of minority or low-income populations that could be subject to disproportionate adverse effects of BLM management actions identified for RMPA alternatives. Analysis of the effects of herbicide application on Social and Economic Values is analyzed in the Weed Management Plan (**Appendix F**). An approved Pesticide Use Proposal (PUP) is required before herbicide application can be conducted at C-CD.

4.14.2 Impacts Common to All Alternatives

The RMPA is not expected to create a significant number of new jobs or induce population growth. Changes in employment patterns within a community can have a direct and indirect effect on many social conditions. It is possible some specialized workers could come from outside the regional and local study areas. However, these workers are expected to seek lodging proximate to the work areas, which is assumed to be local study area communities where social values and structure is already influenced by the recreation and tourism industry. Therefore, the presence of temporary workers is not expected to disrupt existing social conditions or values of the adjacent communities of the North Coast. While some groups or residents in these communities likely would consider new recreation developments to diminish quality of life, the North Coast is already a recreation destination for beach access, State Parks and auto tours, among other activities. Therefore, this adverse impact is considered to be minor. In addition, this adverse impact is outweighed by the beneficial social effects of greater access to public trails for exercise and relaxation.

In addition to direct jobs associated with RMPA implementation, future economic activity would support other secondary jobs established in the local communities. These jobs result from indirect economic effects of tourism activity (purchases of goods and services by visitors).

Introduction of public access and recreation at C-CD could have an adverse social impact on the community by increasing public service calls related to search-and rescue, wildfire, and law enforcement. However, these impacts are anticipated to be minor due to the increased presence of BLM staff and partners on the property. The BLM has, and continues to, partner with CalFire, Santa Cruz County and others to address public safety concerns related to C-CD.

Non-market Values

Non-market values are associated with several of the resources managed by the BLM in the planning area, as well as with recreation and open space on both public and private lands. Non-market values include the benefits received by people from participating in recreational/tourist activities and the overall high-value visual context of these lands throughout the planning area. Additionally, individuals derive passive or non-use benefits from the existence of abundant wildlife, waterways, scenic resources, and extensive agricultural lands with little development and other amenities in many areas within the planning area. Both

tourism and recreation have market components individually, which are heavily affected by BLM land use decisions.

Environmental Justice Effects

In analyzing potential environmental justice impacts, the U.S. Census data for minority and low-income populations was used. For this analysis, a population is considered a potential environmental justice population if the percentage of the minority or low-income population of the potentially affected area is significantly greater than the corresponding percentage of the population in the larger jurisdiction or region in which it is located.

The major consideration is whether any adverse impacts from the range of alternatives would be borne disproportionately by these communities when compared to the general population of the region. An important aspect when considering disproportionate effects within these communities over existing conditions is the life cycle of the RMPA. As the availability of recreation opportunities increases, new activities (and any adverse impacts) may occur in addition to existing activities (and any adverse impacts).

4.14.3 Impacts of Alternative A (No Action)

Recreation
The no action alternative would have less direct impacts on social and economic conditions than the action alternatives because it would result in the fewest new recreation opportunities and lowest annual visitor use estimates. The indirect negative impacts of current management on social values and non-market values would be greater than other alternatives because it precludes the opportunity to establish regional trail connections for mountain bike and horseback riding in the region.

While the limited number of trail and trailheads under Alternative A will limit the number of expected visitors to C-CD, the placement of these trail and trailheads in less visible/more remote locations could result in an increase in illegal activities and law enforcement calls related to C-CD.

Transportation and Travel Management
The no action alternative would have less direct impacts on social and economic conditions than the action alternatives because it would result in the fewest new parking areas and lowest new vehicle trip estimates. The indirect impacts of current management would be similar to other alternatives because the BLM anticipates up to 40 vehicle spaces would accommodate the demand for visitor use under Alternative A.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
The no action alternative would have less direct impacts on social and economic conditions than the action alternatives because it would result in the fewest changes to existing uses, including livestock grazing. The indirect negative impacts of current management on social values and non-market values would be greater than other alternatives because it precludes the opportunity to establish effective programs to prevent or control the spread of non-native plants using herbicides or prescribed fire.

Special Management Areas
Recommendation to release all eligible river segments from further consideration under the Wild and Scenic Rivers Act would have no effect on social and economic resources.

4.14.4 Impacts of Alternative B

Recreation
This alternative would have more direct impacts on social and economic conditions than the no action alternative because it would result in new recreation opportunities and higher annual visitor use at C-CD. The indirect beneficial impacts of the RMPA on social values and non-market values would also be greater

than the no action alternative because it increases the likelihood that visitors would utilize the regional trail system for mountain bike and horseback riding opportunities in the region. The direct and indirect impacts of Alternative B are less than Alternative C.

While the number of trail and trailheads under Alternative B are greater than Alternative A, the placement of proposed parking areas in more exposed/visible locations and the increase in anticipated users may result in less illegal activities and law enforcement calls than under Alternative A. Due to increased number of visitors compared to Alternative A, risk of wildfires is higher under Alternative B. This would be mitigated through implementation of fuels treatments, public education/outreach, and appropriate trail maintenance.

Transportation and Travel Management
Alternative B would have more direct impacts on social and economic conditions than the no action alternative because it would result in more new parking areas and more new vehicle trips. The indirect impacts of Alternative B would be similar to other alternatives because the BLM anticipates up to 78 vehicle spaces would accommodate the demand for visitor use under Alternative B.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
The direct impacts of this alternative are expected to be similar to the no action alternatives because it would only result in minor changes to existing uses, including livestock grazing. The impacts of vegetation management actions on social values and non-market values would have long-term beneficial effects on social and economic conditions because the BLM's goals and objectives are to establish effective programs to prevent or control the spread of non-native plants and reduce the risk of wildfire.

Special Management Areas
The BLM's recommendation to designate eligible wild and scenic rivers would have no direct impacts on C-CD. However, there would be indirect beneficial effects on social and economic resources as a result of wild and scenic river designation.

4.14.5 Impacts of Alternative C

Recreation
Alternative C would have more direct impacts on social and economic conditions than the Alternative B and current management because it would result in the most new recreation opportunities and highest annual visitor use at C-CD. The indirect beneficial impacts of the RMPA on social values and non-market values would also be greater than the other alternatives because it increases the likelihood that visitors would utilize the entire C-CD trail system for mountain bike and horseback riding opportunities in the region.

Impacts of Alternative C on public safety are similar to those described for Alternative B.

Transportation and Travel Management
Alternative C would have more direct impacts on social and economic conditions than current management and/or Alternative B because it would result in the most new parking areas and the most new vehicle trips. The indirect impacts of Alternative C would be similar to other alternatives because the BLM anticipates up to 124 vehicle spaces would accommodate the demand for visitor use under Alternative B.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire
The direct impacts of this alternative are expected to be greater than Alternative A and Alternative B because it would result in more changes to existing uses, including livestock grazing. The potential for beneficial impacts of vegetation management actions on social values and non-market values would be lower than other alternatives because this alternative includes more intensive herbicide use to prevent or

control the spread of non-native plants, including aerial treatments that raised many concerns during the public comment period on the Draft RMPA.

Special Management Areas

The BLM's recommendation to designate eligible wild and scenic rivers would have no direct impacts on C-CD. However, there would be more indirect beneficial effects on social and economic resources as a result of more segments included in the wild and scenic river designation.

4.14.6 Impacts of Alternative D (Preferred Alternative)

Recreation

Alternative D would have more adverse impacts on social and economic conditions than Alternative A (current management) because it would result in new recreation opportunities and increase annual visitors to the North Coast of Santa Cruz County. However, this region frequently experiences congestion at popular recreation destinations, so Alternative D would also have more long-term beneficial impacts on social and economic conditions than Alternative A (current management) by spreading this visitation out across a greater number of areas and trails.

Alternative D would have less impacts on social and economic conditions than Alternative C because there are fewer allowable uses under this alternative resulting in less visitor use at C-CD and less revenue from sales of good and services in the local area. The beneficial impacts of the RMPA on social values and non-market values would be similar to Alternative B because it increases the likelihood that visitors would utilize the C-CD trail system for mountain bike and horseback riding opportunities in the region.

Transportation and Travel Management

Alternative D would have more impacts on social and economic conditions than current management and/or Alternative B because it would result in more vehicle trips. The impacts of Alternative C would be similar to other alternatives because the BLM anticipates up to 167 vehicle spaces would accommodate the demand for visitor use under Alternative D.

Vegetation Management, including Livestock Grazing, Herbicide Use, and Fire

The impacts of this alternative are not expected to be greater than Alternative B because it would result in similar changes to existing uses, including livestock grazing. The impacts of vegetation management actions on social values and non-market values would also be similar to other alternatives because the BLM's goals and objectives are to establish effective programs to reduce the risk of wildfire, and control the spread of non-native plants using livestock grazing, targeted herbicide use, and prescribed fire.

Special Management Areas

The BLM's recommendation to designate suitable wild and scenic rivers would have beneficial effects on social and economic resources as a result of the elevated stature associated with the system.

4.15 Cumulative Effects

Introduction

The Council on Environmental Quality (CEQ) defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). The CEQ suggests cumulative impact analyses should focus on meaningful impacts, and not exhaustively analyze all possible cumulative impacts (CEQ, 1997). Therefore, the analysis in this RMPA and EA focuses on past, present, and future actions that are anticipated to have environmental impacts similar to or impacting the same resources as the direct and indirect impacts identified for each of the alternatives. Cumulative projects include those actions that result in meaningful impacts to historically important resources, those with a potential for violating legal standards or laws, or other identified projects or actions in the geographic scope that relate to the identified issues. Cumulative impacts will be analyzed only for those resources that have identified direct or indirect impacts.

Geographic Scope

The geographic scope for the cumulative effects analysis is focused within the boundaries of the County of Santa Cruz. The specific geographic scope for different resources varies due to the nature and extent of the impacted area; but the accumulation of the effects being assessed is expected to remain within this geographic area.

Timeframe

The timeframe of past, present, and reasonably foreseeable future projects was determined as follows:

- **Past and Present Development.** Existing development reflects the cumulative baseline or existing conditions described in the affected environment in Chapter 3;
- **Visitor Use and Parking Estimate.** An estimate of the level and type of future visitor use in the C-CD planning area (**Appendix G**);
- **Regional Transportation.** Future traffic volumes were determined using the anticipated growth rate to 2040 from the AMBAG RTDM. Refer to for the Final Traffic Study for the Cotoni-Coast Dairies Project (**Appendix K**).
- **Regional Conservation Lands.** Includes other relevant projects that have either: submitted permit applications, begun the environmental review process, been approved, or are under construction within the geographic scope.
- **CZU Lightning Complex.** The USGS emergency assessment characterizes potential debris-flow hazards at a static point in time immediately following wildfire. Studies of post-fire debris flow in the western United States have indicated that debris-flow activity in recently burned areas typically occurs within 2 years of wildland fire.

Incomplete or Unavailable Information

Impacts are quantified where possible. Impacts are sometimes described using ranges of potential impacts or in qualitative terms. In the absence of quantitative data, impacts are described based on the professional judgment of the interdisciplinary team of technical specialists using the best available information. Impacts analysis based on incomplete or unavailable information is identified where applicable.

Assumptions

Several general assumptions were made to facilitate the analysis of potential impacts. The assumptions listed below are common to all resources. Other assumptions specific to a particular resource are listed under that resource above.

- Public land management presents environmental, health, and safety impacts independent of the history of land use where it takes place.
- The degree of environmental impacts varies depending on whether it occurs in proximity to other existing uses versus a greenfield location, or if the surrounding area is residential, agricultural, or undeveloped.
- Numerous resources are influenced by regional development that are not within the BLM's decision making authority. These include the appropriation and use of the local groundwater, availability of surface water, local air quality, growth of human population centers, and other private property rights.
- As vegetation cover and soil properties return to pre-fire conditions, the threat of debris-flow activity decreases with time elapsed since wildfire. Conversely, the hazards from flash-flooding may persist for several years after the wildfire.

Incorporation by Reference

The BLM's analysis of cumulative effects in this Proposed RMPA/EA is based primarily on A Conservation Blueprint: An Assessment and Recommendations from the Land Trust of Santa Cruz County (Mackenzie et al., 2011). The Conservation Blueprint is a science-based and community–informed document that compiled existing data, plans, expert opinion and input from the public from 2008 -2011. The Conservation Blueprint provides a comprehensive discussion of biodiversity, water, agricultural and recreational resources in the County (Mackenzie et al. 2011). The Blueprint was developed over 18 months with the support of the Gordon and Betty Moore Foundation, the Resources Legacy Fund, and Land Trust members. Their work was guided by a seven-member Steering Committee and drew on the knowledge of 110 experts within the area and community forums held to solicit public input, with funding provided by the Community Foundation Santa Cruz County.

Other sources include references used to prepare the BLM's Visitor Use and Parking Estimate (**Appendix G**), including PlaceWorks memorandum addressing future visitor use at the San Vicente Redwoods property (Minn and Fleischmann, 2016), and the North Coast Rail Trail EIR (SCCRTC, 2019). Due to their proximity and the potential for trail connectivity between these projects and C-CD, the annual visitor estimates for the San Vicente Redwoods Access Plan and vehicle trip assumptions for the North Coast Rail Trail are relevant to evaluating the incremental impacts to the environment of increasing access to recreation opportunities and regional trial connectivity in the C-CD, and allows BLM to make a reasoned choice among the range of alternatives considered in the Draft RMPA/EA.

Additional new information incorporated into the plan is based on the United State Geological Survey (USGS) conducted a post-fire debris-flow hazard assessment for the CZU Lightning Complex that is available on-line (USGS website, accessed on September 17, 2020), and Lockheed Fire Post Fire Risk Assessment released by the San Mateo-Santa Cruz Unit of California Department of Forestry and Fire Protection on September 30, 2009.

The constraints of these references include areas of uncertainty within the assessments and other incomplete or unavailable information that inherently affect BLM's evaluation of reasonably foreseeable effects on the human environment from introducing new public recreation opportunities on the C-CD. In particular, the BLM was unable to quantify risks to transportation, emergency services, public health, or safety, from implementation of the range of alternatives because there is no reliable data on visitor use for C-CD due to the fact that the property has not been previously open to public use. Nonetheless, the BLM hired consultants from WTrans to provide forecasts of future traffic volumes using the anticipated growth rate to

2040 from the AMBAG RTDM. Refer to for the Final Traffic Study for the Cotoni-Coast Dairies Project (**Appendix K**). Therefore, BLM's evaluation of such impacts is based upon theoretical approaches or research methods discussed in **Appendix G** and **Appendix K**.

Monitoring the effects of introducing new recreation opportunities in C-CD will allow the BLM to periodically review and summarize what has been observed to determine if adaptive management in needed. Additional information is identified in the BLM's Monitoring Plans in **Appendix C**, which provides further monitoring direction for the C-CD.

For the purposes of analyzing risk to public health and/or emergencies, BLM shall incorporate by reference the definition of "reasonably foreseeable" from 40 CFR 1502.22(b)(4). As such, "reasonably foreseeable" includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

Environmental review documents associated with the cumulative projects listed in **Table 4.15-1** and **Table 4.15-2** are incorporated by reference into this impact analysis, as feasible. Nonetheless, many of the projects listed are in varying stages of development so details are incomplete or unavailable regarding the final impacts on resources in the planning area.

Past and Present Development

The history of development on the C-CD is low compared to private lands in the region. In the last two decades, there's been no major new developments with the exception of the closure and remediation of quarries and associated infrastructure by CEMEX. Assuming that the population growth trend in this region is likely to continue for the next 10 years, Santa Cruz County could see up to 25,000 additional residents in rural and urban locations during the life of this plan. The impacts of population growth are unavoidable.

The Conservation Blueprint (Mackenzie et al. 2011) describes the regional setting as follows:

> Santa Cruz County is the second smallest county in California, containing a total of 441 square miles or approximately 285,000 acres. It features diverse natural and cultural resources, varied topography and landscapes, including the forested Santa Cruz Mountains, the Mid County coastal terraces, and the alluvial plains of South County.
>
> The mountainous county includes 18 principal watersheds, all of which drain into the Monterey Bay National Marine Sanctuary. The San Lorenzo River encompasses 138 square miles and is the largest watershed lying completely within the county. The Pajaro River Watershed includes the Watsonville Sloughs, one of the largest remaining coastal wetland ecosystems in California, and critically important for migratory and wetland birds, and special status species such as the California red-legged frog and Western pond turtle.
>
> Rivers and streams that originate in the upper watersheds of the county's forested lands as well as coastal streams totaling 850 miles provide drinking water to over 190,000 residents in and around the City of Santa Cruz and support steelhead and coho salmon. Santa Cruz County features a high concentration of the Central California Coast's important aquatic ecosystems, including coastal streams, sloughs, wetlands, ponds, and lakes that support a diversity of wildlife. Santa Cruz County is considered a global hotspot for biodiversity for its abundance of native plants, including 1,200 native plant species and 17 endemic species found nowhere else in the world. The county includes diverse natural communities, from the globally rare old-growth redwood forests and Santa Cruz sandhills, to the northern maritime chaparral, and coastal prairie grasslands.
>
> The county also supports a diversity of animal species including more than 350 bird species and 11 endemic animals. Santa Cruz County also plays a critical role in regional landscape connectivity,

specifically, providing wildlife linkages between the Santa Cruz Mountains and the Gabilan Range to the south and the Diablo Range to the east.

Santa Cruz County has an extensive network of protected lands, which includes public parks, trails, open space and beaches with about 45,000 acres in the State Parks system, 7,000 acres within county and city parks, over 231 miles of trails, including the California Coastal Trail and Bay Area Ridge Trail, and 12 nature centers. In annual surveys conducted for the Community Assessment Project, residents consistently and overwhelmingly identify the county's scenery, geography, and climate as the factors that contribute most to their quality of life (CAP 2010). Approximately 78,000 acres or 27% of the county is protected in parks, public land or through conservation easements. This compares to 39% in protected status in San Mateo County and 29% in Santa Clara County, respectively (**Appendix D**). Approximately 31,700 acres or 11% of the county is urban or built up land, and 110,000 acres or 39% of the county is in agricultural use, including cultivated farmland, rangeland, and timberland.

Table 4.15-1. Comparable Lands in the County of Santa Cruz

Name/Size	Description	Distance from Santa Cruz	Annual Visitor Use; and Parking Capacity
Wilder Ranch State Park 7,000 acres	34 miles of trails for hiking, biking, equestrian, events, camping, and education	2 miles	472,809; 237
San Vicente Redwoods* 8,500 acres	38 miles of trails for hiking, biking, and equestrian	15 miles	83,220; 40-60
The Forest of Nisene Marks State Park 10,257 acres	30 miles of trails for hiking, biking, camping	11 miles	102,094; 75
Soquel Demonstration State Forest 2,681 acres	24 miles of trails for hiking, biking, and events	22 miles	20,000; 60

**not currently accessible*

Sources: Minn and Fleischmann, 2016.

Reasonably Foreseeable Future Actions

Table 4.15-2 lists regional conservation and recreational activities that have been identified within the geographic scope. The BLM does not include estimates for the total number of miles or acres that are expected to be developed because they are considered part of the environmental baseline for the RMPA/EA. Nonetheless, the average number of recreational trails and environmental resources in the County of Santa Cruz are summarized below for consideration of cumulative effects of the range of alternatives in BLM's Draft RMPA/EA.

Santa Cruz County recently completed a planning process for the Davenport Cement Plant. While this project is a relevant potential future action, implementation of the CEMEX Reuse Plan is not reasonably foreseeable within the life of this RMPA. Therefore, this plan was not incorporated into the Cumulative Impacts analysis.

Table 4.15-2. Cumulative Projects

Project Name	Description	Location	Status
North Coast Rail Trail	7.5 miles of trail for hiking, biking	Santa Cruz Branch Line	On-going
San Vicente Redwood Access Plan	38 miles of trail for hiking, biking, equestrian	Bonny Doon	On-going

The Conservation Blueprint says the extensive network of regional conservation lands in the Santa Cruz Mountains and along the coast provide many opportunities to complete trail projects that are of national, statewide, or regional significance (Mackenzie et al. 2011). In particular, they identified the Santa Cruz Regional Transportation Commission's vision for the North Coast Rail Trail (NCRT) to Davenport as an opportunity to connect with the California Coastal Trail, and expectations that there would be outstanding new opportunities for public access and appreciation of C-CD.

As described on the Santa Cruz Regional Transportation Commission's website:

> The NCRT project is a 7.5-mile multi-use bicycle and pedestrian trail proposed to extend along the railroad corridor from Wilder Ranch State Park in the south to Davenport in the north in unincorporated Santa Cruz County. The project also includes improvements to three existing parking areas (Davenport Beach, Bonny Doon Beach, and Panther/Yellow Bank Beach) as well as a new crossing of Highway 1 in Davenport. The 5.4-mile section from Wilder Ranch to Panther/Yellow Bank Beach is scheduled for construction in 2021. Construction funding is yet to be secured for construction of the remaining 2.1 miles to Davenport, as well as the 3 parking lot improvements and crossing of Highway 1 in Davenport.

The Conservation Blueprint cites a 2003 assessment by the State Coastal Conservancy that found 40% of the California Coastal Trail had been completed statewide. At the time, approximately seven miles, or 16% of Santa Cruz County's 43-mile long coastline had been established. Upon completion of the NCRT, the portion of the California Coastal Trail complete within the County would rise to nearly 33%.

The PlaceWorks memorandum (Minn and Fleischmann 2016) also explains the C-CD property borders the San Vicente Redwoods (SVR) property and they are connected by Warrenella Road. While the C-CD and the SVR properties are not currently open for public access, the deed restrictions for both properties state that they will provide public access. As a result, there has been extensive collaboration with the partners because BLM and the Land Trust of Santa Cruz County anticipate these parallel planning efforts will elevate the visibility and status of the C-CD.

Biological Resources

The geographic scope for analysis of cumulative effects on biological resources is the planning area. The analytic assumptions are that other Federal and State agencies with a stake in the planning area will continue to implement their current plans as written. It is further assumed that private lands within the planning area would continue to exhibit the same overall spatial pattern and trends of vegetation, habitat, and disturbance over time as presently exists.

Biological resources are primarily subject to degradation from human activities, including surface disturbance. Historically, the C-CD has been subject to human disturbances that have resulted from agriculture, grazing, residential development, and industrial use. These trends in disturbance are expected to continue accumulating a net loss of these resources.

Cumulatively, these historic trends of adverse impacts result from private, local, State, and Federal actions within the planning area. To counter these adverse impacts, agencies with a preservation or protection mandate, such as BLM, plan for and implement actions to alleviate these trends (e.g., restoration and recovery projects). The actions provided for by the BLM through this RMPA add to the protections of biological resources through the support, compliance with, and enhancement of these efforts. However, there is a limited amount of land within the planning area under BLM management.

Cumulative impacts directly relate to the management of the biological resources in the planning area. Chapter 3 discusses the BLM's current management of livestock grazing, wildland fire and fuels management, recreation, and other activities, and provides a context for cumulative impacts of management actions. Cumulative impacts as a result of the range of alternatives considered under the RMPA are expected to be negligible.

Site-specific analysis and implementation of PDFs presented in **Appendix D** would reduce impacts and minimize the incremental contribution to cumulative effects from the RMPA.

Generally, the context and intensity of non-BLM activities are not anticipated to vary by alternative because these activities do not directly depend on BLM management actions and allowable uses set forth in the RMPA alternatives. Much of the BLM management in these alternatives is designed to protect and preserve biological resources. However, there is a very limited amount of land within the Planning Area under BLM management. Therefore, BLM management makes a relatively small contribution to cumulative effects, both adverse and beneficial, throughout the planning area.

Overall, each alternative would contribute incrementally to cumulative impacts. The net cumulative effect of the range of alternatives considered in the C-CD RMPA would have minor beneficial effects on biological resources. Information regarding the geographic scope and other assumptions for biological resources also apply to special status species.

Potential impacts to special status species from the RMPA, as well as other current and probable future projects on regional conservation lands in the planning area would contribute to beneficial cumulative impacts to special status species.

The introduction of recreational uses on C-CD could have an adverse cumulative impact on wildlife when considered in combination with proposed access in the San Vicente Redwoods Plan. Introduction of public use on both properties could have impacts on wildlife movement and activity. This impact would be greatest under Alternative C, followed by Alternatives B and D, with the least impacts anticipated under Alternative A. However, this impact will be mitigated because of minimization measures included in the RMPA and through coordinated management and enforcement across BLM and neighboring properties.

Under Alternatives B and D, the BLM would manage a large portion of C-CD as core fish and wildlife emphasis areas. The San Vicente Redwoods Plan, which provides for public access on their adjacent property, sets aside reserves for fish and wildlife that are contiguous with the proposed areas on C-CD under Alternatives B and D. These actions in combination are anticipated to have a permanent beneficial effect on fish and wildlife.

The San Vicente Redwoods plan also sets extensive goals for watershed and forest restoration. The restoration objectives and actions proposed under Alternatives B, C, and D would also result in a cumulative beneficial effect for biological resources across the region.

Based on the USGS emergency assessment of debris flow hazards following the CZU Lightning Complex, and information in CalFire's 2009 assessment of the Lockheed Fire, bridges, culverts, and other watercourse crossings will likely be impacted by sediment laden floods and debris flows near the downslope southwest fire perimeter.

In particular, the majority of the 19,000-acre Scotts Creek watershed burned, as well as a substantial portion of the 1,025-acre Molino Creek watershed and the 6,961-acre San Vicente Creek watershed. It is anticipated that flooding and sedimentation are likely to occur in these drainages during heavy winter and spring rains. The resulting downstream sedimentation and flooding may impact infrastructure (for example agricultural systems, seepage systems, pumps, water lines, roads, watercourse crossings).

The CZU Lightning Complex is anticipated to have a short-term negative impact on reptiles, terrestrial amphibians (e.g. slender salamanders and yellow-eyed salamanders) and small mammals as individuals of these species were unable to escape the fire. However, the return of vegetation to an earlier successional stage may lead to a short-term increase in some species. Increases in sediment from the CZU Lightning Complex are likely to result in a short-term reduction in successful reproduction for salmonids and a reduction in suitability of some creeks for habitat for California red-legged frogs.

There is an earthen dam on Molino Creek with a culvert that is partially filled with sediment. The earthen dam is the location where a recreational trail system is being considered that would allow visitors to cross Molino Creek and access regional trails connecting to the San Vicente Redwoods property on the north end of RMZ1. According to the 2009 CalFire assessment, the dam "appears to be structurally impaired with evidence of embankment and spillway erosion from past overtopping. The headwaters above the Molino Creek Dam experienced very high, high and moderate burn severity and there appears to be a possibility of increase runoff, flooding, and sedimentation to the Molino Creek reservoir that could result in overtopping during moderate storms. If the Molino Creek Dam were to fail, it would likely lead to flooding and debris flows and sediment concentrated floods that could impact the bridge located downstream on Swanton Road". If this were to occur, the BLM would delay implementation of this section of trail or implement an emergency closure to protect public health and safety.

Due to the incorporation of Project Design Features into the range of alternatives considered in the RMPA, the BLM's management activities (including construction of parking areas and trails) are not anticipated to increase sediment loads in C-CD streams. Therefore, the cumulative effect of the RMPA when considered in the context of effects caused by the CZU Lightning Complex is negligible.

Cultural and Heritage Resources

Cumulative effects on archaeological sites, traditional cultural properties, and historic resources are caused by impacts that can occur over a long period of time, resulting in the gradual but permanent loss of archaeological data as well as the diverse cultural history represented by those properties. In this sense, cumulative losses of cultural resources within the C-CD also have the potential to indirectly affect Native American groups and various other populations with a history of settlement and land use in the region. Specific site types that embody this culture history are prehistoric habitation and resource procurement sites, sacred sites, and historic ranching, mining, and agricultural sites. While impacts on historic properties may be reduced by the retrieval of scientific data from archaeological sites or by the recovery of historical data present in built resources (e.g., buildings, structures, landscapes), the cultural heritage represented by these sites is a non-renewable resource whose loss cannot be alleviated and thus constitutes an adverse cumulative impact. Cumulative losses to the cultural heritage of specific groups or populations may also be considered an off-site effect.

While cumulative effects on cultural resources are difficult to predict given the limited data currently available concerning cultural resources in the C-CD, increased or strengthened management programs for the protection and long-term preservation of historic properties will ultimately prevent major negative cumulative effects from occurring. For all of the alternatives, there are possible cumulative effects to pre-historic and historic resources in areas that receive increased visitor use for recreation that is similar to other comparable lands listed in **Table 4.15-1**. These areas will require more intensive management measures by BLM and partners as land use demands rise. These demands could be potential uses for grazing, transportation, recreation, and other approved land use authorizations through time. Additionally, potential

cumulative effects from increased public awareness of cultural resources increase the risk of vandalism or theft. These cumulative impacts cannot easily be measured; but over time, these activities could permanently impact resources, resulting in an irretrievable loss of non-renewable resources and information.

Nonetheless, the cumulative impacts to cultural resources from Alternatives A, B, C, and D would be minor when combined with a total of 45 miles of new trails on adjacent regional conservation lands because the BLM would monitor visitor use and use adaptive management to ensure the protection and long-term preservation of historic properties over the next 15-20 years.

Visual Resource Management

The geographic scope for cumulative visual impacts is limited to land areas within the viewshed of C-CD.

The cumulative effects of changes on BLM-managed lands could degrade the visual quality of the overall landscape in the planning area and could be inconsistent with the objectives of VRM classes designated in the planning area. The degree of impact depends on the visibility of the projects and the VRM classes of the particular BLM-managed areas affected by the projects.

Two cumulative projects listed in **Table 4.15-2** (SVR and NCRT) would occur on private lands not managed by the BLM; but these projects would contribute to landscape changes in the planning area that may adversely affect the visual quality of nearby BLM-managed public lands.

Recreation Resources

Cumulative impacts to the recreation resources and opportunities would result from other projects or activities that combine with the impacts of the RMPA. The geographic scope for cumulative effects to recreation resources is focused within the boundaries of the County of Santa Cruz.

Cumulative projects that may affect the C-CD have been identified in **Tables 4.15-**1 and **4.15-**2. Future public access development activities subject to BLM approval would require further project- and site-specific analysis, during which time applicable PDFs, BMPs, and other conditions of approval (COAs) would be identified. With BLM's discretionary review of future proposals, conflicts between reasonably foreseeable actions and other projects on the North Coast of Santa Cruz County would be avoided.

Assuming the development trends in the region continue, cumulative impacts on recreation resources from Alternatives A, B, C, and D would be beneficial because effects on regional trail connectivity from the RMPA would result in outstanding new opportunities for public use and enjoyment in region over the next 15-20 years.

Transportation and Travel Management

The geographic scope for cumulative impacts is generally limited to the northern portion of the County of Santa Cruz. Effects of increased traffic from C-CD visitors would be generally the same for the surrounding communities because they all rely on the regional transportation network to connect with the neighboring cities of Santa Cruz and San Francisco.

Construction of cumulative projects listed in **Table 4.15-2** would generate traffic on roadways and within communities proximate to and serving individual project locations. The greatest number of trips would be expected during construction of large-scale projects that typically require daily vehicle trips. Any adverse cumulative impact from increased daily vehicle trips may be most noticeable on rural roadways with low baseline traffic volumes. However, because these roadways have low existing traffic volumes, an increase in traffic volumes may not have adverse effects. The trips generated due to the RMPA would be negligible in terms of traffic volumes on the roadways serving the C-CD over the next 15-20 years. Therefore, increased vehicle trips from the RMPA would have a minor negative cumulative effects on the performance of the circulation system.

When reviewing the cumulative projects that may affect the area where RMPA impacts are expected to occur; only the projects identified in **Table 4.15-2** could result in cumulative impacts from public access to C-CD. Future projects on BLM-administered lands would require further project- and site-specific environmental analysis, during which time applicable PDFs, BMPs, and other measures would be identified and imposed to reduce adverse effects to existing transportation routes or access points. Furthermore, coordination with CALTRANS and the County of Santa Cruz would reduce adverse effects to existing coastal access points along the North Coast adjacent to C-CD. With BLM's discretionary review of future projects, conflicts between the RMPA, other regional trail connectivity projects, and the management of existing transportation routes would be avoided.

Assuming the development trends in the region continue, cumulative impacts on transportation from Alternatives A, B, C, and D would be negligible because effects associated with increased visitor use at C-CD would be hard to measure when combined with recreation on other conservation lands over the next 15-20 years.

Lands and Realty

Cumulative impacts to the lands and realty program would result from other projects or activities that combine with the impacts of the RMPA. The geographic scope for cumulative effects to lands and realty is defined as the BLM-administered surface land within the C-CD.

Cumulative projects that may affect the C-CD have been identified in **Table 4.15-2**. Future lands and realty activities subject to BLM approval would require further project- and site-specific analysis, during which time applicable PDFs, BMPs, and other conditions of approval (COAs) would be identified. With BLM's discretionary review of future proposals, conflicts between lands and realty actions and other projects within the C-CD would be avoided.

Assuming the development trends in the region continue, cumulative impacts on lands and realty from Alternatives A, B, C, and D would be negligible because effects on land use and valid existing rights from the RMPA would be managed consistently with the over-arching goals to the goals and objectives for the C-CD unit of the CCNM.

Cumulative impacts to utilities and communication sites would result from impacts of the RMPA that combine with impacts of other projects or actions within the County of Sant Cruz. The utilities considered in this RMPA/EA include electrical transmission lines, water pipelines, gas pipeline, and communication facilities.

The collective effects of the RMPA on utilities and communication sites are interrelated with growth trends in the planning area. Expansion or modification of existing facilities would require further project- and site-specific analysis by the BLM, during which time applicable PDFs and other conditions of approval would be identified and imposed as necessary. With BLM's discretionary review of lands and realty actions within the C-CD, potential conflicts with other cumulative projects or actions in Santa Cruz County would be avoided.

Social and Economic Conditions

The geographic scope for cumulative impacts is generally limited to the County of Santa Cruz. Effects would likely be county specific because local jurisdictions or districts provide public services and utilities, and the regional labor force would be expected to come primarily from Santa Cruz and from neighboring communities.

Construction of cumulative projects listed in **Table 4.15-2** may bring workers to the communities proximate to and serving individual project locations. This type of temporary growth should be expected for construction of large scale projects that typically require contractors, many of whom have specialized skills.

However, given the projected population growth within the region, the RMPA is expected to have minor beneficial cumulative effects on social and economic conditions.

While some degree of social disruption is likely to accompany cumulative short-term construction worker in-migration (particularly if a number of large-scale projects are built simultaneously within the same localized area), it is difficult to predict the extent to which specific communities are likely to be affected, which population groups within each community are likely to be most affected, and the extent to which social disruption is likely to persist beyond facility construction. This is because such a cumulative impact would be highly dependent on projects having overlapping construction time frames. Should cumulative project development result in a recognizable scale of temporary construction worker relocations to local communities, regardless of the amount the RMPA contributes within these localized communities, some social change is expected to occur cumulatively but is considered to be minor.

Beneficial economic impacts would occur from the development of cumulative projects identified in **Table 4.15-2**. Workforce wages and spending during the construction and operation of cumulative projects would be an economic stimulator to regional and local governments. Other important public benefits include both short-term and long-term increases in local expenditures, payrolls, and sales tax revenues. These would positively affect the economy at regional and local levels. The development of cumulative regional conservation lands may adversely affect environmental amenities including environmental quality, stable rural community values, and cultural values. The development of regional trail connectivity could reduce a community's ability to attract some new types of businesses. However, other economic and demographic factors would play a role in the economic development potential of any particular location.

With respect to environmental justice, the community of Davenport represents a low-income population, and the City of Santa Cruz also has a high percentage of minorities. However, when reviewing the locations of comparable lands and cumulative projects identified in **Tables 4.15-1** and **4.15-2**, these areas show beneficial cumulative effects on low-income or minority from increased regional trail connectivity and recreation opportunities. Assuming the development trends in the region continue, adverse cumulative impacts on social and economic conditions from Alternatives A, B, C, and D would be negligible because effects associated with increased visitor use at C-CD would be hard to measure when combined with recreation on other conservation lands over the next 15-20 years.

Wild and Scenic Rivers

Cumulative impacts to National Wild and Scenic Rivers (NWSRs) would result from impacts of the RMPA that combine with impacts of other projects or actions on eligible river segments within the C-CD. Designated NWSRs are not located in the vicinity of C-CD, and as such would not be affected by the RMPA.

Recreation and its' associated demand within the planning area would continue to be limited by the management prescriptions for eligible river segments (**Appendix E**). With implementation of the PDFs identified in **Appendix D**, the Proposed RMPA would have negligible impacts on NWSRs. The BLM would also implement management direction through project-level decision-making to avoid impacts to river values from future projects, as required by BLM Manual 6400.

The BLM management decisions considered in the RMPA are unlikely to combine with the list of cumulative projects to adversely impact eligible river segments in the C-CD. While some visitor use would occur off-trails, the associated disturbance would be short term and infrequent. With BLM's discretionary review and approval of future proposed actions near eligible NWSRs, the RMPA would not combine with other regional trail connectivity projects to create a cumulative effect because implementation of PDFs and BMPs, the Proposed RMPA would have negligible impacts on SMAs, and would not combine with present or future projects to create adverse cumulative effects.

5. Consultation and Coordination

5.1 Introduction

This document has been prepared with input from interested agencies, organizations, and individuals. Public involvement is a vital component of the planning process. Guidance for implementing public involvement is codified in 40 Code of Federal Regulations (CFR) 1506.6 and 43 CFR 1610. As summarized below, the BLM made a diligent effort to involve the public in the preparation of this RMPA/EA. Formal public involvement was conducted in two phases, as follows:

- Public scoping prior to National Environmental Policy Act (NEPA) analysis to obtain public input on issues, the scope of the analysis, and to develop the range of alternatives, and
- Public review and comment on the Draft RMPA/EA, which included analyzing possible environmental impacts of the range of alternatives for the C-CD.

A summary of public involvement during the C-CD planning process is presented in Section 5.2.

5.2 Outreach

5.2.1 Early Community Engagement

Since the donation of C-CD to the BLM in 2014, the BLM has engaged with surrounding communities and interested parties. The BLM held two public workshops on December 4 and 13, 2018, in Santa Cruz and Bonny Doon, respectively. The purpose of the workshops was to introduce BLM staff to the public, outline the BLM's planning process, and solicit early feedback from the public on potential access points for C-CD. Approximately 150 people participated in the workshops, which culminated in a workshop report that helped inform this planning effort (BLM 2018).

5.2.2 Notice of Intent

The BLM published the Notice of Intent (NOI) to Prepare a Resource Management Plan Amendment (RMPA) and EA for C-CD in the *Federal Register* on June 24, 2019. This was accompanied by two agency news releases to promote public involvement during the 30-day public scoping period. The BLM also sent emails directly to interested individuals and parties announcing the date, time, and location of two public scoping meetings held on the Draft RMPA/EA. The results of these meetings are described in Section 5.2.4.1.

5.2.2 Advertisements and Announcements

The BLM published a news release to announce the availability of the C-CD Draft RMPA and Environmental Assessment for a 30-day public comment period on February 14, 2020. The news release requested members of the community to provide public input on the draft Cotoni-Coast Dairies Management Plan Amendment to the Resource Management Plan for the California Coastal National Monument. The news release and public meeting materials directed interested parties to the ePlanning project website where comments can be submitted on-line. The BLM also sent emails directly to interested individuals and parties announcing the date, time, and location of two public comment meetings held on the Draft RMPA/EA. The results of these meetings are described in Section 5.2.4.2.

5.2.3 BLM Website

The BLM maintains a website (https://go.usa.gov/xEJAw) to inform the public about upcoming events, activities, and planning information. The website provides background information about the project,

public workshops and scoping meetings, news releases, the Draft RMPA/EA, plus contact information for the BLM Central Coast Field Office.

5.2.4 Public Meetings

5.2.4.1 Scoping Meetings

Following publication of the NOI in the Federal Register, the BLM hosted two formal scoping meetings in July 2019. Each meeting included a PowerPoint presentation to provide context for the proposed project and an information package to introduce participants to the BLM's planning process for the C-CD. Nearly 200 members of the public attended one (or both) of these meetings, which included an opportunity for oral public statements. The public scoping meetings were held at:

- Santa Cruz, California, at the Louden Nelson Community Center, July 17, 2019;
- Davenport, California, at the Pacific Elementary School, July 18, 2019;

The scoping comment period ran for 42 days ending on August 2, 2019. The BLM received 620 responses to the NOI for the C-CD RMPA/EA, which included various forms letters from non-governmental organizations promoting recreational access or residents expressing concerns about potential impacts on the community.

A summary of the results of the scoping period are included in the Final Scoping Report (BLM 2019).

5.2.4.2 Draft RMPA/EA Public Meetings

Concurrent with the release of this Draft RMPA/EA for 30-day public review, the BLM announced two public meetings to be held during the comment period. The meetings were attended by more than 100 people at each location. The BLM was able to share information about the draft RMPA and solicit feedback from participants allowing dozens of speakers an equal amount of time to address issues or concerns associated with the range of alternatives considered in the draft RMPA. The public comment period ran for 42 days ending on April 3, 2020. A total of 862 comment submissions were received from individuals, agencies, and organizations. A complete summary of the public comments is provided in **Appendix J**.

Dates and locations of the two public meetings were:

- Bonny Doon, California, at the Bonny Doon Elementary School, March 4, 2020
- Santa Cruz, California, at the Louden Nelson Community Center, March 5, 2020

5.2.5 Consultation

5.2.5.1 Endangered Species Act

The BLM has prepared a biological assessment for Alternative D (the agency's Preferred Alternative) that will be submitted to initiate formal consultation with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA-NMFS) pursuant to the Endangered Species Act of 1973 and 50 CFR 402 and the Essential Fish Habitat provisions of Section 305 (b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1996, as amended (16 U.S.C. 1801 et seq.), respectively. Formal consultation with the U.S. Fish and Wildlife Service is expected to result in a Biological Opinion (BO) for the C-CD RMPA for the Federally-listed threatened California red-legged frog. Formal consultation with the NOAA-NMFS is expected to result in a Biological Opinion for the C-CD RMPA for the Federally-listed threatened Central California Coast coho salmon and Central California Coast steelhead trout.

5.2.5.2 Native American Tribes

The decision area does not fall within the ancestral homeland of any Federally recognized tribes. Nonetheless, the BLM is consulting with non-Federally recognized Native American tribal representatives during the development of the RMPA/EA, consistent with BLM Handbook 1780-1, Improving and Sustaining BLM-Tribal Relations. In particular, consultation with the Amah Mutsun Tribal Band (AMTB) is ongoing and will continue throughout the planning process, and afterwards during implementation.

In 2016, the BLM signed a Memorandum of Understanding (MOU) with the Amah Mutsun Land Trust (AMLT), a non-profit organization created by the AMTB, with a mission to conserve and restore indigenous cultural and natural resources, land stewardship, and research. Through this MOU and partnership, the BLM frequently provides representatives of the AMLT with regular planning updates. The AMLT also assisted the BLM with the identification of cultural resources, including historic properties that tribes may attach religious and cultural significance to and may be affected by proposed plan related actions.

The AMLT submitted written comments during public scoping and during the public comment period on the draft RMPA. The Director of the AMLT also provided verbal comments during the public speaking opportunities at every BLM meeting held during the C-CD planning process.

Several other tribal entities or individuals submitted comments that expressed support for the AMLT and the BLM to continue coordination and consultation during the planning process and implementation of the RMPA. Consultation is ongoing and will continue throughout the planning process to ensure that cultural resources and the concerns of tribal groups are considered.

5.2.5.3 National Historic Preservation Act

In order to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA), the BLM must consider potential impacts to cultural resources that may occur as a result of authorized activities. BLM permitted actions related to the C-CD are subject to NHPA.

The BLM completed two rounds of consultation with the California State Historic Preservation Officer (SHPO) beginning in June 2019 for scoping, and again upon release of the Draft RMPA/EA as required under the BLM California Protocol Agreement with the California and Nevada State Historic Preservation Officers. On July 29, 2019, the SHPO responded that it agreed with the the BLM's recommendation that the BLM should proceed with Section 106 review for the RMPA under the BLM California Protocol Agreement. For the RMPA, the BLM proposes a finding of no adverse effect under the Protocol.

5.2.5.4 California Coastal Commission

The Coastal Zone Management Act (CZMA) (16 USC. 1451 et seq.) granted states the ability to review federal agency activities that affect the coastal zone and, in some circumstances, to stop or modify federally permitted activities that are not consistent with the state coastal program. The CZMA applies to actions initiated, permitted, or funded by federal agencies within the coastal zone. While the coastal zone by definition does not include federal land, the CZMA nonetheless applies to most federal activities or federally permitted activities that are located adjacent to or near the coastal zone, because such activities often affect the coastal zone and the resources therein—both onshore and off shore. Since the donation of C-CD, the BLM has coordinated closely with the California Coastal Commission on activities on the property. The BLM has prepared a consistency determination that will be submitted to the California Coastal Commission concurrent with the release of the Proposed RMPA/EA.

5.2.6 Other Outreach and Consultation

5.2.6.1 Federal, State, and Local Governments

The BLM sent letters to the following Federal, State, and local agencies inviting them to be cooperating agencies for the project: California Department of Forestry and Fire Protection (CalFire), California Department of Transportation (CalTrans), California Coastal Commission, California Department of Fish and Wildlife (CDFW), California State Parks, U.S. Fish and Wildlife Service (USFWS), NOAA-NMFS, and Santa Cruz County. California State Parks and the Santa Cruz County accepted this invitation. Cooperating agency status ensures close coordination throughout the planning process and has been formalized through memorandums of understanding.

The public scoping process provided opportunities for Federal, State, and local agencies to express their comments and provided meaningful input to the process. During scoping and the public comment period on the draft RMPA/EA, the BLM received written submissions from four State agencies: California State Parks, California Department of Transportations (CalTrans), California Coastal Commission, and California Department of Fish and Wildlife (CDFW); as well as two written submissions from local agencies including the County of Santa Cruz, and the City of Santa Cruz (Water Department). Coordination with these entities will be ongoing throughout the planning process and implementation of the RMPA.

5.2.6.2 Partnerships

As noted in the original RMP (BLM 2005), partnerships provide the collaboration focus for the CCNM. Therefore, the BLM needs to continue existing partnerships with other government and non-government entities, while also fostering new opportunities for collaboration to effectively implement the C-CD RMPA. Currently, the BLM has established agreements with the California State Department of Parks and Recreation (CDPR) and the California Department of Fish and Wildlife (CDFW) to serve as the core partners for management of the CCNM off-shore rocks and islands. Similar to the BLM, these agencies have statutory and regulatory authority (i.e. jurisdiction) that allows them to operate within the boundaries of the CCNM. Therefore, the BLM will continue to coordinate with these core partners on the implementation of the RMPA.

Other potential partnerships with other government and non-government organizations will help to implement particular resource /use program areas for C-CD. These collaborative partnerships can be developed with a wide variety of agencies, tribes, schools, universities, and other private entities. These partners have specific interests or responsivities that, when linked with C-CD, enhance both the CCNM's mission and the goals of the BLM's collaborative partners. These partnerships will include entities that oversee similar resources, have program related interests, are involved in a related activity, and/or oversee adjacent locations.

Ultimately, the BLM has the responsibility for the C-CD and its management. As such, it will serve as the final decision-making authority for the actions on the CCNM, with consultation on major decision to be conducted with core partners. State and local agencies, while being involved in all aspects of C-CD management, will play more specific roles as dictated by their respective agency missions and areas of expertise, at a level commensurate with available funding.

5.3 List of Preparers

Name	Title	BLM Office
Benjamin Blom	Field Manager	Central Coast Field Office
Sky Murphy	Planning & Environmental Coordinator	Central Coast Field Office
Michael Powers	Natural Resource Specialist	Central Coast Field Office
Michael Westphal	Ecologist	Central Coast Field Office
Emme Nix	Associate – Wildlife Biologist	Central Coast Field Office
Rebecca Spitzer	Archeologist	Central Coast Field Office
Gregory Middleton	Geologist	Central Coast Field Office
Ryan O'Dell	Natural Resource Specialist	Central Coast Field Office
Adam Wilde	Outdoor Recreation Planner	Central Coast Field Office
Alexander Mairs	Cartographic Technician	Central Coast Field Office
Stacey Schmidt	Natural Resource Specialist (Range)	Central Coast Field Office
Christine Sloand	Realty Specialist	Central Coast Field Office
William Standley	Natural Resource Specialist (CCNM)	California Coastal National Monument
Aleta Nafus	Project Manager [for Ukiah Field Office]	Central Coast Field Office (duty station)
Michael Chiodini	Fire Mitigation & Education Specialist	Central Coast Field Office
Ryan Aeby	Fire Management Specialist	Central California District
David Fuller	Planning and Environmental Coordinator	California State Office
Nina Hemphill	Natural Resource Specialist	California State Office
Andrew Johnson	Ecologist	California State Office
Jane Arteaga	Outdoor Recreation Planner	California State Office
Jack Hamby	Project Manager	California State Office
Erik Pignata	Realty Specialist	California State Office