



DRAFT FORESTS AND RANGELANDS COMPANION PLAN

Fall 2015



Photo Credit:

Left:

Redwood National Park, California

Date: 24 June 2005

Photographer: Michael Schweppe via flickr

Right:

Black Cow at Fremont, California

Date: 24 June 2007

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Prepared by Blue Earth Consultants, LLC



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Disclaimer:

While we have made every effort to ensure that the information contained in this report accurately reflects SWAP 2015 companion plan development team discussions shared through web-based platforms, e-mails, and phone calls, Blue Earth Consultants, LLC makes no guarantee of the completeness and accuracy of information provided by all project sources. SWAP 2015 and associated companion plans are non-regulatory documents. The information shared is not legally binding nor does it reflect a change in the laws guiding wildlife and ecosystem conservation in the State. In addition, mention of organizations or entities in this report as potential partners does not indicate a willingness and/or commitment on behalf of these organizations or entities to partner, fund, or provide support for implementation of this plan or SWAP 2015.

The consultant team developed companion plans for multiple audiences, both with and without jurisdictional authority for implementing strategies and conservation activities described in SWAP 2015 and associated companion plans. These audiences include, but are not limited to, California Department of Fish and Wildlife leadership team and staff, California Fish and Game Commission, cooperating State, Federal, and local government agencies and organizations, California Tribes and tribal governments, and partners (such as non-governmental organizations, academic, research institutions, and citizen scientists).



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Acronyms and Abbreviations

AB	Assembly Bill
AFWA	Association of Fish and Wildlife Agencies
BLM	Bureau of Land Management
Blue Earth	Blue Earth Consultants, LLC
BMP	Best Management Practices
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALPAC-SRM	California-Pacific Islands Section of the Society for Range Management
Caltrans	California Department of Transportation
CARCD	California Association of Resource Conservation Districts
CBC	California Biodiversity Council
CCA	California Cattlemen’s Association
CCLT	California Council of Land Trusts
CCRC	Central Coast Rangeland Coalition
CDFW/the Department	California Department of Fish and Wildlife
CEC	California Energy Commission
CFBF	California Farm Bureau Federation
CFIP	California Forest Improvement Program
Ch.	Chapter
CRCC	California Rangeland Conservation Coalition
CWGA	California Wool Growers Association
DLRP	Dinkey Landscape Restoration Project
DRECP	Desert Renewable Energy Conservation Plan
DWR	California Department of Water Resources
EQIP	Environmental Quality Incentives Program
GGRF	Greenhouse Gas Reduction Fund
GIS	Geographic Information System
HCP	Habitat Conservation Plan
KEA	Key Ecological Attribute
LCC	Landscape Conservation Cooperatives
NCBCA	National Cattlemen’s Beef Association
NCCP	Natural Community Conservation Plan
NGO	Non-governmental Organization
NPS	National Parks Service
NRCS	Natural Resources Conservation Service
NREL	National Renewable Energy Laboratory
QA/QC	Quality Assurance/Quality Control
RAMP	Regional Advance Mitigation Planning
RCD	Resource Conservation District
RMAC	Range Management Advisory Committee



SCC	California State Coastal Conservancy
SGC	Strategic Growth Council
SGCN	Species of Greatest Conservation Need
SRA	State Responsibility Area
STAC	State Technical Advisory Committee
State Parks	California Department of Parks and Recreation
SWAP	State Wildlife Action Plan
SWG	State and Tribal Wildlife Grants
SWRCB	State Water Resources Control Board
TNC	The Nature Conservancy
UCCE	University of California Cooperative Extension Service
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
WCB	Wildlife Conservation Board

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1. Introduction

The California State Wildlife Action Plan 2015 Update (SWAP 2015) provides a vision and a framework for conserving California’s diverse natural heritage. SWAP 2015 also recognizes the need and calls for developing a collaborative framework to manage ecosystems sustainably across the State in balance with human uses of the natural resources. To address the need for a collaborative framework, California Department of Fish and Wildlife (CDFW), Blue Earth Consultants, LLC (Blue Earth), and partner agencies and organizations began preparation of sector-specific companion plans. While this document reports on the progress made thus far on collaboration, the intent is to set a stage for achieving the State’s conservation priorities through continued partnership and by mutually managing and conserving the State’s natural and cultural resources. Text box 2 highlights important definitions to SWAP 2015 and the companion plan process (CDFW, 2015a; Chapter [Ch.] 1.5.4).

Text Box 1. What is a State Wildlife Action Plan?

In 2000, Congress enacted the State and Tribal Wildlife Grants (SWG) program to support state programs that broadly benefit wildlife and habitats, but particularly “Species of Greatest Conservation Need” (SGCN) defined by the individual states. Congress mandated each state and territory to develop a SWAP that outlined a comprehensive wildlife conservation strategy to receive federal funds through the SWG program. From 2005 through 2014, CDFW received approximately \$37 million through the SWG program in matched with approximately \$19 million in State government support for the wildlife conservation activities. The SWG program requires SWAP updates at least every 10 years. CDFW prepared and submitted SWAP 2015, the first comprehensive update of the California SWAP 2005, to the U.S. Fish and Wildlife Service (USFWS) on 10/1/2015. The update allows CDFW to expand and improve the recommended conservation activities addressed in the original plan by integrating new knowledge acquired since 2005.¹

¹ For more information see: CDFW, “California State Wildlife Action Plan (SWAP),” 2015, 27 Oct. 2015.

Text Box 2. Definitions Important to SWAP 2015

Conservation Target: An element of biodiversity at a project site, which can be a species, habitat/ecological system, or ecological process on which a project has chosen to focus.

Goal: A formal statement detailing a desired outcome of a conservation project, such as a desired future status of a target. The scope of a goal is to improve or maintain *key ecological attributes* (defined below).

Key Ecological Attribute (KEA): Aspects of a target’s biology or ecology that, if present, define a healthy target and, if missing or altered, would lead to the outright loss or extreme degradation of the target over time.

Objective: A formal statement detailing a desired outcome of a conservation project, such as reducing the negative impacts of a critical *pressure* (defined below). The scope of an objective is broader than that of a goal because it may address positive impacts not related to ecological entities (such as getting better ecological data or developing conservation plans) that would be important for the project. The set of objectives developed for a conservation project are intended, as a whole, to lead to the achievement of a goal or goals, that is, improvements of key ecological attributes.

Pressure: An anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the target. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure to the target is likely to be significant.

Species of Greatest Conservation Need (SGCN): All state and federally listed and candidate species, species for which there is a conservation concern, or species identified as being vulnerable to climate change.

Strategy: A group of actions with a common focus that work together to reduce pressures, capitalize on opportunities, or restore natural systems. A set of strategies identified under a project are intended, as a whole, to achieve goals, objectives, and other key results addressed under the project.

Stress: A degraded ecological condition of a target that resulted directly or indirectly from negative impacts of pressures (e.g., habitat fragmentation).

(CDFW, 2015a; Ch. 1.5.4)



1.1 SWAP 2015 Statewide Goals

SWAP 2015 has three statewide conservation goals with 12 sub-goals, under which individual regional goals are organized (CDFW, 2015a; Ch. 4.1). These statewide goals set the context for the companion plans and SWAP 2015 implementation.

Goal 1 - Abundance and Richness: Maintain and increase ecosystem and native species distributions in California while sustaining and enhancing species abundance and richness.

Goal 2 - Enhance Ecosystem Conditions: Maintain and improve ecological conditions vital for sustaining ecosystems in California.

Goal 3 - Enhance Ecosystem Functions and Processes: Maintain and improve ecosystem functions and processes vital for sustaining ecosystems in California.

1.2 SWAP 2015 Companion Plans

Need for Partnerships

The state of California supports tremendous biodiversity. However, the State also has a large and growing human population and faces many challenges, such as climate change, which affects biodiversity and natural resources in general. To balance growing human activities with conservation needs for sustaining the State’s ecosystems, collaboratively managing and conserving fragile natural resources is a necessity. As many desirable conservation actions identified under SWAP 2015 are beyond CDFW’s jurisdiction, the Department determined that more detailed coordination plans are needed in line with and beyond the recommendations presented in SWAP 2015. Called “companion plans,” these sector-specific plans (Text Box 3) were created collaboratively with partners and will be instrumental in implementing SWAP 2015 (See Appendix D for a list of partners that informed development of this companion plan).

Text Box 3. Companion Plan Sectors:

- ☞ Agriculture
- ☞ Consumptive and Recreational Uses
- ☞ Energy Development
- ☞ Forests and Rangelands
- ☞ Land Use Planning
- ☞ Marine Resources
- ☞ Transportation Planning
- ☞ Tribal Lands
- ☞ Water Management

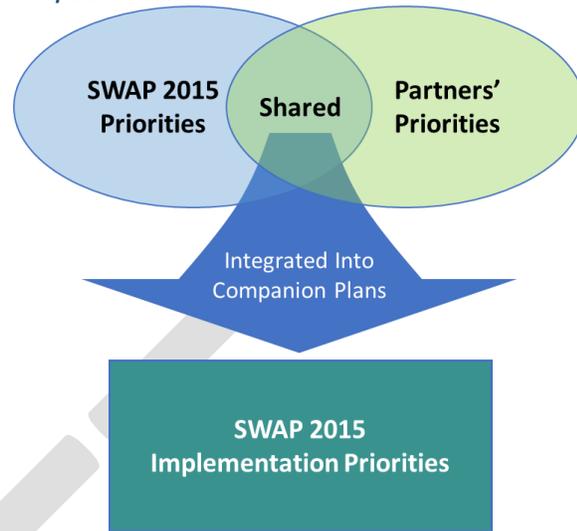
Companion Plan Purpose and Sector Selection

Companion plans present shared priorities identified among SWAP 2015 and partners involved in the companion plan development. Figure 1 illustrates how, through collaboration with partner organizations, priorities for SWAP 2015 have come together in the companion plan and will be elevated as high implementation priorities for SWAP 2015.

The companion plans respond to feedback from many sources, including CDFW staff and partners who support natural resources management and conservation. This includes the California Biodiversity Council (CBC), under which a resolution to promote interagency alignment within the State was signed

in 2013. The companion plans also fulfill the strong suggestion from the Association of Fish & Wildlife Agencies (AFWA) and the National Fish, Wildlife, and Plants Climate Adaptation Strategy¹ to incorporate increased partner engagement as a best practice in wildlife conservation planning. This effort also directly helps CDFW comply with recently added provisions to the Fish and Game Code under Assembly Bill (AB) 2402, specifically under Section 703.5(b), which states that CDFW shall “seek to create, foster, and actively participate in effective partnerships and collaborations with other agencies and stakeholders to achieve shared goals and to better integrate fish and wildlife resource conservation and management with the natural resource management responsibilities of other agencies” (California Fish and Game Code, 2015).

Figure 1: Alignment of SWAP 2015 and Partner Priorities in Companion Plans



CDFW selected sector categories based on the needs for the Department as well as the themes and subjects identified in other existing plans including the California Climate Adaptation Strategy,² 2014 update to the Safeguarding California: Reducing Climate Risk,³ The President’s Climate Action Plan,⁴ and the National Fish, Wildlife, and Plants Climate Adaptation Strategy.⁵

Because each companion plan focused on teamwork during its development phase, they inherently help set a stage for implementing SWAP 2015 through future collaborations. Together, SWAP 2015 and associated companion plans describe the context and strategic direction of integrated planning and management efforts that will help sustain California’s ecosystems.

Companion Plan Development

The SWAP 2015 companion plan **management team** (see Appendix C for a list of members), comprised of CDFW staff with support from Blue Earth staff, provided general direction to the **development team** (see Appendix D for a list of members). Blue Earth facilitated sector-specific discussions among the

¹ For more information, see: USFWS and National Oceanic Atmospheric Administration (NOAA), “National Fish, Wildlife, and Plants Adaptation Strategy,” 2012. Web. 27 Oct. 2015. <http://www.wildlifeadaptationstrategy.gov/>.

² For more information, see: California Natural Resources Agency (CNRA), “Climate Adaptation Strategy,” 2009. Web. 27 Oct. 2015. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.

³ For more information, see: CNRA, “Safeguarding California: Reducing Climate Risk – Update,” 2014. Web. 27 Oct. 2015. http://resources.ca.gov/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf.

⁴ For more information, see: Executive Office of the President, “The President’s Climate Action Plan,” 2013. Web. 27 Oct. 2015. <https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>.

⁵ For more information, see: USFWS and NOAA, “National Fish, Wildlife, and Plants Adaptation Strategy,” 2012.



CDFW staff and development team members, who represented a cross section of sector interests and mandates. Team members were selected based on their positive response to outreach efforts by CDFW to seek participation and representation from public and private partners heavily involved in the conservation and management of the State’s natural resources.⁶

Beginning in early 2015, a series of four planning and collaboration meetings were held for each sector. The meetings consisted of an initial kickoff session with participation from all sectors followed by three sector-specific meetings. During these meetings, development team participants discussed their ongoing and potential future efforts that would benefit wildlife and habitat conservation in the State. The development teams and CDFW then identified collaboration opportunities and joint priorities or overlaps among SWAP 2015 and partners’ strategies and actions. Blue Earth and CDFW organized the feedback from the facilitated development team discussions into nine companion plan documents. In addition, the management team led a review process between CDFW and development team partners, along with a subsequent public review phase for the nine companion plan documents.

Companion Plan Content

Each companion plan addresses:

- SWAP 2015 priorities - statewide goals and strategies;
- companion plan overview - approach, purpose, development process, and content;
- description of the sector;
- common themes across the sectors;
- common priority pressures and strategies across the sectors;
- SWAP 2015 components that best align with the priorities of the participants’ organizations under each sector;
- collaboration opportunities identified for joint priorities under each sector – alignment opportunity and potential resources by jurisdiction, locality, and strategy;
- considerations for evaluating future collaboration efforts and desired outcomes/outputs; and
- next steps relevant to the sector.

2. Forests and Rangelands Sector

2.1 Forests and Rangelands in California

Forests and rangelands in California are extensive ecosystems covering nearly 80% of the State that provide critical habitats and ecosystem services upon which wildlife and the human population depend on (California Department of Forestry and Fire Protection [CAL FIRE], 2010). A forest, as defined by Society of American Foresters, is “an ecosystem characterized by a more or less dense and extensive tree cover, often consisting of stands varying in characteristics such as species composition, structure,

⁶ Disclaimer: Although the management team sought to engage a broad range of partners in the development team process, CDFW recognizes that there are many other partners that will play important roles in implementing SWAP 2015 and companion plan.

age class, and associated processes, and commonly including meadows, streams, fish, and wildlife. Forests include industrial forests, nonindustrial private forests, plantations, public forests, protection forests, and urban forests, as well as parks and wilderness” (Society of American Foresters, 2011). Rangelands are defined by Allen et.al. as “land on which the indigenous vegetation (climax or sub-climax) is predominantly grasses, grass-like plants, forbs, or shrubs that are grazed or have the potential to be grazed, and which is used as a natural ecosystem for the production of grazing livestock and wildlife” (Allen et al., 2011; 5). Rangeland includes natural grasslands, savannas, shrublands, many deserts, tundras, alpine communities, marshes, and meadows (Society of Range Management, 1988). If plants are introduced to these landscapes, they are managed similarly. Overall, around 62% of California’s land area consists of rangeland (University of California, 2014).

Well-managed private and public forests and rangelands can deliver scenic beauty, maintain and enhance biodiversity, and provide for economically important renewable forest and agricultural products (United States Department of Agriculture [USDA], 2007). The high-quality habitat value and associated benefits of preserving and maintaining large, unfragmented tracts of forest and rangeland in different areas across the State are critical for natural and human communities. These benefits include, but are not limited to, soil conservation, air and water quality improvement, and ecosystem-based water capture and retention and eventual release through meadow, creek, stream, and groundwater systems. Forests and rangelands are key to improving resilience to climate change impacts through the many ecosystem services they provide, as well as reducing long-term severity of climate impacts through carbon sequestration. Forests and rangelands also offer significant recreational opportunities (CAL FIRE, 2010). The working landscapes managed for timber and grazing animals are the primary source of revenue for many rural communities, even entire counties, in the State (CAL FIRE, 2010).

Federal and State government are the main public land owners of large forest and rangeland properties in California (55%), compared with private landowners (45%), a distribution consistent with most western states (CAL FIRE, 2003). As the largest land holder in California, the U.S. Forest Service (USFS) manages 18 national forests and one grassland comprising 20.8 million acres, followed by the Bureau of Land Management (BLM), National Park Service (NPS), and Department of Defense, managing 15.3, 7.5, and 3.8 million acres, respectively (Congressional Research Service, 2012). The largest proportion of forests in California (about 20 million acres) is classified as non-reserved timberland, that is, “forest land that is capable of producing in excess of 20 cubic feet of wood per acre per year and where harvest is not legally prohibited” (USDA, USFS, and Pacific Northwest Research Station, 2008). The California Department of Parks and Recreation (State Parks) manages 279 sites, including parks, wildlife areas, open spaces, trails, off-highway vehicle areas, and historic sites (State Parks, 2015). A number of agencies, such as the CDFW, BLM and East Bay Regional Park District, manage large tracts of grasslands, brushlands, and meadows and utilize livestock grazing as a vegetation management tool to maintain and preserve wildlife habitats and to prevent wildfires (East Bay Regional Parks, 2015). Growing numbers of land trusts and other conservation organizations are also engaging in land conservation around the State. The California Rangeland Trust, for example, holds conservation easements on over 184,000 acres throughout the State (The California Rangeland Trust, 2012).

Rangelands also provide flood protection and groundwater recharge to watersheds (California Rangeland Conservation Coalition, 2015). Another use of rangelands for producing public benefit is through power production, chiefly through renewable energy sources. According to the California Energy Commission (CEC), from 2001 through 2013 solar power production projects in rangelands produced over 21,000 megawatts of power (CEC, 2014). The National Renewable Energy Laboratory (NREL) estimated that photovoltaic power generation requires approximately eight acres per megawatt generated (NREL, 2013). That means that as much as 170,000 acres of land, much of it rangeland, has been converted to this use since 2001. Wind and solar energy production are believed to have negative impacts on a number of wildlife species of concern, and research into these impacts and potential mitigation options is currently underway.

The economic value of forests and rangelands continues to grow. In 2011, California's five leading timber producing counties generated 742 million board feet of timber at a value of \$14.7 billion (USDA, 2012). In 2013, California National Forests supported 368 authorized grazing operations to graze a total number of 99,398 cattle, horses, burros, sheep, and goats (USFS, 2013). The BLM manages livestock grazing on 155 million acres of public land, or 63% of the 245 million acres of administered public land (BLM, 2015). These grazing operations contribute to economic stability as California's wool industry ranked first in the U.S. and had 11 percent of U.S. production (USDA, 2015). California's sheep industry ranked second nationally in 2015 and produced 11% of the total U.S. share. California's cattle industry ranked fourth nationally and had nearly 6% of the total national share (USDA, 2015; National Cattlemen's Beef Association [NCBA], 2015). The economic effects of California's cattle industry alone are close to \$3.6 billion annually in total industry output, and it provides over 26,000 jobs (Lawrence and Otto, 2001).

Much of the State's forests and rangelands have been impacted by disturbances and past uses, while facing increasing demands that could exacerbate negative effects on ecosystems. These impacts affect ecosystems on a statewide scale due to the extent of forests and rangelands throughout California. Wildfires of certain frequencies and intensities are part of the natural functions of many California ecosystems, and a variety of techniques are used to manage these fires (e.g., active wildfire suppression). However, past wildfires have affected at least 2.35 million acres, while pests have affected over six million acres on USFS lands statewide (CAL FIRE, 2010). The 2010 U.S. Environmental Protection Agency's (USEPA) 303d list of impaired waterbodies included over 29,978 miles of impaired streams in forests and rangelands, which represents about 14% of the total miles of streams and rivers in California (CAL FIRE, 2010). Wildfires can impact these waterbodies by increasing pollution (e.g., ash) and erosion around streams. At least 45% of California's 62 native fish species are considered SGCN, with 28 fish taxa listed as State or Federally threatened or endangered, and are impacted by pollution and erosion in streams caused by wildfires (CAL FIRE, 2010). In addition, outdoor recreation on forests and rangelands is increasing, and agencies that provide recreation opportunities are struggling to meet demands for diverse, safe, high-quality recreation opportunities (CAL FIRE, 2010). Overall, there are opportunities for organizations to work together to restore and preserve California's natural and wildlife resources.



2.2 *Current Forests and Rangelands Management and Conservation in California*

Balancing California’s sustainable forests and rangelands endeavors with the conservation of natural resources and lands important for cultural heritage is an important goal to achieve for future generations. In the context of natural resource planning and conservation, particularly in light of expectations about future long-term changes in climate, livestock producers and foresters will need to adapt their approaches to maintain viable operations. An example of such an approach is described in the 25X’25 America’s Energy Future Adaptation Initiative, which recommends strengthening agricultural and forestry production systems, conservation, ecosystem services, and infrastructure, as well as implementing conservation practices designed to maintain the productive capacity of the land under climate-related challenges (25X’25, 2013).

Rangelands provide multiple benefits or “ecosystem services”—including wildlife habitat, water supply, open space, recreation, and cultural resources. Grazing, one of the earliest uses of public lands when the West was first settled, continues to be an important use of those same lands today, and now competes with more land uses than it did in the past (BLM, 2015). When balanced with this and other uses, properly managed rangelands can support healthy watersheds. For example, agricultural cattle grazing can enhance recreation on rangelands (e.g., increasing native flower growth and opening of dense vegetated areas) (California Rangeland Conservation Coalition, 2015). Another example of a multi-partner project addressing natural resource planning and conservation is the collaboration of rangeland scientists, ranchers, and land managers to develop six climate change adaptation scenarios for maintaining viable ranchlands along with their ecosystem services in light of future threats (Byrd et al., 2014). The project results will help prioritize rangeland conservation strategies. This project aligns with SWAP 2015 priority activities for forests and rangelands such as policy, research, and partnerships with private landowners and agencies, as well as funding development, best management practices (BMPs), and conservation lands acquisition/easement prioritization. By continuing to manage forests and rangelands development, CDFW in partnership with other State agencies and organizations can work together to protect and conserve California’s current natural and wildlife resources while also providing new opportunities to address potential impacts of energy development growth.

Many forests and rangelands agencies and organizations in the State programmatically focus on conservation of California’s natural and wildlife resources. For example, the California Rangeland Resolution has been signed by over 100 agricultural organizations, environmental interest groups, and government agencies (State and Federal). Together, these partners form the California Rangeland Conservation Coalition. The goal of this group is to work together to preserve and enhance California’s rangelands for species of special concern, while supporting the long-term viability of the ranching industry. An important part of the group’s effort focuses on educating the public about the benefits of grazing and ranching on these rangelands (California Rangeland Conservation Coalition, 2007). The California Rangeland Conservation Coalition is an example organization where stakeholders come together to address complex natural resource issues through dialogue and collaboration.

The mission of the USFS and USDA’s Open Space Conservation Strategy, which addresses the rapid loss of open space, is “to sustain the health, diversity, and productivity of the Nation’s forests and grasslands



to meet the needs of present and future generations” (USDA, 2007). As more people choose to live at the rural-urban borders, more and more open space is lost. Therefore, growth and development needs to be balanced with conservation to sustain natural systems and the overall quality of life for both humans and wildlife (USDA, 2007). Another example of the sector’s engagement in conservation and restoration is CAL FIRE’s operation of eight Demonstration State Forests totaling 71,000 acres, with the most common forest types in the State represented within them (CAL FIRE, 2014). Demonstration forests offer opportunities for piloting natural resource management techniques, such as experimental timber harvesting techniques, watershed restoration, cone seed collection, and university research. These forests also provide watershed protection, enhancement, and public recreation opportunities (University of California, 2015; CAL FIRE, 2014). These are just a few examples of efforts in the forests and rangelands sector supporting conservation and restoration of California’s natural and wildlife resources.

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Text Box 4. Collaborative Conservation Effort Examples in the Forest and Rangelands Sector

There are numerous collaborative conservation and management efforts found in California. Below we share three examples related to forests and rangelands in the State. These examples demonstrate existing conservation efforts that aligned with SWAP 2015. The partners addressed in each description are indicated in **bold**.

- *Collaborating to Restore the Dinkey Landscape:* The Dinkey Landscape Restoration Project (DLRP) began in 2010 under the **USFS** Collaborative Forest Landscape Restoration Program, which encourages collaboration to achieve ecosystem restoration approaches for priority forest landscapes (USFS, 2015). The DLRP is working to restore ecosystem processes in over 154,000 acres in the southern Sierra National Forest through a suite of restoration activities, such as prescribed fire and watershed improvements. Implementation of the DLRP is spearheaded by the **Dinkey Collaborative**, a diverse group of public and private partners, including the **USFS**, the **Sierra Nevada Conservancy**, **tribal groups**, and many other public and private partners (USFS, 2010). The DLRP already has completed multiple fire management efforts and conducted monitoring activities to assess the status of multiple species of concern within the landscape (e.g., the King River fisher) (USFS, 2014).
- *Protecting Working Landscapes:* In May 2015, the **Wildlife Conservation Board (WCB)** approved funding for multiple projects to protect working landscapes through integration of economic, social, and environmental stewardship practices. Under one of the projects, WCB agreed to grant the **Pacific Forest Trust** \$1.6 million for a conservation easement to protect 3,468 acres of mixed conifer working forest and associated habitats near Montague in Siskiyou County. Another program, funded through a WCB (\$465,000) grant to the **Santa Cruz Resource Conservation District (RCD)**, promotes collaboration between a **private landowner**, **BLM**, **California Conservation Corps**, **State Coastal Conservancy**, **State Water Resources Control Board (SWRCB)**, and **Land Trust of Santa Cruz County** to restore critical riparian habitat (including 1,300 feet along Soquel Creek) and protect four threatened fish and amphibian species (CDFW, 2015b).
- *Partnering to Conserve Rangelands:* In 2008, the **Tejon Ranch Company**, **Audubon California**, **Endangered Habitats League**, **Natural Resources Defense Council**, **Planning and Conservation League**, and **Sierra Club** agreed to permanently preserve 240,000 acres (approximately 90%) of the Tejon Ranch lands (Tejon Conservancy, 2013a). The groups agreed to establish **Tejon Conservancy**, an independent non-profit organization responsible for managing the lands to conserve, enhance, and restore the biodiversity of the area (including 60 at-risk species) through various protection and restoration efforts. **Tejon Conservancy** created a Ranch-wide Management Plan to balance land uses (e.g., ranching and hunting) with conservation goals for the land. The initial agreement also ensured public access to the conserved lands, and currently **Tejon Conservancy** and other partners are coordinating with the **State Parks** to create a state park within the conserved lands (Tejon Conservancy, 2013b).

3. Common Themes across Sectors

Equally important to discussion topics unique to each sector is the common themes considered across all sectors. This section shares overarching themes identified through the development of the nine companion plans within the scope of SWAP 2015. As described below, the top two most commonly discussed topics were: 1) climate change and 2) integrated regional planning.

3.1 Climate Change Related Issues

All sectors highlighted the potential far-reaching effects on California’s natural resources induced or exacerbated by climate change as a major issue. The negative impacts to the State’s ecosystems described in SWAP 2015 may increase in their magnitude and severity by the compounding effects of climate change (CDFW, 2015a; Ch. 2.5.3). The implications of climate change are likely to be profound and influence many facets of the State’s natural resources. Therefore, development teams considered collaboration across sectors related to natural resource management and conservation essential to assist ecosystem adaptation effectively and minimize negative effects from the shifting climate.

The suggested collaborative activities under various sector discussions that relate to climate change include a comprehensive assessment of the State’s climate change vulnerability and implementation of appropriate adaptation actions (CDFW, 2015a; Ch. 2.5.3). Detailed activities addressed during the discussions include, but are not limited to: establishing a sustainable habitat reserve system to reduce other habitat threats and increase habitat resilience to climate change; incorporating climate change impacts (e.g., habitat shifts and sea level rise) into the management of watersheds, habitats, and vulnerable species; improving regulation of greenhouse gas emissions; developing comprehensive research guidelines to evaluate climate change effects; and engaging in education and outreach activities to raise awareness of climate change.

3.2 Integrated Regional Planning

California hosts a landscape that is ecologically, socio-economically, and politically intricate. The current status of the State’s ecosystems reflects the synergistic interactions among ecological conditions and processes, as well as diverse human activities and conflicting needs and the regulations imposed on those activities.

The concept of integrated regional planning arises from the recognition that addressing only one aspect of such a multi-faceted, dynamic human and natural system would not be sustainable. Integrated regional planning in the context of SWAP 2015, paraphrased from the definition in the California Water Plan, is an approach to prepare for effective management, including conservation activities, while concurrently achieving social, environmental, and economic objectives to deliver multiple benefits across the region and jurisdictional boundaries (California Department of Water Resources [DWR], 2014). The expected outcomes of adopting an integrated regional planning approach are to 1) maximize limited resources to provide for increased public well-being, and 2) receive broader support for natural resource conservation beyond the conservation community while systematically improving ecosystem conditions that sustain the ecological integrity of the region.



Integrated regional planning begins with the acceptance of diverse natural resource management priorities associated with the region and the accompanying activities necessary to pursue those interests. Based on this understanding and philosophy, attempts by natural resource management agencies to integrate activities often include negotiations during regional planning processes. Expected efforts under integrated regional planning processes include: planning to reduce conflicts among priorities and activities; minimizing overlapping efforts by aligning similar activities; streamlining and integrating needed processes across the priorities; and collaborating to complement efforts and pursue mutual priorities and interests. As an example, integrated planning could occur by zoning larger planning regions, coordinating multiple needs for the region, and limiting activities within each zone to avoid incompatible activities, or at least reduce unintended negative consequences of isolated but interactive activities. In sum, integrated regional planning requires open-mindedness, transparency, patience, and comprehensive and strategic planning between natural resource management priorities and regional and/or local jurisdictions through coordination.

In developing the companion plans, all sectors considered an integrated regional planning framework as one of the State's top priorities. The needs and tasks related to integrated regional planning and expressed through the discussion among the sector groups were: preparing, approving, and implementing regional- and landscape-level conservation plans; pursuing necessary resources systematically for conservation strategy implementation; coordinating effective partnerships; adapting to emerging issues; and reviewing and revising the plans. Existing efforts recognized for supporting integrated regional planning include Natural Community Conservation Plans (NCCPs), Habitat Conservation Plans (HCPs), Habitat Connectivity Planning for Fish and Wildlife,⁷ the Master Plan for Marine Protected Areas, and individual species management plans. SWAP 2015 also addresses those activities and plans.

In addition, SWAP 2015 highlights where partners can potentially integrate SWAP with other agency conservation programs, including the efforts by WCB, identified and discussed among the companion plan development teams.

4. Commonly Prioritized Pressures and Strategy Categories across Sectors

Below is an overview of pressures and strategy categories considered important across the nine sector teams. SWAP 2015 adopted the Open Standards for the Practice of Conservation⁸ process and applied it to each targeted ecosystem to identify strategies that could influence key ecosystem pressures (CDFW, 2015a; Ch. 1.5.4). During development team meetings, CDFW shared lists of those identified pressures and strategy categories that are considered relevant to each sector. Through voting, each development team prioritized the pressures and strategy categories by the importance to the sector. The commonly prioritized pressure and strategy categories described below were identified by synthesizing overarching

⁷ For more information, see: CDFW, "Habitat Connectivity Planning for Fish and Wildlife," 2015. Web. 27 Oct. 2015. www.wildlife.ca.gov/Conservation/Planning/Connectivity.

⁸ For more information on the Open Standards for the Practice of Conservation, see: Conservation Measure Partnership, "The Open Standards," 2015. Web. 28 Oct. 2015. <http://www.conservationmeasures.org/>.

discussion themes (for pressures) and by counting the frequency of the prioritization (for strategy categories) across the sectors.

4.1 Pressures across Sectors

A pressure, as defined in SWAP 2015, is “an anthropogenic (human-induced) or natural driver that could result in impacts to the target (i.e., ecosystem) by changing the ecological conditions” (CDFW, 2015a Ch. 1.5.4, 26). Pressures can have either positive or negative effects depending on their intensity, timing, and duration, but they are all recognized to have strong influences on the well-being of ecosystems (CDFW, 2015a; Ch. 1.5.4). Table 1 lists the 29 standard pressures addressed under SWAP 2015 (CDFW, 2015a; Ch. 1.5.4).

Table 1. SWAP 2015 Pressures

<ul style="list-style-type: none"> • Agricultural and forestry effluents • Air-borne pollutants • Annual and perennial non-timber crops • Catastrophic geological events • Climate change • Commercial and industrial areas² • Dams and water management/use • Fire and fire suppression • Fishing and harvesting aquatic resources • Garbage and solid waste • Household sewage and urban waste water^{3,4} • Housing and urban areas² • Industrial and military effluents^{4,5} • Introduced genetic material • Invasive plants/animals 	<ul style="list-style-type: none"> • Livestock, farming, and ranching • Logging and wood harvesting • Marine and freshwater aquaculture • Military activities • Mining and quarrying • Other ecosystem modifications⁶ • Parasites/pathogens/diseases • Recreational activities • Renewable energy • Roads and railroads • Shipping lanes⁷ • Tourism and recreation areas • Utility and service lines • Wood and pulp plantations
<p>Pressures include the following:</p> <p>1 Volcano eruption, earthquake, tsunami, avalanche, landslide, and subsidence</p> <p>2 Shoreline development</p> <p>3 Urban runoff (e.g., landscape watering)</p> <p>4 Point discharges</p> <p>5 Hazardous spills</p> <p>6 Modification of mouth/channels; ocean/estuary water diversion/control; and artificial structures</p> <p>7 Ballast water</p>	

(CDFW, 2015a; Ch. 1.5.4)

As described under Section 3.1, the climate change pressure was one of the common themes discussed across the sectors. There were no other standardized pressures listed under Table 1 that were commonly prioritized across all sectors. For more information on pressures prioritized for the forests and rangelands sector, please refer to Section 5.1 below.



4.2 Strategy Categories across Sectors

SWAP 2015 outlines 11 categories of statewide conservation strategies under which regional strategies are organized, similar to the manner in which the regional goals are tiered under the statewide conservation goals (CDFW, 2015a; Ch. 4.2). The statewide and regional strategies are meant to work synergistically to achieve the statewide goals and priorities. Table 2 lists the 11 standardized statewide strategy categories addressed under SWAP 2015 (CDFW, 2015a; Ch. 4.2).

Table 2. SWAP 2015 Conservation Strategy Categories

<ul style="list-style-type: none"> • Data Collection and Analysis • Direct Management • Economic Incentives • Environmental Review • Land Acquisition, Easement, and Lease • Land Use Planning 	<ul style="list-style-type: none"> • Law and Policy • Management Planning • Partner Engagement • Outreach and Education • Training and Technical Assistance
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(CDFW, 2015a; Ch. 4.2)

Of these 11 strategies, the three most commonly prioritized strategy categories across the nine sectors were: **Data Collection and Analysis** (78% or 7 sectors prioritized this strategy), **Management Planning** (78% or 7 sectors), and **Partner Engagement** (56% or 5 sectors). The strategy categories identified as most relevant to the forests and rangelands sector are described in Section 5.2 below.

5. Forests and Rangelands Priority Pressures and Strategy Categories

The forests and rangelands sector faces many current challenges to address the conservation and management of California’s natural and wildlife resources, including land conversion as the State’s already large population continues to increase. Other key challenges to natural communities include habitat loss and fragmentation, increased fire frequency and intensity, invasive species infestation, and climate change (CAL FIRE, 2010).

As identified in SWAP 2015, pressures such as fire and fire suppression, as well as incompatible farming and ranching practices could also affect the State’s biodiversity and natural resources (CDFW, 2015a; Ch. 2.5.2). There are also pressures (e.g., renewable energy, energy transportation, oil shipments) that are likely to increase and decrease along with emerging threats. The textbox below shares additional pressures and strategies that the forests and rangelands development team identified during discussions. Although important to this sector, these pressures and strategies were not prioritized in SWAP 2015 and thus fell outside of the scope of this current companion plan. Likewise, stresses such as habitat fragmentation, changes in fire regime, and changes in community structure or composition can drive the need for conservation activities within this sector. Although key challenges, each can be seen as future opportunities to support, improve, and enhance implementation of SWAP 2015. These activities and strategies may include management of invasive species, development of management plans for fire risk, and establishment of co-management partnerships.



During companion plan development meetings held in early 2015, the top pressures and strategies (described below in Section 5.1) were prioritized through ranking and voting by the development teams. The list drew upon efforts undertaken between 2013 and 2014 to identify province- and state-scale pressures and strategies for SWAP 2015 (CDFW, 2015a; Ch. 1.5). Through facilitated discussions, the development team prioritized pressures and strategies based on member knowledge and involvement in the sector. Below is the list of prioritized pressures and strategies.

5.1 Priority Pressures

Fires and fire suppression – Wildfire risk reduction and fire suppression activities seek to address common ignition sources and reduce their potentially negative effects on wildlife diversity and abundance. Fire risk reduction and suppression activities can have variable effects on wildlife, depending on the specific management actions and environment in which the actions occur (e.g., wildland or urban environments). Examples from the forests and rangelands sector include suppression or increases in fire frequency and/or intensity outside of natural ranges, such as fire suppression to protect homes, fire management, prescribed burning, escaped agricultural and equipment-caused fires, arson, campfires, and fires for hunting. Due to differences in fire intensity and patch sizes, fire can have variable impacts on landscapes. Some fire management efforts are designed to restore ecological function, while others result in threats to communities, life and property, and habitats and recreation value.

Farming and ranching⁹ – Agricultural and forestry practices can have a range of direct and indirect ecosystem effects, both positive and negative. This can include impacts at different scales from private versus public land use, confined versus free-range management practices, and impacts on site versus offsite lands (direct/indirect). Some examples of positive effects include providing habitat for migratory bird species, minimizing effects on water quality from applications of fertilizer and pesticides, supporting best land management practices, and minimizing excess water use. Examples of potential pressures from the forests and rangelands sector include overcrowding domestic terrestrial animals at one location, allowing domestic or semi-domesticated animals to roam in the wild, and crowding aquatic animals in one location. Specific examples include cattle feed lots, dairy farms, cattle ranching, chicken farms, and herding.

5.2 Priority Strategy Categories

Highlighted below are the top four strategy categories the development team prioritized in alphabetical order – **Direct Management**, **Economic Incentives**, **Management Planning**, and **Partner Engagement**. The information below is combined into a more comprehensive table shared in Section 6. *Collaboration Opportunities and Potential Resources by Strategy Category* (Table 3). The strategy category definitions described below include information from SWAP 2015 with additional insights gathered during the

⁹ During development team meeting 1, the team suggested to remove the term “livestock” from the pressure “Livestock farming and ranching”.

sector development team meetings (CDFW, 2015a; Ch. 4.2). The example strategies and conservation activities were prioritized by development team members early in the companion plan process.

Direct Management – Direct management is the participation in and implementation of activities that support stewardship of habitats and natural processes to maintain, enhance, and restore species population and ecological functions/conditions on public and private lands.

- Example strategies include enhancing and restoring habitat and managing invasive species.
- Conservation activities include: working on restoration project initiatives; purchasing easement; and stabilizing fish habitat and banks.

Economic Incentives – Economic incentives are available and deployable resources for landowners and other stakeholders to implement responsible stewardship, better long-term management of public lands, and enhancement of landscapes, ecological conditions, and species.

- Example strategies include: developing and providing economic incentives and assurances and seeking funding through grants; cooperating with other agencies; and seeking other opportunities as sources for economic incentives.
- Examples of associated conservation activities include: participating in community small-scale landscape conservation programs; performing headwater improvements across land; working on carbon sequestration activities and carbon banks; and engaging in landowner stewardship programs.

Management Planning – Management planning is the development of management plans or processes for species, habitats, and natural processes/conditions that will lead to implementation of more effective conservation strategies.

- Example strategies include: developing integrated management plans to assess common priorities and approaches across boundaries and jurisdictions where possible and feasible; identifying highest priority areas; and managing for fire risk.
- Examples of associated conservation activities include: implementing grazing BMPs; participating in watershed monitoring programs; and integrating regional planning.

Partner Engagement – Partner engagement is the process for engaging and developing collaboration among State and Federal agencies, Tribes and tribal communities, non-governmental organizations (NGOs), private landowners, and other partners to achieve shared conservation objectives and enhance coordination across jurisdictions and areas of interest.

- Example strategies include establishing and developing co-management partnership and managing partnership and coordination.
- Examples of associated conservation activities include engaging climate change and forest planning efforts through public meetings and workshops and participating in stakeholder groups and professional societies

Text Box 5. Identified Pressures and Strategies for Future Consideration

SWAP 2015 describes the 29 major pressures (Table 1) on the State’s ecosystems (CDFW, 2015a; Ch. 2.5.2). The list below provides additional pressures and strategies the development team identified as important for this sector that should be considered during future SWAP updates. These pressures and strategies were not highlighted as top priorities for the forests and rangelands sector under the main SWAP 2015.¹

Pressures

- Conversion of rangelands/forest infrastructure development
- Energy transportation
- Forest management (e.g., need for sustainable supply)
- Oil shipments

Strategies

- Develop strategies to manage and reduce emissions
- Manage (where applicable) ecosystems to maximize carbon sequestration
- Promote sustainability initiatives in line with SWAP 2015 conservation goals
- Support research initiatives
- Use BMPs on public lands to reduce fire danger (e.g., livestock grazing)

¹ Note: Some additional pressures identified by development teams may already be addressed in SWAP 2015.

6. Collaboration Opportunities for Joint Priorities

This section describes the potential alignment opportunities for SWAP 2015 with existing plans and strategies from other sector agencies and organizations that development team members have identified. Section 6.1 introduces the four categories that are used to organize such opportunities; they are based on jurisdiction and locality of plans and strategies. Following Section 6.1, collaboration opportunities and resources identified by each strategy category are shared in Table 3, *Collaboration Opportunities and Potential Resources by Strategy Category*. For a more extensive list of plans, strategies, and documents identified through the companion plan development process, please see Appendix B.¹⁰ SWAP 2015 integration with other partners’ programs is an integral part of balancing the needs of wildlife with the needs of society and is explored in SWAP 2015 (CDFW, 2015a; Ch. 7.1.2).

¹⁰ This is not an exhaustive list of sector plans and strategies in alignment with SWAP 2015 goals.



6.1 Alignment Opportunities by Jurisdiction and Locality

The section below describes four categories of locality and jurisdiction broadly where potential alignment opportunities typically fit: Federal, State, Regional and Multi-partner, and Non-governmental. These categories are based on jurisdiction and locality of the management and conservation efforts. Example opportunities for each category are also provided here.

Federal

Plans identified in this category typically draw upon national guidance reflecting the goals and strategies of Federal agencies and organizations. For example, the BLM has several types of conservation and management plans such as the *Draft DRECP* and the *Sierra Resource Management Plan* and forest plans such as the *Northwest Forest Plan*. The USDA has several types of plans that help guide actions in the State, including its Natural Resources Conservation Service (NRCS) *State Technical Advisory Committee* plan, its USFS *2012 Planning Rule Final Directives for National Forest System Land Management Planning*, and its USFS *Region 5 Ecological Restoration Implementation Plan*. Although these plans guide Federal agency interventions, they also play a key role in how these agencies engage in collaboration with states and other partners.

State

Plans identified in this category reflect numerous agency priorities, strategies, and conservation actions of California. These plans and strategies guide decision-making, resources allocation, and implementation priorities of the State agencies. Examples of key statewide plans and strategies include, but are not limited to, CDFW's *SWAP 2015*, a joint strategy developed by the CDFW and California Department of Transportation (Caltrans) called the *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*, and DWR's *Final California Water Plan Update 2013*. Another example includes key recovery strategies developed by CDFW, for threatened and endangered species, such as the *Recovery Strategy for California Coho Salmon*.

Regional and Multi-partner

Numerous regional and multi-partner plans help guide conservation efforts across the State. These plans and strategies, like those at the Federal level, describe strategies and activities that align with this companion plan and SWAP 2015. At a regional level, NCCPs and HCPs can be used to inform a wide array of conservation planning efforts. Many of the large-scale, multispecies HCPs and NCCPs are habitat-based plans that encourage future development to occur in already developed areas, while setting up a system of large contiguous protected lands based on a comprehensive, landscape-level conservation strategy designed for the planning area. Planning at this scale provides regional protection for plants, animals, and their habitats, while allowing compatible and appropriate economic activity. In addition, many of the Joint Ventures based in California have developed plans that describe regional conservation interventions such as the Central Valley Joint Venture's *Implementation Plan*, as well as county general plans. Sustainable community plans, such as those funded through the California Strategic Growth Council (SGC), often include regional and local plans and policies that benefit natural resources in ways



consistent with conservation goals outlined in SWAP 2015. Examples of such policies include restricting urban boundaries adjacent to key forest/rangeland areas, zoning such areas as open space, or identifying key habitat areas characterizing the community for management or restoration as natural areas (SGC, 2014).

Non-governmental

Like the plans described above, private landowners and NGOs also play a key role in wildlife conservation and they have plans that describe their desired future conservation outcomes and management priorities compatible with those of SWAP 2015. Examples include, but are not limited to, the Tejon Ranch Conservancy's *Ranch-wide Management Plan—Conservation Activities and Best Management Practices* and The Nature Conservancy's (TNC) *Solar Energy Development in the Western Mojave Desert: Identifying Areas of Least Environmental Conflict for Siting and a Framework for Compensatory Mitigation of Impacts*.

6.2 Collaboration Opportunities and Potential Resources by Strategy Category¹¹

For each prioritized strategy category described in Section 5 above, Table 3 below shares example conservation activities that are, will, or might be implemented in the next 5-10 years. These conservation activities are listed adjacent to example potential partners and financial resources that development team members identified. Although the table below shares examples of potential activities where partnerships could occur at different spatial scales (statewide, regional, and local/site-specific), other activities addressing priority strategies should be considered as this is not a comprehensive list.¹² Similarly, while the identified example conservation activities could apply across many spatial scales and jurisdictions, the current table highlights the most relevant scale of implementation. As described earlier in this document, Table 3 does not indicate a willingness and/or commitment on behalf of these organizations or entities to partner, fund, or provide support for the strategy implementation.

¹¹ Disclaimer: Please note this is not an exhaustive list of potential partners and financial resources. The organizations listed in Table 3 were identified through this companion plan process, but their identification here does not indicate agreement to partner and/or provide financial resources for the conservation activities.

¹² **Statewide** indicates actions occurring across the state. **Regional** indicates efforts that occur at a smaller than statewide scale and across more than one locality or site. **Local/Site-specific** indicates activities occurring at a specific location (e.g., city or park unit) or site (e.g., Morro Bay Estuary or Mojave Desert).



Table 3. Collaboration Opportunities and Potential Resources by Strategy Category

Example Conservation Activities	Example Potential Partners	Example Potential Financial Resources
Priority Strategy: Direct Management		
<p>Statewide</p> <ul style="list-style-type: none"> • Implement effective habitat and population management monitoring • Initiate habitat restoration and enhancement • Participate in Environmental Quality Incentives Program (EQIP) and fuels treatment • Plan landscape conservation with LCCs (e.g., California, Desert, Great Basin, North Pacific) <p>Regional</p> <ul style="list-style-type: none"> • Coordinate BirdReturns program with regional farmers <p>Local/Site-specific</p> <ul style="list-style-type: none"> • Coordinate constituent units on climate mitigation activities • Develop rangeland infrastructure to help conserve wildlife (e.g., raising fences, capping pipes, fixing stock ponds) • Enhance riparian/wetland ranch land • Purchase/donate ranch land to continue agriculture process and encourage ranchers to work with agencies • Reduce fuels management fire impacts • Stabilize fish habitat and banks to help conserve species • Work with farmers to change flooding regime to help with habitat conservation • 	<p>Federal</p> <ul style="list-style-type: none"> • BLM • LCCs • NRCS • USFS • U.S. Geological Survey (USGS) <p>State</p> <ul style="list-style-type: none"> • CA Environmental Protection Agency (CalEPA) • CA Air Resources Board • CAL FIRE • CA Department of Public Health • CDFW • CalRecycle • CA Roundtable on Agriculture and the Environment • DWR • Sierra Nevada Conservancy • Tejon Ranch Conservancy <p>Local/County</p> <ul style="list-style-type: none"> • UC Cooperative Extension (UCCE) <p>NGO/Foundation</p> <ul style="list-style-type: none"> • Joint Ventures for Bird Conservation (e.g., Central Valley, Intermountain West, Pacific Coast, San Francisco Bay, and Sonoran) • TNC • Wood for Salmon Working Group 	<p>Federal</p> <ul style="list-style-type: none"> • BLM National Landscape Conservation System funds • Farm Bill - EQIP <p>State</p> <ul style="list-style-type: none"> • CA Forest Improvement Program (CFIP) • CAL FIRE - broad range of stewardship programs that are distributing grant funds (cap and trade, other resources) • CDFW Fisheries Restoration Program • Greenhouse Gas Reduction Fund (GGRF) and State Responsibility Area (SRA) fees • Proposition 1 Water Bond -potential to be invested in forest restoration activities • SWRCB – Clean Water Act Section 319 Program and State Revolving Fund
Priority Strategy: Economic Incentives		
<p>Statewide</p> <ul style="list-style-type: none"> • Engage in national policy to help support economic incentives for wildlife conservation • Identify funding sources for private lands 	<p>Federal</p> <ul style="list-style-type: none"> • Forest Legacy Program • NRCS • USFS • USGS 	<p>Federal—</p> <ul style="list-style-type: none"> • Farm Bill – EQIP • NRCS Conservation Stewardship <p>State</p>

Example Conservation Activities	Example Potential Partners	Example Potential Financial Resources
<ul style="list-style-type: none"> • Lead payment-to-farmers programs for flooding fields for migratory birds • Provide pass-through funding to State for fuels reduction work • Work on carbon sequestration and Climate Action Reserve efforts toward sustainable forestry <p>Local/Site-specific</p> <ul style="list-style-type: none"> • Align work on national forest lands adjacent to private/tribal lands designed to benefit wildlife resources • Coordinate work on national forest lands in watershed restoration • Facilitate and implement renewable projects involved with community focused small-scale programs • Increase land compensations for forest and rangeland owners • Work on conservation easement to encourage ranchers to maintain good stewardship 	<p>State</p> <ul style="list-style-type: none"> • CDFW • CA Department of Public Health • CAL FIRE • Tejon Ranch Conservancy <p>Local/County</p> <ul style="list-style-type: none"> • RCDs • UCCE <p>NGO/Foundation</p> <ul style="list-style-type: none"> • Climate Action Reserve • Local Land Trusts • Pacific Forest Trust • TNC 	<ul style="list-style-type: none"> • SWRCB - Clean Water Program Section 319 Program, Drinking Water Program, and State Revolving Fund
Priority Strategy: Management Planning		
<p>Statewide</p> <ul style="list-style-type: none"> • Address adaptation needs and impacts • Build robust landscapes for climate change adaptation • Develop habitat restoration and enhancement initiatives • Emphasize better management and funding for public lands (e.g., the Blue Ridge Area in Napa County) <p>Regional</p> <ul style="list-style-type: none"> • Focus on sustainability and resilience in forests as well as social/economic contributions • Identify healthy watershed priorities • Integrate regional planning using basic principles at different scales 	<p>Federal</p> <ul style="list-style-type: none"> • BLM • NRCS • USEPA • USFS • USGS <p>State</p> <ul style="list-style-type: none"> • CBC • CDFW • CAL FIRE • CA Water Quality Monitoring Council • • SGC <p>Local/County</p> <ul style="list-style-type: none"> • RCDs • UCCE <p>NGO/Foundation</p> <ul style="list-style-type: none"> • Audubon CA • American Tree Farm System • Point Blue Conservation Science 	<p>Federal</p> <ul style="list-style-type: none"> • USEPA Clean Water Act Section 319 Funds - Administered through the SWRCB

Example Conservation Activities	Example Potential Partners	Example Potential Financial Resources
<ul style="list-style-type: none"> • Maintain geographical information system (GIS) data in monitoring programs at the watershed scale • Work on developing facilitating regional and development planning <p>Local/Site-specific</p> <ul style="list-style-type: none"> • Construct grazing leases • Demonstrate the nine key elements of a watershed-based plan • Develop management plans (e.g., work with partners on Conservation Activity Plan process) • Enhance awareness of communities on recognizing wildfire risk and tradeoffs with wildlife needs • Highlight financial side issues and funding coming from State budget processes to implement projects • Identify barriers to stewardship with small land owners • Identify plans that have restoration priorities to connect those dots to funding sources and collaboration groups • Implement better grazing BMPs • Integrate adjacent land owners input in forest assessments • Play active role in local land use plans • Provide restoration opportunities for young people • Use prescribed burning to implement better grazing BMPs • Work with ranchers/landowners on grazing BMPs and managing invasive species 	<ul style="list-style-type: none"> • Tejon Ranch Conservancy • TNC 	

Example Conservation Activities	Example Potential Partners	Example Potential Financial Resources
Priority Strategy: Partner Engagement		
<p>Statewide</p> <ul style="list-style-type: none"> Engage in climate change outreach Utilize tools developed by other States, fire safe councils, and professional societies <p>Regional</p> <ul style="list-style-type: none"> Complement resource conservation districts actions Coordinate work and regional assessments Work on developing and facilitating regional and development planning <p>Local/Site-specific</p> <ul style="list-style-type: none"> Engage industries in ground work Incorporate local and regional talks on design projects Incorporate outreach component in assessment plans Involve stakeholders in high-level guidance for fire protection plans Spread greater conservation message through public meetings and workshops Work with other organizations to come up with common indicators to measure conservation activities 	<p>Federal</p> <ul style="list-style-type: none"> NRCS USEPA USFS USGS <p>State</p> <ul style="list-style-type: none"> CBC CDFW CA Fire Safe Council CA Licensed Foresters CAL FIRE SWRCB Sierra Nevada Conservancy Tejon Ranch Conservancy WCB <p>Local/County</p> <ul style="list-style-type: none"> Blue Ridge-Berryessa Partnership Central Coast Rangeland Coalition (CCRC) Eel River Forum Mayacamas Forum (with Pepperwood Preserve) UCCE Water Districts <p>Private</p> <ul style="list-style-type: none"> Sierra Pacific Industry <p>NGO/Foundation</p> <ul style="list-style-type: none"> Audubon CA CA Rangeland Conservation Coalition (CRCC) Intermountain West Joint Venture Northern Sierra Partnership Point Blue Conservation Science Society for American Foresters Southern Sierra Partnership TNC 	<ul style="list-style-type: none"> See non-strategy specific resources below

6.3 Potential Financial Resources for Joint Implementation

The list below provides additional potential financial resources identified for implementing sector conservation activities addressed under SWAP 2015 and the companion plans. The list is similar to the third column of Table 3, but the funding could be applied to more than one strategy category considered under the sector discussion.

Development team participants suggested a range of potential funding sources; however, this information is intended to serve as a starting point for outreach and potential engagement and does not represent a comprehensive list of all potential funding sources.

Federal Funding Programs

- USDA NRCS Conservation Stewardship Program
 - Farm Bill - EQIP

State Funding Programs

- CA Department of Conservation—sustainable agricultural land conservation program (specifically for rangeland conservation and management practices) funded through the cap and trade program
- CA State Coastal Conservancy (SCC) — grants and acquisitions
- CAL FIRE—stewardship programs and its Range Management Advisory Committee (RMAC)
- CDFW—Fisheries Restoration Program
- CFIP
- State funding sources—GGRF, Proposition 1 Water Bond, and SRA fees
- SWRCB—Clean Water Act Section 319 and State Revolving Fund
- WCB

Non-governmental Funding Programs

- TNC

7. Evaluating Future Collaboration Efforts

Implementation of SWAP and its nine companion plans is a complex undertaking. The first section below describes the desired outcomes and outputs of the forests and rangelands companion plan implementation identified through the development team discussions. A desired outcome is an improved (and intended) future state of a conservation factor due to implementation of actions or strategies (CDFW, 2015a; Ch. 11). Through the companion plan process, the management team defined a desired output as a deliverable that can be measured by the activities and processes that will contribute to accomplishing the desired outcomes and goals. The list of desired outcomes and outputs in the sub-section below is followed by a high-level description emphasizing the importance of adaptive management to SWAP 2015 and the companion plans, and how their implementation effectiveness would be evaluated by applying the adaptive process addressed under the main document.

7.1 Desired Outcomes and Outputs

Participants were asked what the sector's top desired outcomes and outputs are in the next 5-10 years, based on the development team discussions, their knowledge of the sector, and within the context of SWAP 2015. The identified outcomes and outputs for each strategy category, not listed in order of priority, are provided below.

Direct Management

- Increased collaboration demonstrated and quantified in achieving SWAP 2015 statewide goals (as shown in Section 1.1).

Economic Incentives

- Adequate funding secured to incentivize implementation of conservation activities (e.g., BMPs, easements, etc.) that support a holistic working landscape approach to forest and rangeland management.
- Williamson Act, as an important and proven conservation tool, reinstated to promote open space conservation.

Management Planning

- Effective agreements and coordination on BMPs achieved across CDFW and partners (e.g., ranchers and landowners) to better manage negative impacts on forests and rangelands in the State.
- More effective and scientifically credible management plans developed for forests and rangelands.
- Communication and outreach systems for local, regional, and State-scale management planning improved through more proactive and collaborative partnerships among various stakeholders before regulations mandate partner engagement.
- Greater focus on economic and ecosystem sustainability and socioeconomic contribution achieved in forests and rangelands management planning.
- Streamlined permitting processes implemented to facilitate habitat restoration and enhancement projects that support implementation of SWAP 2015 goals and strategies.

Partner Engagement

- Information available and accessible to interested stakeholders that highlights SWAP priorities, desired outcomes, and pilot projects for potential partners to enhance and increase collaborative conservation activities, including research and monitoring.
- Multi-partner coalitions and conservancies developed throughout the State to enhance integrated resource assessment, protection, and management at meaningful scales.
- Communication enhanced through engagement of organizations that helps build public trust in government agencies and informs the broader public about SWAP 2015 and collaboration efforts.



7.2 Evaluating Implementation Efforts

SWAP 2015 sets a stage for adaptive management, including implementation evaluation, by developing the plan based on the Open Standards for the Practices of Conservation (CDFW, 2015a; Ch. 1.5.4). SWAP 2015 implementation will be monitored over time in concert with other conservation activities conducted by CDFW and its partners. SWAP 2015 recognizes three types of monitoring (CDFW, 2015a; Ch. 8.3):

1. Status monitoring, which tracks conditions of species, ecosystems, and other conservation factors (including negative impacts to ecosystems) through time
2. Effectiveness monitoring, which determines if conservation strategies are having their intended results and identifies ways to improve actions that are less effective (i.e., adaptive management)
3. Effect monitoring, which addresses if and how the target conditions are being influenced by strategy implementation

Monitoring the SWAP and companion plan implementation and evaluating the monitoring results are critical steps for CDFW and partners to demonstrate and account for the overall progress and success achieved by SWAP 2015. By incorporating lessons learned through monitoring and evaluation into future actions, CDFW and its partners have opportunities to improve performance on coordination and collaboration and to adapt emerging needs that were not considered during the time of the plan development into future actions. Similarly, monitoring and the evaluation results could help inform stakeholders, including decision-makers, partners, and funders, about the status of the plan implementation, as well as where to best deploy resources to achieve desired outcomes and outputs effectively.

SWAP 2015 developed performance measures for each strategy category (CDFW, 2015a; Ch. 8.3). These measures are critical in helping guide the Department and partners in assessing the effects and effectiveness of SWAP 2015 and the companion plans, as well as the level of the companion plan's contribution to the conservation of California's ecosystem.

8. Next Steps

During the third and final companion plan development team meeting, participants were asked to identify key next steps to ensure successful implementation of the companion plan, ideally within the next one to five years. The feedback fell into four primary categories which were used to organize the information: Partnership and Collaboration; Human and Financial Resources; Communication and Outreach; and Monitoring, Evaluation, and Adaptive Management. Suggestions outside of these categories are listed under "Additional Next Steps." Participants also recognized the importance of pilot projects that help communicate the values of collaborative conservation approaches. Several potential pilot projects suggested from the participants are also provided at the end of this section.

Partnership and Collaboration

- Engage groups (e.g., via quarterly meetings) identified in this companion plan to assess willingness to partner.
- Develop working groups or forums, based on partner interest and/or larger planning efforts, to encourage further collaboration and implementation.
- Help agencies and partners make relevant and integrate the precepts of SWAP into their strategic planning visions, themes, goals, and objectives by periodically having agencies and partners report on progress (e.g., successes, challenges, gaps, needs).
- Develop partnership and collaboration models that can be replicated and are based on a few focused and successful examples (e.g., the multi-partner effort being implemented at the Usal Forest).
- Build upon and leverage existing programs at local, regional, State, and Federal scales (e.g., localized efforts in Fresno County on partnership and collaboration).

Human and Financial Resources

- Secure long-term human and financial resources, as well as clear direction and leadership from CDFW, for identifying resources (e.g., legislature support, public notices) that could support project implementation.
- Elevate SWAP 2015 as a State priority and build support for integrating sector priorities into programmatic funding requests and resource allocations, as well as disbursements through grant programs.

Communications and Outreach

- Build an interactive feedback mechanism to highlight and report project implementation success and challenges, as well as optimize the regulatory environment for conservation processes and activities.
- Identify and create opportunities for sharing of SWAP 2015 with regional groups, agencies, and other partners (e.g., RCDs, Bay Area Open Space Council) to understand the partners' ongoing conservation efforts and their needs. Introduce SWAP 2015 to partners, including the companion plans and potential partnership/collaboration opportunities through those plans.

Monitoring, Evaluation, and Adaptive Management

- Monitor plan implementation, report findings, and identify challenges and obstacles that have reduced collaboration. Develop strategies to overcome these challenges and obstacles through partnership among CDFW, decision-makers, and other partners.
- Create a team with partners that advise CDFW in refining plan objectives, developing data quality assurance/quality control (QA/QC) standards, facilitating collection and storage of and access to consistent data, and ensuring that best-available data inform decision-making.

Additional Next Steps

- Develop and implement a pilot project in a landscape-scale setting with multiple partners that helps determine the best process for implementation of SWAP goals, monitoring effectiveness, and reporting on successes, challenges, and opportunities for improvement.
- Develop a matrix that describes joint priorities and alignments among engaging partners and resources, as well as more detailed strategies based on and expanding the results from the companion plan discussions.
- Identify regional and ecosystem scale plan objectives and conservation activities to enhance the companion plan's regional relevance.
- Develop more detailed work plans that further link the companion plan and SWAP 2015.

Potential Pilot Projects— Participants suggested one or more small-scale pilot projects to demonstrate values and feasibility of collaborative conservation approaches taken under SWAP 2015 and in this companion plan:

- Grazing management trials on private property to enhance habitat and species conditions in collaboration with Tejon Ranch, UC Berkeley, Carrizo Plain National Monument, and landowners supported by NRCS and other funding.
- Greater Sage Grouse habitat restoration with livestock grazing in the Tule Lake National Wildlife Refuge (USFWS) in collaboration with BLM, USFS, local RCDs, and private ranchers.
- USFWS is incorporating livestock grazing on the San Luis Obispo County solar power plant project (in development phase) and mitigation lands for San Joaquin kit fox and giant kangaroo rat to enhance habitat structure for species.

9. Closing

This companion plan was developed in collaboration with many partners who deserve special recognition for their time and commitment (please see Appendix D for a list of development team members). As an initial step towards building a collaborative approach for implementation of SWAP 2015 and the nine sector-focused companion plans, CDFW will develop a work plan that describes actions to implement the plans and address the next steps identified.



Appendices

Appendix A. List of Potential Partners and Coordination Bodies

Disclaimer: Please note this is not an exhaustive list of potential partners. The organizations listed in here were identified through this companion plan process, but their identification here does not indicate agreement to partner and/or provide financial resources for the conservation activities. Furthermore, the strategy categories checked off for each organization were completed to the best knowledge of the development team members; some organizations' efforts were unknown (blank cells).

Potential Partners/Coordination Bodies	Direct Management	Economic Incentives	Management Planning	Partner Engagement
American Tree Farm System			✓	✓
Audubon CA			✓	✓
Blue Ridge-Berryessa Partnership				✓
Bureau of Land Management (BLM)	✓		✓	✓
CA Air Resources Board	✓			✓
CA Association of Resource Conservation Districts (CARCD) <ul style="list-style-type: none"> Resource Conservation Districts (RCDs) 		✓	✓	✓
CA Biodiversity Council (CBC)			✓	✓
CA Board of Forestry's Range Management Advisory Committee (RMAC)				✓
CA Cattlemen's Association (CCA)				✓
CA Council of Land Trusts (CCLT)				✓
CA Deer Association				✓
CA Department of Fish and Wildlife (CDFW) <ul style="list-style-type: none"> Invasive Species Program 	✓	✓	✓	✓
CA Department of Forestry and Fire Protection (CAL FIRE)		✓	✓	✓
CA Department of Public Health	✓	✓		✓
CA Department of Water Resources (DWR)	✓			
CA Environmental Protection Agency (CalEPA)	✓			✓
CA Farm Bureau Federation (CFBF)				✓
CA Fire Safe Council				✓
CA Forest Pest Council				✓
CA Invasive Plant Council				✓
CA Licensed Foresters				✓
CA Native Grassland Association				✓
CA Native Plant Society				✓
CA Rangeland Conservation Coalition (CRCC)				✓
CA Rangeland Trust		✓	✓	✓

Potential Partners/Coordination Bodies	Direct Management	Economic Incentives	Management Planning	Partner Engagement
CA Roundtable on Agriculture and the Environment	✓			✓
CA Water Quality Monitoring Council			✓	✓
CA Wool Growers Association (CWGA)				✓
CalRecycle	✓			✓
Central Coast Rangeland Coalition (CCRC)				✓
Climate Action Reserve		✓		✓
Eel River Forum				✓
Forest Climate Action Team				✓
Forest Legacy Program		✓		✓
Invasive Species Council of CA				✓
Joint Ventures for Bird Conservation <ul style="list-style-type: none"> • Central Valley Joint Venture • Pacific Birds Habitat Joint Venture • San Francisco Bay Joint Venture • Sonoran Joint Venture • Intermountain West Joint Venture 	✓		✓	✓
Landscape Conservation Cooperatives (LCC)	✓		✓	✓
Local Land Trusts		✓		✓
Mayacamas Forum (with Pepperwood Preserve)				✓
National Parks Service (NPS)	✓		✓	✓
Natural Resources Conservation Service (NRCS) <ul style="list-style-type: none"> • State Technical Advisory Committee (STAC) 	✓	✓	✓	✓
Northern Sierra Partnership				✓
Pacific Forest Trust		✓		
Point Blue Conservation Science			✓	✓
Sierra Nevada Conservancy	✓			✓
Sierra Pacific Industry				✓
Society for American Foresters				✓
Society of Range Management – CA-Pacific Section (CALPAC-SRM)				✓
Southern Sierra Partnership				✓
State Water Resources Control Board (SWRCB)				✓
Strategic Growth Council (SGC)			✓	✓
Tejon Ranch Conservancy	✓	✓	✓	✓
The Nature Conservancy (TNC)	✓	✓	✓	✓
Timber Regulation and Forest Restoration Program				✓

Potential Partners/Coordination Bodies	Direct Management	Economic Incentives	Management Planning	Partner Engagement
U.S. Environmental Protection Agency (USEPA)			✓	✓
U.S. Fish & Wildlife Service (USFWS)	✓	✓	✓	✓
U.S. Forest Service (USFS)	✓	✓	✓	✓
U.S. Geological Survey (USGS)		✓		✓
University of CA, Davis – Weed Research & Information Center				✓
University of California Cooperative Extension (UCCE)				✓
University of California Reserve Program	✓		✓	✓
Water Districts				✓
Wildlife Conservation Board (WCB)				✓
Wood for Salmon Working Group	✓			✓

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Appendix C: CDFW Companion Plan Management Team

Name	Title
Armand Gonzales	SWAP 2015 Project Lead
Junko Hoshi	SWAP 2015 Assistant Project Lead
Kurt Malchow	SWAP 2015 Companion Plan Development Lead

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Appendix D: Forests and Rangelands Companion Plan Development Team Members and Affiliations

Affiliation	Participant
California Board of Forestry and Fire Protection	Chris Keithley Rich Walker
California Board of Forestry and Fire Protection - Range Management Advisory Committee	Marc Horney
California Cattlemen’s Association	Kirk Wilbur
California Coastal Commission	Laurie Koteen
California Department of Fish and Wildlife	Bill Condon
California Licensed Foresters Association	Gary Rynearson
California Native Plant Society	Greg Suba
California Natural Resources Agency	Russ Henly
California Rangeland Trust	Nancy Schaefer
State Water Resources Control Board - Forestry Activities Program	Nicholas Kunz
Tejon Ranch Conservancy	Michael White
The Nature Conservancy	Dick Cameron
U.S. Bureau of Land Management	Jack Hamby James Weigand
U.S. Department of Agriculture - Natural Resources Conservation Service	Ceci Dale-Cesmat Tom Moore
U.S. Forest Service	Don Yasuda Sarah Sawyer

Appendix E: Glossary

Most terms in this section originate from the glossary in the Conservation Measures Partnership's (CMP) Open Standards for the Practice of Conservation (Version 2.0). These definitions are based on current usage by many CMP members, other conservation organizations, and planners in other disciplines. Some terms have been added or refined to clarify how CDFW uses them.

activity: a task needed to implement a strategy, and to achieve the objectives and the desirable outcomes of the strategy.

biodiversity: the full array of living things.

conservation: the use of natural resources in ways such that they may remain viable for future generations. Compare with preservation.

conservation target: an element of biodiversity at a project site, which can be a species, habitat/ecological system, or ecological process on which a project has chosen to focus. All targets at a site should collectively represent the biodiversity of concern at the site.

distribution: the pattern of occurrences for a species or habitat throughout the state; generally more precise than range.

driver: a synonym for factor.

ecosystem function: the operational role of ecosystem components, structure, and processes.

ecosystem health: the degree to which a biological community and its nonliving environmental surroundings function within a normal range of variability; the capacity to maintain ecosystems structures, functions, and capabilities to provide for human need.

ecosystem processes: the flow or cycling of energy, materials, and nutrients through space and time.

ecosystem: a natural unit defined by both its living and non-living components; a balanced system for the exchange of nutrients and energy. Compare with habitat.

fire frequency: a broad measure of the rate of fire occurrence in a particular area.

fire regime: a measure of the general pattern of fire frequency and severity typical to a particular area or type of landscape.

fragmentation: the process by which a contiguous land cover, vegetative community, or habitat is broken into smaller patches within a mosaic of other forms of land use/land cover; e.g., islands of an older forest age class immersed within areas of younger-aged forest, or patches of oak woodlands surrounded by housing development.

geographic information system (GIS): an organized assembly of people, data, techniques, computers, and programs for acquiring, analyzing, storing, retrieving, and displaying spatial information about the real world.

goal: a formal statement detailing a desired outcome of a conservation project, such as a desired future status of a target. The scope of a goal is to improve or maintain key ecological attributes. A good goal meets the criteria of being linked to targets, impact oriented, measurable, time limited, and specific.

habitat: where a given plant or animal species meets its requirements for food, cover, and water in both space and time. May or may not coincide with a single macrogroup, i.e., vegetated condition or aquatic condition. Compare with ecosystem.

impact: the desired future state of a conservation target. A goal is a formal statement of the desired impact.

invasive: an introduced species which spreads rapidly once established and has the potential to cause environmental or economic harm. Not all introduced species are invasive.

landscape: the traits, patterns, and structure of a specific geographic area, including its biological composition, its physical environment, and its anthropogenic or social patterns. An area where interacting ecosystems are grouped and repeated in similar form.

listed: general term used for a taxon protected under the federal Endangered Species Act, the California Endangered Species Act, or the California Native Plant Protection Act.

monitoring: the periodic collection and evaluation of data relative to stated project goals and objectives. Many people often also refer to this process as monitoring and evaluation (abbreviated M&E).

native: naturally occurring in a specified geographic region.

objective: A formal statement detailing a desired outcome of a conservation project, such as reducing a critical pressure. The scope of an objective is broader than that of a goal because it may address positive impacts not related to ecological entities (such as getting better ecological data or developing conservation plans) that would be important for the project. The set of objectives developed for a conservation project are intended, as a whole, to lead to the achievement of a goal or goals, that is, improvements of key ecological attributes. A good objective meets the criteria of being: results oriented, measurable, time limited, specific, and practical. If the project is well conceptualized and designed, realization of a project's objectives should lead to the fulfillment of the project's goals and ultimately its vision. Compare to vision and goal.

outcome: an improved (and intended) future state of a conservation factor due to implementation of actions or strategies. An objective is a formal statement of the desired outcome.

output: a deliverable that can be measured by the activities and processes that will contribute to accomplishing the desired outcomes and goals.

population: the number of individuals of a particular taxon in a defined area.

pressure: an anthropogenic (human-induced) or natural driver that could result in impacts to the target by changing the ecological conditions. Pressures can be positive or negative depending on intensity, timing, and duration. See also direct pressure and indirect pressure.

private land: lands not publicly owned, including private conservancy lands.

program: a group of projects which together aim to achieve a common broad vision. In the interest of simplicity, this document uses the term “project” to represent both projects and programs since these standards of practice are designed to apply equally well to both.

project: a set of actions undertaken by a defined group of practitioners – including managers, researchers, community members, or other stakeholders – to achieve defined goals and objectives. The basic unit of conservation work. Compare with program.

public: lands owned by local, state, or federal government or special districts.

range: the maximum geographic extent of a taxon or habitat; does not imply that suitable conditions exist throughout the defined limits. Compare with distribution.

rangelands: any expanse of land not fertilized, cultivated, or irrigated that is suitable and predominately used for grazing domestic livestock and wildlife.

regime: a regular pattern of occurrence or action.

result: the desired future state of a target or factor. Results include impacts which are linked to targets and outcomes which are linked to threats and opportunities.

riparian: relating to rivers or streams.

Species of Greatest Conservation Need (SGCN): all state and federally listed and candidate species, species for which there is a conservation concern, or species identified as being highly vulnerable to climate change.

stakeholder: any individual, group, or institution that has a vested interest in the natural resources of the project area and/or that potentially will be affected by project activities and have something to gain or lose if conditions change or stay the same. Stakeholders are all those who need to be considered in achieving project goals and whose participation and support are crucial to its success.

strategy: a group of actions with a common focus that work together to reduce pressures, capitalize on opportunities, or restore natural systems. A set of strategies identified under a project is intended, as a whole, to achieve goals, objectives, and other key results addressed under the project.

stress: a degraded ecological condition of a target that resulted directly or indirectly from pressures defined above (e.g., habitat fragmentation).



threatened: one of several special status listing designations of plant and animal taxa. Under the California and federal Endangered Species Acts, threatened refers to a taxon that is likely to become endangered in the foreseeable future. The word threatened is also commonly applied to non-listed taxa in danger of extinction.

watershed: defined here as a stream or river basin and the adjacent hills and peaks which "shed," or drain, water into it.

wetland: a general term referring to the transitional zone between aquatic and upland areas. Some wetlands are flooded or saturated only during certain seasons of the year. Vernal pools are one example of a seasonal wetland.

wildfire: any fire occurring on undeveloped land; the term specifies a fire occurring on a wildland area that does not meet management objectives and thus requires a suppression response. Wildland fire protection agencies use this term generally to indicate a vegetation fire. Wildfire often replaces such terms as forest fire, brush fire, range fire, and grass fire.

wildlands: collective term for public or private lands largely undeveloped and in their natural state.

wildlife: all species of free-ranging animals, including but not limited to mammals, birds, fishes, reptiles, amphibians, and invertebrates.

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