



# ENERGY DEVELOPMENT COMPANION PLAN

December 2016



*Photo Credit:*

*Left:*

*San Geronio Pass Wind Farm*

*Date: 18 March 2006*

*Photographer: Kit Conn via Wikipedia*

*Right:*

*California Condors roosting in trees in Hopper Mountain National Wildlife Refuge, California, USA.*

*Date: 10 July 2006*

*Photographer: Pacific Southwest Region U.S. Fish and Wildlife Service via Wiki Commons*

Prepared by Blue Earth Consultants, LLC



December 2016

*Disclaimer:*

Although 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 the California Department of Fish and Wildlife leadership team and staff; the California Fish and Game Commission; cooperating state, federal, and local government agencies and organizations; California Tribes and tribal governments; and various partners (such as non-governmental organizations, academic research institutions, and citizen scientists).



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## Acronyms and Abbreviations

<b>AB</b>	<b>Assembly Bill</b>
<b>AFWA</b>	<b>Association of Fish and Wildlife Agencies</b>
<b>AMP</b>	<b>Advanced Mitigation Program</b>
<b>ARCCA</b>	<b>Alliance of Regional Climate Collaboratives for Adaptation</b>
<b>BLM</b>	<b>U.S. Bureau of Land Management</b>
<b>Blue Earth</b>	<b>Blue Earth Consultants, LLC</b>
<b>BMP</b>	<b>Best Management Practice</b>
<b>CA ISO</b>	<b>California Independent System Operator</b>
<b>CAMP</b>	<b>Climate Adaptation and Mitigation Partnership</b>
<b>CBC</b>	<b>California Biodiversity Council</b>
<b>CCC</b>	<b>California Coastal Commission</b>
<b>CDFG</b>	<b>California Department of Fish and Game</b>
<b>CDFW</b>	<b>California Department of Fish and Wildlife</b>
<b>CDWR</b>	<b>California Department of Water Resources</b>
<b>CEC</b>	<b>California Energy Commission</b>
<b>CEQA</b>	<b>California Environmental Quality Act</b>
<b>Ch.</b>	<b>Chapter</b>
<b>CNRA</b>	<b>California Natural Resources Agency</b>
<b>CPUC</b>	<b>California Public Utilities Commission</b>
<b>DOGGR</b>	<b>Division of Oil, Gas &amp; Geothermal Resources</b>
<b>DRECP</b>	<b>Desert Renewable Energy Conservation Plan</b>
<b>ESA</b>	<b>Endangered Species Act</b>
<b>FCAT</b>	<b>Forest Climate Action Team</b>
<b>FERC</b>	<b>Federal Energy Regulatory Commission</b>
<b>GGRF</b>	<b>Greenhouse Gas Reduction Fund</b>
<b>GHG</b>	<b>Greenhouse Gas</b>
<b>HCP</b>	<b>Habitat Conservation Plan</b>
<b>HMLA</b>	<b>Habitat Management Land Acquisition</b>
<b>IPP</b>	<b>Independent Power Producer</b>
<b>ISEGS</b>	<b>Ivanpah Solar Electric Generating System</b>
<b>KEA</b>	<b>Key Ecological Attribute</b>
<b>LCC</b>	<b>Landscape Conservation Cooperative</b>
<b>NCCP</b>	<b>Natural Community Conservation Plan</b>
<b>NGO</b>	<b>Non-governmental Organization</b>
<b>NOAA</b>	<b>National Oceanic and Atmospheric Administration</b>
<b>NPS</b>	<b>National Park Service</b>
<b>PG&amp;E</b>	<b>Pacific Gas &amp; Electric Company</b>
<b>RAMP</b>	<b>Regional Advance Mitigation Planning</b>
<b>RPS</b>	<b>Renewable Portfolio Standard</b>



<b>SB</b>	<b>Senate Bill</b>
<b>SCE</b>	<b>Southern California Edison</b>
<b>SDG&amp;E</b>	<b>San Diego Gas and Electric</b>
<b>SGC</b>	<b>Strategic Growth Council</b>
<b>SGCN</b>	<b>Species of Greatest Conservation Need</b>
<b>SWAP</b>	<b>State Wildlife Action Plan</b>
<b>SWG</b>	<b>State and Tribal Wildlife Grants</b>
<b>SWRCB</b>	<b>State Water Resources Control Board</b>
<b>TNC</b>	<b>The Nature Conservancy</b>
<b>US EIA</b>	<b>U.S. Energy Information Administration</b>
<b>USFS</b>	<b>U.S. Forest Service</b>
<b>USFWS</b>	<b>U.S. Fish &amp; Wildlife Service</b>
<b>WCB</b>	<b>Wildlife Conservation Board</b>



## 1. Introduction

The California State Wildlife Action Plan 2015 Update (SWAP 2015; see Text Box 1) provides a vision and a framework for conserving California’s diverse natural heritage. SWAP 2015 also calls for the development of a collaborative framework to sustainably manage ecosystems across the state in balance with human uses of 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 undertook the preparation of companion plans for SWAP 2015. While this document reports on the progress made thus far on collaboration, the intent is to set a stage for achieving the conservation priorities through continued partnerships and by mutually managing and conserving the state’s natural and cultural resources. Text Box 2 highlights important definitions for SWAP 2015 and the companion plan process.

### 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) as defined by 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, matched with approximately \$19 million in state government support for 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). The update allows CDFW to expand and improve the recommended conservation activities addressed in the original plan by integrating new knowledge acquired since 2005 (CDFW 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):** An aspect of a target’s biology or ecology that, if present, defines a healthy target and, if missing or altered, would lead to 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.

**Target:** Same as *conservation target* defined above.

**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 as defined in SWAP 2015.

**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 2015)



## 1.1 SWAP 2015 Statewide Goals

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

**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, that affect 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 (see Text Box 3) were created collaboratively with partners and will be instrumental in implementing SWAP 2015 (See Appendix C).

### 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

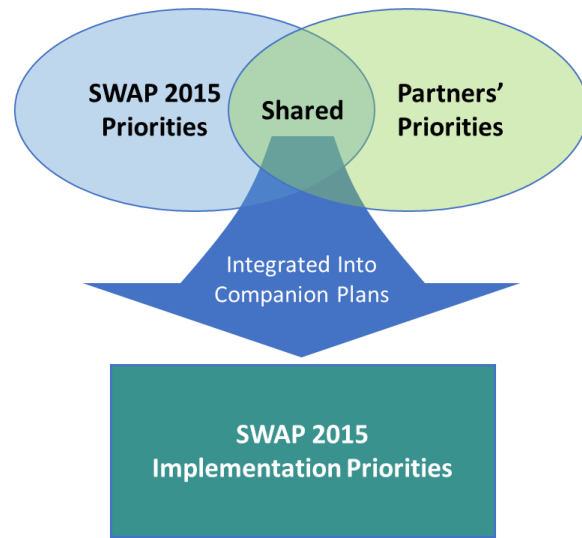
### Companion Plan Purpose and Sector Selection

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, shared priorities come together in the companion plans and become elevated as implementation priorities for SWAP 2015.



The companion plans respond to feedback from many sources, including CDFW staff and partners involved in 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 are also aligned with the National Fish, Wildlife, and Plants Climate Adaptation Strategy (U. S. Fish and Wildlife Service [USFWS] 2012), which emphasizes increased partner engagement as a best practice in climate change adaptation. Developing the companion plans also directly helps CDFW comply with recently enacted legislation 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” (CDFW 2012).

Figure 1: Aligning SWAP 2015 and Partner Priorities



CDFW selected sector categories based on the department’s needs as well as the themes identified in other existing plans, including the 2009 California Climate Adaptation Strategy (CNRA 2009), the 2014 Safeguarding California Plan (California Natural Resources Agency [CNRA] 2014), The President’s Climate Action Plan (Executive Office of the President, 2015), and the National Fish, Wildlife, and Plants Climate Adaptation Strategy (USFWS 2012).

### Companion Plan Development

Because the companion plans focused on teamwork during their development, they inherently help set a stage for implementing SWAP 2015 through future collaborations. Together, SWAP 2015 and the associated companion plans describe the context and strategic direction of integrated planning and management efforts that are crucial for sustaining California’s ecosystems. The SWAP 2015 companion plan management team, composed of CDFW and Blue Earth staff, provided general direction to the companion plan development teams to develop each sector plan (See Appendix F). To form sector teams, CDFW sought statewide representation of public and private partners with expertise and who were heavily involved in natural resource conservation and management (see Appendix C).<sup>1</sup>

Beginning in early 2015, Blue Earth facilitated a series of four web-based collaboration meetings for each sector. A kickoff meeting provided development teams with an overview of SWAP 2015 and the

<sup>1</sup> Although the management team sought to engage a broad range of partners, CDFW recognizes that there are many other partners who play important roles in conserving and managing natural resources in California who were not involved in developing the companion plans.



companion plan development process, followed by three sector-specific meetings. During these sector meetings, 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 shared priorities, as well as collaboration opportunities for achieving those mutual interests.

Two internal drafts of the companion plans were reviewed by the development teams prior to the public release of the third draft in the fall of 2015. The final nine companion plans were published incorporating responses to public comments.

### Companion Plan Content

Each companion plan addresses the following components:

- SWAP 2015 overview
- Companion plans overview—approach, purpose, development process, and content
- Sector overview
- Common themes across sectors
- Common priority pressures and strategies across sectors
- Priority pressures and strategies for the sector
- Potential collaboration activities
- Potential partners and resources
- Evaluating implementation
- Desired outcomes
- Next steps

## 2. Energy Development Sector

### 2.1 *Energy Development in California*

California is a national leader in advancing successful and sustainable energy programs. The state’s major energy sources include oil, gasoline (industry, transportation, offshore), natural gas, nuclear, hydroelectric, and geothermal (California Energy Commission [CEC] 2015a). The state has increasingly focused on renewable energy sources such as wind and solar as part of its energy technology and development strategy intended to reduce carbon emissions, maintain clean and healthy air and water resources, and support future economic growth (CDFW 2014a). To keep these activities in balance with conservation efforts, CDFW is “committed to effectively responding to climate change and actively supporting renewable energy development” by working with stakeholders to minimize impacts on California’s wildlife and environment (CDFW 2014a).

California ranks second in the nation in net electrical power generation from renewable energy sources other than hydroelectric and the highest producer of geothermal energy (United States Energy Information Administration [US EIA] 2014). Building on efforts from Governor Schwarzenegger’s administration, AB 32 (2006), Governor Edmund G. Brown Jr., proposed a plan in early 2015 to enhance California’s solar and wind utility industries by raising the Renewable Portfolio Standard to 50% by 2030



(Governor’s Office of Planning and Research 2015). The energy sector companion plan focuses on the potential impacts resulting from expected development of new renewable energy, electric transmission, and electric distribution line projects within the state.

## ***2.2 Current Energy Development Management and Conservation in California***

Many state agencies contribute to balancing the state’s natural resource and energy goals through specific projects. The mission statement of the CNRA is “to restore, protect and manage the state's natural, historical, and cultural resources for current and future generations using creative approaches and solutions based on science, collaboration, and respect for all the communities and interests involved” (CNRA 2015). In following through on this mission, CNRA, in collaboration with CEC, works to attain the energy efficiency goals in AB 32, a law requiring a sharp reduction of greenhouse gas (GHG) emissions in California, as well as facilitating access to local, decentralized renewable resources within utility programs (CNRA 2009).

California agencies have a long history of working with utilities and independent power producers to balance the state’s environmental and energy needs. For example, the CEC oversees a natural gas research program that awards grants for energy innovations in production, including developing approaches to mitigate the effects of natural gas production through air treatment devices (CEC 2015b). In addition, the CEC sets voluntary guidelines to reduce impacts on birds and bats from wind turbines through methods such as developing mitigation measures and impact avoidance through plan designs (CEC 2007). In 2013, CDFW, CEC, and the Ivanpah Solar Electric Generating System (ISEGS) owners signed an agreement to transfer 7,000 acres of habitat credits to fulfill mitigation requirements for the ISEGS solar project and to strengthen conservation for the desert tortoise (BrightSource 2013). The habitat credits were created through the SB 34 (2010) Advanced Mitigation Program. NextEra Energy Resources similarly agreed to purchase 2,365 acres of habitat credits for desert tortoise, 45 acres for burrowing owl, and 70 acres for state waters, in order to fulfill its mitigation obligations for the McCoy Solar LLC., project.

Balancing California’s sustainable energy needs with the conservation of natural and wildlife resources is an important goal to achieve for the well-being of future generations and the environment. Many state energy agencies, utilities, and developers focus on the conservation of California’s natural and wildlife resources through planning, land stewardship, and compensatory mitigation actions as part of their ongoing operations or as mitigation for development projects.

**Text Box 4: Examples of Collaborative Conservation Efforts**

There are numerous collaborative conservation management efforts found in California. Below we share three such examples related to energy development. The partners addressed in each description are indicated in **bold**.

- ***Natural Community Conservation Planning***: An early example of conservation collaboration between the energy sector and **state and federal agencies** is the 1995 **San Diego Gas & Electric (SDG&E) Company** Subregional Natural Community Conservation Plan (NCCP), signed by **USFWS, CDFW, and SDG&E** (CDFW, 2013c). Developed under the NCCP program, which encourages collaboration among partners to promote ecosystem conservation with compatible land uses (CDFW, 2013b), the plan (with consideration of local Habitat Conservation Plan [HCP] objectives) outlines conservation and impact mitigation strategies **SDG&E** will implement for 110 plant and animal species. The plan also requires that **SDG&E** use parcels of land they own in the region to increase habitat connectivity for identified species. **SDG&E, CDFW, and USFWS** developed activities highlighted in the plan cooperatively.
- ***Pairing Regulatory Compliance and Conservation***: The SB34 Advanced Mitigation Program (AMP), established in 2010, provides a mechanism for coordination between **government agencies (state and federal)** and **renewable energy developers** for mitigation of impacts resulting from large-scale renewable energy projects through the purchase of high-value conservation lands. The AMP helps streamline the permitting process for the development of renewable energy projects by creating an in-lieu fee program to streamline compensatory mitigation efforts. The program entails collaboration among **CDFW, the CEC, BLM, USFWS, and developers** to conduct advanced mitigation actions, such as the purchase of conservation easements that protect valuable habitat and species. The habitat value present on these lands can be then be purchased by **renewable energy developers** to satisfy the mitigation requirements of new energy development projects.
- ***Energy Development and Conserving Desert Ecosystems***: The Desert Renewable Energy Conservation Plan (DRECP) will improve the permitting process for renewable energy projects and enhance conservation of California desert lands through collaboration among the **CEC, CDFW, BLM, USFWS, and renewable energy developers**. The DRECP covers over 22.5 million acres in Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego counties. Like the AMP, the DRECP will help **renewable energy developers** implement mitigation efforts contributing to restoration and protection of desert ecosystems and valuable species found in these ecosystems. The DRECP will also protect cultural resources, recreation opportunities, and visual landscapes (DRECP 2015).

Utilities and independent power producers are required to protect and restore the environment to mitigate project impacts from both utility upgrade projects and new infrastructure development. For example, Southern California Edison (SCE) revitalized 150 acres of coastal wetlands, created a fish nursery, and established a refuge for migratory birds and waterfowl as a part of its San Dieguito Wetlands Restoration Project to mitigate the impacts from the now closed, San Onofre Nuclear Generating Station. As part of this mitigation, the company also created the nation's first 174-acre sustainable, artificial reef to facilitate giant kelp growth and provide habitat for coastal fish and invertebrates (SCE 2015).

In 2011, CDFW received funding from the USFWS State Wildlife Grant (SWG) program to identify and quantify potential conflicts between solar energy development and conservation of special-status upland species of the San Joaquin Valley, and to generate tools and information that will facilitate



efforts to avoid significant impacts to listed and sensitive species from solar energy projects (CDFW 2014b). Another SWG project in 2006 supported development of a California bat conservation plan that included drafting wind energy survey guidelines (CDFW 2014b).

CDFW, in partnership with other agencies and sector stakeholders, can work to protect and conserve the state's current natural and wildlife resources by continuing to provide the guidance necessary to manage energy development while also providing new opportunities for growth in this sector. Through planning and land stewardship efforts that incorporate SWAP 2015 goals, the energy development sector can improve natural resource conservation and simultaneously meet statewide renewable energy production goals. This companion plan seeks to strengthen past efforts by enhancing existing and creating new partnerships in the public and private sectors to achieve SWAP goals and meet the state's renewable energy goals.

### **3. Common Themes across Nine Sectors**

Equally important to discussion topics unique to each sector are the common themes across all sectors. This section summarizes the two major overarching themes discussed through the course of developing the nine companion plans: climate change and integrated regional planning.

#### **3.1 Climate Change-related Issues**

Climate change continues to be one of the major pressures forcing us to examine the relationship between modern society and nature. Describing climate science, however, has been difficult due to its inherent complexity. Because of this and other factors, our society has not been able to fully embrace the seriousness of the implications of climate change. In the most recent analyses, the global average temperature is projected to increase in the range of 0.3–4.8°C (0.5–8.6°F) by 2100, and in California, the increase is projected to be 1.5°C (2.7°F) by 2050 and 2.3–4.8°C (4.1–8.6°F) by 2100 (IPCC 2014; CNRA 2014).

The effects of climate change are already present. Global sea level rise over the past century has exceeded the mean rate of increase during the previous two millennia, and the earth's surface temperature over each of the last three decades has been successively warmer than any previous decade since 1850. The evidence of these observed climate change impacts is manifested the strongest and most comprehensively in natural systems where many species of terrestrial, freshwater and marine organisms have shifted their geographic ranges, migration patterns, abundances, and life cycle activities in response to ongoing climate change (IPCC 2014).

As climate conditions are inextricably linked to the welfare of environments and societies, even the most conservatively projected increase in global mean temperatures would trigger significant changes to socio-economic and ecosystem conditions. Food production, energy and water development, and preparation and response to catastrophic events are examples of human systems that would be negatively affected by climate change. Pressures and stresses to ecosystems identified in SWAP 2015



will likely increase in magnitude and severity through the compounding effects of climate change (SWAP 2015).

Accordingly, the potential far-reaching effects on California's natural resources induced or exacerbated by climate change were a common concern among sectors, and cross-sector collaboration was considered critical for ecosystem adaptation while avoiding disasters.

Two key discussion points amongst sectors were to strategically assess the state's climate change vulnerabilities and implement adaptation actions. These actions included, but were not limited to: establishing a well-connected reserve system to increase ecosystem integrity (e.g. habitat resilience and mobility); incorporating climate change related factors (e.g. carbon sequestration, habitat shifts and sea level rise) into natural resource management; improving regulations to reduce greenhouse gas emissions; developing research guidelines to comprehensively evaluate climate change effects; and raising awareness of climate change.

### **3.2 Integrated Regional Planning**

California presents a landscape that is ecologically, socioeconomically, and politically intricate. The current status of the state's ecosystems reflects not only the interactions between biological and abiotic components, but also among ecosystems and diverse human activities that are further controlled by mandates imposed on regulated activities.

The concept of integrated regional planning arises from the realization that addressing only one aspect of a complicated human/nature system is not sustainable. Paraphrased from the definition in the California Water Plan, integrated regional planning 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 (DWR 2014). Expected outcomes of adopting an integrated regional planning approach include; maximizing limited resources to meet diverse demands, receiving broader support for natural resource conservation, and sustaining and improving ecosystem conditions, both for intrinsic and resource values.

Integrated regional planning begins with accepting diverse priorities and values articulated by the stakeholders of a region. With this mutual understanding, attempts are made, often through intense negotiations, to integrate various activities associated with multiple interests occurring in the region. Expected tasks under integrated regional planning include: identifying conflicting or redundant activities occurring in a region, minimizing redundant activities by aligning similar efforts, streamlining and integrating needed processes across different priorities, and collaborating and complementing efforts to effectively achieve mutual and/or diverse interests. As an example, integrated regional planning could result in zoning a region and limiting activities within each zone to avoid or reduce incompatible activities occurring in the region, or deferring timing to reduce negative consequences of interactive activities occurring in a region. In sum, integrated regional planning requires trust, open-mindedness, transparency, patience, strategic thinking, and collaboration among partners who seek to use the same or similar resources from different perspectives.



Establishing a framework for integrated regional planning was considered as one of the state’s top priorities across sectors. Related topics included: preparing, approving, and implementing regional and landscape-level conservation plans; systematically pursuing necessary resources to implement conservation strategies; coordinating effective partnerships; adapting to emerging issues; and reviewing and revising the plans. Several existing plans were recognized as ongoing integrated regional planning efforts: Natural Community Conservation Plans (NCCPs), Habitat Conservation Plans (HCPs), Habitat Connectivity Planning for Fish and Wildlife (CDFW 2015), the Master Plan for Marine Protected Areas, individual species management plans, and SWAP 2015 and related endeavors, including this companion plan.

SWAP 2015, Chapter 7 describes implementation and integration opportunities, and identifies where partners can engage in cooperative implementation. Such opportunities include programs under various state and federal agencies such as Regional Advance Mitigation Planning (RAMP) by Caltrans and CDWR; California Water Plan, California Water Action Plan, and the Central Valley Flood System Conservation Strategy by CDWR; Fire and Resource Assessment Program by CALFIRE; and federal programs under regulations such as the Central Valley Project Improvement Act, and the National Forest Management Act (CDFW 2015).

#### **4. Commonly Prioritized Pressures and Strategy Categories across Sectors**

SWAP 2015 adopted the Open Standards for the Practice of Conservation (Conservation Measures Partnership 2013), a conservation planning framework, and applied the process to select actions needed to conserve focal ecological components (conservation targets). The process started with examining the status of targets by identifying and evaluating their key ecological attributes, factors influencing their compromised conditions (stresses), and the sources of these stresses (pressures). Based on the situational analysis, conservation strategies (sets of actions) were selected for each target, either to improve the conditions of key ecological attributes, or to reduce the negative impacts from the stresses and pressures (CDFW 2015).

##### **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”. 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. Table 1 below lists the 29 standard pressures addressed under SWAP 2015.



**Table 1: SWAP 2015 Pressures**

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

(CDFW 2015)

#### **4.1 Strategy Categories across Sectors**

SWAP 2015 outlines 11 categories of conservation strategies (Table 2) under which regional strategies are organized, similar to the manner in which the regional goals are tiered under the statewide conservation goals (CDFW 2015). These regional strategies grouped in various categories are meant to work synergistically to achieve the statewide goals and priorities.





**Table 2: SWAP 2015 Conservation Strategy Categories**

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

The three most common priority strategy categories across the nine sectors were Data Collection and Analysis (7 sectors prioritized this strategy), Management Planning (7 sectors), and Partner Engagement (5 sectors). The strategy categories identified as most relevant to the energy development sector are described in Section 5.2 below.

## 5. Energy Development Priority Pressures and Strategy Categories

As described in SWAP 2015, pressures such as renewable energy and utility line development could affect biodiversity and natural resources in the state. Although key challenges exist, these seemingly negative aspects of pressures present opportunities for improving ecological health through collaborative conservation work.

For the purpose of developing companion plans, CDFW went through the pressures and strategy categories that were selected for various conservation targets under SWAP 2015 (CDFW 2015). Those elements considered relevant to each sector were collected from the document and prioritized by importance to the sector. Section 5.1 and 5.2 provide the results of this prioritization, and Text Box 5 lists pressures and strategies considered important but not included in this plan (for future consideration).

### 5.1 Priority Pressures

The top two pressures identified for this sector are renewable energy and utility and service lines.

**Renewable energy** – Energy generation projects, transmission infrastructure, and ongoing operations and maintenance (e.g., upgrades, repairs, and vehicle traffic) can result in wildlife habitat loss and degradation, as well as direct mortality of animals and plants. In addition, renewable energy development, while critical for meeting state GHG reduction goals under increasing electricity demands, can result in indirect impacts to wildlife resources (e.g., exposure to high-level noise from operations, night-light pollution) from the introduction of non-native or invasive species, or landscape alterations that favor predators (e.g., perching sites). Example pressures from the energy development sector include exploring, developing, and producing renewable energy from existing and new projects such as geothermal power plants, solar farms, wind farms, and wave/tidal farms.



**Utility and service lines** – Existing and new utility transmission and distribution infrastructure and the ongoing operations and maintenance of such facilities, can directly interfere with wildlife movement, introduce invasive species, fragment habitats, or result in increased mortality of animals (e.g. road-kill), and plants (e.g. soil compaction, altered hydrology).

## **5.2 Priority Strategy Categories**

The top three selected strategy categories are the following: land acquisition and easement, management plan development, and partner engagement. These categories are described below.

**Land Acquisition and Easement** – Land acquisition and easement are types of transactions and agreements that help set aside or obtain land or water rights, which support conservation of the land, water, or habitat that species depend upon. An example strategy is conserving and protecting lands through acquisition and easement efforts as either an independent program or as mitigation for project specific impacts.

**Management Plan Development** - The energy sector includes energy development plans and associated planning activities (e.g., landscape level land use planning, energy infrastructure siting processes, and energy procurement plans and processes) as part of this strategy category, as such planning activities were considered as an integrated part of conservation management planning. Example strategies include: identifying clear and consistent processes for proactively conserving lands; improving the Habitat Management Land Acquisition (HMLA) process to expedite approval of mitigation lands; creating consistent policies for lead agencies that impose compensatory mitigation requirements on applicants as required by the California Environmental Quality Act (CEQA); and improving conservation management in the energy sector through programs that streamline the mitigation acquisition process for available lands identified in other areas of the state. These actions should be driven by the priorities of the CDFW in cooperation with the energy sector and other stakeholders.

**Partner Engagement** – Partner engagement is the process for developing collaboration among state and federal agencies, tribes and tribal communities, 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 partnerships or working with energy regulators to incorporate CDFW goals into energy infrastructure siting and procurement decisions and/or procedures at the programmatic level.

**Text Box 5: Additional Pressures and Strategies for Future Consideration**

**Pressures**

- Drought (hydro-energy related and increased energy demand to move water from one location to another)
- Energy development
  - Conversion of agricultural land to renewable energy development
  - Conversion of previously undisturbed wildlife habitat to renewable energy or creating obstacles or barriers to movement between native habitats
  - Non-renewable energy development – pipeline, well, oil, and gas development, including fracking, off-shore drilling, and other new technologies that allow new oil and gas development
- Importation of energy resources from other parts of the country as energy procurement issues (varies by utility and based on demand and policy requirements)
- Institutional issues
- Maintenance activities
- Population growth

**Strategies**

- Develop integrated regional planning (See Section 3.2 for more detail)
- Implement low impact development and improve efficient use of existing resources (e.g., using existing building or transmission infrastructure)

## 6. Collaboration Opportunities for Joint Priorities

Conservation programs in California are managed by diverse partners, including state and federal agencies, local governments, and NGOs. Because SWAP 2015 is a comprehensive conservation plan, integrating their work into SWAP is crucial for impactful conservation outcomes for the state (SWAP 2015 Chapter 7). While the full array of relevant efforts is too extensive to list here, potential alignment opportunities were identified. Conservation activities considered most relevant to each prioritized strategy category (as described in Section 5.2) are summarized in Table 3. Potential partners and financial resources for implementing these conservation activities are listed in the Appendix D and E. Together, Table 3 and Appendix D and E summarize the key findings for this sector.

### Alignment Opportunities and Potential Resources

Table 3 highlights conservation activities by the strategy categories considered important for collaboration, and which could be implemented over the next 5–10 years. While some activities are applicable across many spatial scales and jurisdictions, they are assigned only to the most relevant scale and jurisdiction. The information in Table 3 is not comprehensive, and does not obligate any organization to fund or provide support for strategy implementation.



**Table 3: Collaboration Opportunities by Strategy Category**

Land Acquisition and Easement
<b>Potential Conservation Activities</b>
<p><b>Statewide</b></p> <ul style="list-style-type: none"> <li>Identify high conservation value lands to be considered as priority compensatory mitigation areas in a context of integrated regional planning</li> </ul> <p><b>Regional</b></p> <ul style="list-style-type: none"> <li>Utilize project permit mitigation and regional habitat conservation plans</li> </ul> <p><b>Local/Site-specific</b></p> <ul style="list-style-type: none"> <li>Collect data (e.g., energy project impacts, mitigation strategies)</li> <li>Conduct large-scale renewable energy infrastructure siting and permitting mitigation analyses to set aside land that will not be developed</li> <li>Conduct more open-ended conservation in energy bond terms (e.g., permitting, mitigation impacts)</li> <li>Connect rural and urban communities to coordinate downstream needs and planning (e.g., climate action planning, fire risk, water supply, crop production)</li> <li>Coordinate identification of mitigation lands and select sites that better meet conservation goals</li> <li>Identify strategic renewable energy mitigation projects</li> <li>Keep track of available mitigation acreage and proactively increase acreage when it runs low</li> <li>Prioritize new energy infrastructure development to maintain agriculture and open space lands</li> <li>Write mitigation measures for large-scale renewable energy line development</li> </ul>
Management Plan Development
<b>Potential Conservation Activities</b>
<p><b>Statewide</b></p> <ul style="list-style-type: none"> <li>Connect SWAP land concerns with the CPUC Energy Division procurement arena and better coordinate between the agencies</li> </ul> <p><b>Regional</b></p> <ul style="list-style-type: none"> <li>Consider other sector industries in planning efforts</li> </ul> <p><b>Local/Site-specific</b></p> <ul style="list-style-type: none"> <li>Focus on crop planning in urban and rural areas</li> <li>Emphasize SWAP goals in compensatory mitigation and implementation</li> <li>Identify criteria for management plans (e.g., include spatial scales and create high-level planning framework)</li> <li>Conduct landscape-level planning to help identify where transmission lines and power plants will be sited</li> <li>Update siting tools such as the Renewable Portfolio Standard (RPS) Calculator, with environmental screen components, to account for land use issues</li> <li>Involve key stakeholders to gain support for siting plan development</li> <li>Specify SWAP goals in climate actions plans, conservation frameworks, and county plans</li> <li>Work on additional HCPs</li> </ul>



## Partner Engagement

### Potential Conservation Activities

#### **Statewide**

- Participate in other agencies' proceedings related to energy siting or other relevant topics

#### **Regional**

- Develop regional HCPs that cover entire service territories

#### **Local/Site-specific**

- Collaborate on conservation plans with local and community partners
- Identify opportunities for agency partnerships in the area of renewable energy project siting
- Provide information to inform and influence new renewable energy procurement siting decisions
- Initiate dialogue related to partnership plans
- Work with other agencies at the project/field level to look for common ground for siting and mitigation efforts
- Identify priority conservation areas where land trust partners can be engaged early in process to buy into the strategy and opportunity

## 7. Evaluating Implementation Efforts

Implementing SWAP 2015 and its nine companion plans is a complex undertaking. This section (and SWAP 2015 Chapter 8) emphasizes the importance of adaptive management based on performance monitoring and evaluation during the implementation stage.

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

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 for adaptive management; and
3. effects monitoring, which addresses if and how the target conditions are being influenced by strategy implementation.

Monitoring and evaluating SWAP 2015 implementation are critical steps to demonstrate and account for the overall progress and success achieved by the plan. By incorporating lessons learned through monitoring conservation activities and evaluating for future actions, CDFW and partners have opportunities to improve performance and adapt emerging needs that were not previously considered. For stakeholders including decision-makers, partners, and funders, the resulting data would be useful for not only understanding the status of SWAP 2015 and companion plan implementation, but also to prioritize resource allocations necessary for managing natural resources in the state.



SWAP 2015 developed performance measures for each strategy category (SWAP 2015 Chapter 8). These measures are critical in assessing SWAP 2015 performance and will be used for estimating the plans' overall contributions to natural resource conservation in California.

## **8. Desired Outcomes**

Desired outcomes for this sector over the next 5–10 years, within the context of SWAP 2015, were identified and are provided below. These outcomes are organized by the selected strategy categories described in Section 5.2, and are not listed in order of priority.

### ***Land Acquisition and Easement***

- Mechanisms developed for agencies and partners to conduct conservation efforts at the landscape scale, and mechanisms improved to conserve critical lands and ecosystem processes.
- Pressures (e.g., land conversion and population size) identified and conservation goals incorporated into all energy planning processes and projects to promote conservation of land based on its conservation value and ecosystems processes and function.
- Compensatory mitigation land options, consistent with SWAP goals identified and processed through the relevant agencies and within the permit-required timeframes.
- Renewable energy development projects and mitigation actions that are consistent with SWAP goals identified and implemented to meet the Governor's goal of enhanced wind and solar energy.

### ***Management Plan Development***

- HCPs implemented, general utility corridors identified, and agency priorities understood across sectors (e.g., energy and resource agencies) to simplify and streamline planning and energy project siting processes, particularly at the landscape scale.
- Specific project needs and actions are linked with priorities of SWAP 2015 and the companion plans, and incorporated into project planning including appropriately monitoring implementation on a yearly basis to measure progress.
- Structured and unstructured processes identified and implemented to assist individual landowners undertaking conservation actions on their land to help them achieve their conservation goals to compliment SWAP; for example, assist conducting their activities based on best management practices (BMPs) addressed under SWAP.
- Environmental screening system integrated into renewable energy and transmission line calculator tools (e.g., RPS) to improve consideration of environment and wildlife needs in planning efforts.

### ***Partner Engagement***

- Multiple partners working jointly, identify, agree and act upon conservation of priority habitats.



## 9. Next Steps

The key next steps identified to ensure successful implementation of the companion plan over the next five years are: partnership and collaboration; human and financial resources; communication and outreach; and monitoring, evaluation, and relevant tools.

### ***Partnership and Collaboration***

- Continue partner collaboration (e.g., through yearly interagency meetings, annual technical working groups, shared schedule with milestones and check-ins) on shared priorities under SWAP 2015 and companion plans, and ensure continued consensus on cooperation toward shared priorities.
- Determine appropriate mechanisms for partnerships between staff from CPUC's RPS program and staff from other agencies and organizations on future projects (e.g., policy rulemaking) with better environmental benefits.
- Build upon existing models for data sharing and collaboration (e.g., the University of California, Santa Barbara Bren School's Data Basin tool analyzing conservation value, energy value, and solar development opportunities in San Joaquin Valley and the San Joaquin Valley Geospatial Data Gateway).
- Integrate energy policy topics into future companion plan updates as it relates to partners' (e.g., utilities) priorities.

### ***Human and Financial Resources***

- Develop timelines for agencies and their staff to help understand how and when to involve in projects that meet the goals of SWAP 2015 and companion plans.
- Ensure engagement of partners that have the time and human resources to continue the companion plan process (e.g., utilities and power companies).
- Identify mechanisms to support projects and activities that would help further the strategies and goals of SWAP 2015 and companion plans (e.g., engagement of the CBC, CA ISO, San Gabriel Mountains National Monument Community Collaborative, and SWG program).
- Implement recommendations included in SWAP 2015 Chapter 7 that focus on integration and financial resources, and identify mechanisms for capacity development to help leverage human and financial resources.

### ***Communication and Outreach***

- Increase stakeholder awareness of SWAP 2015 and companion plan processes to help coordinate and leverage projects with similar goals and strategies.

### ***Monitoring, Evaluation, and Relevant Tools***

- Determine prioritized mechanisms for the state to implement a process for incorporating findings of SWAP 2015 and companion plans into the RPS calculator, and identify conservation lands that can be factored into the process.
- Incorporate land use data into the RPS calculator.



- Account for technologies, cost, and future development and location of transmission lines in RPS calculator revisions and consider best ways to represent land use information.

## **10. Acknowledgements**

This companion plan was developed in collaboration with many partners who deserve special recognition for their time and commitment. (Please see Appendix C for a list of energy development team members.) CDFW and Blue Earth express our warmest gratitude to those who were involved in the plan's development, as well as to the organizations that generously offered their staff time. As an initial step toward building a collaborative approach for implementing SWAP 2015 and the nine sector-focused companion plans, CDFW will develop an operational plan that describes logistics for moving forward.





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**Appendix C: Energy Companion Plan Development Team Members and Affiliations**

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<b>William and Flora Hewlett Foundation</b>	Matt Baker



## Appendix D: Potential Partners for Collaboration

Please note that the following table does not provide an exhaustive list of potential partners. The organizations listed here were identified through the sector discussions, but the listing does not imply that they have agreed to partner or to implement SWAP 2015. Also note that the table was completed to the best of the team’s knowledge. Where specific organizational efforts or orientations were unknown to the team, corresponding cells were left blank. An asterisk (\*) indicates a new opportunity added by CDFW after the team discussions; therefore it was not addressed by the sector team.

Potential Partners	Land Acquisition and Easement	Management Planning	Partner Engagement
Alliance of Regional Climate Collaboratives for Adaptation (ARCCA)		✓	✓
American Wind Energy Association		✓	✓
CA Biodiversity Council (CBC)			✓
CA Coastal Commission			✓
CA Council of Land Trusts	✓	✓	✓
CA Department of Conservation - Division of Oil, Gas & Geothermal Resources (DOGGR)		✓	
CA Department of Fish and Wildlife (CDFW)	✓	✓	✓
CA Energy Commission (CEC)	✓		✓
CA Forest Biomass Working Group			✓
CA Hydropower Reform Coalition	✓		✓
CA Independent System Operator (CA ISO)		✓	✓
CA Natural Resources Agency (CNRA)	✓	✓	✓
CA Office of Planning and Research		✓	✓
CA Public Utilities Commission (CPUC)		✓	✓
CA Rangeland Trust	✓	✓	✓
CA Tahoe Conservancy	✓	✓	✓
CA Wind Energy Association (CalWEA)		✓	✓
Center for Natural Land Management			✓
City and County Governments	✓	✓	✓
Climate Adaptation and Mitigation Partnership			✓
Desert Managers Group	✓		✓
Desert Tortoise Council	✓		✓
Edison Electric Institute			✓
Forest Climate Action Team (FCAT)		✓	✓
Imperial Irrigation District	✓	✓	✓
Independent Energy Producers Association (IEP)			✓
Landowners	✓	✓	✓

Potential Partners	Land Acquisition and Easement	Management Planning	Partner Engagement
Local and Municipal Electric Utilities, Irrigation Districts and Co-ops	✓	✓	✓
Local Planning Boards		✓	
Los Angeles County Supervisors Office			✓
Los Angeles Department of Water and Power	✓	✓	✓
Mojave Desert Land Trust	✓		✓
National Audubon Society	✓	✓	✓
National Hydropower Association	✓	✓	✓
National Park Service (NPS)	✓	✓	✓
Natural Resources Defense Council			✓
Northern Sierra Partnership	✓	✓	✓
Pacific Gas and Electric Company (PG&E)	✓	✓	✓
PacifiCorp (Pacific Power)	✓	✓	✓
Peninsula Open Space Trust	✓		✓
Regional and local HCP/NCCP management agencies	✓	✓	
Regional Water Quality Control Boards		✓	✓
Renewable Energy Transmission Initiative		✓	✓
Sacramento Municipal Utility District (SMUD)	✓	✓	✓
San Diego Gas & Electric (SDG&E)	✓	✓	✓
San Joaquin Council of Governments		✓	✓
Sequoia Riverlands Trust	✓		✓
Sierra Cascade Land Trust Council	✓		✓
Sierra Climate Adaptation and Mitigation Partnership (CAMP)		✓	✓
Sierra Nevada Conservancy	✓	✓	✓
Sierra Nevada Forest Community Initiative	✓		✓
Solar Energy Industries Association		✓	✓
Southern CA Edison	✓	✓	✓
Southern Sierra Partnership	✓	✓	✓
State utilities & Independent Power Producer (IPP) groups	✓	✓	✓
State Water Resources Control Board (SWRCB)	✓		✓
The Conservation Fund	✓	✓	✓
The Nature Conservancy (TNC)	✓	✓	✓
The Trust for Public Lands	✓	✓	✓
Tortoise Group	✓		✓
Transition Habitat Conservancy	✓		✓
U.S. Army Corps of Engineers (USACE)	✓	✓	✓



Potential Partners	Land Acquisition and Easement	Management Planning	Partner Engagement
<b>U.S. Bureau of Land Management (BLM)</b>	✓	✓	✓
<b>U.S. Department of Defense</b>	✓	✓	✓
<b>U.S. Fish and Wildlife Service (USFWS)</b>	✓	✓	✓
<b>U.S. Forest Service (USFS)</b>	✓	✓	✓
<b>Western Governors' Association</b>			✓
<b>Western States Petroleum Association</b>		✓	✓
<b>Wildlife Heritage Foundation</b>	✓	✓	✓
<b>World Wildlife Fund (WWF)</b>	✓	✓	✓





## Appendix E: Potential Financial Resources

<b>Example Potential Financial Partners</b> <i>(Note: this information is intended to serve as a starting point for outreach and potential engagement, and does not represent a comprehensive list of all the potential funding sources)</i>	Land Acquisition and Easement	Management Planning	Partner Engagement
<b>Business and Nonprofit's grant programs</b>	✓		
<b>CA Strategic Growth Council - Affordable Housing and Sustainable Communities Program</b>	✓		
<b>Compensatory mitigation</b>	✓		
<b>Endangered Species Act (Section 6)</b>		✓	✓
<b>Foundations (private/public)</b>	✓		✓
<b>Greenhouse Gas Reduction Fund (GGRF)</b>	✓		
<b>Land and Wildlife Conservation Fund</b>	✓		
<b>Land trusts, or large land owners that have land they can donate</b>	✓		
<b>Mitigation bankers (for-profit, non-profit)</b>	✓		
<b>Sierra Nevada Conservancy</b>	✓		
<b>State bonds (Water, Park)</b>	✓		



### *Appendix F: Companion Plan Management Team*

<b>Name</b>	<b>Title</b>
Armand Gonzales	<b>SWAP 2015 Project Lead, CDFW</b>
Junko Hoshi	<b>SWAP 2015 Assistant Project Lead, CDFW</b>
Kurt Malchow	<b>SWAP 2015 Companion Plan Development Lead, CDFW</b>
Tegan Hoffman	<b>Project Director and Facilitator, Blue Earth Consultants</b>
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## Appendix G: Glossary

The definitions found here are referenced from SWAP 2015, and are mostly adopted from the glossary in the Conservation Measures Partnership's (CMP) Open Standards for the Practice of Conservation (Version 2.0). Some terms have been added or refined to clarify their use by CDFW.

*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.

*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.

*endangered species*: any species, including subspecies or qualifying distinct population segment, which is in danger of extinction throughout all or a significant portion of its range.

*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.

*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.



*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.

*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.

*preservation*: generally, the nonuse of natural resources. Compare with conservation.

*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.

*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.

*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.

*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).

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