



3 Existing Conservation Approaches

3.1 Regulatory Framework

Many natural resources in California are protected and activities affecting them are regulated by federal and state laws and regulations, as well as local ordinances. Federal, state, and local governments have also adopted plans and policies to protect and manage natural resources. Many of these are designed to provide for the conservation and management of wildlife habitats and sensitive species. SWAP 2015 operates within and assists in achieving compliance with applicable federal, state, and local laws and regulations, but it is not, itself, a regulatory document. This section describes the key laws, regulations, plans, and policies that create the framework for wildlife conservation planning in California.

3.1.1 Federal Laws and Regulations

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) regulate the take and incidental take of a species listed as threatened or endangered under the federal Endangered Species Act (ESA; 16 U.S.C. section 1531 et seq.). USFWS has jurisdiction over terrestrial and inland aquatic species and NMFS has jurisdiction over anadromous fish and marine species, including marine mammals. In general, persons subject to ESA (including private parties) are prohibited from “take” of endangered or threatened fish and wildlife species on non-federal property, with this prohibition expanded to also prohibit removing and possessing endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under ESA, the definition of “take” is “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS and NMFS have defined “harm” to include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. If a proposed project would result in take of a federally listed species, the project applicant must either acquire an incidental take permit under Section 10(a) of ESA, or if a federal discretionary action is involved, take authorization is acquired through a consultation process under Section 7 of ESA between a federal agency with jurisdiction over the project and, as applicable, either USFWS, NMFS, or both.

Marine Mammal Protection Act

The Marine Mammal Protection Act (16 U.S.C. section 1361 et seq.) prohibits, with certain exceptions, the “take” of marine mammals in U.S. territorial waters. NMFS administers the Marine Mammal Protection Act and is charged with protecting whales, dolphins, porpoises, seals, sea lions, and manatees and other species of marine mammals. Sea otters are protected by the USFWS. NMFS or USFWS can authorize take for a limited set of activities including: scientific research, enhancing the survival or recovery of a marine mammal species or stock, commercial and educational photography, incidental take during commercial fishing operations, and incidental take during non-fishery commercial activities.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 U.S.C. section 703 et seq.), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, hunt, take, capture or kill, possess, offer for sale, sell, offer to purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, or any part, nest, or egg of any such bird. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to California.

Clean Water Act

The Clean Water Act (CWA; 33 U.S.C. section 1251 et seq.) establishes structure for regulating discharges of pollutants into waters of the United States and regulating quality standards for surface waters. Section 404 of CWA establishes a requirement for a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Under Section 404 of CWA, the US Army Corps of Engineers (USACE) regulates and issues permits for activities that involve the discharge of dredged or fill materials into waters of the United States. Under Section 401 of CWA, an applicant for a Section 404 permit must also obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state’s water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board (SWRCB) to the nine Regional Water Quality Control Boards.

National Invasive Species Council

On February 3, 1999, Executive Order 13112 was signed establishing the National Invasive Species Council (NISC). The Executive Order required that a Council of Departments dealing with invasive species be created. The federal government defined invasive species as “a species that is non-native to the ecosystem and whose introduction causes, or is likely to cause, economic or environmental harm, or harm to human health.” Federal agencies were directed to prepare an invasive species management plan. In 2008, the National Invasive Species Council revised the federal management plan, laying out a blueprint for action (NISC 2008).

3.1.2 State Laws and Regulations

California Endangered Species Act



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The California Endangered Species Act (CESA; Fish and Game Code [FGC] section 2050 et seq.) prohibits the import, export, take, possession, purchase, or sale within California of any CESA-listed or candidate species. The California Fish and Game Commission is responsible for listing or delisting a species under CESA and CDFW acts as the Commission’s scientific advisor during that process. CDFW is also responsible for regulating the take of listed and candidate species through various provisions of the FGC (see e.g., 2081[a] for scientific, educational, or

management purposes; 2081[b] incidental take; Voluntary Local Program [section 2086 et seq.]; California State Safe Harbor Agreement Program Act [section 2089.2 et seq.]; and Natural Community Conservation Planning Act [section 2800 et seq.]).

California Native Plant Protection Act

The Native Plant Protection Act (NPPA; FGC section 1900 et seq.) was enacted in 1977 and allows the Fish and Game Commission to designate native plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, unless authorized by CDFW via a permit or other agreement pursuant to the applicable regulations, or under certain other limited circumstances.

California Desert Native Plants Act

The purpose of the California Desert Native Plants Act (CDNPA; Food and Agriculture Code section 80001 et seq.) is to protect certain species of California desert native plants from unlawful harvesting on both public and privately owned lands. The CDNPA only applies within the boundaries of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties. Within these counties, the CDNPA prohibits the harvest, transport, sale, or possession of specific native desert plants unless a person has a valid permit or wood receipt, and the required tags and seals. The appropriate permits, tags and seals must be obtained from the sheriff or commissioner of the county where collecting will occur.

California Safe Harbor Agreement Program Act

The California Safe Harbor Agreement Program Act (FGC section 2089.2 et seq.) allows CDFW to enter into safe harbor agreements (SHAs) with landowners as an incentive for them to manage their lands for the benefit of state-listed endangered, threatened, or candidate species. SHAs provide landowners with a safe harbor assurance that the landowners will not be subjected to additional regulatory restrictions in the future because of their conservation efforts. A SHA must result in a net conservation benefit to the covered species and cannot result in the reduction of an existing population of a state-listed species present at the time the baseline is established.

Fully Protected Species

The designation and protection of fully protected species is established by FGC sections 3511, 4700, 5050, and 5515. Except in very limited circumstances such as pursuant to necessary scientific research, including efforts to recover a species, or an approved Natural Community Conservation Plan (NCCP), fully protected species may not be taken or possessed.

Protection for Bird Nests and Raptors

FGC section 3503 states that, except as otherwise provided by the FGC or any of its implementing regulations, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Subject to the same exception, FGC section 3503.5 states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. FGC section 3513 provides that it is unlawful to take or possess any migratory nongame bird as designated by the MBTA or any part of such bird except as provided by rule and regulations adopted pursuant to the MBTA.



Ascent Environmental

Lake and Streambed Alteration Program

For the protection and conservation of California's fish and wildlife resources, the FGC requires an entity to notify CDFW prior to commencing any activity that may: substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit debris, waste, or other materials that could pass into any river, stream, or lake (FGC section 1602). "Any river, stream, or lake" includes perennial, intermittent, and ephemeral waterbodies including desert washes and playas (i.e., seasonally dry lakes). It may also apply to work undertaken within the flood plain of a body of water. Pursuant to FGC section 1602, CDFW requires a Lake and Streambed Alteration (LSA) Agreement when it determines that the activity may substantially adversely affect existing fish or wildlife resources. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. CDFW may suggest ways to modify the project that would eliminate or reduce harmful impacts to fish and wildlife resources.

CDFW Implements Program for Simpler and Faster Approval of Small Habitat Restoration Projects

Many voluntary habitat restoration and water quality improvement projects are relatively small, but can have important environmental benefits for fish and wildlife, sensitive species, and water quality. Even for this type of beneficial work, however, obtaining the proper permits and regulatory approvals can sometimes be a complex and lengthy process, which can discourage some landowners from taking action.

CDFW has implemented a special program based upon the efforts of a nonprofit organization, Sustainable Conservation, which sponsored the Habitat Restoration and Enhancement Act (Assembly Bill 2193, Statutes of 2014). The Restoration and Enhancement Act was signed into law by Governor Jerry Brown in 2014. CDFW offers private and public landowners a simpler and faster permitting approval process for small restoration projects. The new approval process is an alternative to the existing Section 1600 Lake and Streambed Alteration Agreement (LSAA) and Section 2081 California Endangered Species Act permit processes.

The Restoration and Enhancement Act applies to voluntary restoration projects with a primary purpose of restoring fish and wildlife habitat, and is coordinated with similar general permits from other agencies, particularly the State Water Resources Control Board. Qualifying projects can receive CDFW approval within 30-60 days. The approval can be used for many common types of habitat improvements such as replacing undersized culverts, removing concrete crossings and sills that block fish passage, removing invasive plants and planting native vegetation along stream corridors, erosion control along waterways, and more. Qualifying projects must be voluntary and should follow techniques and priorities specified in restoration guidelines, manuals, recovery plans or other accepted guidance documents. All appropriate environmental protection measures should be incorporated into the project design.

CDFW encourages landowners with habitat restoration or water quality improvement projects to take advantage of this new, efficient approval process. For more information, contact CDFW's Habitat Conservation Planning Branch at (916) 653-3559, or visit:

<https://www.wildlife.ca.gov/Conservation/Environmental-Review/HRE-Act>

California Environmental Quality Act

The California Environmental Quality Act (CEQA) serves to: inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities; identify ways that environmental damage can be avoided or significantly reduced; prevent significant, avoidable damage to the environment by requiring feasible project alternatives and mitigation measures; and disclose to the public the reasons for a governmental approval despite the project causing significant environmental effects. State and local public agencies must comply with CEQA before making a discretionary approval of a project. Such compliance can be met by determining a project is exempt from CEQA or preparing an environmental analysis, typically a mitigated negative declaration (MND) or environmental impact report (EIR). MNDs and EIRs identify and contain an analysis of a project's significant environmental effects and discuss feasible measures to avoid or mitigate those effects. EIRs also analyze a reasonable range of potentially feasible alternatives to the proposed project that would avoid or substantially lessen the project's significant effects. Compliance with other environmental laws and regulations is also typically discussed in an MND or EIR.

Natural Community Conservation Planning Act

The Natural Community Conservation Planning Act (FGC section 2800 et seq.) provides for the development of effective, broad-based conservation plans that focus on the needs of natural communities and the range of species that inhabit them while allowing compatible and appropriate economic activity. The NCCP program has provided the basis for successful collaborations throughout California between state and federal agencies, local governments, community groups, and private interests that have resulted in long-term, habitat-based protections for regional biodiversity and related ecosystems. It has also proved to be an effective tool in achieving these protections while reducing conflicts between achieving conservation goals and allowing the reasonable use of natural resources and lands for economic development. The NCCP Act authorizes CDFW to enter into agreements for developing and implementing regional multispecies conservation plans and to authorize take of species covered by a plan.

Marine Life Protection Act

The Marine Life Protection Act (MLPA; FGC section 2850 et seq.) requires CDFW to develop a master plan for modification of existing and designation of new marine protected areas (MPAs). MPAs function as a network to: increase coherence and effectiveness in protecting the state's marine life and habitats, marine ecosystems, and marine natural heritage, as well as to improve recreational, educational and study opportunities provided by marine ecosystems subject to minimal human disturbance.

Invasive Species Council of California

Assembly Bill 2763 (Laird), signed by the governor in 2008, directed state agencies under the leadership of the California Department of Food and Agriculture (CDFA) to strengthen planning to anticipate the potential responses needed for future invasive species. This resulted in the formation of the Invasive Species Council of California (ISCC; comprising secretaries of six state agencies) and the California Invasive Species Advisory Committee (CISAC; comprising 24 stakeholder representatives and expert advisors). In 2011, CISAC completed (and ISCC approved) *Stopping the Spread: A Strategic Framework for Protecting California from Invasive Species* (ISCC 2011). This plan built on two previously existing plans, the *California Noxious and Invasive Weed Action Plan* (CDFA 2005) and the *California Aquatic Invasive Species Management Plan* (CDFG 2008a). The plan includes 40 recommendations for strengthening the state's response to invasive species.

3.1.3 Local Ordinances, Plans, and Policies

Cities and counties establish goals and policies for directing and managing important community issues (such as growth, housing, and environmental protection) and adopt ordinances to protect important local resources. Local governments use a variety of tools in the planning process including the general plan, specific plans, zoning, CEQA review, conditions of approval for approved projects, and ordinances. Examples of natural resource protection on a local level are plans, policies, or ordinances that protect riparian buffers, native and heritage trees, lakes and ponds, and locally important plants and animals (e.g., rare plant preserves, bird nesting areas, monarch butterfly migration roosts).

3.2 CDFW Planning Tools

All aspects of wildlife management, particularly efforts to restore species at risk, depend on biological information. The increasing stresses on wildlife resources, including the loss, degradation, and fragmentation of habitats, effects of water diversions, and proliferation of invasive species, have further increased the need to assess the status and trends of wildlife species and ecosystems in California.

Synthesizing and disseminating the research and monitoring data of wildlife and natural communities are important for informing conservation decisions throughout the state. This section describes current CDFW planning tools used for the conservation of species and habitats in California.

3.2.1 Resource Assessment

Resource assessment is essential to providing scientifically based data for informing models and decision making. CDFW recognizes the importance of collecting scientifically based data on the distribution and abundance of fish, wildlife, and native plant species and the natural communities and habitats in which they live.

CDFW monitors species and habitat in the form of collection and analysis of observations or data repeated over time in relation to a conservation or management objective. Monitoring efforts develop information on trends (increasing, decreasing, static) in species or habitats that can be related to conservation and management activities. Resource assessment may also include inventories, which present a snapshot-in-time or an initial baseline set of observations or data collected for a monitoring effort on the distribution and abundance of species and habitats.

In addition to efforts by CDFW, numerous state and federal natural resources agencies, private landowners and firms, and dozens of academic and research institutions are involved in monitoring wildlife and ecosystems in the state, and each agency usually conducts field research to support its specific management needs. In addition, consulting firms conduct wildlife and natural resource surveys to support CEQA documentation for projects.

Ecoregional Baseline and Trend Monitoring of Wildlife Species and Communities of Northern California

CDFW Region 2, in conjunction with Region 1, is conducting a multi-species wildlife monitoring project (Ecosystem Biodiversity Monitoring [EBM] Project) to alert conservation planners about long-term trends in population status before species become threatened or endangered, and to provide information on wildlife habitat relationships.

The purpose is to monitor avian, mammal, and botanical communities in mid- to high-elevation habitats for changes in population status over time periods of 10-20 years. Additionally, data will be collected about the current distributions of many terrestrial vertebrates, to improve the understanding of their habitat relationships, and quantify baseline conditions and stressors potentially affecting individual species and wildlife communities.

The project will provide conservation planners with strategic information about the status, population trend, and habitat associations of numerous wildlife and botanical species. The project also records important documentation of occurrences of uncommon species or Species of Greatest Conservation Need (SGCN), such as wolverine, porcupine, and American badger, though data may not be sufficient for quantitative analyses regarding these species.

3.2.2 Data Sets and Decision Support Tools

Compiling and organizing data and information involves designing common formats and protocols, developing programs to manage databases, providing access to the information, and facilitating the sharing of wildlife and ecosystem information by land managers, wildlife managers and researchers, private landowners, and others involved in making conservation decisions.

CDFW maintains and supports biological data development programs that are especially dependent and closely linked with GIS and emerging related technologies. These data development activities include vegetation mapping, rare species tracking, species range mapping, aggregation of existing incongruent data sources and decision-support systems. Some of these activities are described below.

California Essential Habitat Connectivity Map and Regional Connectivity Analyses

The Essential Habitat Connectivity Map is one of three primary products to come from the Essential Habitat Connectivity Project (CDFG and Caltrans 2010). CDFW and Caltrans commissioned the California Essential Habitat Connectivity Project to produce a statewide assessment of essential habitat connectivity using the best available science, data sets, spatial analyses, and modeling techniques. The project identifies large remaining blocks of intact habitats or natural landscapes and models linkages between them that need to be maintained, particularly as corridors for wildlife.

The Essential Habitat Connectivity Map identifies areas that represent principle connections between areas of relatively natural habitat blocks that support native biodiversity where conservation and management actions should be prioritized to maintain and enhance ecological connectivity. At the statewide scale, the California Essential Habitat Connectivity Project was intended to support large-scale ecosystem based conservation plans like the SWAP and the California Climate Adaptation Strategy, and to integrate with infrastructure plans such as California Transportation Plan 2040.

California Transportation Plan 2040

The California Transportation Plan (CTP) provides a long-range policy framework to meet our future mobility needs and reduce greenhouse gas emissions. The CTP defines goals, performance-based policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. The plan envisions a sustainable system that improves mobility and enhances our quality of life.

The CTP 2040 is scheduled for approval by the California State Transportation Agency in December 2015. The Public Draft CTP 2014 was prepared with extensive input and collaboration between Caltrans, its regional partners, and the public. The CTP 2040 references the California Essential Habitat Connectivity Project and Regional Advance Mitigation Planning as a statewide planning tools available to align transportation development with regional wildlife connectivity planning. The CTP 2040 identifies strategies and recommendations to preserve and enhance natural resources with the early integration of environmental considerations into system planning and project scoping. (Caltrans 2015).

At regional and local scales, similar products can be used to inform a wide array of planning efforts, such as NCCPs and habitat conservation plans (HCPs), transportation Blueprint Plans, city and county General Plans, and land acquisition, management or restoration plans by conservancies, land trusts, and other nongovernmental organizations. These finer scale analyses (<https://www.wildlife.ca.gov/Conservation/Planning/Connectivity>) have been completed for several regions in California. Private landowners may want to use this information to understand how they can be a part of a regional conservation goal or engage in the discussion.

Ecoregional Analyses within California

- ▲ Bay Area Critical Linkages
- ▲ Sierra Nevada Foothills Wildlife Connectivity Modeling Project
- ▲ Safe Passages Project – San Joaquin Valley
- ▲ South Coast Missing Linkages Project
- ▲ California Deserts Connectivity Project

Crucial Habitat Assessment Tool

The Western Governors' Association represents the governors of 19 western states and three U.S.-flag islands. The association created the Western Governors' Wildlife Council and tasked its members with developing policies and tools to identify and conserve crucial wildlife habitat and corridors across the region. The Crucial Habitat Assessment Tool (CHAT; <http://westgovchat.org/>) is an online system of maps that display crucial wildlife habitat based on commonly agreed upon definitions by the Western Governors' Wildlife Council. The common definitions of crucial habitat and corridors and issued guidelines are intended to help each state prioritize habitat and meet specific conservation objectives. The west-wide definitions support compatibility and consistency across state boundaries and address certain discrepancies that may exist in identifying habitat and natural features along state borders. California has developed state-specific information on priority habitat to contribute to CHAT (Areas of Conservation Emphasis described below).

Areas of Conservation Emphasis

Areas of Conservation Emphasis (ACE-II) is a CDFW project that began in 2009 to provide data to help guide and inform conservation priorities in California (CDFG 2010). ACE-II provides an easily-accessible and standardized way to view the best available statewide spatial data on California's biological richness and biodiversity, including species richness, rarity, endemism, and sensitive habitats. These datasets have many uses ranging from ecological research and modeling to local land-use planning and conservation decision making. The ACE-II data are dynamic and updated periodically as new data warrant.

Products of the ACE-II project (<http://www.dfg.ca.gov/biogeodata/ace/>) include a set of maps summarizing biological data that can be used to identify areas of potential biological or conservation interest and may be useful during conservation prioritization as an interactive, online ACE-II viewer. The viewer allows the ACE-II biological richness maps, stressors, protected status of lands, and connectivity and corridors to be overlaid. The viewer allows the user to

display and contrast the arrangement and relative value of California's unique biological resources, providing a first step toward setting conservation priorities statewide. The viewer also provides a weighted-additive model interface that allows for custom calculation of a biological index using user-defined weights, which is a preliminary step in developing a flexible framework to address specific land acquisition or management questions.

Biogeographic Information and Observation System

CDFW's Biogeographic Information and Observation System (BIOS) is a system that enables the management and visualization of biogeographic data collected by CDFW and partner organizations. Partner organizations that provide data layers to BIOS include the U.S. Geological Survey (USGS), U.S. Bureau of Land Management (BLM), USFWS, California Coastal Conservancy, California Geological Survey, and U.S. Forest Service (USFS). BIOS facilitates the sharing of data within the BIOS community through integrating GIS, relational database management, and ESRI's ArcGIS Server technology to create a statewide, integrated information management tool that can be used on any computer with access to the Internet (<http://www.dfg.ca.gov/biogeodata/bios/>).

California Natural Diversity Database/Rarefind

The California Natural Diversity Database (CNDDDB; <http://www.dfg.ca.gov/biogeodata/cnddb/>) is a program that inventories the status and locations of rare plants and animals in California. CNDDDB staff work with partners to maintain current lists of rare species as well as maintain an ever-growing database of GIS-mapped locations for these species. The goal of the CNDDDB is to provide the most current information available on the state's most imperiled elements of natural diversity and to provide tools to analyze these data. The CNDDDB concentrates its work on areas with active NCCP/HCPs, and high priority areas identified by CDFW and other biologists.

Rarefind is an internet application that allows for more robust querying and reporting of the CNDDDB data than the BIOS Data Viewer, but with no direct map interface.

California Wildlife Habitat Relationships

California Wildlife Habitat Relationships (CWHR; <http://www.dfg.ca.gov/biogeodata/cwhr/>), developed in 1988, contains life history, geographic range, habitat relationships, and management information for 712 species of amphibians, reptiles, birds, and mammals known to occur in the state. The CWHR system is composed of several components. These include:

- a complete species list of California's terrestrial vertebrates;
- life history information and geographic range data by season for 712 regularly-occurring species;
- a standardized habitat classification scheme for California containing 59 habitats, structural stages for most habitats, and 124 special habitat elements;

- a community-level matrix model associating 712 wildlife species to these standard habitats and stages with ratings of habitat suitability for reproduction, cover, and feeding; and
- a software application containing all system components.

CWHR products are available to anyone interested in understanding, conserving, and managing California's wildlife. CWHR has been used for several large wildlife resource conservation efforts.

Vegetation Classification and Mapping Program

The Vegetation Classification and Mapping Program develops and maintains (<http://www.dfg.ca.gov/biogeodata/vegcamp/>) California's expression of the National Vegetation Classification System (USNVC website: <http://usnvc.org/>). CDFW implements its use through assessment and mapping projects in high-priority conservation and management areas, through training programs, and through working continuously on best management practices for field assessment, classification of vegetation data, and fine-scale vegetation mapping.

The principal roles of the program include:

- developing and maintaining a standardized vegetation classification system for California;
- implementing and updating best methods of vegetation assessment including sampling, analyzing, reporting, and mapping vegetation at multiple scales;
- training resource professionals on these techniques and coordinating with other agencies and organizations to ensure a statewide, standardized approach toward collecting, reporting, and interpreting vegetation data;
- developing best practices for using these data for long-range conservation and management of natural lands in the state;

The vegetation classification system consists of an eight-tier hierarchy with the finest resolution consisting of locally-appropriate floristic associations at the bottom, and the globally applicable "Class" units at the top. Among the most useful units for general habitat evaluation are several of the mid-level classification units. The California SWAP 2015 technical team has adopted the macrogroup as the basic unit for regional habitat description. Macrogroup concepts are familiar to most wildlife biologists. Typical macrogroup concepts for California vegetation include; Chaparral, Coastal Scrub, Mojave and Sonoran Desert Scrub, and California Foothill and Valley Forest and Woodland. These vegetation types are defined by certain floristic and structural criteria that can be repeatedly and accurately inventoried and mapped, making them useful for developing correlations with wildlife habitats. Habitat correlations vary between species and may match one or more of these units at different levels of the vegetation hierarchy. The vegetation macrogroup can also be further broken down floristically and structurally into progressively more discrete hierarchical "groups," "alliances," or the finest level; "associations" on an as needed basis depending upon the individual correlations between vegetation and certain vertebrate species:

- conducting integrated vegetation assessments throughout the state in areas with high conservation and management interest to the Department of Fish and Wildlife and other agencies;
- archiving and distributing quality vegetation data;
- coordinating with other state, federal, and local agencies and organizations involved in vegetation assessment; and
- integrating standard vegetation classification systems with species distributions to encourage unified habitat assessments and conservation efforts.

Applications of the Vegetation Classification and Mapping Program efforts to analyze statewide spatial data include:

- regional conservation planning;
- wildland fire and fuels modeling for improved preparedness;
- identifying individual plant and animal species distributions;
- predicting the spread of invasive species;
- early scoping for transportation projects to minimize impacts;
- prioritizing land acquisitions for parks and ecological reserves;
- identifying important wildlife corridors; and
- setting a baseline for monitoring impacts of global climate change.

Data Portal

The Data Portal provides a single point of entry to data sources which serve the needs of staff and programs throughout CDFW (<https://nrm.dfg.ca.gov/>). These data are made available for reporting, querying and (in some cases) editing via a series of dynamic web applications. CDFW employees, affiliated cooperators and the public have ready access from any computer with an internet connection. Special client applications or direct connection to the CDFW wide area network are not required.

The applications on the Data Portal employ similar user-friendly interfaces. Users will find that if they are familiar with one application in the portal, they are familiar with many elements of the other applications. In addition to live data from CDFW databases, users may retrieve data from a reporting data warehouse optimized for searching, browsing and intuitive data extraction. Users can also easily generate and print reports or query, browse, and download data which support the CDFW's conservation mission.

A central purpose of the Data Portal is to provide useful and intuitive tools for examining data. Tools for data access have been grouped into topics that have been designed to mirror CDFW programs and initiatives. The topics include:

- ▲ species and vegetation
- ▲ fisheries
- ▲ habitat conservation
- ▲ water policy
- ▲ wildlife

Examples of applications available through the Data Portal include: Ecosystem Restoration Program Projects, Habitat Tracking and Reporting Reports, Coho Salmon Recovery Tasks, Angling Records, CDFW Special Hunts, Wildlife Incident Reporting, Environmental Document Review, and Lake and Streambed Alterations (Project Tracking).

California Fish Passage Assessment Database

The Passage Assessment Database (PAD) can be accessed through the CDFW Data Portal (<https://nrm.dfg.ca.gov/PAD/>). PAD is an ongoing map-based inventory of known and potential barriers to anadromous fish in California. PAD compiles data from more than 100 agencies, organizations, and landowners throughout California, and allows past and future barrier assessments to be standardized and stored in one place, and enables the analysis of cumulative effects of passage barriers in the context of overall watershed health.

PAD is maintained by CalFish, a California Cooperative Anadromous Fish and Habitat Data Program, involving a number of agency and organization partners including CDFW.

3.2.3 Conservation Plans

The local project-by-project approval of new development can lead to the slow dismantling and fragmentation of important wildlife habitats, migratory corridors, and ecosystems without measures to address cumulative effects of projects over time and across the region. A development decision may appear to have negligible consequences for wildlife populations, if it is converting a small percent of the remaining habitat or wildland in the project area to something else. Over time, the conversion of even small pieces of habitat will add up. Without the benefit of a regional conservation analysis, a land use decision may develop a small patch of land that indefinitely blocks an important regional wildlife migratory corridor or degrades a key ecosystem component important to wildlife diversity in the broader region. Accordingly, in many circumstances, it is prudent to approach species and habitat conservation at a regional scale. Discussed below are current CDFW large scale regional conservation programs.

Large-Scale Regional Conservation Efforts

Conservation plans are addressing conservation of over 11 million acres in California. These include three different types of large-scale, regional conservation plans: joint HCP/NCCPs; HCPs that are not NCCPs; and other large-scale regional conservation efforts that to date are neither HCP nor NCCP. As of August 2014, nine plans were in process of implementation and 14 were in various stages of planning.

Regional HCPs and NCCPs

An HCP is a long-term agreement between USFWS and an applicant (private landowner or non-federal land manager) under Section 10 of ESA that allows for the incidental take of federally listed species and their habitats. It describes the anticipated effects of the proposed taking; how those impacts will be minimized or mitigated; and how the HCP implementation is to be funded. HCPs can apply to both listed and non-listed species, including those that are candidates or have been proposed for listing. HCPs may cover large areas or a single project. Many of the large-scale, multispecies HCPs are habitat-based plans that allow development to occur in certain areas, while setting up a coordinated system of protected land reserves that provide a coordinated, landscape-level conservation strategy.

California has implemented its own voluntary multispecies regional approach to wildlife habitat conservation. The California NCCP, administered by CDFW, allows for the incidental take of California listed and fully protected species and their habitats. Within California, joint NCCPs and HCPs are common, because they cover species being listed under ESA and CESA and both USFWS and CDFW participate in the review and permitting process.

An NCCP provides regional protection for plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The NCCP standard goes beyond mitigating for the effects of development to providing for the conservation and management of covered species and habitats in the plan area. The NCCP approach or similar regional multispecies approaches to conservation planning are essential to conserve habitats and ecosystems at a scale necessary to ensure long-term survival of species.

Creating a conservation plan involves a diverse array of stakeholders who represent their interests in a negotiated process. The process also provides opportunities for participation by the general public. In a typical conservation plan, a local lead agency (either city or county) coordinates a collaborative planning process. Working with landowners, development interests, environmental organizations, and other interested parties, the local agency oversees the numerous activities that constitute the development of a conservation plan, including collecting ecological data; designing a reserve system; identifying proposed development; creating a monitoring and adaptive management program for the reserve lands; and determining funding for implementation. The state and federal wildlife agencies (CDFW, USFWS, and, where appropriate, NMFS) are relied upon during all of these activities to provide the necessary support, direction, scientific expertise, and guidance to the conservation planning participants.

The desired result of this process is a comprehensive plan that provides for species conservation and management and, at the same time, guides development towards areas that are less critical for wildlife. Under an approved HCP, wildlife agencies may issue permits to authorize the take of species under federal ESA. Species whose conservation and management are provided by the plan are called "covered" species. The NCCP Act gives CDFW the authority to permit take of any covered species (whether or not it is listed as threatened or endangered under CESA, or fully protected).

This authority provides an incentive to local applicants to cover certain species not currently listed, eliminating the need to reapply for additional permits should those species become listed in the future. Covering non-listed species requires that those species be treated as if they were listed and can mean the protection of additional habitats, core areas, linkages, ecological processes, and improved reserve configurations that bolster the overall conservation strategy.

California Water Plan

The California Water Plan is developed by staff from DWR and other agencies, including CDFW, through rigorous public involvement and state and federal agency coordination processes. The California Water Plan provides a collaborative planning framework for elected officials, agencies, tribes, water and resource managers, businesses, academia, stakeholders, and the public to develop findings and recommendations and make informed decisions for California's water future. The California Water Plan also evaluates different combinations of regional and statewide resource management strategies to reduce water demand, increase water supply, reduce flood risk, improve water quality, and enhance environmental and resource stewardship.

As the trustee agency for California's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitats necessary for biologically sustainable populations of those species. In support of that trustee role, CDFW participates in various advisory committees responsible for guidance and development of the California Water Plan. CDFW provides input to DWR on environmental water needs, including water use and water quality. CDFW's role in the development of the Water Plan is to identify opportunities to increase fish, wildlife, and other environmental benefits associated with efficient water management strategies.

Marine Protected Areas

MPAs are separate geographic marine or estuarine areas designed to protect or conserve marine life and habitat. There are three types of MPAs designated (or recognized) in California: state marine reserves, state marine parks, and state marine conservation areas. As required by the MLPA, CDFW prepared a *Draft Master Plan for Marine Protected Areas* (CDFG 2008b) which provides guidance on: context for implementing the MLPA goals and objectives; background information on California's marine resources and policies; description of the process for designing alternative MPA proposals; and overviews on the design, management, enforcement, monitoring, and funding of California's MPAs.



Matt Elyash, CDFW

California covers a total of approximately 5,285 square miles of coastal state waters (excluding state waters in San Francisco Bay which represent approximately 473 square miles). The statewide coastal network of marine managed areas (including 119 MPAs and five state marine management areas) covers approximately 852 square miles of state waters or about 16 percent (CDFW 2013). For the purposes of MPA planning, the state was split into five distinct regions (four coastal and the San Francisco Bay). Planning is still in progress for the San Francisco Bay.

The Northern California Region encompasses approximately 1,027 square miles of state waters from the California-Oregon border south to Alder Creek, near Point Arena (Mendocino County). A network of 20 marine managed areas (including 19 MPAs and one State Marine Recreational Management Area [SMRMA]) covers approximately 137 square miles, or about 13 percent, of northern California state waters (CDFW 2014a).

The North-Central California Region encompasses approximately 763 square miles of state waters from Alder Creek (just north of Point Arena, Mendocino County) south to Pigeon Point (San Mateo County). A network of 25 marine managed areas (including 22 MPAs and three SMRMAs) covers approximately 152 square miles, or 20 percent, of state waters off North Central California (CDFW 2014b).

The Central California Region encompasses approximately 1,144 square miles of state waters from Pigeon Point (San Mateo County) south to Point Conception (Santa Barbara County). A network of 29 marine managed areas (including 28 MPAs and one SMRMA) covers approximately 207 square miles, or about 18 percent, of state waters off central California (CDFW 2014c).

The Southern California Region encompasses approximately 2,351 square miles of state waters from Point Conception (Santa Barbara County) south to the California-Mexico border, including state waters around the Channel Islands. A network of 50 MPAs and two special closures (including 13 MPAs previously established at the northern Channel Islands) covers approximately 355 square miles, or about 15 percent, of state waters off Southern California (CDFW 2014d).

Regional Advance Mitigation Planning

In 2008, a coalition of infrastructure and natural resource agencies, nongovernmental organizations, and academic researchers launched an effort to develop a more comprehensive approach to mitigating unavoidable biological resource impacts potentially caused by state infrastructure projects, such as roads and levees. This approach, called Regional Advance Mitigation Planning (RAMP), allows for natural resources to be protected or restored as compensatory mitigation before infrastructure projects are constructed, often years in advance. Leadership of the various agencies signed or supported a Memorandum of Understanding including: DWR, Caltrans, U.S. Environmental Protection Agency, USFWS, USACE, National Oceanic Atmospheric Administration (National Marine Fisheries Service), CDFW, California Wildlife Conservation Board, Natural Resources Agency, and the California Business, Transportation and Housing Agency (Caltrans et al. 2010).

RAMP is an approach that seeks to deliver infrastructure projects more effectively than through project-by-project approaches to mitigation, by providing a more comprehensive mitigation approach such as mitigation banks and in-lieu fee programs. RAMP can be integrated with and add benefits to other regional mitigation and conservation planning efforts such as HCPs,

NCCPs, and species recovery plans. In this approach, incorporating environmental benefits at a meaningful scale could address long-term economic, social, and environmental sustainability. RAMP identifies three statewide program-level goals: (1) Improved Regional Mitigation and Conservation Planning; (2) Improved Mitigation and Conservation Effectiveness; and, (3) Improved Efficiency (Bailey, pers. comm., 2015).

3.3 CDFW Conservation Programs

CDFW has conservation programs in addition to the land and habitat based conservation programs described in this section.

Nongame Wildlife Program. The Nongame Wildlife Program’s mission is to conserve the rich diversity of California’s native nongame wildlife. Their work emphasizes Species of Special Concern and Threatened and Endangered Species and includes resource assessment, research, conservation planning, recovery planning, permitting, and outreach activities. Duties of the Nongame Wildlife Program include, but are not limited to:

- ▲ coordinating statewide conservation efforts;
- ▲ evaluating petitions and conducting status reviews for listing under CESA ;
- ▲ evaluating and prioritizing Traditional and Non-Traditional Section 6 grants;
- ▲ evaluating and prioritizing State Wildlife Grant applications;
- ▲ prioritizing statewide drought response;
- ▲ partnering with USFWS on developing conservation strategies and assisting with development of recovery plans; and
- ▲ issuing permits for research, management, education, and propagation for SGCN and other wildlife.

Game Management Programs. CDFW manages the following programs for the benefit of wildlife: Bear Management Program, Deer Management Program, Elk Management Program, Wild Pig Management Program, Pronghorn Antelope Management Program, Bighorn Sheep Management Program, the Shared Habitat Alliance for Recreational Enhancement Program, Lead Free Ammunition, Private Lands Management, Upland Game Resource Management, and the Waterfowl Program.

Private Lands Management Program. The Private Lands Management (PLM) Program offers landowners incentives to manage their lands for the benefit of wildlife. This increases benefits to a landowner while preventing the conversion of private lands to land uses that are not compatible with wildlife, such as urban development, grazing, and logging. Landowners who enroll in this “ranching for wildlife” program consult with biologists to identify biologically sound habitat improvements that benefit wildlife, like providing water sources, planting native plants for food, and making brush piles for cover. In return for these habitat improvements, landowners can charge fees for wildlife viewing, hunting and fishing. This partnership between wildlife managers and private landowners helps conserve and maintain wildlife habitat in California.

3.3.1 Mitigation and Conservation Banking

A conservation or mitigation bank is privately or publicly owned land managed for its natural resource values. A privately owned conservation or mitigation bank is a free-market enterprise that offers landowners economic incentives to protect natural resources, and that can save time and money for parties with mitigation responsibilities by simplifying the state regulatory compliance process. A publicly owned conservation or mitigation bank offers the sponsoring

public agency advance mitigation for larger or multiple projects and/or operations and maintenance that spans longer term project planning horizons.

The terms “conservation bank” and “mitigation bank” are defined in FGC section 1797.5. In exchange for permanently protecting and managing the land and resources according to a written agreement with CDFW, the bank sponsor is issued credits that it may sell to project proponents who need to satisfy legal requirements for mitigating the environmental impacts of projects, or that it may use for its own project mitigation needs.

Conservation banks generally protect threatened or endangered species habitat or other sensitive resources, while mitigation banks conserve existing, restored, enhanced, or created wetland habitats that may also provide habitat for listed species. CDFW has actively supported banking to provide an incentive to conserve lands, consolidate mitigation into larger, more ecologically viable properties, and assist CDFW in meeting its conservation goals. Conservation and mitigation banking is important to the state because banks provide regulatory efficiencies, environmental benefits, and economic advantages.

3.3.2 Habitat Acquisition, Conservation Easements, and Land Management

CDFW Lands Program

CDFW manages wildlife areas, ecological reserves, and wildlands specifically for the benefit of wildlife and important habitats. In total CDFW manages 711 properties throughout the state. These lands represent or support a cross section of California’s remarkable natural diversity of animals, plants, habitat types, and ecosystems. Some of the state’s finest-quality wildlife habitats are represented in these holdings. But acreage of lands managed by CDFW has quadrupled in the last 25 years, from 250,000 acres in 1980 to 1 million acres today, and funding to manage these lands has not kept pace. Major bond acts and some appropriations have funded acquisition of new lands for wildlife, but there is not a corresponding source of funding to maintain, restore, and manage these lands. Land management entails providing site security, managing public health and safety on the lands, managing wildlife and natural resources, maintaining infrastructure, and managing recreation and other uses. The Lands Program also administers the California Landowner Incentive Program, an effort intended to reverse the decline of at-risk species on private lands in California’s Central Valley. The California Landowner Incentive Program provides monetary incentives and technical assistance to private landowners to enhance and manage the region’s three predominant historic habitat types: riparian, wetland, and native grassland; however, the Program is largely nonexistent due to lack of funding.

Wildlife Conservation Board

The State of California Wildlife Conservation Board (WCB) is an independent Board with authority and funding to carry out an acquisition and development program for wildlife conservation (FGC section 1300 et seq.). WCB and CDFW work cooperatively to implement mutual conservation efforts. About one-half of WCB funding is derived from California bonds authorized by public vote with the remainder coming from other state funds, local matching funds, partner donations, and federal money (WCB 2012). The primary responsibilities of WCB are to select, authorize and allocate funds for the purchase of land and waters suitable for recreation purposes combined with the preservation, protection and restoration of fish and wildlife habitat. WCB can also authorize the construction of facilities for fish and wildlife-related recreational purposes. WCB's functions are carried out through its programs: Land Acquisition, Public Access, Habitat Enhancement and Restoration, Inland Wetlands Conservation, California Riparian Habitat Conservation, Natural Heritage Preservation Tax Credit, Oak Woodland Conservation, Rangeland and Grassland Protection, Forest Conservation, and Ecosystem Restoration on Agricultural Lands (WCB 2014).



CDFW Grant Program

Payable grant funds are awarded by CDFW programs to various entities for projects that sustain, restore and enhance California's fish, wildlife, plants and their habitats. Grant opportunities available through CDFW are:

Drought Response:

- ▲ CDFW Drought Response

Fish and Wildlife Management:

- ▲ Fisheries Restoration Grant Program (FRGP)
- ▲ Steelhead Report Card
- ▲ Big Game Management
- ▲ Upland Game Management
- ▲ California Duck Stamp
- ▲ Endangered Species Conservation and Recovery Grant Program
- ▲ Endangered Species Conservation and Recovery Land Acquisition

Habitat Management:

- ▲ Ecosystem Restoration Program (ERP)
- ▲ Local Assistance Grants
- ▲ Endangered Species Conservation and Recovery Land Acquisition
- ▲ Habitat Conservation Land Acquisition
- ▲ Habitat Conservation Planning Assistance
- ▲ Natural Community Conservation Planning
- ▲ Watershed Restoration Grant Program – Proposition 1 Funded Program
- ▲ Wetlands Restoration for Greenhouse Gas Reduction Program

Oil Spill Prevention and Response:

- ▲ Environmental Enhancement Fund
- ▲ Harbor Safety Committee
- ▲ Local Government Contingency Plan
- ▲ Oil Spill Response Equipment

More information about these opportunities can be found at <https://www.wildlife.ca.gov/Explore/Grant-Opportunities>.

3.3.3 Habitat Conservation Planning Branch Habitat Conservation Programs

The mission of CDFW's Habitat Conservation Planning Branch (HCPB) is to provide for the conservation, protection, restoration, and management of fish, wildlife, and native plants and to preserve and restore the ecosystems (including ecological processes) on which they depend for use and enjoyment by the public.

Environmental Review and Permitting

The HCPB Permitting Program implements CESA, LSA, and CEQA. The permitting program administers the incidental take provisions of CESA to ensure regulatory compliance and statewide consistency. CDFW consults with lead and responsible agencies and provides the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities under the CEQA. State law requires an LSA Agreement when CDFW determines that the activity, as described in a complete LSA Notification, may substantially adversely affect existing fish or wildlife resources. HCPB Environmental Review and Permitting Program is an important part of conservation carried out by CDFW.

Invasive Species Program

The mission of the Invasive Species Program is to reduce the negative effects of non-native invasive species on the wildlands and waterways of California. CDFW is involved in efforts to prevent the introduction of these species into the state, detect and respond to introductions when they occur, and prevent the spread of invasive species that have become established. CDFW projects address problems with introduced animals and plants, both terrestrial and aquatic. More fundamentally, CDFW tries to identify and address the ways by which the species are introduced, typically inadvertently, by human activities. Studies show that preventing introductions is the most efficient and cost-effective way to manage invasive species. CDFW conducts work in coordination with other government agencies and non-governmental organizations.

In 2014, CDFW held the first Invasive Species Action Week, seeking to engage the many volunteers across the state who help control invasive species. The Invasive Species Program

continues to grow, but does not yet have full capacity to take a comprehensive approach to addressing the impact of invasive species on wildlife statewide (CDFW 2015a).

CDFW maintains a regulatory list of live restricted animals (Title 14, sec. 671), through which several invasive animals, among other species, are prohibited from importation, possession, and transportation unless under a permit issued by CDFW. The FGC also prohibits the sale, possession, import, transport, transfer, or live release of *Caulerpa* spp. and live or dead mussels of the family Dreissenidae (e.g., quagga, zebra, dark false), unless under CDFW permit. CDFW also regulates the aquaculture industry, including the import, sale, and placement of aquatic plants and animals into state waters.

Native Plant Program

The Native Plant Program coordinates CDFW's statewide plant conservation efforts, issues scientific, educational and management permits for state-listed plants, manages grants for plant research and conservation through the Cooperative Endangered Species Conservation Fund (section 6) of FESA, evaluates CESA, and provides education and outreach regarding California's native plants.

Timberland Conservation Program

Forests maintain water quality, provide recreation opportunities, and generate economic activity and jobs. CDFW protects the natural resources of forests by reviewing timber harvest plans (THPs) to harvest trees from private or state-owned forest land. CDFW reviews THPs for potential significant impacts to wildlife, plants, and water quality. As a result of its review, CDFW may recommend changes to the THP necessary to avoid significant impacts to natural resources and take of a protected species.

3.3.4 Law Enforcement



CDFW employs wildlife officers/wardens to protect California's wildlife and natural resources. Wildlife officers are armed law enforcement officers with statewide arrest authority. They enforce California state laws related to hunting, fishing, pollution, endangered species, and wildlife habitat destruction. Wildlife officers are also expected to promote and coordinate hunter education programs, collect and report information on the conditions of fish and wildlife and their habitat, and represent the CDFW at local

schools and meetings of special interest groups, e.g., hunting and fishing clubs, Lions Club, Rotary, Audubon.

Wildlife officers have assignments in both rural and urban areas of the state. They are typically assigned to and responsible for enforcing the law in a specific geographical area of the state. They enforce all fish and wildlife laws related to hunting, recreational and commercial fishing, trapping, pollution, falconry, and exotic animal laws.

The Law Enforcement Division maintains a confidential witness program, CalTIP (Californians Turn in Poachers and Polluters) that encourages the public to provide CDFW with factual information leading to the arrest of poachers and polluters.

The Law Enforcement Division also has a K-9 Program to assist wildlife wardens. The warden/dog teams are trained and certified to locate people, protect officers, and apprehend suspects, as well as detect certain odors and evidence.

Marijuana Cultivation's Effect on the Environment

Outdoor marijuana cultivation is damaging the state's natural resources. Marijuana cultivation sites (MCS), found on both public and private lands, are destroying critical fish and wildlife habitat through unpermitted substantial diversion of water from streams, removal of native riparian and upland vegetation, illegal take of fish and wildlife, harmful disposal of garbage and human waste, and chemical contamination and alteration of sensitive watersheds. Land is being converted for marijuana cultivation faster than ever before.

California produces more marijuana from outdoor grows than any other state. Marijuana may be the state's largest cash crop, with some publications estimating that value at \$10-\$14 billion annually. Large-scale cultivation of marijuana has proliferated in remote forested areas throughout California in response to ballot Proposition 215, the Compassionate Use Act (1996), which legalized the use and cultivation of marijuana for medical purposes. Nearly all of the marijuana cultivation on private lands is occurring without regard to other applicable laws and regulations because cultivators do not apply for permits intended to protect water quality and fish and wildlife resources. Illegal marijuana cultivators and the cumulative effects of growing marijuana on public and private lands threaten public safety, impact wildlife, pollute the land and streams, and destroy habitat.

On June 20, 2014, the California Legislature approved the Governor's proposed budget which included a Budget Change Proposal that requested resources and staff for both CDFW and the State Water Resources Control Board (SWRCB) to reduce environmental damage caused by marijuana cultivation on public and private lands in California. CDFW created the Watershed Enforcement Team (WET) which is composed of seven staff: an enforcement Lieutenant as lead, two game wardens, two environmental scientists, an assistant government program analyst, and an attorney. The goal of the team is to work collaboratively with the water board to investigate environmental impacts associated with marijuana cultivation (i.e., infrastructure development and water diversions) which substantially impact the state's fish and wildlife resources.

CDFW also maintains a Wildlife Forensic Laboratory (WFL). To protect wildlife from abuse by poaching, CDFW Officers must be able to determine as much as possible about the sex, species, age, and origin of bloodstains and tissue they confiscate or find. For example, in the course of an investigation, tissue samples may be collected at the site of a kill, bloodstains and hairs may be found in a vehicle, and frozen meat seized at a residence. Such samples can provide not only

investigative information, but can also later be used as evidence in a court of law. A critical link in the impact of this evidence is the amount of information that can be obtained through analyses at a forensics laboratory.

The term “forensic” is most simply defined as the application of science to the purposes of the law. “Crime labs” are laboratories which, as their primary function, conduct forensic analyses on physical evidence exclusively in criminal cases and provide legally acceptable reports and expert testimony regarding their findings. WFL is the sole molecular biology laboratory for CDFW and fulfills a crucial and ever-expanding role in protecting California’s wild resources. Maintained since the early 1950s, WFL’s sole purpose and mission is to use accepted forensic science procedures to examine, analyze, report and testify at criminal trials on physical evidence seized by CDFW officers in criminal cases. During the past sixty plus years, thousands of poachers have been convicted of crimes perpetrated on wildlife partially because of results provided by WFL on evidence submitted by CDFW Officers.

The primary duties of CDFW’s Wildlife Forensic Laboratory include:

- assisting CDFW Officers in determining if a wildlife law has been broken;
- identifying the species and subspecies of fish and wildlife evidence, including blood, tissues, hairs, and illegally marketed products;
- utilizing the most modern forensic DNA and serological techniques in the physical examination of evidence; and
- providing objective, independent scientific analysis of evidence to identify the guilty and exonerate the innocent.

3.3.5 Office of Spill Prevention and Response

The 1989 Exxon Valdez oil spill in Alaska was a wake-up call for the United States. It clearly identified the need to develop a comprehensive oil spill prevention and response program. In no place, outside of Alaska, was that call heard louder than in California. Public concern hit a threshold, in February 1990, when the tanker vessel American Trader discharged 10,000 barrels of oil into Southern California waters, oiling an estimated 3,400 birds and forcing the closure of 25 kilometers of prime beach for five weeks. As a direct result of the public’s demand for action, the California legislature passed the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 that established the Office of Spill Prevention and Response (OSPR). OSPR, as a division of the CDFW, is the lead state agency charged with the mission:

“...to provide the best achievable protection to California’s natural resources by preventing, preparing for, and responding to spills of oil and other deleterious materials, and through restoring and enhancing affected resources.”

OSPR, and its mission, is unique in that it is one of the only state agencies in the United States with combined regulatory, law enforcement, pollution response, and public trust authority for waters of the state. Thus, OSPR's dual regulatory / trustee authority assures that oil spill prevention and response to spills will safeguard wildlife and the ecosystems in which they live and restore these resources when injured by pollution incidents.

In 2014, Governor Edmund G. Brown Jr. signed Senate Bill 861, expanding the OSPR program from marine-only to cover all statewide surface waters at risk of oil spills from any source, including pipelines and the increasing shipments of oil transported by railroads. This bill provided critical authority and administrative funding for increased spill response staffing for inland areas, wildlife rescue and care, industry preparedness, and continued coordination with local, state and federal government along with industry and non-governmental organizations. Key objectives for implementing a comprehensive statewide program of oil spill prevention, preparedness, and response are:

- ▲ establish spill staffing and resources in strategic inland areas of the state;
- ▲ develop and implement effective spill response planning regulations to ensure industry readiness for responding to spills;
- ▲ work with the Oiled Wildlife Care Network (UC Davis) to identify and prepare for wildlife response needs in inland environments; and
- ▲ forge strong partnerships with local, state, and federal governmental agencies to facilitate coordinated planning efforts and effective responses to spills.

Marine Invasive Species Program

Marine Invasive Species Program within OSPR coordinates with the California State Lands Commission (SLC) to control the introduction of Non-Indigenous Species (NIS) from the ballast of ocean-going vessels. Marine Invasive Species Program is responsible for conducting biological surveys to assess the amount and types of marine invasive species present in state coastal and estuarine waters, and the degree of success of ballast water management activities. OSPR manages the California Aquatic Non-Native Organism Database and is working to establish consistency among the various major databases being used to analyze similar types of aquatic invasive species-related information (CDFW 2015b).

3.3.6 Office of Communications, Education, and Outreach

The Office of Communications, Education, and Outreach was formed in October 2005 with the intention for CDFW to more effectively engage with constituents. Communications, education and outreach activities are a valuable means to reach the people served by CDFW. It is evident the state's ongoing population growth, especially in urban areas, continues to put pressure on fish and wildlife resources, thus increasing the challenges of resource management.

CDFW continues to identify, connect with, and provide education to targeted audiences who are traditionally not reached as potential partners in conservation without excluding traditional

constituencies (e.g., hunters, commercial and recreational anglers, conservation groups). Marketing specialists have been targeting non-traditional groups with like interests for partnerships. An example is the “Be Bear Aware” program which partners with sanitation officials in the Lake Tahoe Basin to reduce bear/human conflicts.

CDFW works to instill conservation education in California’s youth through strong community outdoors programs (e.g., Fishing in the City, Nature Bowl) as well as classroom education programs (e.g., Archery in the Schools Program, Classroom Aquarium Education Program).

- The Fishing in the City Program, established in 1993, serves Californians living in the Sacramento, San Francisco, and Los Angeles metropolitan areas. The Program gives city dwellers an opportunity to learn how to fish, and to fish close to home. Ponds are stocked with trout in winter and catfish the rest of the year.
- The Nature Bowl is an annual science based educational program for 3rd – 6th graders that increases ecological knowledge and conservation literacy. In team settings, students learn about the environment while building teamwork skills and creative and critical thinking skills. The Nature Bowl Program includes teams of Sacramento Valley and Northern/Central Sierra Nevada elementary students.
- The National Archery in the Schools Program (NASP) is an international-style archery program taught by teachers and delivered to students in physical education classes in grades 4-12. In California, the program CalNASP is administered by CDFW with the Department of Education.
- The Classroom Aquarium Education Program allows students to experience the hatching of fish eggs and coordinated activities to teach them first-hand the value of aquatic environments. Students learn the balance that must be met to maintain and preserve California’s fisheries and aquatic habitats, and how their personal actions affect these resources.

Aquatic Education Programs

CDFW leads Aquatic Education Programs on CDFW lands throughout California, such as those that occur at the Back Bay Science Center and Elkhorn Slough National Estuarine Research Reserve.

Back Bay Science Center (<http://www.backbaysciencecenter.org/programs/>). Education programs on the island are led by CDFW staff with the help of volunteers from the Newport Bay Conservancy. Programs involve several learning stations including an investigation of plankton, animals living in the mud, the watershed, birds and water quality.

Elkhorn Slough National Estuarine Research Reserve (<https://www.wildlife.ca.gov/Lands/Places-to-Visit/Elkhorn-Slough-ER#973290-recreation>). Each year, about 5,000 students experience the Reserve as an outdoor classroom as part of a school field trip. They can choose to do a variety of field activities from plankton sampling to bird monitoring. Another targeted audience for education is the coastal decision makers of the region. Topics include special status species workshops, coastal management issues as well as professional training regarding meeting facilitation.

3.3.7 Wetland Restoration for Greenhouse Gas Reduction Program

The CDFW Wetlands Restoration for Greenhouse Gas Reduction Program was developed in response to the Global Warming Solutions Act of 2006. Pursuant to Assembly Bill 32 (AB 32), the Air Resources Board created a market-based Cap-and-Trade Program as a key element of its overall greenhouse gas (GHG) reduction strategy. The program establishes a statewide emissions limit on the sources responsible for 85 percent of GHGs and creates a financial incentive for investment in clean and efficient technologies. California's Cap-and-Trade Program includes an auction system where tradable permits (called *allowances*) can be purchased from the state at quarterly auctions. The state's portion of the proceeds from Cap-and-Trade auctions is deposited in the Greenhouse Gas Reduction Fund (GGRF), and is used to fund projects that support efforts to reduce GHG emissions.

The Budget Act of 2014 appropriated \$25 million to CDFW for restoration or enhancement of wetlands in the Sacramento-San Joaquin Delta, coastal wetlands statewide, mountain meadow habitat, and for improving water use efficiency/restoring wetlands on CDFW lands. This funding is being administered through the Wetland Restoration for GHG Reduction Program to support projects that reduce GHG emissions and provide co-benefits such as enhancing fish and wildlife habitat, protecting and improving water quality and quantity, and helping California adapt to climate change.

3.3.8 Proposition 1 Restoration Grant Programs

The Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1), which California voters passed in November 2014, provided funding to implement the three broad objectives of the California Water Action Plan: (1) more reliable water supplies; (2) the restoration of important species and habitat; and (3) a more resilient, sustainably managed water resources system (e.g., water supply, water quality, flood protection, environment) that can better withstand inevitable and unforeseen pressures in the coming decades.

Proposition 1 amended the California Water Code to add, among other articles, Sections 79737 and 79738, authorizing the Legislature to appropriate \$372,500,000 to CDFW to fund multi-benefit ecosystem and watershed protection and restoration projects. CDFW is distributing these funds on a competitive basis through two grant programs established in July 2015, collectively referred to as the Proposition 1 Restoration Grant Programs.

The Watershed Restoration Grant Program (\$285,000,000) is focused on watershed restoration and protection projects of statewide importance outside of the Sacramento-San Joaquin Delta (Delta). The Delta Water Quality and Ecosystem Restoration Grant Program (\$87,500,000) is focused on water quality, ecosystem restoration and fish protection facilities that benefit the Delta.