California Landscape Conservation Cooperative

September 2010

Introduction

Landscape Conservation Cooperatives (LCCs) are self-directed conservation partnerships among the U.S. Fish and Wildlife Service (USFWS), the United States Geological Survey (USGS), other federal agencies, States, Tribes, nongovernmental organizations, and others to address the challenges of climate change in an integrated fashion across broad areas. LCCs provide scientific and technical support for landscape-scale conservation in an adaptive management framework that emphasizes science-based biological planning, conservation design, research, inventory and monitoring. The products that LCCs develop help to inform and improve conservation delivery efforts on the ground.

California wetlands provide essential habitat for populations of Northern Pintail and other migratory birds. USFWS.

Climate change is the greatest environmental and conservation challenge of the 21st century. The impacts of climate change exacerbate existing stressors on our fish and wildlife resources. Climate change brings physical changes that include increasing temperatures, rising sea levels, shifts in ocean currents, altered precipitation patterns, and increased flood frequency. These physical effects will lead to biological impacts such as changes in the distribution of plants and animals, new species invasions, disease outbreaks, disrupted food webs, and ultimately, increased species extinctions. Dealing with these challenges will require an unprecedented level of collaboration between public and private conservation interests.

Conservation Need in the California LCC

California habitats support a wide diversity of trust resources. Our marine and coastal island habitats support large populations of seabirds, shorebirds and marine mammals as well as numerous federally listed species. The wetlands and agricultural fields of the Central Valley provide essential migration stopover and wintering habitat to large numbers of waterfowl. Our freshwater, estuarine and marine habitats are vital for salmon, trout, and other fish. The forested habitats of the Sierra Nevada and Coastal ranges support a wide variety of resident and migratory birds. All of these habitats will be affected in some way by climate change.

In addition to our trust resources, USFWS facilities will also feel the impacts of climate change. Our coastal National Wildlife Refuges face potential inundation from sea level rise. Other refuges will experience water shortages, reducing our ability to manage refuge lands for waterfowl and other wetland-dependent species. Our National Fish Hatcheries will have less access to fresh cold water, affecting their ability to raise fish in support of restoration and other programs.

Managing in the face of climate change impacts will be very challenging. The California LCC provides a critical bridge that links science and management to effectively address these challenges.

Partnerships

The USFWS will continue working in cooperation with other federal agencies, States, Tribes, nongovernmental organizations, Joint Ventures, and other entities using a coordinated approach. The California region already has a number of major partnerships underway that capitalize on landscape-scale biological planning and conservation design. These include the Bay-Delta Conservation Plan, California-Federal (CALFED) Bay-Delta program, Central Valley Joint Venture, and the San Francisco Bay Joint Venture, among others. The West Coast Governors Association, Nature Conservancy, California Fish Passage Forum, Pacific Coast Joint Venture, California State agencies, California Rangeland Conservation Coalition, the Bay Area Ecosystem Climate Change Consortium and others are also actively involved in planning efforts. Regionally-based climate change research programs are underway, including those sponsored by the California State Climate Change

Program, University of California, California State University System, Stanford University, Lawrence Livermore Laboratories, National Oceanographic and Atmospheric Administration, PRBO Conservation Science, and the USGS.

California LCC Framework

In establishing the California LCC, the USFWS will work with partners to create a framework for integrating climate science and conservation management. This effort will be coordinated with other climate change efforts in the region and be set up in a manner that will facilitate the identification of needs, capacities and gaps.

We will link our efforts to deliver conservation on the ground with those partners who bring additional science capacity to biological planning, conservation design and the design of monitoring, research and evaluations.

A steering committee with representation from our partners will guide the activities of the LCC and define LCC priorities.

LCC Products and Outcomes

The California LCC will provide products and services that:

- Support natural resource management decision making;
- Assist partners and USFWS in identifying immediate time-critical needs for managing fish and wildlife resources;
- Develop explicit and measurable biological objectives to guide conservation design and delivery;
- Apply downscaled climate models and landscape scales to predict effects on fish, wildlife, plants and their habitats;
- Assess watershed resiliency with changing hydroperiods to inform restoration investments;
- Develop landscape level analyses to support corridor conservation and protection;
- Identify and prioritize cold water systems and refugia for anadromous fish;
- Monitor habitat instabilities from invasive species threats and from native species range expansions;
- Provide analyses to inform coordinated fish and wildlife response strategies, including public outreach, for disease and die-offs;
- Design and evaluate short- and long-term wildlife adaptation approaches;
- Identify high priority research and technology needs;
- Conduct risk and vulnerability assessments to identify the most sensitive species, habitats and ecological functions to focus conservation efforts;
- Develop information to define factors affecting species recovery under future climate scenarios;
- Assess risks for USFWS facilities located in areas of potential inundation from sea level rise;
- Design protocols and methodologies best suited to evaluating the success of conservation strategies, objectives and actions; and
- Identify areas of converging climate and non-climate stressors.

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