Southern California Climate Adaptation Project

Focal Resources Workshop
November 18, 2014
San Dimas Technology & Development Center
San Dimas, CA
EcoAdapt

1. State of Adaptation Program
   finding out how people are fishing

2. Climate Adaptation Knowledge Exchange
   (CAKE; www.cakex.org)
   connecting fishermen

3. Awareness to Action
   teaching others to fish

4. Adaptation Consultation
   fishing for you

Photos: J. Armstrong
State of Adaptation

- Survey practitioners and assess adaptation efforts
- Develop case studies
- Synthesize trends, opportunities, and challenges
- Connect people to case studies, synthesis reports, and other resources to share lessons learned and build the adaptation field

“Climate change can be controversial but adaptation is something we all should be engaged in. It behooves each of us to consider the next steps on how to deal with this issue. [This] effort is a call to action to overcome the stubbornness and ennui towards climate change.”

- Louisiana Coastal Manager
Climate Adaptation Knowledge Exchange

www.CAKEEx.org

Why Make a CAKE?
• Everything we do is vulnerable to climate change but few people know what to do about it
• Adaptation is a rapidly developing field
• We are spending more time reinventing, not enough innovating

Sponsors, Partners, and Contributors: Kresge Foundation, Wilburforce Foundation, Data Basin, EBM Tools Network, Model Forest Policy Program, Northern Institute of Applied Climate Science, NCAnet, Integrated Data Management Network, USGS, and many more!

Why Join CAKE?
• Explore projects, people, and resources on the map
  ➢ Map, text, and keyword searches
• Publish and promote your work on climate adaptation
• Get advice from adaptation experts
• Request information from your colleagues (advice, connections, training)
Awareness to Action

- Bring partners from awareness about climate impacts and adaptation to implementation
  - Federal and state agencies
  - Tribes
  - Conservation organizations
  - Community groups
  - Foundations

EcoAdapt’s Climate Vulnerability Assessment Quick Guide

V = E + S – AC

V = Vulnerability to climate change
E = Exposure (how much change occurs, including changes outside the project area that affect the target, e.g., loss of greenhouse gas storage)
S = Sensitivity (how much the target is affected by a given amount of change)
AC = Adaptive Capacity (the ability of an individual, community, or ecosystem to adapt to change; this reflects intrinsic, behavioral, and policy factors that allow individuals to respond to new situations and external factors, e.g., changes in habitat fragmentation)

EcoAdapt’s Climate Adaptation Starter Kit

EcoAdapt’s Climate Adaptation Starter Kit includes our top list of resources, tools, and adaptation examples to get you started. It is not intended to be fully comprehensive, but to provide a compilation of what we have found most practical and useful for planning, developing, and implementing climate adaptation.

The Climate Adaptation Starter Kit is divided into six parts:

1. Vulnerability Assessment - resources for climate change vulnerability, risk and impact assessment.
2. Adaptation Frameworks - processes to guide the development of climate change adaptation strategies.
3. Adaptation Portals and Tools - a sampling of climate adaptation portals, tools, and resources.
5. Getting Started - where to begin, working with what you already have, and avoiding maladaptation.
6. Evaluation and Monitoring - on how adaptation programs are succeeding.
Adaptation Consultation

- Designed to help partners at any stage in the planning process
- Specifically tailored to each partners’ needs – vulnerability assessments, adaptation planning, implementation support, etc.

Monitoring

Adaptation Marketplace

Mapping and spatial tools

www.adaptationmarketplace.org
Project History

• **Fall 2012:** EcoAdapt & partners start Sierra Nevada project with funding from California LCC

• **Spring 2013:** EcoAdapt leads vulnerability & adaptation workshops

• **Winter 2014:** EcoAdapt releases vulnerability and adaptation reports

• **Summer 2014:** EcoAdapt & partners awarded funds to start So Cal project
California Landscape Conservation Cooperative

• A management-science partnership that facilitates complex, multi-sector conversations about prioritizing limited resources under rapidly changing ecological conditions
### Project Need

- Feedback from Climate Scorecard
- Forest Plan revision
  - Monitoring program transition
- Project planning and NEPA
- Opportunities outside FS
- Tap into outside expertise

#### The Forest Service Climate Change Performance Scorecard, 2011 (version 1.3)

To be completed annually by each National Forest or Grassland (Unit).

<table>
<thead>
<tr>
<th>Scorecard Element</th>
<th>Unit Name</th>
<th>Yes/No</th>
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<tbody>
<tr>
<td><strong>Organizational Capacity</strong></td>
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<tr>
<td>1. Employee Education</td>
<td>Are all employees provided with training on the basics of climate change,</td>
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<td>impacts on forests and grasslands, and the Forest Service response? Are</td>
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<td>resource specialists made aware of the potential contribution of their own</td>
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<td>work to climate change response?</td>
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<td>2. Designated</td>
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<td>Coordinators</td>
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<td>3. Program Guidance</td>
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<td><strong>Engagement</strong></td>
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<td>4. Science and Management</td>
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<td>Partnerships</td>
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<td>5. Other Partnerships</td>
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<td><strong>Adaptation</strong></td>
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<td>6. Assessing</td>
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<tr>
<td>Vulnerability</td>
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<td>7. Adaptation</td>
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<td>Actions</td>
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<td>8. Monitoring</td>
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<td><strong>Mitigation and Sustainable</strong></td>
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<td>Consumption</td>
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<td>9. Carbon Assessment</td>
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<td>and Stewardship</td>
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<td>10. Sustainable</td>
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Project Overview

- **Audience:** land & resource managers
- **Scope:** South/Central California
- **Forests:** Angeles, San Bernardino, Cleveland, Los Padres
- **Vulnerability of:**
  - Habitats (coarse filter)
  - Species (fine filter)
  - Ecosystem services
- **Adaptation strategies for:**
  - Habitats
  - Species
  - Ecosystem services
1. Collaboratively identify focal resources that reflect regional efforts and existing conservation goals
2. Conduct a vulnerability assessment for selected focal resources
3. Develop climate-smart adaptation strategies and actions to reduce vulnerabilities or increase resilience of focal resources
4. Generate adaptation implementation plans for focal resources
Climate-Smart Planning Framework

1. Define planning purpose and scope
2. Assess climate impacts and vulnerabilities
3. Review/revise conservation goals and objectives
4. Identify possible adaptation options
5. Evaluate and select adaptation actions
6. Implement priority adaptation actions
7. Track action effectiveness and ecological response

Revisit planning as needed
Adjust actions as needed
Re-assess vulnerability as needed

Developed by Stein et al. 2014
Focal Resources Workshop

Step 1
Identify focal resources; gather relevant data and info

Step 2
Assess vulnerability of focal resources

Step 3
Apply assessment results in adaptation planning

Step 4
Develop implementation plans for on-the-ground action

Phase 1: Vulnerability Assessment

Phase 2: Adaptation Planning
Phase 1: Vulnerability Assessment

Workshop 1: Select focal resources (today)
- Habitats
- Species
- Ecosystem services

Assess vulnerability (Nov 2014 – May 2015)
- Literature review
- Relevant regional climate modeling
- Expert elicitation
Phase 1: Vulnerability Assessment

Process:
1. Literature review for focal resources
2. Design assessment survey
   – Includes each vulnerability component
3. Send survey to ~3-5 topic experts
4. Assemble draft assessment results
5. Send narratives to ~3-5 topic experts for review
6. Finalize assessment
Phase 1 Checklist

- Collaboratively identify focal resources
- Assess resource vulnerabilities
- Peer review of assessment
- Finalize vulnerability assessment

Dashed lines indicate expert collaboration
Phase 2: Adaptation Planning

Workshop 2: Adaptation planning #1 (May 2015)

• Review vulnerability assessment results
• Participants identify:
  – General adaptation strategies
  – Specific adaptation actions
  – Where actions can be applied
  – Implementation feasibility

KEY FOCUS: Identify actions currently being implemented AND actions that could be considered for implementation
Applying Vulnerability Assessment Results in Adaptation Planning

Vulnerability = Exposure × sensitivity ÷ adaptive capacity

- Reduce exposure
- Sensitivity
- Increase adaptive capacity
Applying Vulnerability Assessment Results in Adaptation Planning

- **Reduce Sensitivity**
  - *Example:* Replant with mix of species that can cope with range of future conditions

- **Reduce Exposure**
  - *Example:* Restore wetlands to limit drought impacts

- **Enhance Adaptive Capacity**
  - *Example:* Support connectivity across the landscape between different populations
Applying Vulnerability Assessment Results in Adaptation Planning

Potential Vulnerabilities: Anthropogenic Fire Ignitions

- Length of fire season
- Fire frequency and area burned
- Type conversion from woody to herbaceous
- Sedimentation due to topography and soil erodibility

Adaptation Strategy:
Plan and prepare to reduce the sources of wildfire ignitions, particularly those that lead to large fires. Reduced fire frequency will limit the co-occurrence of fire and drought and increase older age classes of chaparral.

Actions:
- Complete studies of wildfire causes in southern California
- Develop BMPs to realistically limit the major sources of wildfire ignitions (e.g., underground power lines in wind corridors). For example, focus control on roadside fine fuels, identify high ignition probability locations along roads, and/or restrict power tool use in red flag conditions
Climate-Informed Mapping (Jan-Sept 2015)

• Vulnerability assessment
  → Used to create maps for a resource

• Adaptation actions + maps
  → Used to identify what to implement, where
Phase 2: Adaptation Planning

Workshop 3: Adaptation planning #2 (Fall 2015)

- Review results from Adaptation Planning #1
- Participants develop implementation plans for on-the-ground action:
  - Implementing actions within adaptive management framework
  - Using spatial information to identify what actions to implement and where
Phase 2 Checklist

- Collaboratively identify adaptation strategies and actions
- Peer review of adaptation strategies and actions
- Collaboratively develop implementation plans for resources
- Finalize adaptation report

Dashed lines indicate expert collaboration
Benefits from Vulnerability & Adaptation Process

- *WHAT* and *WHY*
- Brings ecosystem service issues to the table
- Informs stakeholders of climate change implications
- Buy-in and provides stakeholders with potential actions
- Highlights cross-sector opportunities
- May drive additional research and scientific studies to fill data gaps
Broader Impacts & Application

- Sierra Nevada forests
- Tongass National Forest
- Nez Perce-Clearwater National Forests
- Other forests in Region 1
- Gulf of the Farallones National Marine Sanctuary
Today: Workshop Goal

To select a limited suite of resources (~10-15) that reflect regional efforts and existing conservation goals that will be the focus of the vulnerability assessment and adaptation planning components of the remainder of the Southern California Climate Adaptation Project.
Today: Workshop Objectives

1. Present draft list of focal resources including habitats, species, and ecosystem services.

2. Collaboratively discuss and evaluate potential focal resources using a coarse filter-fine filter approach.

3. Collaboratively select a final suite of focal resources.

4. Provide an overview of project next steps and engagement opportunities.
Workshop Structure

Agenda

9:30-9:45 Welcome and introductions
9:45-10:15 Project and workshop overview
10:15-11:30 Habitat and ecosystem services selection
11:30-1:00 Lunch and field trip
1:00-2:15 Species selection (if habitats found not to suffice)
2:15-3:00 Large group discussion
3:00-3:15 Break
3:15-3:45 Finalize focal resources
3:45-4:00 Next steps and close-out

Adjourn by 4pm
Logistics

• Lunch/Field Trip

Right on E Bonita Ave (1/4 mi)

Left N San Dimas Canyon Road (1.5 mi)

Left Sycamore Canyon Road (1/2 mi)
Southern California Climate Adaptation Project: Focal Resources Workshop

## 1. Habitat Selection

Consider the habitats included in your assemblage. Are they distinct, or can they be combined for the vulnerability assessment?

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<thead>
<tr>
<th>Habitat Assemblage:</th>
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## 2. Ecosystem Services Selection

On the draft ecosystem services list provided below, please check off the services that are provided by your habitat assemblage.

<table>
<thead>
<tr>
<th>Service</th>
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<tbody>
<tr>
<td>Air Quality</td>
<td>Flood and Erosion Protection</td>
<td>Sediment Transport/Soil Productivity</td>
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<td>Apiary Sites</td>
<td>Grazing</td>
<td>Recreation</td>
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<tr>
<td>Biodiversity Provisioning</td>
<td>Nitrogen Retention (Uplands)</td>
<td>Timber</td>
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<tr>
<td>Carbon Sequestration</td>
<td>Pollination</td>
<td>Water Quantity</td>
</tr>
<tr>
<td>Fire Regime Controls</td>
<td>Public Health</td>
<td>Water Quality</td>
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Please identify and describe the services present in your assemblage that you recommend to definitely or possibly include in the vulnerability assessment.

1. Definitely include in the vulnerability assessment.

2. Possibly include in the vulnerability assessment – time and resources permitting.

List your recommendations for habitats in your assemblage to be included in the vulnerability assessment.
Habitat Breakout Groups

- Group 1 (shrublands)
- Group 2 (woodlands)
- Group 3 (grasslands)
- Group 4 (conifer)
- Group 5 (riparian)
Thank you!

Contact:
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