

Climate Adaptation Project for the Sierra Nevada Vulnerability Assessment Workshop March 5-7, 2013



Location:

Modoc Hall, Willow Room (First Floor), California Landscape Conservation Cooperative, 3020 State University Drive East, Sacramento, CA

Background:

The Climate Adaptation Project for the Sierra Nevada is comprised of three principal components:

- (1) Vulnerability assessment workshop,
- (2) Spatial analysis and comparative mapping to inform the vulnerability assessment and facilitate adaptation planning, and
- (3) Adaptation planning workshop.

The objectives of this project include:

- (1) Assess the vulnerability of focal resources to climate change,
- (2) Use spatial analysis and expert input to prioritize conservation areas or actions,
- (3) Identify implementable management responses to climate change in the Sierra Nevada, and
- (4) Provide training for managers, planners and others to conduct similar processes in specific jurisdictions (national forests, counties, reserves, etc.).

Workshops:

This is the first of two workshops on climate change vulnerability assessment and adaptation planning for the Sierra Nevada. The goal of this workshop (5-7 March 2013) is to assess the vulnerability of a suite of focal resources (species, habitats, ecosystem services) to climate change. The goal of the second workshop (planned for late May 2013) is to develop and prioritize adaptation strategies for focal resources and regions.

This 2.5-day workshop will include: (1) a review of climate trends for the Sierra Nevada region; (2) vulnerability assessment training following the process described in *Scanning the Conservation Horizon*¹; (3) vulnerability assessment application for a suite of species, habitats and ecosystem services that were chosen prior to the workshop; (4) discussion and refinement of regional management action opportunities; and (5) identification of spatial analysis and mapping needs. Results from this workshop including synthesis documents and presentations will be made available

¹ Glick, P., B.A Stein, and N.A. Edelson, editors. 2011. *Scanning the Conservation Horizon: A Guide to Climate Change Vulnerability Assessment*. National Wildlife Federation, Washington, D.C.

online through the California Climate Commons (climate.calcommons.org) and EcoAdapt (EcoAdapt.org) websites.

Workshop 1 Objectives:

1. Provide participants with baseline knowledge and understanding of climate trends and available model outputs for the Sierra Nevada.
 2. Identify specific regional management objectives and action opportunities that can be supported by this vulnerability assessment and the adaptation strategy development workshop.
 3. Use the latest scientific information and expert knowledge to identify likely impacts of climate change on focal resources.
 4. Assess vulnerabilities of focal resources to climate change including sensitivity, exposure, and adaptive capacity.
 5. Identify spatial analysis and mapping needs to inform the vulnerability assessment and facilitate adaptation planning.
 6. Provide vulnerability assessment training, resources, support, and tools to participants to extend this process to similar efforts in their own work.
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AGENDA

Tuesday, March 5th: 9AM – 5PM

VULNERABILITY ASSESSMENT TRAINING AND CLIMATE TRENDS IN THE SIERRA NEVADA

9:00 – 9:10 Welcome

9:10 – 9:35 Workshop goals, objectives, and desired products. Introductions.

9:35 – 9:50 Climate Adaptation Project for the Sierra Nevada – project overview and introduction to focal resources (habitat types, species, ecosystem services)

9:50 – 10:05 Climate trends in the Sierra Nevada – historic and projected changes

Vulnerability Assessment Training

10:05 – 10:30 Vulnerability assessments – components and overview

BREAK: 10:30 – 10:50AM

10:50 – 11:05 Introduction to assessing sensitivity

11:05 – 12:05 Breakout group exercise to assess sensitivity of selected **habitat type**

Objective for breakout groups:

- Complete worksheet: sensitivity

LUNCH: 12:05 – 1:05PM

1:05 – 1:30 Introduction to assessing adaptive capacity

1:30 – 2:35 Breakout group exercise to assess adaptive capacity of selected **habitat type**

Objectives for breakout groups:

- Identify resource management or conservation objectives for **habitat type**
- Complete worksheet: adaptive capacity

Assessing Exposure and Climate Trends in the Sierra Nevada

Climate Change Effects in the Sierra Nevada

2:35 – 2:50 Vegetation Dynamics: Dr. Tosha Comendant, Conservation Biology Institute

2:50 – 3:05 Wildfire: Dr. Anthony Westerling, UC Merced

3:05 – 3:20 Watershed Hydrology: Dr. Lorraine Flint, USGS

BREAK: 3:20 – 3:40PM

Assessing Exposure

3:40 – 4:05 Introduction to assessing exposure

4:05 – 4:50 Breakout group exercise to assess exposure of selected **habitat type**

Objectives for breakout groups:

- Complete worksheet: exposure
- Evaluate overall vulnerability
- Brainstorm mechanisms to achieve resource management or conservation objectives

4:50 – 5:00 Wrap up and next day preview

Wednesday, March 6th: 9AM – 5PM

VULNERABILITY ASSESSMENT: EXPERT ELICITATION PROCESS

9:00AM – 12:00PM with break from 10:30-10:50AM

9:00 – 9:20 Opening comments and overview of day's objectives

9:20 – 12:20 Vulnerability Assessment Breakout Groups: **Species**

Objectives for breakout groups:

- Identify resource management or conservation objectives for species
- Complete worksheets: sensitivity, adaptive capacity, exposure
- Evaluate overall vulnerability

- Develop conceptual ecological model for species, illustrating the climatic, physical, ecological, and socio-economic drivers that affect the species (optional)
- Brainstorm mechanisms to achieve resource management or conservation objectives for species using information from worksheets and conceptual model

LUNCH: 12:20 – 1:45PM

1:45PM – 4:45PM with break from 3:00-3:20PM

1:45 – 4:45 Vulnerability Assessment Breakout Groups: **Ecosystem Services**

Objectives for breakout groups:

- Identify resource management or conservation objectives for service
- Complete worksheets: sensitivity, adaptive capacity, exposure
- Evaluate overall vulnerability
- Develop conceptual ecological model for service, illustrating the climatic, physical, ecological, and socio-economic drivers that affect the service (optional)
- Brainstorm mechanisms to achieve resource management or conservation objectives for service using information from worksheets and conceptual model

4:45 – 5:00 Discussion, wrap up and next day preview

Thursday, March 7th: 9AM – 12:30PM

CONCLUSION OF EXPERT ELICITATION PROCESS: INSIGHT INTO SPATIAL ANALYSIS NEEDED TO ACHIEVE MANAGEMENT OBJECTIVES

9:00 – 9:20 Opening comments and overview of day's objectives

9:20 – 9:55 Introduction to the [Yale Framework](#): A tool to assist resource managers in developing spatially explicit conservation strategies under climate change: Dr. Anne Trainor, Yale University School of Forestry & Environmental Studies

9:55 – 10:05 Intro to exercise

10:05AM – 12:00PM with break from 10:35-10:55AM

10:05 – 12:00 Breakout group exercise to identify spatial analysis needs

Objectives for breakout groups:

- Review management objectives identified for selected habitat types and species
- Use the Yale Framework matrix to identify spatial analyses needed for selected habitat types and species based on management objectives
- Evaluate level of urgency/priority for spatial analyses

12:00 – 12:30 Wrap up and next steps, when to expect products