

A Vulnerability Assessment and Adaptation Strategies for Focal Resources of the Sierra Nevada

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Project History

- 2010-2011: Stakeholder input sought by the Forest Service Regional office from forests on conducting a climate change vulnerability assessment
- Spring 2012: EcoAdapt & partners submitted a grant proposal to the California LCC to conduct a Vulnerability Assessment in the Sierra
- Fall 2012: EcoAdapt project was awarded funding from the California LCC!



Project Objectives

1. Assess the vulnerability of a suite of focal resources to climate and non-climate stressors;
2. Use spatial analysis and expert input to prioritize conservation areas or actions; and
3. Identify implementable management responses to climate change in the Sierra Nevada.

Photos: Jonny Armstrong





Project Components

1. Select resources
2. Vulnerability assessment workshop
3. Spatial analysis
4. Adaptation planning workshop
5. Finalize products



Photos: Jonny Armstrong



Results: Selected Resources

Coarse Filter (Ecosystem)	Fine Filter (Species)
Alpine/Subalpine	Bristlecone pine Whitebark pine Bighorn sheep
Yellow Pine/Mixed Conifer	Fisher
Meadows	Willow flycatcher
Red fir	Red fir Marten
Oak woodlands	Blue oak Black oak
Chaparral	Wood rat Mountain quail
Sagebrush	Sage grouse
Aquatic systems	Sierra Nevada yellow-legged frog Mountain yellow-legged frog

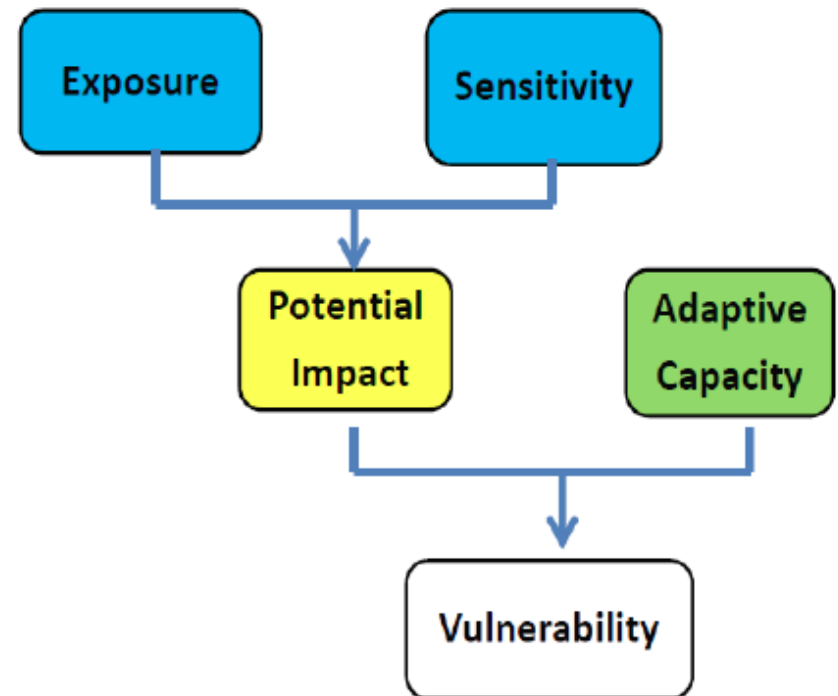
Ecosystem Services
Biodiversity
Fire
Carbon storage
Recreation
Timber/Forest products



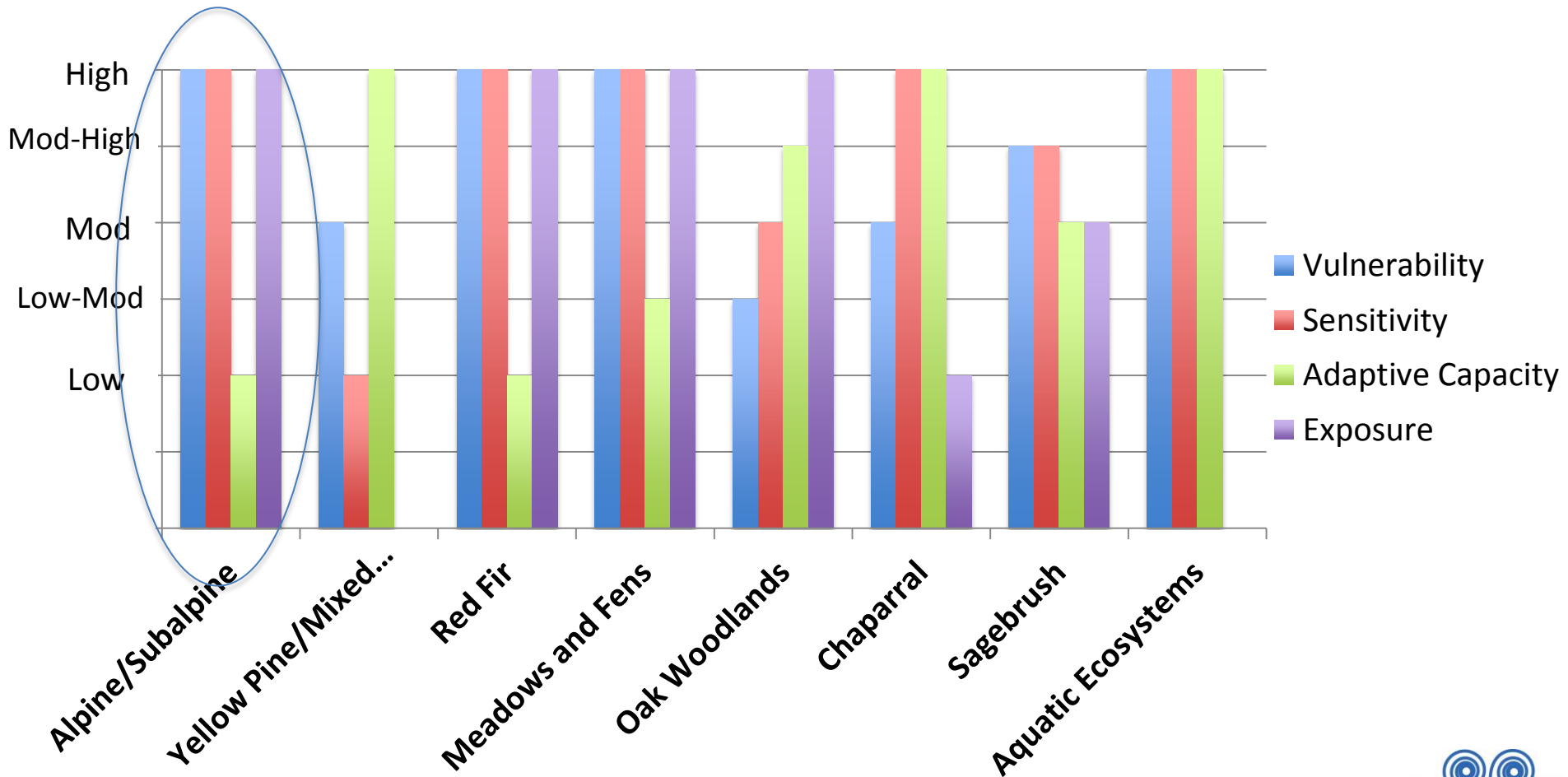
Vulnerability Assessment Workshop

Goal: Assess vulnerability of subset of identified focal resources to climate and non-climate stressors through Expert Elicitation

- Day 1: Ecosystems
- Day 2: Species and Services



Vulnerability Assessment Results: Ecosystems



Vulnerability Assessment Results

- Short (~2pgs), peer-reviewed narratives summarizing overall vulnerability, sensitivity, adaptive capacity, and exposure for each resource
- Detailed, combined results from the expert elicitation worksheets and supporting peer-reviewed literature
 - Trying to make this available as interactive info on the California Climate Commons
 - Would like this to be dynamic so that as new info becomes available it can be incorporated



Spatial analysis

Goal: Use results of the vulnerability assessment and Yale Mapping Framework to identify spatial analysis needs

→ Framework helps identify spatial info or mapping to facilitate decision-making for resources in specific locations

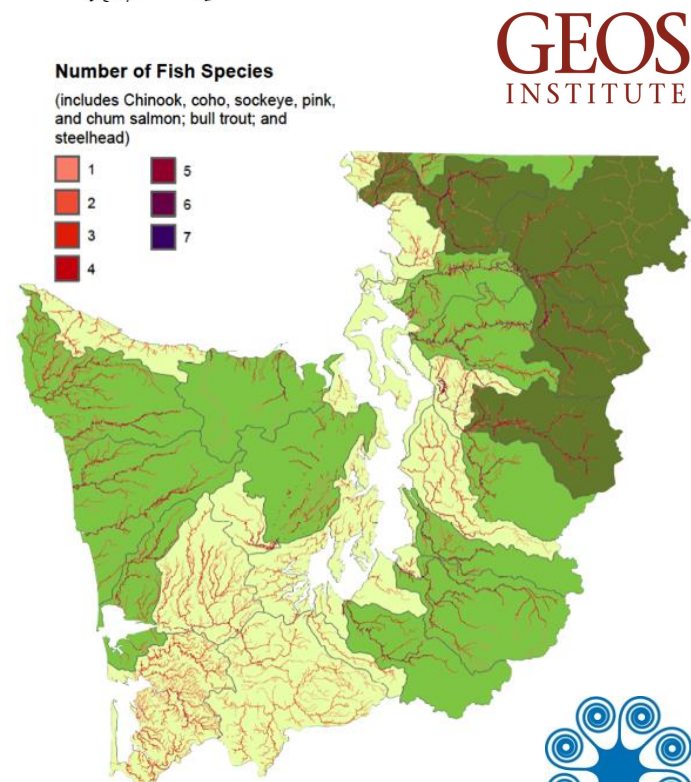
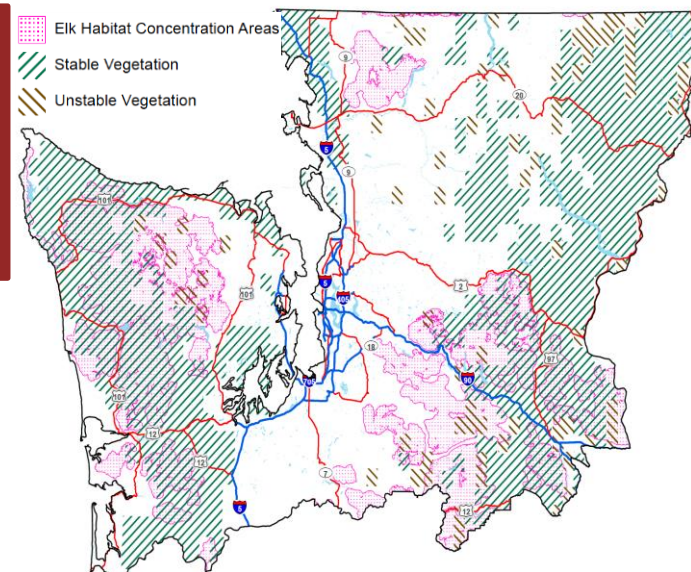
→ Website: <http://yale.databasin.org>



Adaptation Workshop – June 4-5, 2013

Goal 1: explore results of spatial analysis and vulnerability assessment with FS staff and stakeholders and discuss how products can inform management decisions

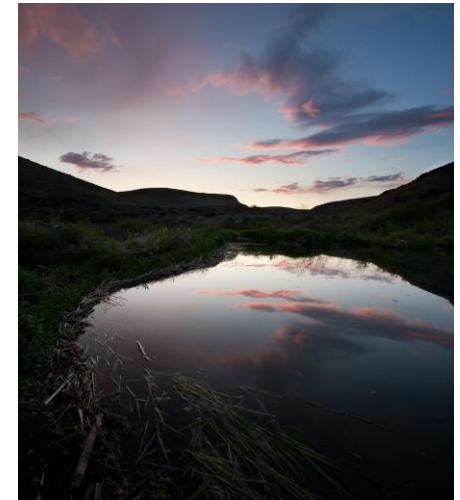
Goal 2: work with FS staff and stakeholders to develop adaptation options for individual resources and the region



Final Products

All available online through EcoAdapt, CA LCC, and Data Basin websites

- Vulnerability assessment results
 - Narratives, overall rankings, peer-reviewed resources
- Comparative maps (digital, pdf)
- Adaptation strategies for focal resources, regions
- Workshop support pages



Photos: Jonny Armstrong

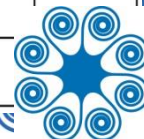


Final Products

Products will inform:

- Forest Plan assessment phase
- NEPA analysis for forest plans
- Climate Change Performance Scorecard

The Forest Service Climate Change Performance Scorecard, 2011 (version 1.3) To be completed annually by each National Forest or Grassland (Unit).		
Scorecard Element	Unit Name	Yes/No
Organizational Capacity		
1. Employee Education	Are all employees provided with training on the basics of climate change, impacts on forests and grasslands, and the Forest Service response? Are resource specialists made aware of the potential contribution of their own work to climate change response?	
2. Designated Climate Change Coordinators	Is at least one employee assigned to coordinate climate change activities and be a resource for climate change questions and issues? Is this employee provided with the training, time, and resources to make his/her assignment successful?	
3. Program Guidance	Does the Unit have written guidance for progressively integrating climate change considerations and activities into Unit-level operations?	
Engagement		
4. Science and Management Partnerships	Does the Unit actively engage with scientists and scientific organizations to improve its ability to respond to climate change?	YES
5. Other Partnerships	Have climate change related considerations and activities been incorporated into existing or new partnerships (other than science partnerships)?	YES
Adaptation		
6. Assessing Vulnerability	Has the Unit engaged in developing relevant information about the vulnerability of key resources, such as human communities and ecosystem elements, to the impacts of climate change?	YES
7. Adaptation Actions	Does the Unit conduct management actions that reduce the vulnerability of resources and places to climate change?	YES
8. Monitoring	Is monitoring being conducted to track climate change impacts and the effectiveness of adaptation activities?	
Mitigation and Sustainable Consumption		
9. Carbon Assessment and Stewardship	Does the Unit have a baseline assessment of carbon stocks and an assessment of the influence of disturbance and management activities on these stocks? Is the Unit integrating carbon stewardship with the management of other benefits being provided by the Unit?	
10. Sustainable Operations	Is progress being made toward achieving sustainable operations requirements to reduce the environmental footprint of the Agency?	



Acknowledgements

