

Assessing Vulnerability & Developing Adaptation Strategies for Key Southern California Habitats

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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



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).		
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?	
5. Other Partnerships	Have climate change related considerations and activities been incorporated into existing or new partnerships (other than science partnerships)?	
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?	
7. Adaptation Actions	Does the Unit conduct management actions that reduce the vulnerability of resources and places to climate change?	
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?	



USFS Vulnerability Assessments in California

Sierra: 10 Sierra
Forests (assessment
completed in 2014)

Southern California:
4 forests (50%
complete)

Northern California:
4 forests (1%
complete), working
closely with BLM

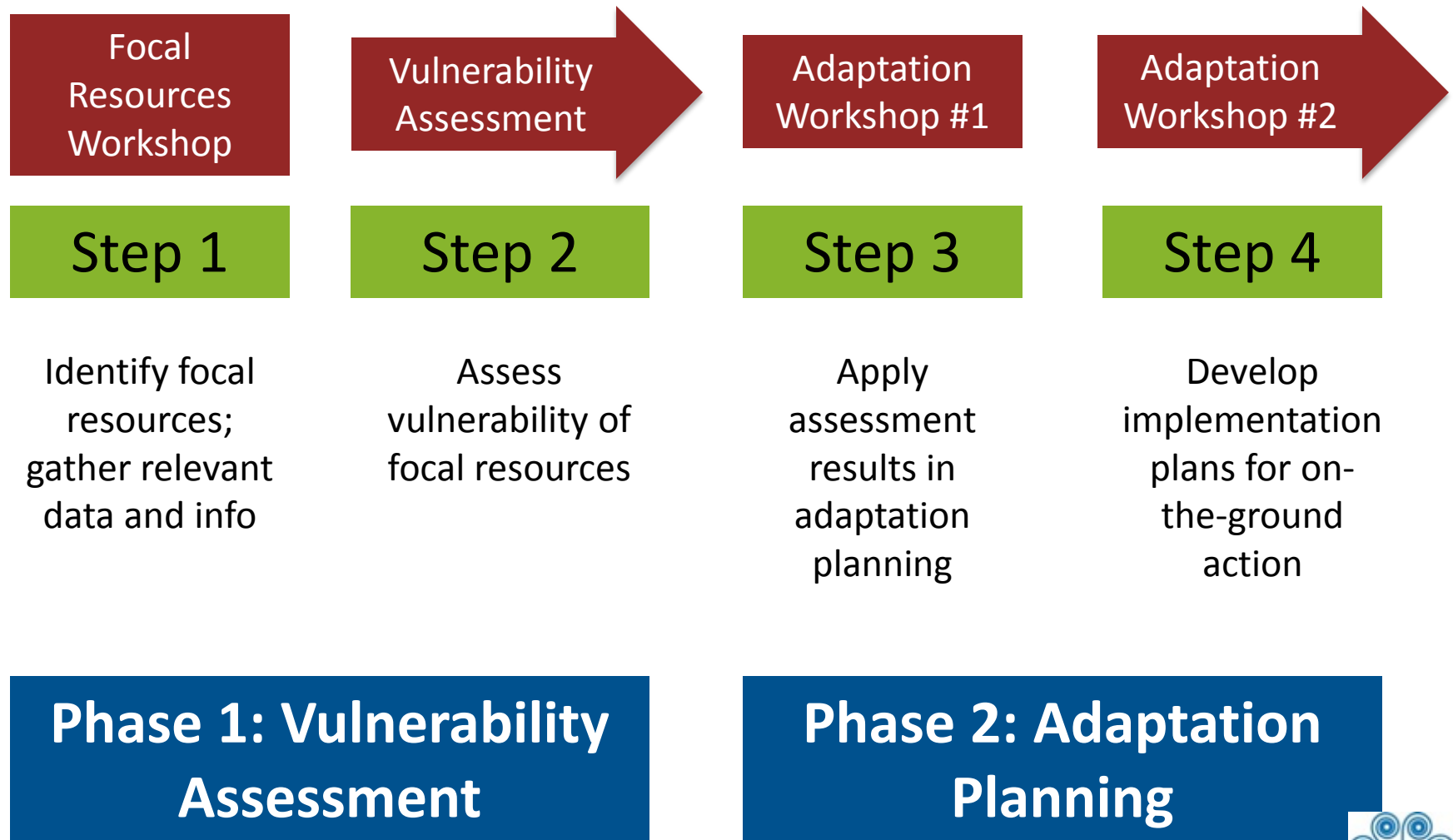


Project Overview

- **Audience:** land & resource managers
- **Scope:** South/Central California
- **Forests:** Angeles, San Bernardino, Cleveland, Los Padres
- Vulnerability assessment and adaptation strategies for **Focal Habitats**



Project Methodology

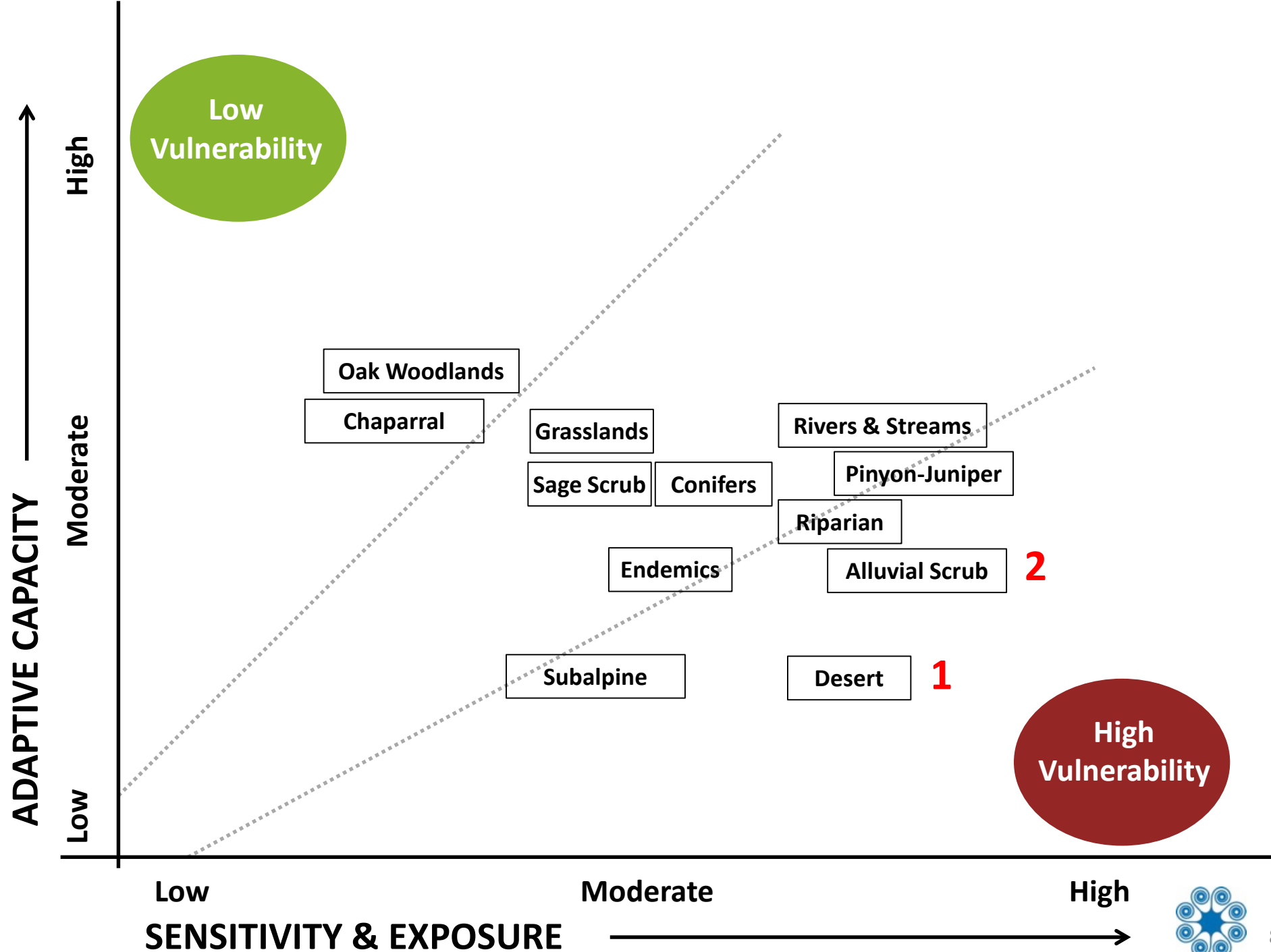


Project Methodology



- Held a Focal Resources Workshop: Nov 2014
 - Collaboratively identified 12 focal habitats
- Completed Vulnerability Assessments for focal habitats: Jan – Dec 2015
- First Adaptation workshop: May 2015
 1. Reviewed draft vulnerability assessment findings
 2. Evaluated and revised current management actions based on potential climate vulnerabilities
 3. Identified possible new management actions that address vulnerabilities
 4. Evaluated current monitoring indicators in the context of climate change





Compiled Adaptation Strategies Example: Alluvial Scrub



Adaptation Category	Adaptation Strategy	Specific Adaptation Actions
Enhance resistance	Restore native species to disturbed areas	- Restore habitat with native species that are tolerant of disturbed conditions - Build up a reserve of seeds and plants that are tolerant of disturbed conditions
	Restore fluvial processes to streams that support alluvial scrub vegetation	- Remove dikes, mining operations, and recharge basins that obstruct the migration ability of streams and sediment deposition areas - Require undeveloped buffers along streams - Raise roads out of washes
Promote resilience	Maintain and/or restore the natural and historical characteristics of a watershed	Designate critical habitat where the most sensitive species are found, and in areas where the home ranges of several species overlap
	Improve ability to confidently source plants for alluvial scrub restoration	Conduct a common garden experiment which includes plants from across the species' range in order to understand the level of adaptive variation within the population
Facilitate transition	Identify and protect refugia	Protect areas that may be buffered from the effects of climate change, including microhabitats that may provide cooler temperatures or maintain higher soil moisture during periods of drought
	Improve habitat restoration tools to support the ability of plants and animals to respond to changing climate conditions	- Work on developing habitat restoration techniques that will be successful under future climate conditions - Use species distribution modeling to improve understanding and acceptance of facilitated migration for plant species
Increase knowledge	Maintain the natural and historical characteristics of a watershed	- Research historical ranges of flora and fauna - Compile information on species ecology, range, and genetics to create detailed profiles
	Map species distributions to understand potential habitat loss or gain and improve restoration	- Develop species distribution models (SDMs) under four different climate scenarios; include additional factors that could contribute to species shifts (e.g., water deficits) - Use joint species distribution modeling to look at multiple species within a habitat or community simultaneously, incorporating multiple threats - Survey the vegetation and environment to aid in the design of a plant palette with species suited for various positions within an alluvial fan or watercourse, then update survey as habitat suitability changes under future climate conditions
Engage coordination	Work across jurisdictions	- Coordinate invasive species management, funding, and support between agencies - Communicate about projects and coordinate on-the-ground activities - Align budgets and program work priorities with adjacent lands

Next Steps: Adaptation Workshop #2

- Integrating climate information into project-level planning
 - January 2016
 - Utilizing existing on-the-ground forest projects



Adaptation Ladder of Engagement®

7 Sharing

6 Evaluation

5 Integration

4 Implementation

3 Planning

2 Assessment

1 Awareness

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Adaptation Implementation Workshop for Southern California Forests



January 20-21, 2016

Workshop 3 of the Southern California Climate Adaptation Project

Purpose: The goal of this two-day workshop is to collaboratively integrate vulnerability and adaptation information into current, on-the-ground forest projects. As part of this workshop we will use climate-informed maps and spatial information to evaluate where certain management actions could be implemented to reduce habitat vulnerabilities and/or increase resilience. The workshop will include a review of habitat vulnerability assessments and adaptation strategies, case study examples demonstrating integration of climate vulnerability and adaptation information into project-level planning, and multiple activities designed to integrate habitat vulnerability and adaptation information, including spatial information, into existing forest projects.

Participants: Land managers, planners, natural resource specialists, science and community partners, and conservation practitioners

Where: USFS Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA

When: Wednesday and Thursday, January 20-21, 2016 from 9:00am – 3:00pm (lunch, coffee and snacks provided)

To Register: Email Jessi Kershner at EcoAdapt, jessi@ecoadapt.org
Deadline for registration is Friday, January 8th

For More Information:

Visit www.ecoadapt.org/programs/adaptation-consultations/socal



Acknowledgements



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A big thank you to our habitat experts!

