

4 - STRATEGY SESSION

Session Lead: Koren Nydick, Sequoia & Kings Canyon National Parks

GOAL: *In this session we will continue making linkages between “defining features” or “critical attributes” vulnerability and if/how we can meet objectives for shared values. We will brainstorm and discuss “retrofitted objectives” as well as novel strategies to familiar constraints and consider that new challenges will develop for which we have no historic analog. While we won’t do this in depth to support an actual decision, the session will enable participants to experience how objectives, vulnerabilities, strategies, constraints, opportunities, trade-offs, and consequences are inter-connected and all part of climate-smart planning. We are testing a shared learning process and not making any binding decisions.*

1:30-1:50 Introduction – Hugh Safford, USFS

(15 min + Q/A) Presentation that describes adaptation strategies:

- 1) Describe general strategies (Climate Smart Principles?) with examples of specific actions:
 - Do nothing (active restraint)
 - Manage for Persistence by resisting Change and Increasing Resilience
 - Manage for Change by Facilitating Transformation; Anticipating & Proactively Planning to alter conditions after an Extreme Event
 - Postpone Deciding until More Information is Available by Monitoring and Studying key condition indicators (observe, learn, and refine strategies)
- 2) Consequences, Trade-offs, and Prioritization of Management Actions

1:50-2:30 Case study presentations (15 min + 5 min Q/A each)

- 1) Climate Change Adaptation Strategies in Water Management; Michelle Selmon, Regional Climate Change Specialist, California Department of Water Resources
- 2) Alternative Futures for Fire Management, Koren Nydick, NPS-SEKI.

2:50 pm – 9:00 am next day: Exercise

2:30-2:40 pm- Exercise introduction/instructions (plenary - 10 min)

2:40-3:00 pm - Break & go to assigned room (20 min)

3:00-5ish – pm Do exercise (2hr+)

Next day 8-9 am – extra time if needed to finish exercise and prepare report-out (1 hr)

9-10 am – Group presentation to plenary (1 hr)

Exercise Description

Set-Up: Focal resource break out groups meet in different rooms. Each resource will have 1-2 facilitators/subject matter experts, a helper, laptop, projector, and USB drive with worksheet. The helper can take notes or do whatever is needed. Participants are reminded that they have a series of info briefs in their workbooks, prior session worksheets (handouts), and can consult relevant posters.

Worksheet: The exercise is framed by a worksheet with 7 questions (see attached).

Draft/strawman responses to Q#1-4 will be provided. *It is critical that we have excellent notes from the exercise. Each group or subgroup needs 1 or more dedicated note-takers.*

Report Out: Each focal resource group will have a maximum of 10 minutes to report results. If smaller sub-groups form, they will need to synthesize response, split the time, or select one sub-group to report out as an example. Each sub-group will need to select a note-taker and record results on computer or hard copy.

Defining Feature or Critical Attribute	Room Assignment	Facilitators
Watershed/River/Riparian	San Joaquin-A	Danielle LaRock & Deb Schlafmann, CA-LCC
Meadow/Wetland	San Joaquin-B	Dr. Matt Brooks, USGS & Sylvia Haultain, NPS
Oak Woodland	Charter Oak-A	Denis Kearns, BLM & Eric Winford, NPS
Mixed Conifer/Fisher/Owl	Charter Oak-E	Dr. Mark Schwartz, UC Davis & Hugh Safford, USFS
Giant Sequoia	San Joaquin-C	Dr. Nate Stephenson, USGS & Vance Russell, NFF
High-Elev. 5 Needle Pines	San Joaquin-D	Dr. John Battles, UC Berkeley & Jonny Nesmith, NPS

Suggested exercise steps:

1. Pass around sign in list for participants to sign.
2. Briefly discuss communication guidelines & role of facilitator. Group selects note taker(s). Select presenter(s) ahead of time if possible.
3. Groups may need to limit discussion to a subset of “critical attributes”. If the subject is a broad “defining feature”, what “critical attributes” are you going to discuss? **The SME facilitators may determine this ahead of time to save time.**
4. Discuss the vulnerabilities of the “defining feature” or “critical attributes” (Q1). *Note that “strawman” responses to Q1-4 will be provided to your group during the exercise for Q1-4. Discuss and revise these as needed. We will email these examples to you as we complete them (see sequoia already done). If facilitators want to provide the strawman examples for Q1-4, that is very welcome, but please contact Koren Nydick ASAP. Also: You may refer to results from the “session 3 – vulnerability” mini-exercise where participants discussed Q1-3 briefly at their tables earlier in the day.*
5. Discuss current objectives, consider whether they are feasible given the vulnerabilities, and then discuss possible “retrofitted objectives” (Q2&3). *Note that results of “session 2 – shared conservation values” exercise will be summarized on a hand-out and available to help your group identify current objectives.*
6. Discuss potential strategies to meet “retrofitted objectives” (or current objectives if still deemed appropriate) (Q4). *You may choose to refer to ideas in the info briefs.*
7. Respond to Q5&6. If the group is large, facilitators may subdivide and separate the large group into smaller teams. Smaller groups focus on different sets of strategies. *Strawman response are included below for Q5&6 but won’t be provided to participants.*
8. Q7 is optional if time allows.
9. Prepare for report out. Select most critical components of vulnerability, objectives, strategies, constraints, and opportunities. You may use a projector if you choose.

See example worksheet below

SESSION 4: EXERCISE (LINKING VULNERABILITY, OBJECTIVES, THEMATIC STRATEGIES & MANAGEMENT TOOLS)

Feature/Attribute: Giant Sequoia Sub-grp: EXAMPLE ONLY

Note-taker name: _____

1. What are critical vulnerabilities or components of (exposure, sensitivity, adaptive capacity)?	2. What are <u>current</u> objectives for the resource in the S. Sierra?	3. What <u>should</u> "retrofitted objectives" be for the resource in the S. Sierra?	4. What are possible thematic strategies and management tools to meet our objectives for the future?			
			Manage for Persistence		Manage for Change	
			Resist change	Build resilience	Facilitate transformation	Anticipate and plan reaction to extreme events
<p><u>Exposure:</u> more climate change- driven drought & high-severity fire; fire suppression; non-native/climate-driven insects & pathogens; ozone & interactions</p> <p><u>Sensitivity:</u> spatial variation in water requirements & availability; probability of severe fire; & resistance/resilience to severe fire.</p> <p><u>Adaptive capacity:</u> Genetic diversity; migration potential; management actions</p>	<ul style="list-style-type: none"> Restoration of "natural" (preEuropean) fire regimes in sequoia groves Self-sustaining sequoia population w/ mixed size-class distribution in current grove locations Avoid damage to iconic sequoia trees 	<p>Sequoia persists in the S. Sierra:</p> <ul style="list-style-type: none"> Increase resistance & resilience of selected grove areas (high value &/or likely climate refugia) to maximize regeneration & minimize increase in mature tree mortality - such that groves persist in these select areas. Facilitate migration of sequoia to new areas with suitable conditions. 	<p>Plant & irrigate seedlings</p> <p>Suppress high severity fires</p> <p>Install strategically placed fuel breaks</p> <p>Apply pesticides to insect outbreak</p>	<p>Allow wildfires to burn</p> <p>Prescribed fire (to reduce fuels & competition for water; & promote conditions for regeneration)</p> <p>Mechanical thinning followed by planting</p> <p>Reduce other stressors, such as air pollution & tourism/ development (soil compaction, root damage, etc.)</p>	<p>Understand genetic and functional diversity of sequoia</p> <p>Collect seed &/or establish living seed banks with known genetic make-up</p> <p>Plant with drought resistant genotypes.</p> <p>Plant in new areas with suitable soil & future climate</p>	<p>For large-scale high severity fire or vegetation die-off:</p> <p>Learn from other places – how they responded/what worked well - and prepare for these events ahead of time.</p> <p>Prepare for (incl. compliance) pre-planned but location-flexible experiment with erosion controls & planting plan to test more adapted genotypes and species, etc.</p>

5. What are constraints & trade-offs to implementation (including other objectives that present conflicts)?

Potential Management Tools	Constraints
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THIS IS JUST A QUICK EXAMPLE:

Plant and irrigate seedlings	(1) Cost; (2) wilderness issues; (3) not "natural"
Suppress fires	(1) Short-term strategy only - will increase risk later; (2) cost; (3) fire fighter safety; (4) wilderness issues
Install strategic fuel breaks	(1) Short-term strategy only - will increase risk later; (2) cost; (3) wilderness issues
Allow wildfires to burn.	(1) Decision makers tend to discount future risk in favor of reducing current risk; (2) air quality standards (i.e., smoke); (3) protecting human development & safety
Prescribed fire	(1-3) Above; (4) cost
Mechanical thinning	(1) Stakeholder opposition - not "natural"; (2) cost; (3) accessibility; (4) wilderness issues
Assisted migration; Plant with new genotypes/relax genetic regs.	(1) Policy on genetic planting requirements; (2) cost; (3) wilderness issues; (4) lack seed source; (5) need research to develop methods
React to extreme events with pre-planned experiments.	(1) Cost; (2) compliance takes time and opportunity is lost; (3) wilderness issues; (4) policy on genetic planting requirements

6. What thematic strategies and management tools are most likely to enable us to meet objectives? Who has the capacity to use different management tools? Where will the tools be most successful? What factors will enable us to meet objectives in certain places?

THIS IS JUST A QUICK EXAMPLE:

Need a mixture of short and long-term strategies. When managing for persistence, resisting stressors is likely to be useful only for very limited areas of extraordinary value. We cannot apply strategies everywhere. Need to identify criteria to triage areas for management (which groves are most important?; which are most at risk? which are most resilient?). Need coordinated long-term monitoring of sequoias & their environments. Need research/experimentation on long-term strategies to facilitate transformation. Need to communicate climate change realities to stakeholders and engage in discussion.

- Private, tribal & university - most current capacity to do experiments with mechanical thinning, planting & IDing drought resistant genotypes
- NPS - Most capacity to manage wildfires and use prescribed fire
- BLM - Most capacity to experiment with mechanical thinning?
- USFS - ?
- State forests - ?

7. BONUS QUESTIONS: A) What would success look like? What are the indicators of success? B) How can we work together to overcome constraints? C) What gaps in monitoring and research are most important to fill? How do we work together to fill these gaps?