Adaptation Planning Workshop for the Sierra Nevada

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Workshop Goal

To Develop a Portfolio of Adaptation Options for Focal Resources and the Region

– Prioritize actions
– Identify who could implement and when, and what resources are needed
– Where to implement
Adaptation Planning Cycle

1. DEFINE management goals and objectives, area of interest, and time frames

2. ASSESS climate impacts and vulnerabilities

3. EVALUATE management objectives given vulnerabilities and revise, if necessary

4. IDENTIFY adaptation approaches and evaluate and prioritize actions

5. IMPLEMENT priority actions

6. MONITOR and evaluate effectiveness

OUR GOAL: Complete Steps 1-4 and part of 5 during this workshop
Outcomes

1. List of management objectives for resources
2. Evaluation of management objective feasibility given climate and non-climate stressors
3. Suite of adaptation approaches and actions for a resource
4. Prioritized list of adaptation actions – for resources and across the Sierra Nevada
5. Implementation plans for prioritized actions – WHO, WHEN, WHAT/HOW, WHERE
Adaptation Planning Workshop

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DAY ONE

COMPLETED DURING MARCH WORKSHOP

DAY TWO

DAY TWO
Adapta&on Planning Workshop

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PM DAY ONE
Step 1.

DEFINE management goals and objectives, area of interest, and timeframes.

**Management Goals**: broad, general statements that express a desired state or process to be achieved
– “Maintain and improve forest health and vigor.”

**Management Objectives**: concise statements of measurable planned results that correspond to preestablished goals in achieving a desired outcome
– “Implement silvicultural treatments within 5 years in order to increase the oak component of selected stands and enhance wildlife habitat.”

**Area of Interest**: describe a geographic area (e.g., management unit, stands, general locations, etc.)

Examples from Swanston et al. 2012.
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COMPLETED DURING MARCH WORKSHOP
Step 2.

ASSESS climate impacts and vulnerabilities.

- **Vulnerability**: susceptibility of a system/species to the adverse effects of climate change. A function of its sensitivity to climate and non-climate stressors, its exposure to those stressors, and its ability to cope with impacts with minimal disruption (Glick et al. 2011).

- Resource vulnerabilities assessed during March workshop
Step 2.

ASSESS climate impacts and vulnerabilities.

**Vulnerability**: susceptibility of a system/species to the adverse effects of climate change. A function of its sensitivity to climate and non-climate stressors, its exposure to those stressors, and its ability to cope with impacts with minimal disruption (Glick et al. 2011).

- Resource vulnerabilities assessed during March workshop
- Summaries are included in resource packets on group tables
- Detailed results can be found on workshop support page [http://ecoadapt.org/workshops/sierra-nevada-adaptation-workshop](http://ecoadapt.org/workshops/sierra-nevada-adaptation-workshop)
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AM DAY TWO
Step 3.

EVALUATE management objectives given vulnerabilities and revise, if necessary.

**Use Vulnerability Assessment results provided to:**

- Identify challenges to meeting management objectives
  - How will climate impacts and associated vulnerabilities make it more difficult to achieve management objectives?

- Identify opportunities
  - How will climate impacts and associated vulnerabilities make it easier to achieve management objectives?

- Evaluate feasibility of meeting your objectives under current management strategies and actions
  - Can existing management options be used to overcome challenges or are new approaches required?
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AM DAY TWO
IDENTIFY adaptation approaches and evaluate and prioritize actions.

**Adaptation**: efforts to reduce the negative effects of or respond to climate change

- Identify adaptation *approaches* that will help you achieve your management objective
  - “Alter forest structure or composition to reduce risk or severity of fire.”

- Describe more specific *actions* that you can take to implement the adaptation approach
  - “Use prescribed burning or other ground cover management to minimize fuel loading and reduce severity of potential fires.”
  - “Plant fire-resistant species, such as hardwoods, between more flammable conifers to reduce vulnerability to wildfires.”

Examples from Swanston et al. 2012.
Identify adaptation approaches and EVALUATE and PRIORITIZE actions.

**Adaptation**: efforts to reduce the negative effects of or respond to climate change

- For each action, identify:
  1. **Feasibility** – how difficult will it be to implement? Are there barriers to implementation (e.g., legal, social, financial, technical etc.) or benefits (e.g., addresses multiple challenges)?
  2. **Priority** – how important is it that the action be implemented now?
1. DEFINE management goals and objectives, area of interest, and time frames

2. ASSESS climate impacts and vulnerabilities

3. EVALUATE management objectives given vulnerabilities and revise, if necessary

4. IDENTIFY adaptation approaches and evaluate and prioritize

5. IMPLEMENT priority actions
   DEVELOP implementation plan for priority actions

6. MONITOR and evaluate effectiveness

PM DAY TWO
Step 5.

DEVELOP implementation plan for priority actions.

For priority actions:
- Who could implement – agency, organization, private landowner?
- Resources needed – data/information, funding, permits, etc.
- Partners – who can help with data? Obtaining funding? Materials?
- Timeframe – near-term actions vs. longer-term
- Where to implement – possible areas to target actions
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Example: Red Fir

Management Objective

Double recruitment of red fir in mid-elevation stands in next 10 years.

Climate & Non-Climate Stressors

- Dispersal limited by nearby clear cut/logging
- Less fire tolerant; Intense fires result in high mortality

Adaptation Approaches

- Enhance dispersal capabilities
- Alter forest structure or composition to reduce risk of severe fire

Actions

- Facilitated migration (aka “the Johnny Appleseed”)
- Plant fire-resistant species between more flammable ones
- Use prescribed burning to minimize fuel loading

Implementation Plan

- Who
- Resources needed
- Timeframe
- Where
Questions?

Up Next: Introduction to Adaptation Strategy Development