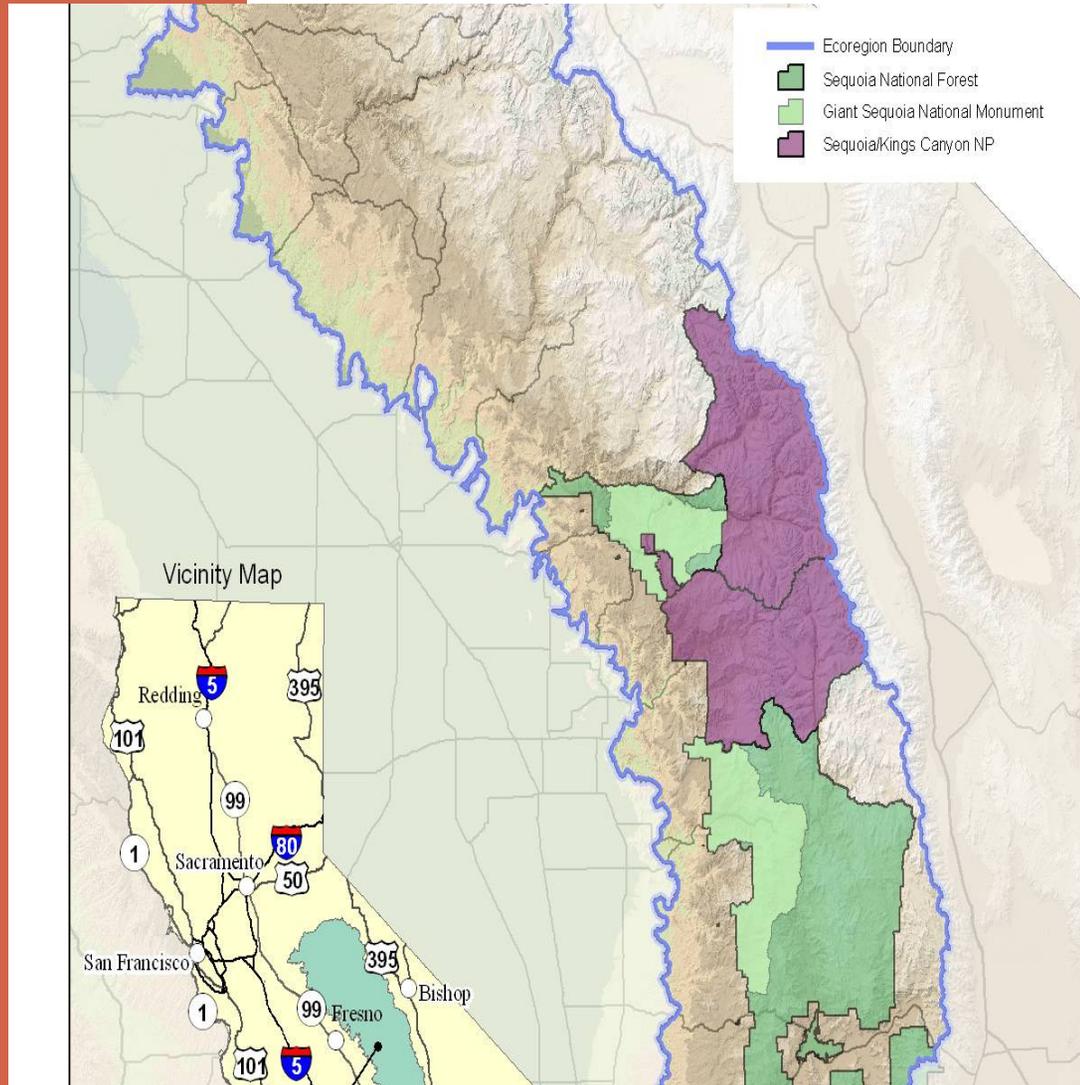


A Strategic Framework for Science in Support of Management



In the Southern Sierra Nevada Ecoregion

**A COLLABORATIVELY
DEVELOPED APPROACH**



Background

- MOU

- Symposium
(September
2008)

- Sequoia and Kings Canyon National Parks
- U.S. Geological Survey, Western Ecological Research Center
- Forest Service, Pacific Southwest Research Station
- Sequoia National Forest/ Giant Sequoia National Monument

- Day 1 – Presentations
- Day 2 – Workshop

The Big Five



- Accelerated Climate Change
- Altered fire regimes
- Contaminants (e.g., air pollution)
- Invasive species
- Land use caused habitat fragmentation

Team “Assignment”



- Develop a Regional “Science Agenda”
- Use the results of the Symposium to the extent practical

Conclusions and Recommendations



- The framework's purpose is to guide the creation of a work plan
- The development of the work plan is an iterative process that will evolve through collaborative learning
- Cannot be accomplished through collateral duty assignments

Conclusions and Recommendations (continued)

- The way we manage landscapes will change radically.
- This situation demands novel thinking and creative management actions.
- We must avoid committing to a single path or solution and assuming that old ways will suffice.
- The process to transform thinking will take a substantial commitment of funds and time to achieve.

Initially focus on answering these questions



- Which ecosystem elements are important and time sensitive to track?
- Where on the landscape should actions be taken now?
- How does each agent of change affect important ecosystem elements?
- Which agents of change can be slowed and why?
- What tools and approaches further effective human response to known agents of change?

Take swift action to:



- Create a range of plausible future scenarios
- Create an information clearinghouse

Decisions Made

- Adopt the framework
- Seek comments to flesh out the science questions
- Hire term professional (GS-12 or 13)
- SEGI monitoring likely to be done in-house
- Focus initially on giant sequoia groves
- Synthesize knowledge on status and trends
- Develop long-term monitoring plan
- Seek funding (e.g., Save the Redwoods League)

Framework Structure



Goals (4)

Objectives (2 to 3)

Tasks (2 to 6)

Questions (TBD)



Goal 1: Detection, Attribution and Interpretation

We detect and describe ecosystem changes across a range of spatial and temporal scales, can understand why change is occurring, and can interpret its significance.

Objective 1: Status and Trends

Objective 2: Understand Key Cause and Effect Relationships

Objective 3: Context for Interpreting Findings

- 1. We know the status of ecosystem elements and processes and what has changed since humans began to significantly affect Sierra Nevada ecosystems.
- 2. We understand and can explain how particular agents of change drive changes in ecologically significant and/or socially valued resources.
- 3. We understand how the rates and magnitudes of observed changes compare both to past changes (historical range of variability) and to desired conditions.



Goal 2: Forecast Future Conditions

We will be able to anticipate possible futures to help us develop feasible responses.

Objective 1: Models describe key relationships

Objective 2: Forecasts

Objective 3: Scenarios

- We have the models needed to help explain relationships among forces driving ecosystems and their value and services.
- We have forecasts of possible futures resulting from a range of environmental, socio-political, and management conditions.
- We have scenarios representing a range of possible and plausible futures.



Goal 3: Tools and Actions

*We have the tools
required to take
effective and efficient
action.*

**Objective 1:
Adaptation**

**Objective 2: Curb
undesired agents of
change**

**Objective 3: Measure
Success**

- We have the tools and action options required to effectively adapt to change.
- We have the tools and action options required to help slow the rate of change.
- Actions are evaluated to determine the degree of their success.



Goal 4: Information Management and Delivery

We have easy access to the growing body of information and effective ways of disseminating that information to the public, resource managers, and the scientific community.

Objective 1:
Clearinghouse

Objective 2: Effective
use of information

- A place or process will be established for the gathering, storage, and dissemination of high quality information.
- Effective and innovative ways will be employed to disseminate, utilize, and monitor information that has been gathered to reach targeted audiences.