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PLANNING AND MANAGING FOR RESILIENCE: LESSONS FROM NATIONAL FOREST PLAN REVISIONS

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Recent federal forest and wildfire policies have increasingly united around a vision of restoring resilient landscapes in the face of increasingly destructive wildfires driven by altered forest conditions and climate change. The process of revising forest plans guiding national forest management presents opportunities to reorient management informed by concepts of resilience. This Joint Fire Science Program-funded research used case studies of three recently completed national forest plan revision processes[1] to determine whether and how USDA Forest Service staff were able to plan for resilient outcomes. The lessons from our comparative analysis are relevant for forest managers and key stakeholders attempting to plan in pursuit of more resilient landscapes.

What is resilience? In the environmental management context, the resilience perspective broadly focuses on adaptability in the face of uncertainty; a resilient system is one that is able to constructively adapt to disturbances, surprises, and shocks.

Key findings

Although each plan process varied, broadly comparable challenges and opportunities emerged for reorienting forest management and planning toward resilient landscapes:

Meanings of resilience: Interviewees agreed on the meaning of resilience in historically frequent-fire systems such as longleaf pine and ponderosa pine. These forest types were seen to benefit from the reintroduction of fire (wild or prescribed), with forest stand treatments as needed to reduce fuel loads. Conversely, the meaning of resilience in other forest systems, particularly high elevation spruce-fir forests, was less clear. Although there was agreement regarding restoration in ponderosa and dry mixed-conifer systems, some interviewees felt that managing to restore the "natural range of variability" may not be the right approach for achieving forest resilience under a changing climate.

Adaptability and flexibility: There was broad agreement that adaptive management is needed in order to achieve resilient landscape outcomes. Both agency and non-agency interviewees across all three cases recognized trust as a key variable for transitioning from inflexible to adaptive planning and management. Ongoing engagement with partners and a robust system of monitoring were identified as fundamental to building and maintaining trust going forward.

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Capacity to manage for resilient landscapes: USFS budgetary and staffing capacity for planning, implementing, and monitoring as well as science and technical capacity are central to informing resilience-oriented projects. Partnerships with USFS and NGO scientists greatly improved planners' scientific and technical capacity. Many national forest managers expressed the desire that non-agency partners would continue to take active roles in collecting new monitoring data, adding needed capacity and support for restoring and managing forests under the influences of climate change.

Broader institutional and political influences: Despite multiple policies and widespread interest to manage for resilient landscapes, performance targets (timber sales and acres treated outputs) were commonly identified by Forest Service staff to be of overriding priority in driving planning and decision-making on national forests. This set up potential conflicts with the agency's ability to build trust with various publics who had contributed time or resources to the plan revision process.

Implications for policy and practice

Our research suggests that to transition from conventional output-oriented forest management to management informed by concepts of resilience, the following elements are beneficial to land managers:

- Conceptual clarity on the meaning and application of resilience.
- A clear legal and policy framework promoting and prioritizing landscape resilience.
- Incentives and flexibility for managers to practice adaptive management.
- Access to relevant, site-specific information to inform planning and management.
- Capacity to achieve resilient landscape outcomes.

For more information:

A full report of results for this analysis, along with other publications from this research are available at: **http://ewp.uoregon.edu/ForestResilience.**

[1] *Case study locations were the Francis Marion (South Carolina), the Kaibab (Arizona) and the Rio Grande (Colorado) National Forests.*

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