

Collaborative Restoration Workshop

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Science & Action | Restoration as Science in Action

Key Topics: Adaptive Management

Speakers

- **Amy Waltz**, Program Director of Science Delivery, Ecological Restoration Institute
- **Frank Lake**, Research Ecologist, Pacific Southwest Research Station
- **Paul Rogers**, Director, Western Aspen Alliance, Adjunct Associate Professor, Department of Wildland Resources, Utah State University

Overview

This session presented examples of applied ecological science from different biomes that have integrated science and restoration action among groups with diverse social, economic, and personal values.

Amy Waltz – Four Forests Restoration Initiative, Arizona

The Four Forests Restoration Initiative (4FRI) is a collaborative, landscape-scale initiative designed to restore fire-adapted ecosystems across the Kaibab, Coconino, Apache-Sitgreaves, and Tonto National Forests.

The Four Forest Restoration Initiative (4FRI) stakeholder group developed the adaptive management and monitoring plan for the first million-acre restoration planning area of the 4FRI. Over the course of four years a small working group developed a monitoring plan that could assess how well the stakeholders' desired conditions will be met, while meeting U.S. Forest Service National Environmental Policy Act (NEPA) requirements, planning and project-level specificity. The group included Forest Service staff in their meetings and review.

At each step of the planning process the group sought to unify stakeholder input and expectations with scientific research. The key steps in this process included (1) identifying science-supported indicators for stakeholders' desired conditions, (2) prioritizing which indicators were most important and feasible to monitor, and (3) defining measurable triggers and thresholds for each indicator to provide guidance for adaptive management. This process was not simply a matter of bringing scientific research into the planning process; rather, the plan worked to incorporate the social values, local knowledge, and desired conditions of stakeholders into a rigorously measurable management plan.

Frank Lake – Incorporating Traditional Ecological Knowledge (TEK)

Working with the Forest Service, the Western Klamath Restoration Partnership (WKRP) is creating a path toward collaborative fire management in the Klamath Basin of northern California. The planning area is 1.2 million acres that includes or adjoins five ancestral territories of the Klamath Tribes, which overlap both the Klamath and Six Rivers National Forests. The central aim of this project is to re-introduce fire to areas where it has been excluded, and to do so in an ecologically sound way that preserves or restores habitats and resources valued by the tribes.

Fire treatments can be beneficial or harmful to rural or tribal uses of the land. The WKRP has been working together to bring scientific and community knowledge and values into a unified adaptive



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management plan. The key to this collaborative approach has been taking the time to identify shared values and building the trust to ensure all parties that the management principles can accurately capture these values.

This process has included many collaborative research methods:

- Engaging tribes and tribal organizations as research partners.
- Identifying questions and science support needs for the tribes to address.
- Tribal participation in organizing research methods, analysis, results, and how data is shared with the public.
- Tribal participation assisting with the creation of the best available science to inform policy development and management of landscapes and resources.

Incorporating land-user knowledge of ecological condition and indicators requires a process of translating that knowledge into formal scientific language to be incorporated into management planning. This requires a good deal of time to listen and ensure that all parties understand each other. It takes time, but the process builds trust.

Paul Rogers – Managing the Pando Aspen

The "Pando" aspen (*Populus tremuloides*) clone located in central Utah is thought to be the largest living organism on earth, weighing an estimated 5.8 million kilograms and spanning 43 hectares. Because of its immense size Pando not only garners international attention, but it is highly visible to public scrutiny. This nearly pure aspen community is rapidly collapsing due to a combination of aging overstory and chronically browsed vegetative suckers.

Starting in 2013, a sub-group of the Utah Forest Restoration Working Group collaborated on a treatment and monitoring plan. The plan consisted of fencing, experimental treatments (including burns and juniper removal), and repeat monitoring to test efficacy of prescriptions. Soon after the fence was erected aspen ramets began to appear and attain up to 0.5 m growth. To test response and survival rates, the team established a total of 27 monitoring plots paired as treatments and controls outside and inside the fence. Animal feces were counted and browsing levels were measured to determine cause and level of herbivory.

While fenced areas did see increased stem growth, it is impractical to use fencing as a large scale management practice. The high level of experimental planning and monitoring, however, is yielding valuable information for understanding aspen restoration. Successful restoration of Pando will provide insight for similar threats to aspen at landscape and regional levels across the West.

Lessons

Establishing Consensus – Even when there is broad scientific consensus on an issue, it can be difficult to create consensus in a local group. People often fall back to positional statements. Some ways of moving past disagreement include:

- Identify shared values. Progress can be made and relationships can be built by first spending time to share what all stakeholders find valuable about the land and highlighting areas of agreement.
- Instead of only asking about desired forest conditions, try identifying *undesirable* conditions. There is often broad agreement about what is undesirable. This can form the foundation of what a restoration plan will address.

Good Monitoring – Effective monitoring is critical to adaptive management. In order to get the most out of monitoring:



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- Utilize multiple parties to increase monitoring capacity, including NGO's, citizen-science programs, universities, etc.
- Be sure to standardize data collection between parties at the beginning of the process.

Translating Science and Values – In order to foster buy-in from stakeholders and to encourage partnership in planning and monitoring it is important to translate how scientific metrics relate to each stakeholder's interest in the forest. More than simply creating stakeholder buy-in, land managers also benefit from taking the time to discuss how local interests relate to scientific metrics. Local knowledge is vital for identifying which metrics and which locations can be most feasibly and effectively monitored.

Resources

- [4FRI Stakeholder Group Website](#)
- [4FRI Monitoring Plan, pp. 747-857](#)
- [Collaboration in National Forest Management](#)
- [Sociocultural Perspectives on Threats, Risks, and Health](#)
- [The WKRP plan can be found here](#)
- [Pando Aspen Clone Restoration Project – Decision Memo](#)
- [Guidelines for Aspen Restoration on the National Forests in Utah](#)

