

# Science synthesis to help guide land management of nation's forests

February 21 2013

---

A team of more than a dozen scientists from the U.S. Forest Service's Pacific Southwest (PSW) and Pacific Northwest research stations, universities and Region 5 Ecology Program recently released a synthesis of relevant science that will help inform forest managers as they revise plans for the national forests in the Sierra Nevada and southern Cascades of California. The three most southern national forests in the Sierra Nevada—Inyo, Sequoia and Sierra—will be among the first of the 155 national forests to update their management plans. The new planning rule requires the forests to consider the best available science and encourages a more active role for research in plan development.

At the request of Region 5 leadership and stakeholders, the team embarked on a year-long effort to summarize and integrate recent [scientific advances](#) across key topics including forest and fire ecology; soils; aquatic ecosystems; terrestrial wildlife; air quality; and social, economic and cultural components—all of which make up socioecological systems.

The synthesis distilled important findings from recent studies about how to make systems more resilient to stressors, such as changes in climate, introduced species, and risk of uncharacteristically large and severe wildfires. The authors considered the connections between the terrestrial forests and the streams, as well as how restoration of ecological processes interfaces with the social and [economic concerns](#) of communities. By examining concepts and issues that cut across science disciplines, the authors sought to help managers address relevant

challenges more holistically.

Key findings from the synthesis were:

- Efforts to promote resilience of socioecological systems increasingly consider the interaction of social values and [ecological processes](#) in pursuit of long-term mutual benefits and social learning for local communities and larger social networks.
- Research indicates that strategic placement of treatments to reduce hazardous fuel accumulations and to restore fire as an ecosystem process within fire sheds can lower the risk for undesirable social and ecological outcomes associated with uncharacteristically large, severe, and dangerous fires, which include impacts to wildlife species of concern, such as the fisher and California spotted owl.
- Science generally supports active treatment in some riparian and core wildlife zones to restore fire regimes. However, adaptive management, including experimentation at large landscape scales, is needed to evaluate which areas are priorities for treatment and what levels of treatment produce beneficial or neutral impacts to wildlife species and other socioecological values over long periods.

"The synthesis integrates scientific findings from diverse disciplines using a conceptual framework of how social and ecological systems function in the [Sierra Nevada](#) and southern Cascades," said Malcolm North, a PSW research forest ecologist who worked on the report. "This framework clarifies the current state of the science and provides information for managers as they develop forest plans with flexibility to make the best decisions for particular contexts."

**More information:** The full report is available at:

[www.fs.fed.us/psw/publications...esis2013/index.shtml](http://www.fs.fed.us/psw/publications...esis2013/index.shtml)

Provided by USDA Forest Service

Citation: Science synthesis to help guide land management of nation's forests (2013, February 21) retrieved 24 April 2024 from <https://phys.org/news/2013-02-science-synthesis-nation-forests.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.