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ERI Publications ~ Spring 2011

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Ecological Research

[Future climate affects management strategies for maintaining forest restoration treatments](#)

by Corinne Diggins, Peter Z. Fulé, Jason P. Kaye, and W. Wallace Covington

Although it has been widely predicted that future climate conditions will support more burning (warmer, drier fuels, longer fire season), this study suggests that the production of fuels will decline to the point where there will eventually be a tipping point between increased fire and reduced woody fuel, both driven by climate.

[A century of increasing pine density and associated shifts in understory plant strategies](#)

by Daniel C. Laughlin, Margaret M. Moore, and Peter Z. Fulé

A century of increasing ponderosa pine density was found to be associated with shifts in herbaceous plant strategies and reduced functional diversity. Shade- and stress-tolerant herbaceous plants that use a more conservative strategy for acquiring and maintaining resources have increased in relative abundance over time likely because light, water, and nutrients have become more limiting beneath the dense overstory.

[Minimal effectiveness of native and non-native seeding following three high-severity wildfires](#)

by Ken A. Stella, Carolyn H. Sieg, and Peter Z. Fulé

This study adds to growing evidence that post-fire seeding is ineffective in enhancing post-fire plant cover and reducing invasive non-native plants.

Fact Sheets

[Methods for estimating surface live fuel loading](#)

by Molly Hunter

Fire managers need to know about surface live fuels to understand potential fire behavior and fire effects of a site. Methods for estimating surface live fuels can be described as: 1)

direct methods, 2) correlations or allometric equations, and 3) photo series or photo load series. The advantages and disadvantages of each method are described in this fact sheet.

[Post-wildfire fuels and regeneration dynamics](#)

by John Paul Roccaforte, Peter Z. Fulé, Walker Chancellor, and Daniel C. Laughlin
ERI researchers studied 14 ponderosa pine-dominated wildfire sites of different ages throughout Arizona and gained a better understanding of snag and woody debris dynamics, and post-fire woody plant regeneration in terms of probable future successional trajectories.

[Carbon costs of mitigating high-severity wildfires](#)

by Matthew Hurteau, Michael Stoddard, and Peter Z. Fulé
This research suggests that the forest management goals of reducing the risk of high-severity wildfire and increasing long-term carbon stability can be achieved simultaneously by consolidating the carbon stock into fewer trees of larger average size.

[Effectiveness of Post-wildfire Seeding in Western U.S. Forests](#)

by Donna Peppin, Peter Z. Fulé, Carolyn H. Sieg, Jan Beyers, and Molly Hunter
The findings in this evidence-based restoration review suggest that post-fire seeding is not reliably effective in protecting soil in the short term and can have negative consequences for native plant recovery. Land managers should weigh the costs and benefits of seeding treatments, and consider using alternative rehabilitation methods shown to be more effective (e.g., mulching).

[Effects of Restoration Wildlife Density and Populations](#)

by Liz Kalies and W. Wallace Covington
This evidence-based restoration review suggests that thinning and prescribed burning of southwestern ponderosa pine and dry mixed conifer forests will benefit passerine birds and small mammals. However, no one treatment benefitted all species, at least in the short term. Thus, a combination of various treatments in a patchy arrangement in time and space across the landscape is likely to result in higher animal diversity than any one treatment.

Working Paper

[Protecting old trees from prescribed burning](#)

by Dave Egan
While earlier recommendations suggested raking duff away from all old trees, more recent research suggests that removing duff from the base of old trees may be necessary only in cases where the tree has signs of previous damage (i.e., fire scars, pitch seams, lightning scars).

White Paper

[Integrating domestic and wild ungulate grazing into forest restoration plans at the landscape level](#)

by Dave Egan
This ERI white paper provides insights into the following set of issues: how long to “rest” treated areas before allowing domestic livestock grazing, how to integrate grazing with

prescribed fire, ensuring quality habitat for domestic and wild ungulates, grazers as vectors and regulators of unwanted plant species, the potential of grassbanks as a conservation strategy, and improving grazing monitoring protocols.

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