

Fire Ecology of Pacific Northwest Forests by James K. Agee. Island Press. 1993, Box 7, Covelo, CA 95428.

"As long as plant biomass had been present on the earth," Jim Agee writes in his opening chapter, "lightning has ignited fires, and the myriad ecological effects have been repeated time and again." This comprehensive and well written book could not come at a better time.

Among the lessons learned over the past few years about how to and how not to manage forest ecosystems, one of the more important has been the critical need to understand and account for fire when developing strategies for protecting species and restoring and maintaining ecosystem health. Like the fierce Hindu goddess, Kali, who carries a bloody dagger in one hand while blessing and protecting with another, fire both destroys and renews, and in this complex process plays a central role in maintaining ecosystem health.

The importance of fire in shaping forests of western North America is evidenced by the wide array of adaptations evolved by trees and other plants to either survive or quickly recover from fire: thick bark, the ability to sprout from roots, serotinous cones, seeds that lie buried for hundreds of years to germinate only when sufficiently heated. My colleagues and I have hypothesized that the ubiquity yet uncertainty of wildfire has catalyzed the evolution of cooperative relationships among plant species. In the west, we have learned to our chagrin that eliminating the frequent, gentle fires that historically burned through dry forests has led to unforeseen and unwanted consequences; native insects and pathogens have become more aggressive and forests more susceptible to drought, and rather than eliminating fire the stage has been set for fires that are significantly more widespread and destructive than those that occurred in the past.

The book is divided into 13 chapters. The first six chapters deal with individual forest zones, including Sitka spruce, redwood and hemlock; Pacific silver fir and red fir forests; subalpine forests; mixed conifer and mixed evergreen associations; ponderosa and lodgepole pines; and oak and juniper woodlands. For each forest type, Agee discusses fire regimes, stand development patterns following fire, and management implications. The final chapter addresses the future role of fire in ecosystem management, park and wilderness management, species conservation, and forest health, and briefly touches on how fire regimes might be altered by global climate change.

The word that comes most often to mind as I think about this book is "scholarly"—however, I hasten to add that does not translate into boring or unreadable. Quite the contrary, the book is readable and packed with good information. It is thoroughly researched and documented (close to 1,000 references), and includes numerous graphs and photos (including some interesting historical shots showing changes in stand structure following fire exclusion).

Though the book deals with the Pacific Northwest, Agee does not hesitate to pull relevant information from other regions, thereby avoiding a feel of provincialism. There are a few issues I would like to have

seen receive more space (e.g. the importance of sprouting plants in stabilizing soils, the protective role of some hardwood species in conifer forests). However, that should be considered minor criticism; I know of no other work on the ecology of fire, from any region, that comes close to being as comprehensive and far-ranging in the topics it covers.

I recommend it highly for professional land managers, academics, environmentalists, and anyone with interest in forest ecosystems.

David A. Perry

Perry is a professor of forest science at Oregon State University, Corvallis.