

Introduction

North America's forests are magnificent. They include the world's tallest, oldest, and most massive trees and nearly every genus of conifers on Earth. Their history carries a legacy of massive ice that ground mountains to plains and sculpted river valleys, of great landforms that rose to channel air movement and moisture, of recurrent fire that shaped forest succession. These natural forces controlled where forests grew and where they are today. Human influence pales by comparison. Yet forest composition has changed in the span of a century. Except in the West, most of North America's aboriginal forest is gone, changed to young-growth stands, converted to other uses. Still, today's forests are magnificent by any measure. They are among the most extensive and diverse in the world, and many forests have been protected administratively from further harvests. But the future of our forests depends on today's management. And sound management centers on the art and science of silviculture.

From the perspective of human life spans, North American forests seem unchanging. But change is certain. Climate, seemingly immutable to our parents, is changing. And while the exact causes of climatic change remain arguable, evidence compels us to believe that the future will be different from the past and that we must be ready. Managers must develop strategies for coping with change. One expected change is the nature of wildfire. Our forests—particularly those of the West—are threatened. Each successive year seems marked by a rise in wildfire frequency, extent, and severity. Well-meant policies of decades of fire suppression plus shifts in forest management practices have led to changes in forest structure and diversity, physiological stress, and fuel accumulation. And a mantra is heard that our public forests should be managed toward conditions typifying pre-European settlement. But this is a vain hope akin to putting the genie back into the bottle, because our forests have a new complexion. Many of our forests are urbanized—some as traffic corridors, others as semimanaged interstices in a patchwork of community development. This has produced a mosaic of ownerships and a complexity of management challenges. Yet, as we fret with the bustle of everyday life, forests continue to grow. Change marches inexorably. The threat of catastrophic fire looms large.

Restoring fire-adapted or fire-resilient forested ecosystems in the specter of change and uncertainty demands intelligence and creativity. Among our most useful tools are models, both conceptual and mathematical, that project the likely outcomes of specific management strategies. But models are simplifications that are extrapolated to scales ranging from stand groups to landscapes, and those built on empirical data risk being nonfunctional if conditions in the future are different than in the past. How do we develop more flexible and reliable models? The hope for this rests on a better understanding of the principles that control processes. Not all processes are ecological;

some are administrative, and we need to sharpen our understanding of both if we are to adapt successfully to change. To this end, managers and researchers representing several disciplines assembled in 2005 at Granlibakken Resort, on the shore of Lake Tahoe. Speakers produced manuscripts, which, in turn, were subjected to a minimum of two technical reviews (one from a scientist, another from a practitioner), an independent statistical review, and a final review by the editor. Not all manuscripts met our standards for publication. Those that did are reported here.

Robert F. Powers
Pacific Southwest Research Station
USDA Forest Service
Redding, CA

F. Michael Landram
Pacific Southwest Region
USDA Forest Service
Vallejo, CA

Acknowledgments

The organizing committee members of the 2005 National Silviculture Workshop deserve special recognition for their efforts in making the symposium and this publication a success:

Monty Maldonado, WO, Clark Baldwin, WO, Frank Burch, WO, Mike Landram, R5, Ray Hermit, R5, Bob Powers, PSW, Sue Stewart, WO, Duane Nelson, R5, and Joe Sherlock, R5.

Thank you to the Region 5 silviculturists, fuel management specialists, and others who served as moderators, timekeepers, field trip organizers, and administrative assistants:

Karen Jones–Tahoe NF, Gary Thompson–R5, Sheri Smith–R5, Kathy Murphy–Tahoe NF, Sam Wilbanks–Tahoe NF, Steve Weaver–Tahoe NF, Larry Ford–Tahoe NF, Bob Moore–Tahoe NF, Craig Wilson–Tahoe NF, Carrie Smith–Tahoe NF, John Minutilli–Tahoe NF, Jerry Westfall–Tahoe NF, John Kennedy–Tahoe NF, Scott Parsons–Lake Tahoe Basin Management Unit, Chris Sia-Escort–R5, and Janie Jilpas–R5.

A special thanks to the many technical reviewers of manuscripts for their objective judgment and constructive suggestions. They remain anonymous but their contributions are profound. Finally, thanks to Jim Baldwin, lead statistician for the PSW Station, for his contributions to the statistical rigor of this peer-reviewed proceedings. Finally, we thank the PSW Station's Bert Spear for his professional skills in formatting every manuscript to a common layout.