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A Landscape Perspective for Forest Restoration

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Forest managers throughout the West are anxiously seeking solutions to the problem of "large crown fires"—destructive blazes atypical of many forest types in the region. These wildfires have created a crisis mentality in management that has focused on rigid prescriptions for fuels reduction, rather than the restoration of diverse, resilient, and self-regulating forest ecosystems. Now, as we shape our responses to the threat of larger and more frequent crown fires, we are in danger of missing the forest for the trees.

If we are to solve the problem of destructive crown fires, we will need to think big. The path toward solutions begins with a landscape perspective. This view considers variability within and between forest types, and recognizes that all ecological processes and management actions take place in particular spatial contexts that define interactions and influence outcomes. Ecosystems are hierarchical—changing conditions at one level arise from processes occurring at lower levels, and are constrained, in turn, by higher levels. The landscape perspective captures these complex relationships linking resources and processes to the larger forest ecosystem.

The increasing scale of wildfire forces us to scale up our thinking, our analysis, and our planning. Several recent fires have approached a half-million acres, yet management planning still focuses on stands of a few hundred or a thousand acres. We can no longer constrain our thinking to hundreds of small, independent fuel-reduction projects. We need coordinated, strategic efforts linking individual projects to the larger objective of managing landscapes.

An Example from Southwestern Ponderosa Pine Forests. Southwestern ponderosa pine forests have changed tremendously over the past century. Fire exclusion in these forests has led to a huge buildup of surface and ladder fuels. Prior to the 1940s, most fires in southwestern ponderosa pine forests were of low severity, burning in the forest understory, consuming dead fuels and small trees, while leaving most fire-resistant adult trees alive and healthy. Crown fires, once small and rare, are now many times larger and threaten human communities and entire ecosystems. Forest health and community protection will depend on the restoration of appropriate and safe types of fire to these forests.

Big crown fires now dwarf the common scale of analysis and planning in the Southwest. Focusing on specific forest treatments has led too often to adopting "one-size-fits-all" management practices, not easily translated to other forest types. For example, applying management prescriptions designed to restore southwestern ponderosa pine forests is inappropriate in forest types where mixed or high severity fire is natural. By "zooming out" to manage "firesheds," pathways of fire spread on the landscape, foresters can create conditions that support natural fire regimes and discourage crown fires.

Thinking with a Landscape Perspective. Such holistic thinking may seem difficult initially, even impractical. But unless we expand our thinking beyond units of a few thousand acres, we cannot hope to restore landscapes of a million acres or more. One answer lies in adopting new approaches for landscape assessment and using new tools for planning. Thanks to the efforts of ecologists, geographers, and computer scientists, we now have versatile tools to help us think, plan, and act at larger spatial scales. Geographic information systems (GIS) can better map large areas. Ecological models of fire behavior, wildlife habitat, and other variables permit us to extrapolate intelligently from well-studied to less well-known locations. Prioritizing treatment areas allows the consideration of landscape-scale patterns of vegetation change, fuel continuity, and potential fire spread.

Deeper understanding and appropriate tools can contribute to better forest management, but are themselves insufficient. A democratic process must contribute to any overarching plan where diverse values drive decisions. We need to bring communities, forest scientists, resource managers, and elected officials together in the decisionmaking process. We can more efficiently plan when we are able to cross jurisdictional boundaries and coordinate management activities with neighbors.

The democratic process and landscape perspective are alive and well across the West, where agencies, private landowners, and collaborative management groups experiment with forest planning. In the Gila Wilderness of New Mexico, the Forest Service has managed the landscape with fire for decades, and cooperation among agencies, landowners, and conservation organizations is well advanced. The Southwestern Fire Learning Network, a Nature Conservancy project, is bringing a landscape perspective to fire management across the Southwest. And the Forest Ecosystem Restoration Analysis (ForestERA) Project at Northern Arizona University has empowered diverse groups to participate in landscape-level restoration planning over several million acres in Arizona and New Mexico.

Now Is the Time. We have reason for optimism, but not complacency. As human communities spread into forests, the option of managing for natural fire regimes recedes, to be replaced with costly, ineffective suppression strategies. We now have a wealth of forest management experience, sound ecological understanding, and increasingly powerful tools for landscape planning. Collaborative efforts, supported by rigorous sci-

ence, are emerging across the West, but they will not grow without a willingness to experiment, monitor outcomes, and learn from successes and failures. Now is the time to act, because the window of opportunity for big thinking is closing as our communities expand into forests, and fire is used as a scapegoat for management failures.

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Selling Timber

Thayer's comments (p. 162, June 2005) on the flaw in the Scribner rule are correct. However cubic, metric, or ton measures won't fit every situation.

Loggers want a measure that pays them a fair wage. An "International Rule" or cubic foot rule may work for them. Truckers deal in weight so a ton rule would benefit them. There are several types of mills ranging from pole or stud mills to ones that saw, slice, or peel logs. Quality is important to mills that make lumber or veneer. They would want a rule that meets their test.

The seller, whether public or private, has no way to gauge what a bidder is willing to pay for a tract. His best bet is to use whatever measure he decides approximates the yield and use it to set a lump sum price. If he then uses a sealed bid, he has his best chance to get a bid that he can accept.

Oral bidding carries with it the risk that it create an uneven bidding table for some bidders. Furthermore, if the asking price is below what it ought to be, when there is a single bidder he may not get the true value.

It is the terms of the sale, number of trees by species and diameter, and the requirements on how the sale area is to be left after logging that are important to the landowner. The number of trees by species and diameter provides a way to be sure that only the marked trees are cut. A logarithmic scale of charges for taking trees to be left can discourage theft. Either payment in advance of any cutting or a schedule of payments that results in the final payment before the last 10% of the timber is cut are sound protections. A bond is also essential.

Selling timber isn't rocket science. For an owner, private or public, there are readily available actions that protect the owner and properly reward the buyer with a sale he finds attractive. BLM on the O&C lands, the Forest Service in Regions 8&9, and several states have used lump sum sales for years. Until the mid-1950s, BLM and the Forest Service used sealed bids exclusively, as do several states.

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