

Forest Restoration Reality and Rhetoric

By

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Today “forest restoration” is a fiction built on a mountain of rhetoric and politics. It began with a noble idea based on history and science by visionaries, the Founders. Then forest restoration lost all meaning when special interests and bureaucrats discovered that using the word “restoration” rather than the original concept was useful for advancing ideologies and self-interest.

In this article, I will outline the history of forest restoration and briefly introduce the Founders and their ideas. Then show how environmental extremists changed the Founder’s vision, how and why the Forest Service adopted and then reinforced extremist views, and why it jeopardizes our national forests.

The Founders

The original Founder, Aldo Leopold, advocated constructing samples of historic forests in the University of Wisconsin Arboretum because most of the valuable timber in the northern area of the state was removed or destroyed by fire and agriculture. In his dedication speech for the Arboretum on June 17, 1934, Aldo Leopold said, “The time has come for science to busy itself with the earth itself. The first step is to reconstruct a sample of what we had to start with.”

Aldo Leopold was the father of modern wildlife management as well as forest restoration. He knew that restoration requires direct action. In his book, *Game Management*, published in 1933, he said, “Game can be restored by the creative use of the same tools which have heretofore destroyed it – axe, plow, cow, fire, and gun.”

My involvement in forest restoration began in the 1960s at the University of California-Berkeley. Aldo Leopold’s eldest son, Dr. A. Starker Leopold, was one of my professors and a Founder of forest restoration. I took several of his classes and learned from him while sitting in his office as his father’s original notes for *Sand County Almanac* lay on the desk in front of me.

Like his father, Dr. Leopold, emphasized the importance of using history as a guide for management, including the practices of Native Americans. The latest evidence shows that Native Americans lived in and modified North America’s landscape for 14,500 years before Columbus arrived. That means our historical forests are not wild in the sense that they were untouched by humans. My book *America’s Ancient Forests: from the Ice Age to the Age of Discovery* (John Wiley & Sons, 2000, 594 p) thoroughly documents how Native people helped guide the development of our native forests.

Dr. Leopold, as chair of the Committee on Wildlife Management in the National Parks (the Leopold Committee), used restoration to clarify the goal of national parks and monuments. In 1963, under his guidance, the Committee recommended that, “the goal of managing the national parks and monuments should be to preserve, or where necessary to recreate, the ecologic [sic] scene as viewed by the first European visitors.”

The Committee cautioned that, “Restoring the primitive scene is not done easily nor can it be done completely.” Therefore, they added that, “A reasonable illusion of primitive America could be recreated, using the utmost in skill, judgment, and ecologic sensitivity.”

The Committee further stated that restoration “will not be done by passive protection alone.” In short, “letting-nature-take-its-course” or the Forest Service’s “let-it-burn” policy won’t work. Active management is required to restore and maintain historical forests. A National Academy of Sciences Advisory Committee supported the Committee’s findings.

In 1965, Dr. Edward C. Stone, also one of my professors at the University of California-Berkeley and a Founder, published a paper in *Science* that advocated training restoration professionals to carry out the concepts in the Leopold Report.

Dr. Harold H. Biswell, a colleague of Drs. Leopold and Stone at Berkeley, another of my professors and a Founder led the movement to restore forests using prescribed fires that simulate the effects of lightning and Indian fires. Even so, he knew that fire is a crude tool that can cause collateral damage. Unlike fire, a chainsaw is surgically precise. As Dr. Leopold said, "A chain-saw would do wonders." That’s why, like the other Founders, Dr. Biswell advocated using modern forestry techniques along with fire to restore and maintain forests.

The New Society (SER)

Inspired by the Founders, I worked with a small group to organize what is now The Society for Ecological Restoration International (SER), including writing their original bylaws and serving on their first Board of Directors. I also helped create their refereed journal *Restoration Ecology* (Wiley-Blackwell), served on its first Editorial Board, and sponsored and helped publish SER’s first conference proceedings.

SER is important because their definitions and ideas are the source of Forest Service policies that affect 193 million acres of national forests. SER’s original definition of restoration, as stated in its bylaws, used pre-settlement conditions as a guide for management. Unfortunately, environmental extremists took over SER’s board after I ended my involvement. As a result, they redefined restoration so that it means whatever they want it to mean.

SER defines ecological restoration as “the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.” SER explains elsewhere, but not in their definition, that, “Restoration attempts to return an ecosystem to its historic trajectory, i.e., to a state that resembles a known prior state or to another state that could be expected to develop naturally within the bounds of the historic trajectory.” A “known prior state” could mean anytime in the past, maybe yesterday.

You can’t restore a forest without a historical and quantitative target condition. To do otherwise is just acting in the hope that you get something you like, but you can’t call it restoration. A paper published recently in *Restoration Ecology* shows how little help SER’s vague goals provide when trying to restore forests and other vegetation. The authors found that only 14 percent of the 468 restoration projects analyzed attempted to quantify restoration success and even these projects only used a few measurements.

Likewise, SER doesn’t define “develop naturally,” but extremists usually consider Native people as unnatural as well as technologically incapable of doing anything that could significantly influence the development of native forests. They ignore the historical evidence that Native people logged, mined, farmed, selected and cultivated wild plants, pruned nut-bearing trees, burned, hunted, constructed trails and fuelbreaks, built mounds and cities, and changed forests and whole landscapes in many other ways.

Extremists also try to convince us that Native people were so few and scattered that they couldn't make a difference even if they tried. Such a view seems odd since it is widely accepted that 12 or more million Native people lived in North America for thousands of years before Europeans arrived. Bartolomé de las Casas even wrote in 1549 that the land "is full of people, like a hive of bees."

If Native people are unnatural, as extremists want us to believe, then it means any forest SER tries to restore in a way that developed "naturally" must resemble what existed before the arrival of Native Americans 15,000 years ago. This creates a sticky problem because restoring pre-human forests would require going back to the last Ice Age.

The historical forests that European explorers saw were the product of thousands of years of development and adaptation aided by the stewardship of Native Americans. These forests provide the best models for restoration because of their beauty, diversity, abundance of big trees and wildlife, and resistance to wildfires and insects.

Even so, realistically, we can learn from the appearance of pre-settlement forests and the processes that sustained them, including the effects of Native American management, without trying to recreate perfect replicas. Guided by that knowledge, we can use the tools of forestry to restore and maintain modern forests that look and function like native forests while providing for our needs in the 21st century.

Forest Service Restoration

The Forest Service adopted SER's concept of restoration but added embellishments designed to give the agency more freedom to do whatever they want. The rhetorical stew they created states that ecological restoration is "the process of assisting the recovery of *resilience and adaptive capacity* of ecosystems that have been degraded, damaged, or destroyed." The Forest Service often rationalizes doing nothing as assisting the recovery of a forest, even when management is needed, because it is cheap and less controversial than taking responsibility for doing something.

Like SER, the Forest Service won't tell us what a forest looked like, quantitatively or qualitatively, before it was "degraded, damaged, or destroyed." Therefore, they are free to declare any forest as restored because they don't use history and a measurable standard of comparison.

Without understanding the ecological and human history of a native forest, you may be restoring something that is just as bad as what you have today. For example, when fire destroys an overcrowded even-aged second growth forest the Forest Service might replant. However, they usually plant trees in rows with equal spacing and let them grow back to the same overcrowded condition that fueled the fire. That is not "forest restoration."

Restoring fire and insect-killed forests is simple. Salvage the dead trees, leaving enough snags for wildlife, and use the money to cover the cost. Then thin the surviving trees to ensure that the largest trees grow quickly and to protect them from fire. Next, plant native trees in a clumpy pattern at a scale that simulates the way the forest grew historically. Also, leave gaps in the pattern to allow for patches of brush and openings for trees of different ages to regenerate. This procedure, along with natural mortality and continued management, will create a patchy all-aged forest that looks and functions like the original native forest.

Under the current "hands-off" and "let-it-burn" policies, the Forest Service tries to rationalize forests that burned to the ground or that insects destroyed as restored. They just say it is the result of natural processes even though they have no historical evidence to substantiate their claim. They know extremists won't

complain because they think fire and insects are good, and a dead forest is as good as a living forest. They even try to comfort us by saying if we just wait 500 years, the forest might come back.

If the excuse that fire and insects are good doesn't work to deflect criticism, the Forest Service and the extremists that support them blame logging and grazing. However, that argument is stale and unconvincing because they purged most of these uses from the national forests decades ago. As a result, the Forest Service also blames global warming. If that is still a tough sell, who knows they may finally point their finger at the "God Particle."

By their own admission, the Forest Service expanded SER's definition of restoration to include "resilience" and "adaptive capacity" to avoid dealing with history. They state, "The new policy broadens the definition of ecological restoration beyond the traditional goal of reestablishing specific resource conditions that existed at some time in the past." That means they don't have to replant trees, they can plant corn if they want.

Resilience. "Resilience," in the Forest Service definition of restoration, is not a measurable scientific term when applied to forests. It means, "The ability to return to the original form." Of course, the Forest Service won't tell us what the "original form" is because they say history doesn't matter.

The Forest Service won't even use revenue from harvesting dead trees to replant forests because of the influence of extremists. Instead, they rely primarily on natural regeneration, which seldom is successful because most of the seed trees are also dead. As a result, wildfires and massive insect infestations have permanently deforested millions of acres of forestland. In California alone, forests are disappearing and converting to brush at the rate of 109,000 acres each year, an area the size of the city and county of San Francisco.

Adaptive Capacity. Like "resilience," "adaptive capacity" in the Forest Service definition of restoration is not a useful term or a measurable attribute of forests. In general, the term means "the capacity of a system to adapt if the environment where the system exists is changing."

The term "adaptive capacity" assumes forests are stable features on the landscape. Contrary to this myth, the things we call forests are transient groups of trees and other plants that come together for a short time, then each species goes its separate way when conditions change. When a species moves on it mixes with other species to form a new and different forest. This rearrangement of species has taken place for millions of years. Only an individual species can adapt, not a forest. If a species fails to adapt, it becomes extinct. Forests just change, they don't become extinct.

You would think the use of ambiguous and inappropriate terms like "resilience" and "adaptive capacity" would be sufficient to insulate the Forest Service from criticism. Taking no chances, they also use the term "sustainability" as a key component of restoration. Ironically, a weed-filled vacant lot is not only resilient and adaptive, but also sustainable.

Sustainability. The Forest Service defines sustainability as "meeting needs of the present generation without compromising the ability of future generations to meet their needs." Industrial forests fit this definition very well. If you plant a forest with genetically superior trees, fertilize the trees, control encroachment by brush, thin them, let them grow to economic maturity, and harvest them you can repeat this cycle endlessly. In other words, skillful management can make any forest designed to suit any purpose sustainable.

The problem is that the Forest Service no longer uses skillful management; in fact, they hardly manage forests at all. They say they would like to do more if they had more taxpayer money. They say this with a

straight face knowing billions of dollars worth of densely packed, and dead and dying, trees blanket the western landscape. They also reject participation by private industry even though they know industry is ready and able to help manage national forests at no cost to taxpayers.

Rather than manage forests, the Forest Service spends 38 percent of their \$5 billion budget to put out a few wildfires, not including millions of extra dollars in emergency fire suppression funding. Some well-informed critics also say they put out wildfires with little enthusiasm because it is easier and less risky, it is a reliable source of income, the pay is good, and firefighting is good public relations.

Boutique Forestry

In order to make people believe they are doing something to manage forests, the Forest Service publicizes boutique forest companies that cut little trees (if the company uses horses it is even better publicity) in little areas to make shavings for pet bedding, pellets for wood stoves, chips, maybe even wooden earrings. They do this ostensibly, but unsuccessfully, to protect communities from wildfire.

Of course, they also say forest management has to occur at the “appropriate” scale, which translated means uneconomic without taxpayer help. The Forest Service does this to appease environmental extremists who convince themselves that making little things to sell on a small scale is not capitalism.

In addition to little trees that boutique forestry companies cut, the larger 80 to 100-year old or older trees that grew in forests after fire suppression are a big part of the problem because they are unnaturally dense. It takes real foresters, real lumber mills, real technology, and realistic economics to deal with the real problem.

The Forest Service grudgingly sells some of this older timber here and there, but they often rationalize it as building fuelbreaks. They also avoid extending these fuelbreaks out at least one-quarter mile beyond communities to avoid offending their extremist supporters even though they know science shows anything less is generally ineffective.

By ignoring history and failing to manage forests, the Forest Service’s *de facto* policy can be characterized as “intentional neglect.” This anti-management policy is converting national forests into a completely new, artificial, unproductive, unsustainable, and dangerous condition that is becoming a virtual desert for wildlife and a graveyard for endangered species. The lack of forest management has also cost tens of thousands of jobs and destroyed the economies of many rural communities.

Likewise, the unnaturally dense forests that cover national forests today are the real reason there are so many devastating wildfires that destroy both forests and people’s homes. It’s also the reason insects have destroyed millions of acres of forest. The Forest Service has made a mockery of its motto, “Caring for the land and serving the people,” they do neither.

Collaborative Committees

The Forest Service took its most dramatic action to avoid responsibility for making management decisions by using the age-old method of creating committees. They do so under the guise of what they call *Collaborative Forest Landscape Restoration (CFLR)*. How comforting it must be for the Forest Service to sit back and let civilians make decisions even though most members know little or nothing about forestry. This is the Holy Grail of bureaucratic thinking.

The Forest Service also can usually tell the committees what to do by granting or withholding permission, funding, and information. Even then, they generally agree with environmental extremists because non-foresters dominate the agency. That is what happened in Arizona where the Forest Service Southwest Regional Office wrote the committee's "Landscape Strategy for the 4 Forest Restoration Initiative," which is all about cutting little trees.

You might think the Forest Service would continue managing a forest and help the small businesses they foster after they cut the little trees. Their strategy does mention, with ambiguous qualifications, supporting "sustainable forest industries." However, the Forest Service's real goal, as they boldly state, is to "allow for reestablishment of frequent, low-severity fire as a key process in this ecosystem, including increased use of prescribed fire following mechanical thinning." The Forest Service is exploiting these small businesses and then kicking them out.

Interestingly, the Forest Service is closely following SER's guidelines that "assume that ecological restoration is accomplished once the assistance of a restoration practitioner is no longer needed." That really means "fix-it and forget-it." The caveat is the possible need for prescribed burning, not logging, even though even older trees will become too dense to keep a forest healthy.

A Proposal

Where is the knight in glowing armor, lance in hand, riding on a white horse, and emerging from the mist to conquer the foe and lead us to an honorable and responsible future for our national forests? After Gifford Pinchot, I see no one.

Even though there is no contemporary Pinchot, many of us will fight hard no matter what the odds. The question is what do we want to achieve?

My proposed alternative future for our national forests includes two management categories. These are "Historic Forests" and "Multiple Use Forests." Wilderness is excluded because it can't be managed. In addition, economic self-sufficiency and providing habitat for all native wildlife and fish species, not just favored species, are goals for each category.

This recommendation fits well within current laws. The exception is the Endangered Species Act (ESA) that seriously impedes efforts to restore forests, create new habitat, and manage for all species. Otherwise, it is realistic, scientifically and economically responsible, respects our country's natural and cultural heritage, and serves all the people rather than pandering to special interests.

Historic Forests. In 2001, I drafted legislation for Congressman Mike Simpson (2nd District of Idaho) called The National Historic Forests Act of 2001 (H.R. 2119). The Act would have established "Historic Forests" consisting of designated National Forest System lands "that are or, after reasonable restoration, will be representative of prehistoric or historic landscapes significant in the history and culture of the United States."

Congress held hearings on the Act and many people from around the country testified favorably, including Native Americans, but it didn't pass because of Forest Service opposition. However, even without legislation, existing laws and Forest Service administrative authority are sufficient to create and maintain Historic Forests on national forest lands.

Forests selected for this status would be representative of the most important forest types in the United States, each of which was specified in the legislation (see the Congressional Record). Such forests would

generally be small but large enough to represent a landscape, in a condition that requires minimal restoration, and strategically located for easy public and management access. They would also have trails, campgrounds, and interpretive facilities.

In other words, Historic Forests would not be like national parks that emphasize scenery, grand cliffs, waterfalls, geysers, and other spectacles. Instead, they would help fulfill Aldo Leopold's and the other Founder's dream of showing people "a sample of what we had to start with." Historic Forests would be educational, showcasing the best and most important forests in the history of the United States, and the historical and modern management methods needed to maintain them.

The legislation also recognized that a restored forest wouldn't be perfect, nor could it be preserved, because forests are alive and continually changing. Therefore, the only way to restore and maintain a historic native forest is with active management at little or no cost to taxpayers. That means harvesting trees for wood products in a way that enhances the forest as well as using the usual recreational fees and appropriations as sources of revenue.

Multiple Use Forests. Congress, through The Multiple Use-Sustain Yield Act of 1960 (MUSY), directed that national forests be managed for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. Not surprisingly, even in 1960 environmental extremists opposed the legislation and have been whittling away at its implementation ever since. It is also hard to imagine that the Forest Service would eventually join with extremists, drastically curtail forest management, and allow the national forests to deteriorate.

The reason is simple, the Forest Service was too aggressive in their timber management program, which was their principal source of revenue, and didn't pay enough attention to other resources. Public backlash gave extremists the opening they needed to block timber sales and shift the Forest Service to a "hands-off" policy. By 1996, timber sales dropped by 85 percent, dramatically reducing revenue to Congress and the agency's argument for funding. All they had left was firefighting to justify their budget rather than management.

This made the problem worse. Trees kept growing, forests got thicker, wildfires got bigger, and the flames converted thousands of homes into smoldering ruins. Insects are also swarming over the trees and turning mountainsides brown. Now the Forest Service is doing even more damage by letting wildfires burn and leaving insect-killed trees standing too long to be useful.

In response to this fiasco, USDA Secretary Tom Vilsack justifies the lack of responsible management by stating that, "Our shared vision begins with restoration. Restoration means managing forest lands first and foremost to protect our water resources, while making our forests more resilient to climate change." Groucho Marx said it best, "Who are you going to believe, me or your own eyes?"

The only viable alternative to the current disaster is to apply a 21st century version of multiple use management on the majority of our national forest lands. That means doing what Congress originally intended and giving all uses of the national forests equal weight. It is easy to do. It just requires using what we have learned about the history of native forests on the ground.

Historic native forests consisted of a mosaic of patches. Patches of younger trees, bare spots, and open meadows served as natural fuelbreaks between patches of larger trees. Today, the patchiness of our forests is gone. Fires now spread across vast areas because we allowed most patches of trees to grow thick and form a uniform blanket of fuel. The same principal applies to insect infestations because a patchy forest is resistant and a uniform forest is not.

The Forest Service policy of “intentional neglect” won’t create patchy forests, just dead forests. Likewise, prescribed fire is ineffective in removing excess large trees and too dangerous to use on a large scale in thick forests. Similarly, thinning just the little trees under big trees won’t work because it creates unnatural and unsustainable forests that look like a sea of telephone poles. Regardless, even if we wanted to thin all the little trees we don’t have enough taxpayer money.

The solution is a partnership with the private sector to restore our forests, using a true picture of historic forests as the ecological model. This means government and private companies working together to establish and maintain the historic patchiness of our forests. This is what strategically disperses fuelbreaks throughout a forest and provides habitat for the variety and abundance of wildlife that existed historically. Thinning more heavily around communities while still creating patchiness would also eliminate the need for many fuelbreaks.

Multiple Use Forests are a practical form of forest restoration because it mimics the landscape patterns and functions of historic native forests. They would involve management to enhance rather than just protect water resources, and wildlife and fish habitat. They would also encourage the use of grazing and timber harvesting for restoration as well as providing needed goods and services. Likewise, they would increase not decrease access for public recreation, management, and firefighting. These Multiple Use Forests would be more productive, healthier, safer, diverse, people friendly, and ecologically and economically sustainable than anything the Forest Service is creating.