

GROWING A BURNING PROGRAM: CHALLENGES AND OPPORTUNITIES

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Let me emphasize that I only claim to speak with authority about the task of restoring fire to the National Forests. Private landowners have their own special problems in using prescribed fire, size of forest tracts, lack of expertise, etc.

Before we can appreciate the challenges we face in returning fire to the oak forests of the Eastern United States, we must understand the old paradigm that says that “all fire in the forest is bad.” We need to understand how the old paradigm came to be, how it was reinforced over the years, and how it still persists in the minds of many if not most of our citizens.

The fact that we had this conference illustrates the change in thinking of land managers and the scientific community on the proper role of fire in our oak-dominated forests. If we could travel back in time to the end of the 19th century and the early years of the 20th century, we might hear debates between fire advocates and fire opponents that sound much like those going on today.

There is ample evidence from early journals, letters, and other historical documents that the European settlers saw abundant use of fire by Native Americans. For example, John Smith commented that in the forests around Jamestown, Virginia, “a man may gallop a horse amongst these woods any waiy, but where the creeks and rivers shall hinder.” Andrew White, on an expedition along the Potomac in 1633, observed that the forest was “not choked with an undergrowth of brambles and bushes, but as if laid out in a manner so open, that you might freely drive a four house chariot in the midst of the trees.”

In 1630, Francis Higginson wrote about the country around Salem, Massachusetts, that:

...there is much ground cleared by the Indians, and especially about (their agricultural fields); and I am told that about three miles from us a man may stand on a hilly place and see thousands of acres of ground as good as need be, and not a Tree on the same.

In 1637, Thomas Morton wrote that the Indians:

...are accustomed to set fire of the Country in all places where they come, and to burne it twice, in the year...as the Spring and fall of the leafe...so that hee that will looke to find large trees and good tymbre...(will not) finde them on upland ground; but must seeke for them...in the lower grounds, where the grounds are wett.

But frequent forest burning did more than reduce the undergrowth and improve the habitat for preferred species. In many cases it created grasslands in areas where forest otherwise would have existed. Prairies extended into Ohio, western Pennsylvania, and western New York. In Virginia, the Shenandoah Valley—a broad valley located between the Blue Ridge Mountains and the Allegheny’s—was on vast grass prairie that covered more than 1,000 square miles. Native Americans burned the area annually. R.C. Anderson wrote that the eastern prairies and grasslands “would mostly have disappeared if it had not been for the nearly annual burning of these grasslands by the North American Indians.” In the West, as well, Indian burning greatly extended the area of grasslands and reduced the area of forest.

Exactly why the Indians burned is less clear. Most likely they used fire, as did early peoples on all continents, to shape and affect landscapes in ways that made it easier for them to live. Fire was the tool that cleared land for agriculture and created conditions favorable for deer and other wildlife. This included creating patches of blueberries as well as conditions that favored oaks and chestnuts. In other words, the use of fire was closely related to obtaining food. Since the Indians had little use for hardwood sawlogs, you have to believe that firing the

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woods was considered an act of stewardship rather than an act of destruction.

There also is ample evidence that early Europeans continued the custom of burning the forest, long after the Indian populations had collapsed from exposure to our diseases. This burning was mostly to promote grazing for livestock, including hogs.

In the closing years of the 19th century, the Nation was experiencing an unprecedented wave of destructive logging and land clearing. As Stephen Pyne expressed in “Year of the Fire”: “Above all, fire—abusive fire—followed the ax, flames fed on the extravagant wreckage left by logging and land clearing.” Steam engines, used in logging, provided sparks for easy ignition of logging slash. Destructive fires occurred in places that seldom have fire problems today, such as New England and New York. Entire towns and villages burned, with significant loss of life. Concurrent concerns about the liquidation of the nation’s forests and the widespread fires set the stage for the creation of the USDA Forest Service in 1905 and the establishment of state forestry agencies in the immediate decades that followed.

Our early foresters were educated in Europe, the one place where agriculture and settlement had changed landscapes to the point where fire no longer played a natural role. They brought to America the view that fire had no place in the forest. As early as the 1809’s, Bernard Fernow, the Prussian trained forester who headed the Division of Forestry, had denounced America’s ceaseless burning as a product of “bad habits and loose morals.” Gifford Pinchot, who more than anyone else shaped American forestry, had this to say: “The question of forest fires, like the question of slavery, may be shelved for a time, at enormous cost in the end, but sooner or later it must be faced.”

There were voices arguing for continuing the “light burning” or Indian burning that had been practiced for centuries. Major John Wesley Powell, director of the U.S. Geological Survey, had come to believe that the practice of regular burning was a surer method of protecting the land from wildfire than attempting to abolish fire altogether, William B. Greeley Associate

Chief of the Forest Service, contemptuously referred to this philosophy as “Paiute forestry.”

Then came the fires of 1910, called the Big Blowup, when millions of acres burned and scores of firefighters died. Although largely started from steam engines and logging slash, these fires solidified the Forest Service’s position that fire had no place in American forestry. The state forestry agencies and the Department of the Interior also adopted the “all fire is bad” paradigm.

This position on fire was maintained for decades, strengthened by Smokey Bear during World War II. It was only in the piney wood of the South that burning became an accepted practice.

By the end of the 20th century, many of the public lands suffered fire famine. Forests were diseased and dying and prone to catastrophic fire. In the East, species such as the red cockaded woodpecker were becoming more rare and species such as the American chaffseed were disappearing. The uplands had been invaded by fire intolerant species that likely had never grown there before.

American society, no longer rural, had shed its familiarity with fire and now feared it. Urban values had replaced rural values: fire was regarded as an enemy and not a useful tool or a vital process.

So here we are—a century after the Forest Service was formed, a century after the American public was told that fire in the forest was bad, a century after those who argued for “light burning” were ridiculed and dismissed—faced with the need to explain to the public that the founding foresters were wrong, that we now know that fire plays a vital role in sustaining our oak forests.

Of course, hindsight always is perfect. This epiphany that fire is now useful did not occur overnight. A good deal of research has been and is being conducted on the proper role of fire in our forests. Some of the most significant research has been paleo-botanical, where the stories told by ancient grains and charcoal fragments challenged the basic tenets of land managers who for decades had excluded fire.

On the national forests we have finally learned that whatever management program we undertake must have public support. We can do the burning but how do we gain that support?

What are our challenges?

1. Our public is now largely urban and in urban areas fire generally is considered an enemy or a bad thing.
2. The public had little knowledge of fire as a tool, farmers burning fields or pastures, burning brush piles, etc.
3. Our TV sets give us round-the-clock images of horrendous wildfires each summer that burn homes and kill people.
4. We have had some spectacular prescribed fire escapes, beginning with Mack Lake in 1980 on the Huron-Manistee National Forest in Michigan. This fire burned 20,000 acres and 44 homes and buildings; one firefighter was killed. The Las Alamos fires in 2000 destroyed 235 homes and triggered one of the largest and most expensive post-fire rehabilitation efforts in history. Recently, an escaped fire in Florida burned 38,000 acres.
5. The smoke from prescribed fires is ours no matter where it goes. Unlike the Indian burning of centuries ago, we must be concerned about where our smoke goes.
6. There are some who believe lightening fire is good, but human-ignited fire is bad. This belief is rooted in the myths of the pristine forest and the ecologically invisible Indian, in the mistaken belief that North America's First People could not or would not use fire to shape landscapes.
7. There are some who believe that scarring the base of a sawlog tree is morally wrong. Given the variable fire effects we can expect when we install a fire regime in the oak uplands, we know we can strive to minimize this type of damage, yet it is unreasonable to believe we can totally eliminate it.

Here are additional challenges:

1. Will our workforce and budgets allow us to grow this program to the required level?
2. Do we have internal resistance to burning on this scale? Is there significant opposition from Forest Service employees and/or our cooperating agencies?
3. How do we get around the limited burning days we have? Of all of the factors that limit our ability to grow a program, the dozen or so suitable burning days annually seem to be the most severe.

Last year on the Daniel Boone National Forest, we successfully prescribe burned more acreage than ever before—a little more than 19,000 acres. Our new forest plan calls for us to burn 50,000 acres annually by the end of the next decade. We intend to grow this program carefully but steadily by several thousand acres each year. On a forest of more than 700,000 acres, 50,000 acres burned per year on a 3- or 4-year cycle probably is inadequate for restoring and sustaining the forest conditions we are seeking on our uplands.

As stated earlier, of equal importance to growing the program is gaining public support or acceptance for the program. We intend to do this by reaching out to our publics to participate in the actual planning of landscape projects to promote a healthier forest condition. This is a critical point. Our new forest plan is driven by a concern for forest health, not how many board feet of lumber we can produce or how many acres we can burn. On the uplands of the Daniel Boone we will be creating a variety of forest conditions, such as pine and hardwood grassland communities, woodlands, and other habitat types that reduce the overcrowded conditions resulting from 70+ years of fire exclusion. These communities will be treated carefully. Commercial logging will be used to reduce the stocking and remove fire-sensitive species that have invaded the sites. To the degree possible, lands not immediately put into these special conditions will be thinned to reduce overcrowding.

Fire will be reintroduced into these uplands not as an end in itself but as a vital process that maintains the healthier conditions we have placed on the landscape. We are not viewing the reintroduction of fire as a single event, or as several successive burns, but as a permanent recurring process that is vital to sustaining what we believe are healthier, more resilient systems. Along with restoring fire, we intend to restore the American chestnut in partnership with the American Chestnut Foundation, and, hopefully, other lost species. I should say also that our goal is not to eliminate red maple, white pine, or hemlock but to confine these species to the wetter stream bottoms where they historically grew.

We are fully aware that this will not be an easy sell. We also are aware that much of the forest will not be burned, because of what I call social constraints e.g., interstate highways, airports, hospitals, nursing homes, and recreation areas, and our fear of affecting these areas with smoke.

We must educate the public as we involve it. It is critical that we speak of fire as a vital process in a larger effort of creating and sustaining healthier forest conditions. We must discard the old “all fire is bad” paradigm and help the public understand that, like wind and rain, fire is a vital, natural process.

At the implementation level, there are a number of things we must do to grow this program. We are limited by the number of burning days that occur. This means that on a suitable burning day, smoke must rise.

Prescribed fire is not necessarily more important than the other jobs we do, but it is time sensitive. We must burn large areas; at least 500 acres in size. It takes a day to burn a hundred acres or a thousand acres. We must use aerial ignition because it is so much faster and cheaper. Using ping-pong ball dispensers, we can ignite 1,000 acres in less than an hour. We must consider fall and winter burning and summer burning when our new habitat conditions are in place with a changed fuelbed. We must learn to ignite fire and fight fire at the same time—in Kentucky for example, arson fires are perhaps the greatest obstacles to growing a program. We must investigate the possibility of nighttime burning to extend our burning window.

We must do all this without succumbing to the urge to burn on days when conditions are too severe. The recent history of escaped burns teaches us that the public acceptance of controlled burning is fragile and disastrous escapes can kill a program.

Regardless of the challenges and obstacles, we must move wisely but aggressively to reintroduce fire to the uplands of the Daniel Boone. We recently lost most of our southern yellow pine trees and the northern-most group of red cockaded woodpeckers to a native insect, the Southern Pine Beetle. A major factor in this loss was the overcrowded, stressed conditions of this ecosystem, which had developed after decades of fire exclusion. The same disaster could lie in store for us in our hardwood uplands if we fail to act.