



The Western Fire Model Does Not Fit the Southern Appalachians

Numerous media stories profile fires in the Western US that burn through hundreds of thousands of acres and can rightfully be termed “catastrophic”. While the fire ecology in many of the western forest ecosystems are out of balance, a result of nearly a century of fire suppression, many of these ecosystems would normally experience large fires that burn across thousands of acres of the landscape. Many of these natural fires, such as those that occur in lodgepole pine ecosystems, are “stand replacing”. We also too frequently see references to fires in the Southern Appalachians discussed in the same debate as these western fires, with the implication that they are similar in character.

Fire naturally played a role in Southern Appalachian forests, but it was a role very limited in scale. Natural fire ignitions occurred from lightning strikes on ridges of Southern Appalachian mountains, primarily during the summer. The Southern Appalachian Assessment documents that these lightning strike fires naturally occur at the rate of two to six fires per million acres per year¹. These fires, under the right conditions would have burned down slope, especially on the southern side of the mountain until they reached the moister conditions on the lower slopes. However, even in these conditions these fires were relatively cool and rarely killed or burned all of the trees.

On the other hand, portions of the forest, particularly mesic (moist) forest, would not have naturally burned. Species in these forests are not fire adapted; the species mix can be changed if fire is artificially introduced in these forests; naturally occurring species, including a rich diversity of herbaceous species, would be eliminated or marginalized. Species, including rare species in basic mesic, mixed mesic, hemlock forest, spruce-fir, and other plant communities can thus be harmed by fire.

Lightning fires initiated on ridges would burn the dryer habitat on ridges and south slopes. However, fires would extinguish as they burn down the slope and encounter moister conditions. The draft national forest plans in the Southern Appalachians acknowledge that mesic forest is not appropriate for burning. A large proportion of the forest in the Southern Appalachians is categorized as mesic forest; Cherokee National Forest documents that 44% of the forest is made up of deciduous mesic forest communities², but this category does not include all mesic forest. Nantahala and Pisgah National Forests with their deep coves and folded topography probably have even greater percentages of mesic forest. It is also likely that other forest habitat, including submesic forest rarely if ever burned under a natural fire regime.

The interspersed nature of these clearly fire intolerant forest communities throughout the Southern Appalachians illustrates the fine texture of the landscape in relation to fire. Fire **does not** gain the momentum to burn across the landscape, jumping streams and moving from watershed to watershed to burn most of the forest in its path. Fire in the Southern Appalachians is fine textured, burning primarily on ridges and south slopes and being limited by the mesic habitat interspersed with more fire adapted habitat. In moist years these fires go out quickly as they burn down slope and encounter moist conditions. Rarely, during drought or dry conditions, fire could burn further down the slope. However, even in dry years fire would be extinguished as it encountered the moist conditions of the coves.

This appropriate and limited role should be returned through natural fire occurrence and some prescribed burns in areas (primarily ridges and south slopes) where it would naturally occur. However, we must resist the push to apply a fire model appropriate to the west to the Southern Appalachians. Spreading fear of catastrophic fires with images from the west and proposals for fuel reduction and prescribed fire in moist forests where rapid decay quickly takes care of woody material does not fit our forests.

¹ SAMAB. (Southern Appalachian Man and the Biosphere). 1996. The Southern Appalachian Assessment Terrestrial Technical Report. U.S. Department of Agriculture, Forest Service, Southern Region, Atlanta, Georgia. p. 96

² Draft EIS for the Revised Land and Resource Management Plan, Cherokee National Forest. Management Bulletin R8-MB 103C. February 2003. p.94.



The Limited Scale of Southern Appalachian Wildfires

The limited scale and role of wildfire in the Southern Appalachians is documented in statistics found in draft plans recently released by the Forest Service.

Limited Role of Fire

During the 15 year period between 1987 and 2001 the George Washington-Jefferson National Forest averaged 44 wildfires per year covering 1,475 acres³. During the 30 year period between 1970 and 1999 the Chattahoochee-Oconee National Forest averaged 135 wildfires per year covering 1,428 acres⁴. Sumter National Forest in South Carolina experiences an average of 30 wildfires per year covering 200 acres⁵. Alabama National Forests averaged 92 wildfires per year covering 1,963 acres⁶. These are primarily human-caused fires: 81% on the GW-Jefferson; 76% on the Chattahoochee-Oconee, 90% on the Sumter, and 87.5% in Alabama. Data for other national forests was not displayed, but would be similar. Natural lightning fires accounted for 19% of the fires on the GW-Jefferson, 4% on the Chattahoochee-Oconee, 10% on the Sumter, and 12.5% on Alabama National Forests.

Small Size of Wildfires

On the George Washington-Jefferson National Forest 73% of all wildfires were less than 10 acres in size. Only 1% of wildfires were 1,000 acres or greater. This pattern is also reflected in an analysis of the 79 year period between 1915 and 1993 on the George Washington National Forest with 76% of fires being less than 10 acres and only 1% being greater than 1,000 acres. On the Chattahoochee-Oconee only 0.4% of the fires were greater than 300 acres. On the Sumter 14% of fires were larger than 10 acres.

Individual wildfires averaged 33.5 acres on the George Washington-Jefferson National Forest, 13.2 acres on the Chattahoochee-Oconee National Forest, 6.7 acres on the Sumter National Forest, and 21.6 acres on Alabama National Forests.

Our Largest Fires are of Limited Extent

Any fire is cause for concern and should be monitored and controlled if it enters the wildland urban interface or threatens life and property. However, it is important to put the wildfires in the Southern Appalachians in perspective. On the George Washington-Jefferson NF the largest lightning ignited fire during the 1987 - 2001 period burned 382 acres. The largest human ignited fire burned 2,151 acres. The largest lightning fire on Alabama National Forests during the 1989 - 2000 time period was 200 acres. The largest wildfire on the Chattahoochee-Oconee from 1970 to 1999 was a 2,570 acre arson fire; the largest lightning caused fire burned 1,050 acres. Human ignited fires are generally set on lower slopes and burn upslope while lightning fires generally ignite on ridges and upper slopes and burn down slope. The human-set fires are generally larger because they can gain momentum burning upslope. It is also important to point out that even the largest of these regional fires do not burn everything; many trees survive in the path of these fires.

Ver. 030821

³ Draft EIS for the Revised Land and Resource Management Plan, Jefferson National Forest. Management Bulletin R8-MB 103C. February 2003. pp. 3-215 – 3-218.

⁴ Draft EIS for the Revised Land and Resource Management Plan, Chattahoochee-Oconee National Forest. Management Bulletin R8-MB 106B. February 2003. pp. 3-517 – 3-519.

⁵ Draft EIS for the Revised Land and Resource Management Plan, Sumter National Forest. Management Bulletin R8-MB 104C. February 2003. p. 3-310

⁶ Draft EIS for the Revised Land and Resource Management Plan, National Forests in Alabama. Management Bulletin R8-MB 107C. February 2003.