

Gold Mine Trail: Samples included in the fire history analyses date back into the early 1700s, but only very few were this old. The record of fire from fire-scar data becomes stronger beginning around 1820. Between 1850 and 1930, fires regularly occurred throughout the stand. The fire found in the most samples occurred in 1929. Only a few, isolated scars appeared in the record after 1930, the last in 1982. The lack of fires after 1930 correspond to the time the park was established and fire suppression tactics became prevalent on public lands. The mean fire return was 3.7 years.

For the canopy class species, the top five by stem count percentage were blackgum (21%), sourwood (15%), red maple (11%), white oak (10%), and scarlet oak (9%). Red maple was the most frequently found species found in both sapling and seedling classes at 32% and 76%, respectively. White pines were also numerous, making up 14% of saplings counted and 10% of seedlings. Shortleaf pines are not regenerating.

Rabbit Creek Trail: The history showed sporadic fire activity between 1775 and 1988, with only 1 or 2 trees recording each fire. Most of the fires occurred between 1800 and 1900. Fires were infrequent after 1920, again corresponding to suppression activity. The MFI for RCT was 3.5 years.

A cluster of oaks established during the 1890s, when fires were most common in the stand. Several old pines, mostly pitch, were already present, as well as an oak and one eastern white pine. White pine establishment was earlier on this site than at the Gold Mine Trail and Pine Mountain sites, starting in the early 1900s and increasing in the 1930s. Mixed hardwoods also established in a similar pattern to the white pines. Hemlocks moved in during the 1940s and were numerous by the 1980s.

Pine Mountain: Fire events occurred regularly between 1830 and 1940. A few were widespread, the most prominent being the fire that burned in 1910 and was recorded in more than half of the trees sampled. The last widespread fire was in 1922. Most other fires in the record were more localized, but many were found in multiple samples throughout the site. Only a few fire events were found after 1950. An obvious lack of fire is evident after the 1940s after fire suppression policies were enacted.

A mix of oaks and yellow pine establishment was consistent from 1810 to 1910. A few additional hardwoods established after 1910, but the vast majority of establishment for oaks and other hardwoods occurred between 1920 and 1950. The peak of yellow pine establishment also centers in this period. Eastern white pines and hemlocks appear to begin establishing in the 1940s. In the absence of fire, the site will likely be dominated by maples, oaks, and white pine.

Licklog Ridge, House Mountain, and Linville Mountain: We completed field sampling for these three sites this past summer. The fire history site at Licklog contained the highest density of fire history samples and is located within an unlogged watershed. Three 50 x 20 m plots were inventoried within each of four forest types for a total of twelve compositional plots arranged

along the topographic moisture gradient. We recorded species and stem diameter, and cored all trees >5 cm diameter, tallied all saplings, and tallied seedlings within ten, 20 X 1 m transects.

We have completed our analysis on the mapped fire perimeters from 1930 to 2003 in Shenandoah National Park and Great Smoky Mountains National Park. GIS was used to compare fires from the two parks in terms of area burned by elevation, aspect, landform, vegetation type, and spatial distribution on the landscape. In both parks, the majority of the area burned was the result of anthropogenic fires and occurred during several large fire years. Fire patterns were identified along the topographic gradients, with a higher occurrence of fire on ridgetops, at lower elevations, and on south-facing aspects in both parks.