

## **Impacts of repeated wildfire on long-unburned Appalachian plant communities of the southern Appalachian Mountains.**

The infrequent occurrence of large wildfires in the southern Appalachian Mountains over the last several decades has offered few opportunities to study their impacts. From 2000 to 2008, five wildfires burned a large portion of the area in and surrounding the Linville Gorge Wilderness in North Carolina. Areas were burned either once or twice. The response of acid cove and thermic oak plant communities (structure, cover, richness, diversity) was measured in 78 vegetation monitoring plots, established in 1992 and remeasured in 2010 – 2011. Fire altered forest structure in both communities, resulting in the mortality of larger trees and increases in the abundance of smaller (< 5 cm diameter at breast height (DBH)) stems. Burning twice decreased stem counts for mountain laurel (*Kalmia latifolia*) in both communities, whereas oaks (*Quercus* spp.) responded positively to burning twice in the thermic oak community. Table Mountain pine stem counts increased in acid cove and thermic oak communities burned once. Fire appears to promote princess tree (*Paulownia tomentosa*) invasion. Herbaceous species cover responded positively to fire (once or twice; both communities), with concurrent increases in woody species richness and diversity. Tree species composition in acid cove plots was not affected by burning, although some slight changes occurred in thermic oak plots burned twice.

### **Links to paper:**

Hagan Donald L., Waldrop Thomas A., Reilly Matthew, Shearman Timothy M. (2015) Impacts of repeated wildfire on long-unburned plant communities of the southern Appalachian Mountains. *International Journal of Wildland Fire* 24, 911-920: <https://research.fs.usda.gov/treearch/49719>

[https://www.appalachianfire.org/\\_files/ugd/696505\\_767bbb3ee41d4c2c9ac99e17934f9d48.pdf](https://www.appalachianfire.org/_files/ugd/696505_767bbb3ee41d4c2c9ac99e17934f9d48.pdf)

### **Related research:**

<https://www.appalachianfire.org/oak>