

Prescribed Burning Ineffective for Improving Turkey Habitat on a Recently Regenerated Mesic Site in the Southern Appalachian Mountains¹

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Abstract

Recently regenerated mesic sites in the southern Appalachian Mountains often provide poor brooding areas for wild turkey (*Meleagris gallopavo*) because shade from thick stands of hardwood saplings reduces cover of herbaceous vegetation and the accompanying insects that provide the essential protein needed by young poults. An operational prescribed fire was used to reduce density of 5-yr-old hardwood regeneration on an east-facing cove site that was dominated by saplings of yellow-poplar (YP) (*Liriodendron tulipifera* L.), a mesophytic, shade-intolerant species that regenerates readily from sprouts and stored seeds, and grows rapidly to form dense, "dog-hair" thickets of tall, thin saplings. Sixteen tree species were present on the 21- ac site that was regenerated in 1995 by the shelterwood method, with a residual basal area of 80 ft²/ac. Before burning, YP accounted for about half of the 11,790±2,673 (±SE) stems/ac, which ranged in height from 2 to 12 ft. The late-spring 2001 flanking and heading fire burned with high intensity and consumed about 78 percent of the 6 tons/ac of fuels present, half of which was logging slash from the largely YP stand that averaged about 14,300 board ft/ac of sawtimber. Postburn sapling top-kill was over 95 percent and herbaceous response was immediate, resulting in a dense cover of fireweed (*Erechtites hieracifolia* L.) and pokeberry (*Phytolacca americana* L.), with lesser amounts of blackberry (*Rubus* spp. L.) and grasses (*Poaceae*).

The fire improved overall wildlife habitat, likely for several years, by increasing browse and soft mast production, but benefits to turkey brooding habitat were short-lived. Over 50 percent of the top killed YP saplings developed basal sprouts, which grew rapidly and reclaimed much of their preburn dominance -- averaging 3 ft in height by fall. In addition, many new YP seedlings originated from germinating seeds stored in the unburned, lower layers of the forest floor and from plentiful wind-blown seeds from nearby stands around the burned site. A second prescribed burn was attempted the following spring to kill new sprouts and seedlings, but failed largely from lack of fuels. Results from this case study suggest that prescribed fire alone may not be a viable method of controlling hardwood saplings on mesic sites to obtain and maintain herbaceous vegetation desirable for turkey brooding habitat.

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