

RESPONSE OF NORTHERN BATS (*MYOTIS SEPTENTRIONALIS*)
TO PRESCRIBED FIRES IN EASTERN KENTUCKY FORESTS

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ABSTRACT

Prescribed fire is becoming a common management tool for restoring forests of North America; however, effects of prescribed fire on forest-dwelling bats remain unclear. During 2006 and 2007, we monitored prey availability, diet, foraging behavior, and roost selection of adult female northern bats (*Myotis septentrionalis*) before and after 2 prescribed fires in dissected terrain of the Red River Gorge on the Daniel Boone National Forest in eastern Kentucky. Size of home ranges and core areas did not vary between bats radiotracked before and after fires. Bats foraged more often in the vicinity of pine stands than hardwood or mixed stands, and along ridges and midslopes than lower slopes, regardless of burn condition. Home ranges were closer to burned habitats following fires than to unburned habitats. Abundance of coleopterans, dipterans, and all insects combined captured in blacklight traps increased following prescribed fires. Fecal samples of bats demonstrated lepidopterans, coleopterans, and dipterans to be the 3 most important groups of insect prey, with consumption of dipterans increasing after burning. Bats chose roosts that were taller in height and in earlier stages of decay than random snags, and after prescribed fires chose roosts in trees with a greater number of cavities and a higher percentage of bark coverage. More roosts were observed in burned habitats (74.3%; n = 26) after fires than in unburned habitats (25.7%; n = 9). The results of this work suggest that northern bats are tolerant to prescribed fire on the landscape pattern and scale observed in this study. Northern bats responded to habitat alterations resulting from prescribed fires through shifts in the location of foraging areas as bats tracked changes in insect availability, and through shifts in the selection of roost trees by occupying trees and snags possessing more potential roosting microsites.