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Surveys of southern flying squirrel activity following timber harvest in southern Indiana

Joseph W. Eisinger, Elizabeth A. Flaherty, and Stephanie E. Trapp
Department of Forestry and Natural Resources, Purdue University

ABSTRACT

Southern flying squirrels (*Glaucomys volans*) are gliding small mammals that are ecologically important seed dispersers and prey species across their wide range, which extends from southern Canada to Central America. Because of their reliance on forest structure for efficient movement and on forest composition for hard mast production to provide winter food items, habitat use by *G. volans* may be impacted by timber harvest. Responses of *G. volans* to timber harvests remains understudied throughout their range, and studies are especially lacking within the Central Hardwoods Region that includes Indiana. Our study in the Hardwood Ecosystem Experiment (HEE) in southern Indiana examined responses in *G. volans* activity to even- and uneven-aged forestry using passive acoustic sampling. We examined data from Anabat II recorders positioned within and around harvested areas for ultrasonic *G. volans* vocalizations to determine activity levels in uneven-aged, even-aged, and no harvest treatments in the year following treatment. We identified *G. volans* calls via comparison to a library of known calls. We used the mean number of calls per night as an estimate of *G. volans* activity. Our preliminary results found *G. volans* activity in the treatment area edge and surrounding forest for all treatment types. We found the greatest activity in the interior of uneven-aged patch cuts, whereas even-aged clearcuts and no harvest treatment interiors had lower levels of activity. We found no activity in the interior of even-aged shelterwoods. These results suggest that uneven-aged harvests have less impact on *G. volans* activity than even-aged forest management.

KEYWORDS

Forest management, *Glaucomys volans*, passive acoustic sampling, timber harvest, ultrasonic vocalization

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