

Effects of Timber Harvesting on Movement, Home Range, and Habitat Use of Eastern Box Turtles

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Goals:

1. Estimate population size and identify patterns of habitat use in the eastern box turtles pre- and post-harvest
2. Investigate the daily and seasonal movements of box turtles and estimate home range size pre- and post-harvest
3. Analyze population structure for viability analysis

Statement of Problem:

The Eastern Box Turtle (*Terrapene carolina carolina*) is a relatively long-lived reptile native to forested regions across the eastern United States. Research indicates that declines in box turtle populations are occurring across the country. The causes for these declines are unknown but likely include habitat loss/degradation, illegal collection, and roadway mortality. Timber harvesting is a major land use activity throughout the range of this forest species that could impact turtle populations.

Our research is designed to evaluate the responses of box turtle home range and habitat use to even- and uneven-aged timber harvesting.

Current Activities:

Beginning in May 2007, we located box turtles in 6 research core areas (2 control, 2 uneven-age, 2 even-age stands) and subsequently tracked individuals 2-3 times per week through October 2007. Vegetation characteristics collected at a subset of turtle locations will be used to assess box turtle habitat use and selection.

Relatively high population densities of box turtles are required for successful reproduction. In 2007, we established two, 20-acre search plots within the each core area. Plots were searched for turtles 6 times to estimate local population densities within each plot. All data collected in 2007 and part of 2008 will serve as the baseline to compare to post-harvest responses.

Beginning May 2009, we will evaluate the effects of various timber harvesting regimes on the ecology of eastern box turtles. Radio telemetry data will be utilized for direct assessment of the seasonal and spatial movement patterns, habitat use, and home-range size of eastern box turtles in relation to various timber harvesting regimes within the state of Indiana.