

## ABSTRACT

**THESIS PROJECT:** Habitat selection and roosting ranges of northern long-eared bats (*Myotis septentrionalis*) in an experimental hardwood forest system

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This study presents the findings of a field study examining roost tree selection and roosting ranges of the northern long-eared bat (*Myotis septentrionalis*) in an experimental ecosystem of two southern Indiana state forests comprised of differing timber harvesting treatments. The northern long-eared bat is anticipated to be added to the Endangered Species list in the fall of 2014, so understanding its habitat selection is important to aid in minimizing their population decline. Northern long-eared bats were captured in Morgan-Monroe and Yellowwood state forests, and females were fitted with transmitters. We tracked these bats to their maternity roost trees during the day, and measured vegetation characteristics around those trees. Roost tree locations were plotted in ArcMap (ArcGIS 10.2) to find roosting ranges, and the roosting range size for this species was found to average 5.4 ha. Bats roosted in the unharvested forest more often than in trees within the harvested areas, and selected areas containing more vegetation obstruction, or clutter, in both areas. However, northern long-eared bats are roost generalists when compared to other species for many vegetative characteristics,

and may tolerate smaller forest harvests as long as adequate roost trees remain available on the landscape.