NORTH CAROLINA STATE UNIVERSITY

OPERATIONS RESEARCH PROGRAM
SEMINAR SERIES

March 25th, 2024
4:30PM-5:45PM

In-Person: 4290 Fitts-Woolard Hall
Zoom details – bottom of page

Dr. Casey Phillips

Recovery and Sustainment Program Forester at
NC Wildlife Resources Commission
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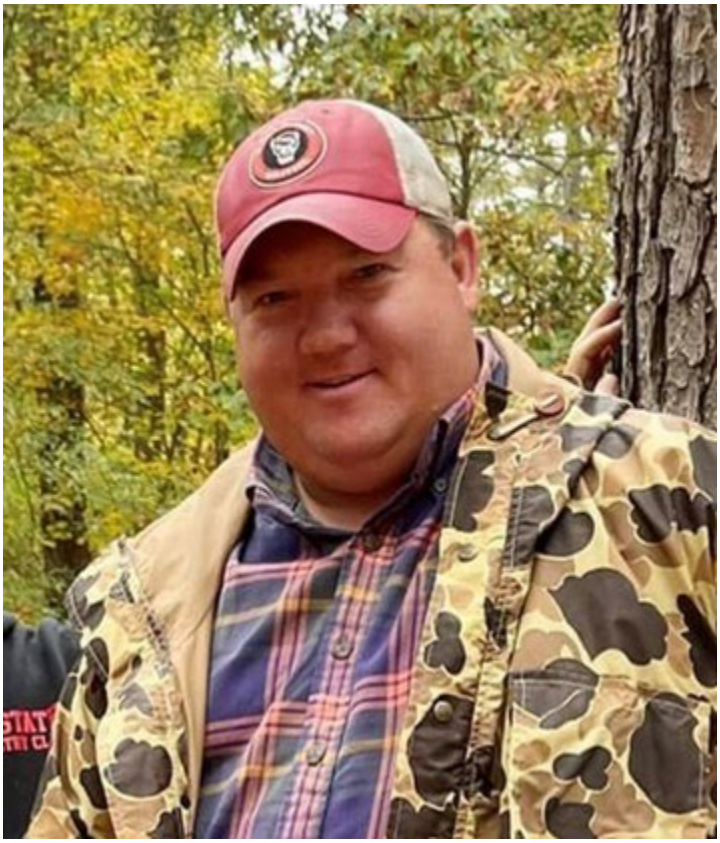
Title

Maximizing Wildlife Habitat Objectives on North Carolina's Game Lands

Abstract

Integrating wildlife management goals into forest planning presents multiple complex challenges and requires future forest conditions to be linked quantitatively to the habitat requirements of specific wildlife species. We qualitatively related values within parameterized ranges of 11 vegetation metrics to the potential of a forest stand to potential to provide habitat for 16 focal wildlife species. We chose predictive metrics from traditional timber inventory data and simulated the volumes of growth and yields across a 50-year horizon. We quantitatively related predicted conditions in a given forest stand to its potential to provide habitat using an index derived from the metrics relevant to the focal wildlife species. We integrated the index values as accounting variables in a linear programming framework using the Woodstock Optimization Studio (the standard platform for planning analysis in the forest industry worldwide), which allows them to be tracked over the 50-year model horizon, constrained, or optimized directly as part of the model's objective function. We applied the model to study area of 49,453 hectare across 2,836 timber stands on public land and reported the trends in the harvest scheduling, habitat index values, and revenue under 13 formulations of the objective function maximizing habitat and revenue objectives. By scheduling more thinning treatments, index values under the habitat formulation increased faster and higher than those realized under the maximized revenue formulation, which scheduled more final harvest treatments to maximize undiscounted cashflows across the modelled horizon. In the case study, production possibilities analysis indicated worthwhile gains could be achieved for revenue objectives with minimal impacts to wildlife habitat objectives.

Biography



Dr. Casey Phillips

Dr. Casey Phillips is the Forestry Program Leader for the North Carolina Wildlife Resources Commission and has been a forester with the agency since 2012. He has bachelor's degrees in wildlife science and forest management from NC State and the University of Minnesota, and a master's degree from the Ceasar Kleberg Wildlife Research Institute at Texas A&M University – Kingsville, where he studied the roosting ecology of wild turkeys on the King Ranch. His PhD work in forest management and planning was completed at NCSU under the direction of Dr. Joe Roise. Casey is a Certified Wildlife Biologist, Certified and NC Registered Forester, and a NC Certified Prescribed Burner. He lives in Wallace, North Carolina with his wife and two boys.

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