

# Bioindicators of Forest Management @ AAMU

A McIntire-Stennis supported project



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Nine research sites that are downstream from thinned and prescribed burned loblolly pine forest sites have been studied continuously for 10 years. Small mammals, including bats, were captured at the sites during the summer. Also, acoustic monitoring of echolocation calls was conducted simultaneously with the netting surveys. Aquatic macroinvertebrates and fish are also inventoried quarterly. Water quality and channel morphology parameters are also measured. From 2015-2017, we also surveyed feral swine activity in response to prescribed burning in upstream pine stands. Feral swine rooting activity was also investigated as a soil disturbance factor that could potentially affect stream water quality and presence and abundance of aquatic species, small mammals, and bats as bioindicators of environmental integrity in downstream communities. Our findings indicate that bats and other small mammals are more abundant in control sites (no thinning or burning upstream), but that mammal species diversity is higher in thinned and burned sites. We have determined the distribution and community metrics of aquatic bioindicator taxa by surveying macroinvertebrates, fish and mussels in study stream reaches. We have elucidated aquatic habitat characteristics such as quantity and quality of water flow, sediment transport; water turbidity, pH, habitat structure, litter and large woody debris, etc. We have also determined and quantified in-stream and riparian disturbance from feral swine by measuring and describing areas disturbed by feral swine.



## COLLABORATION



Our project is in collaboration with the USDA Forest Service, National Forests in Alabama. Graduate students conducted their research on a nearby national forest. Results were shared with forest managers and citizen group partners.

**4 graduate students**  
3 graduate students have completed the MS degree, and 1 has completed the Ph.D. degree

## About McIntire-Stennis

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.



## IMPACT

This project trained STEM scientists that are African-American, Hispanic, Native American, and Caucasian. We determined that the impact of forest thinning and burning affects abundance and diversity of downstream communities.



**Forest Research**  
Our focus is on forest restoration and effects of management on fish and wildlife downstream



**\$50,000+/year**  
Our efforts have leveraged federal and state funding



**Published 2 articles**  
And contributed over 10 scientific presentations