

POPULATION VARIATION IN SOUTHERN PINE BEETLE

A McIntire-Stennis supported project undertaken to
examine regional population differences



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Southern pine forests are ecologically and economically important ecosystems that provide habitat and food for wildlife, soil and water resources, recreational opportunities, and diverse wood and paper products. These forests are threatened by southern pine beetle (SPB), which attacks and kills healthy pine trees when at high population densities. The reasons why SPB populations increase in size is unknown.

We measured differences in body size, hindwing shape and size, and the ratio of female to male SPB to determine any differences between outbreak and non-outbreak populations. We did not find any variation in SPB size or hindwing features, but half as many female SPB were trapped in outbreak areas. The highly skewed sex ratio for the two population phases will be used to improve prediction models for SPB outbreaks, which will enhance management and sustainability of southern pine ecosystems.



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.



COLLABORATION

We collaborated with scientists and technicians from the USDA Forest Service Southern Research Station and Forest Health Protection to obtain SPB samples and additional data for the study.



6 States

We worked with SPB collected during the USDA Forest Service Annual Springtime SPB Trapping Survey from Alabama, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee.

IMPACT

Adding the trap-level ratio of female to male SPB to existing outbreak risk models may improve upon our predictions, helping to prevent catastrophic outbreaks from occurring.



SPB has caused significant destruction of important pine species, resulting in over a billion dollars in economic losses over the past three decades.



Preventing large-scale outbreaks contributes to the sustainability of southern pine forests for wildlife, natural resources, recreationalists, and landowners.



Preventing destructive beetle outbreaks will protect and maintain the >\$200 billion industry in the southern U.S.