1154-92-2155 **A. Miller*** (arm087@shsu.edu), **C. King**, **W. Godwin**, **J. Williams**, **W. Lutterschmidt** and **J. Alford**. *A mathematical model to investigate the risk and prevention of future Southern Pine Beetle infestations in East Texas.* Preliminary report.

Land management practices have an effect on Southern Pine Beetle (SPB) outbreaks across the United States. A particular land management strategy affects the age distribution and population density of pine trees as well as tree species diversity. Currently, land management practices are non-uniform across the pine forests of East Texas and therefore the response to potential SPB infestation is variable. We created a simulation model in the object-oriented computer software platform NetLogo to mimic the diversity of timberland across East Texas. Our model utilizes natural growth, mortality, and competition to simulate forest growth through time. We investigate how the different land management objectives increase the vulnerability to attack from SPB and use the model to help mitigate the damage to pine forest from SPB infestations. (Received September 17, 2019)