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John G. Alford*, jalford@shsu.edu, and **Abigail Miller, William I. Lutterschmidt, William Godwin** and **Justin Williams**. *Modeling Agricultural Timber Risks and Southern Pine Beetle Aggregation*. Preliminary report.

In Texas, the southern pine beetle (SPB) is recognized as the most destructive pest of commercial pine. In 1985 an outbreak killed over 50,000 acres. Over the last two decades the landscape of pine timberlands in Texas and across the southern United States has changed in dramatic ways that affect our current understanding of SPB outbreaks. For example, vast acreage has changed hands from pine timber managers to conservation managers. Conservation managers are expected to be less likely to cut-out beetle outbreaks or use chemical control, possibly increasing risk of outbreaks. Furthermore, conservation minded managers may be more likely to convert susceptible loblolly to resistant longleaf pine, decreasing risk of outbreaks. In this research, we simulate forest growth with a spatially explicit model as well as a non-spatial model (or gap model) to better understand how spatial heterogeneities affect SPB risk assessment. We incorporate updated ecological and life history parameters selected from a query of a broad spectrum of land management strategies and use these models to examine how contrasting land management strategies affect the risk to infestation by SPB. (Received September 06, 2019)