

# Southern Pine Ecology and Management

United States  
Department of  
Agriculture  
Forest Service



Southern  
Research  
Station

**Our mission is to develop and disseminate the scientific information necessary to realize the full range of benefits from vegetation, wildlife, and soils in pine-dominated forest ecosystems of the Southeastern United States. Our emphasis is on mixed loblolly-shortleaf pine and pine-hardwood forests of the West Gulf Coastal Plain and the shortleaf pine and pine-hardwood forests of the Ouachita and Ozark Mountains.**



**RESEARCH WORK UNIT 4159**

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## Biomass and forest ecosystems



Biomass harvesting can be sustainably practiced with reduced negative impacts on the environment, and harvesting can be a much-needed tool for achieving forest health restoration objectives. However, to mitigate potential productivity loss, retention guidelines are needed at State-to-local geographic scales by forest type and by harvesting methods. [http://www1.eere.energy.gov/biomass/pdfs/billion\\_ton\\_update.pdf](http://www1.eere.energy.gov/biomass/pdfs/billion_ton_update.pdf)

## Uncut second-growth stand development



The Crossett Experimental Forest was established in 1934 to provide landowners in the Upper West Gulf Coastal Plain with reliable, science-based advice on how to manage their loblolly and shortleaf pine-dominated forests. A key component was establishment of an unmanaged control, known as the Russell R. Reynolds Research Natural Area (RRNA). Through 72 years of long-term research, the RRNA has evolved into a premiere study site for unmanaged pine-hardwood forest dynamics. <http://www.treesearch.fs.fed.us/pubs/37393>

## Palatability of tadpoles



Tadpoles are vulnerable to a wide range of predators. Our research has found some species' noxiousness to be an effective anti-predator mechanism. Noxious tadpoles have shown shifts in palatability to one or more predators by becoming more palatable throughout development. This noxiousness plays a role in allowing these anurans to coexist with potential predators, having a positive effect on community structure. <http://www.treesearch.fs.fed.us/pubs/38543>

## Bats in Arkansas



Bats experience high mortality rates at wind turbines during late summer and early fall. To determine if this pattern is turbine-specific or a reflection of the natural activity rhythm of bats, extensive mist netting was conducted for 8 years in the forests of the Ouachita Mountains. The primary goal was to determine if these patterns were similar to patterns of abundance found in other types of studies, including studies of bat mortality at wind turbines. <http://treesearch.fs.fed.us/pubs/36639>

## Reintroducing the Louisiana pine snake



The Louisiana pine snake, a large constrictor, was historically widespread in eastern Texas and western Louisiana. Over time, habitat alteration has reduced the range to a very limited number of extremely small, isolated patches of habitat, and the species is at high risk of global extinction. A large consortium of cooperators is attempting to establish a viable population in restored habitat using captive-bred animals. [www.srs.fs.usda.gov/compass/2012/05/08/taking-americas-rarest-snake-back-to-the-woods/](http://www.srs.fs.usda.gov/compass/2012/05/08/taking-americas-rarest-snake-back-to-the-woods/)

## Predicting weather in ecological models



Stochastic weather generators are useful tools for exploring the relationship between organisms and their environment. The probabilistic models simulate weather data at a specific site or region by analyzing historical weather data and then generating a time-series of weather variables. Understanding the principles of weather generation will allow ecologists to tailor a solution for their own requirements. <http://treesearch.fs.fed.us/pubs/38546>