

# PROCEEDINGS of the Third Longleaf Alliance Regional Conference



## FOREST FOR OUR FUTURE

Restoration and Management of Longleaf Pine Ecosystems: Silvicultural, Ecological, Social, Political and Economic Challenges



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## **REINTRODUCING FIRE TO HARDWOOD-DOMINATED DEPRESSIONS IN A LONGLEAF PINE-WIREGRASS SAVANNA: AN ADAPTIVE MANAGEMENT APPROACH**

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**ABSTRACT:** Karst depressions are embedded within longleaf-pine wiregrass savannas of southwestern Georgia, have saturated soil conditions or standing water for short periods, and are frequently dominated by oaks. Oak invasion is exacerbated with winter season, low-intensity prescribed fire. Once established, oaks appear to alter the ground cover as well as potential fire regime. Because the flora and fauna associated with wet-mesic savannas are diverse, restoration of this habitat is a priority in conservation management for biodiversity at a landscape scale. Oak-dominance transforms these sites such that hardwood removal is necessary prior to re-introducing fire into these systems. Prior to large-scale restoration, we are using an adaptive management approach to document rates of change of flora and fauna associated with restoration management techniques. In 12 wetland depressions surrounded by fire-maintained longleaf pine-wiregrass communities at Ichauway, we have assigned one of three experimental restoration techniques: a) fuel-loaded, high-intensity fire; b) mechanical/chemical removal of hardwoods; or c) no treatment. Specific questions addressed include: 1) At what rate does vegetation composition and species richness change with reintroduction of fire? 2) Which ecotonal and wet savanna species reappear without reintroduction? 3) Which techniques of hardwood removal most rapidly promote fuel to re-introduce fire? 4) What changes in faunal (vertebrate) species are associated with changes in vegetation? 5) What influence does oak dominance have on water budget within depressions? On-going measurements include monitoring vegetation, depth and duration of inundation, fuel accumulation, and use of habitat by amphibians, birds and bats.