# Longleaf Pine Sustainability Analysis Version 1

## EXECUTIVE SUMMARY

The Longleaf Sustainability Analysis (LSA) is a longleaf ecosystem-centric map analysis designed to facilitate the strategic, transparent, and evidence-based identification of the "right work" in the "right places" across the historic range of longleaf pine. The LSA combines map data about extant longleaf, suitable sites for restoration, landscape connectivity and other factors related to sustainability to prioritize areas on the landscape for implementation of restoration and conservation actions. The resulting priority maps are intended to support the objectives of the Range-Wide Conservation Plan for Longleaf Pine (2025-2040) and other conservation work for the next 15 years.

In the 2009 Conservation Plan, America's Longleaf outlined the need for a long-term, science-based sustainability assessment, but also recognized that this work would require inventories and assessments that were not yet in place. With the recent development of the Southeast Longleaf Pine Ecosystem Occurrences (LEO) Geodatabase, the Southeast Fire Map, and other tools we now have sufficient information about the spatial extent, arrangement, and condition of extant longleaf pine to fulfill this need. The LSA approach also builds off the work and expertise of other regional prioritization projects like the SE Conservation Blueprint (SECAS 2022), Florida Critical Lands and Waters Identification Project (Oetting et al. 2016), and The Nature Conservancy's (TNC) Resilient and Connected Landscapes (Anderson et al. 2016). The LSA is unique, however, because it is longleaf-centric, range-wide and integrates a multi-faceted sustainability analysis into the priority maps. The LSA v.1, completed in summer 2023, was developed by Florida Natural Areas Inventory (FNAI) and University of Florida-Center for Landscape Conservation Planning (UF-CLCP) with funding from USDA-NRCS through The Longleaf Alliance and U.S. Endowment for Forestry and Communities.

The LSA contains 3 categories of analysis that interact to prioritize places for both conservation and restoration of longleaf pine (Fig. 1):

1) Extant Longleaf Significance: A map layer of longleaf pine sites with 'significance' values based on factors related to ecological condition, wildlife value, and landscape context.
2) Sustainability: A sustainability map layer that weights and combines factors for landscape integrity, connectivity, ability to burn, and climate change resilience.
3) Longleaf Pine Suitability: A range-wide map layer of suitability values based on longleaf observation data and a combination of environmental variables including substrate, hydrology, fire regime, land cover, and climate.

The above analyses are combined to create 2 primary prioritization products for the LSA (Figure 1):

1) Priority Areas for Conservation and Management: A map layer of priority classes for extant longleaf pine ecosystems derived from the overlap of extant longleaf significance and sustainability.

2) Priority Areas for Restoration: A map layer of prioritized potentially restorable longleaf ecosystems derived from the overlap of longleaf suitability and sustainability.

The LSA v.1 Priority map layers (Figures 2 and 3) highlight areas for strategic investment of restoration and management resources, a need identified by America's Longleaf in the Range-Wide Conservation Plan. The LSA was designed and conducted at range-wide scale. The results may not align with local knowledge or priorities. Users are encouraged to review the LSA report to understand the methods and appropriate uses of the data and provide feedback to inform a next version of the LSA. We expect this work to evolve with future iterations as additional data become available, new analyses are conducted, and additional vetting occurs.

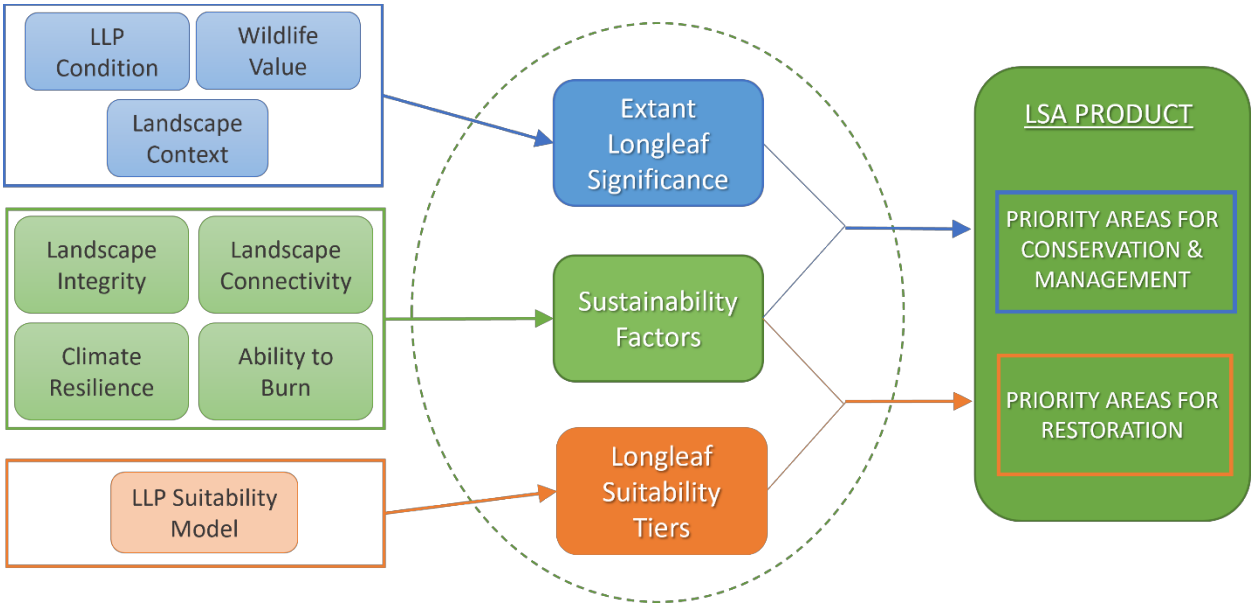


Figure 1. Overview of Input Layers & Analyses for the Longleaf Sustainability Analysis.

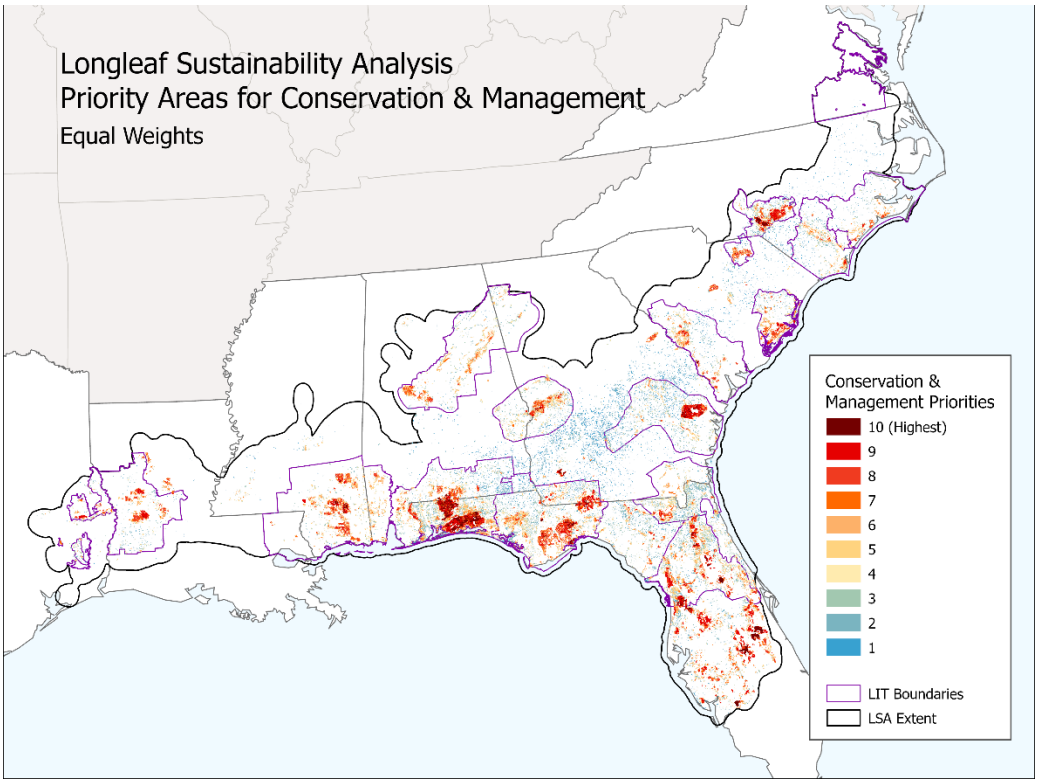


Figure 2. Priority Areas for Conservation and Management of extant longleaf pine.

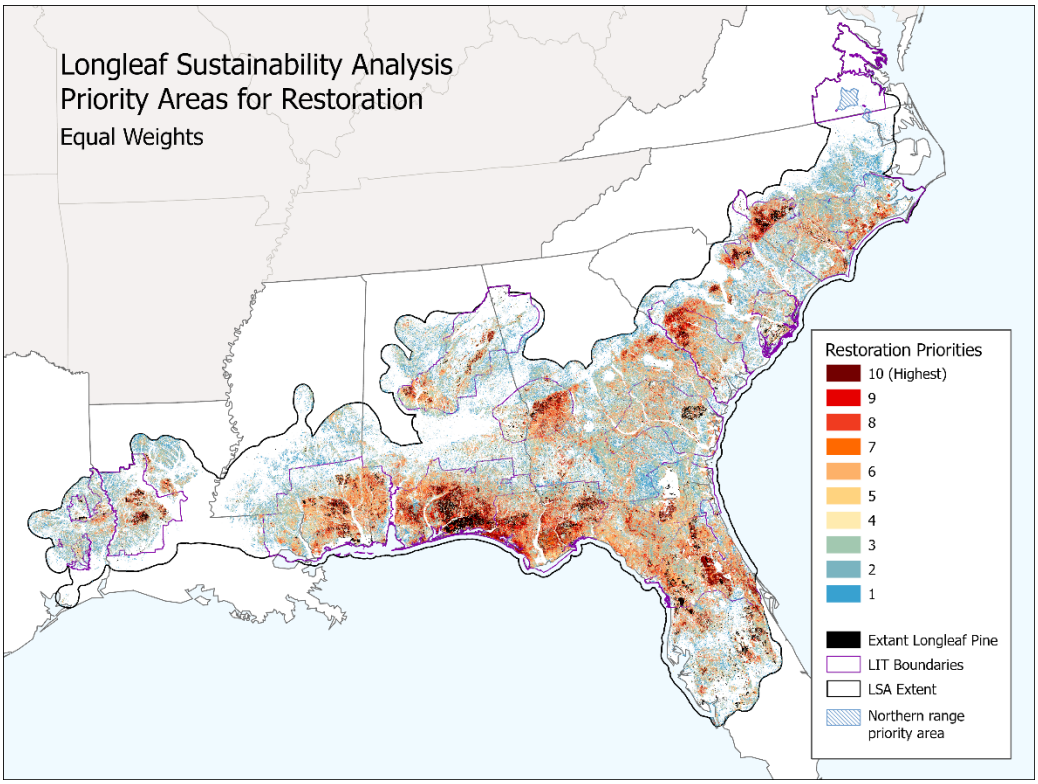


Figure 3. Priority Areas for Restoration of longleaf pine based on habitat suitability and sustainability.