Appendix A. Longleaf Sustainability Analysis v.1 User Guide

How to Access the Data

Fill out and return the LEO and LSA Data License Agreement to:

Amy Knight (aknight@fnai.fsu.edu); or Carly Voight (cvoight@fnai.fsu.edu)
You will receive a link via email to access the LSA data files.

Note that if you also requested the LEO GDB that will be a separate download and documentation, although both are covered by the same license.

Select folders and download. Folders will download as zip file format and contain all files and subfolders within them. To download the full LSA, you can choose download without a selection.

Extract the zip.

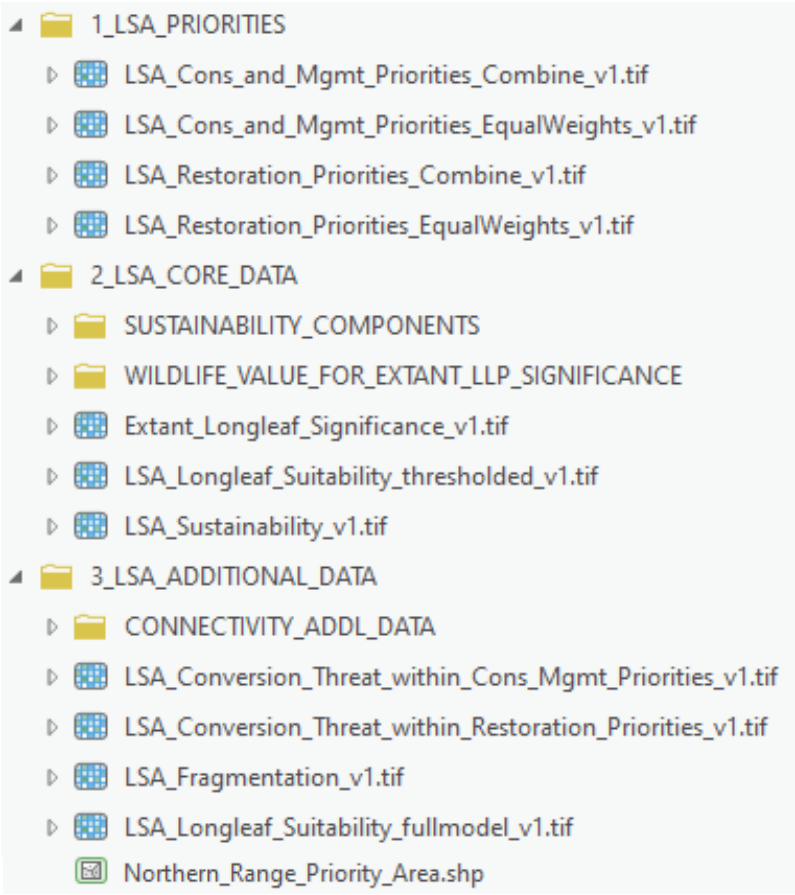
The contents are a set of tif raster datasets, corresponding .lyrx files for use in ArcPro 3.x, and related content.

You may load the LSA datasets into your own GIS maps.

Users are encouraged to refer to the metadata associated with each raster and the LSA v.1 report for details about methods and attributes.

Overview maps and descriptions of the contents are included in this guide.

For technical data questions please contact: Amy Knight or Carly Voight (see contact info above).



Download Sizes

Folder Level	Zipped
LSA (Main folder)	7.5 GB
1_LSA_PRIORITIES	935 MB
2_LSA_CORE_DATA	1.3 GB
3_LSA_ADDITIONAL_DATA	5.2 GB

LSA Contents

The document describes the datasets included in the LSA v.1 GIS data library. The **LSA Priorities** represent the primary products of the LSA; the **LSA Core Data** are the datasets that were used to create the LSA Priorities; **Additional Data** were created as part of the LSA project but did not inform the final priorities. Users should review the LSA v.1 report for details on development and best use of these data. Full page maps follow this section; links to each map are enabled in the dataset name.

1_LSA_PRIORITIES folder

LSA_Cons_and_Mgmt_Priorities_Combine_v1.tif

A combination matrix of priority classes for extant longleaf, derived from the overlap of extant longleaf significance and sustainability. The Combine is best suited when users want to understand the contribution of the input components and potentially have flexibility in interpreting priorities.

LSA_Cons_and_Mgmt_Priorities_EqualWeights_v1.tif

Priority classes for extant longleaf, derived from the overlap of extant longleaf significance and sustainability. The Equal Weights is best suited for use as a range-wide prioritization.

LSA_Restoration_Priorities_Combine_v1.tif

A combination matrix of priority classes for restorable longleaf ecosystems, derived from the overlap of longleaf habitat suitability and sustainability. The Combine is best suited when users want to understand the contribution of the input components and potentially have flexibility in interpreting priorities.

LSA_Restoration_Priorities_EqualWeights_v1.tif

Priority classes for restorable longleaf ecosystems, derived from the overlap of longleaf habitat suitability and sustainability. The Equal Weights is best suited for use as a range-wide prioritization.

2_LSA_CORE_DATA folder

LSA_Extant_Longleaf_Significance_v1.tif

A map layer of extant longleaf sites ranked for resource importance and viability. Factors related to longleaf pine stand condition, wildlife value, and landscape context were combined using a weighted sum. The highest ranked sites are those where conservation is critical to maintain functional longleaf ecosystems range-wide.

LSA_Longleaf_Suitability_thresholded_v1.tif

Longleaf pine suitability model with threshold applied to exclude very low probability values and with raw probability values reclassified into 10 discrete priority classes.

LSA_Sustainability_v1.tif

A map layer of range-wide sustainability based on the weighted overlay of 4 sustainability factors including 3 developed for the LSA (Connectivity, Landscape Integrity, and Ability to Burn) and TNC Resilient Sites.

SUSTAINABILITY_COMPONENTS folder

Ability_to_Burn_v1.tif

A map layer of combined value of present and simulated future ability to burn in the landscape, based on urban density and proximity.

Landscape_Connectivity_v1.tif

A map layer of range-wide connectivity of extant and potentially restorable longleaf pine patches across landscape. Modeled using Omniscape and based on the cumulative current flow output.

Landscape_Integrity_v1.tif

A map layer for a Landscape Integrity Index (LSI) based two interrelated landscape indices that evaluate ecological integrity in relation to land use intensity (LUI) and patch size index (PSI). The highest priorities are large areas of natural and seminatural land use.

TNC_Climate_Resilient_Sites.tif

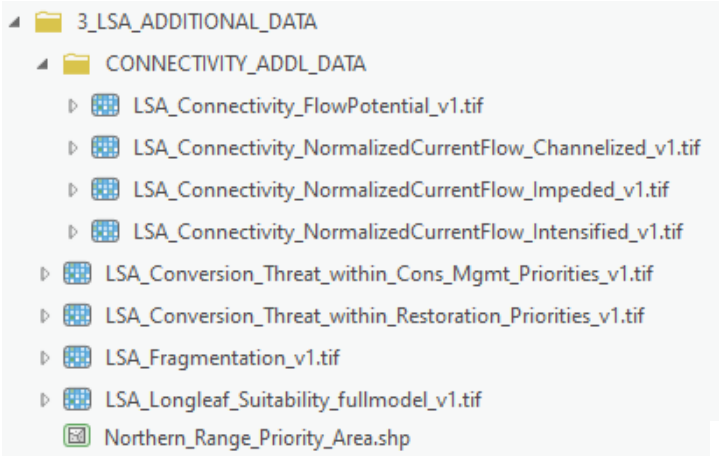
A map layer derived from The Nature Conservancy's (TNC) Resilient and Connected Network Analysis – Resilient Terrestrial Sites (Anderson et al. 2016), which measures climate resilience through landscape diversity.

WILDLIFE_VALUE_FOR_EXTANT_LLP_SIGNIFICANCE folder

LSA_Wildlife_Value_v1.tif

A map layer of wildlife value for longleaf based on two components: a broad biodiversity rarity-weighted richness model and a set of focal species models associated with longleaf habitats. This layer was a component of Extant Longleaf Significance but may also be useful as a stand-alone dataset.

3_LSA_ADDITIONAL_DATA folder



LSA_Conversion_Threat_within_Cons_Mgmt_Priorities_v1.tif

LSA_Conversion_Threat_within_Restoration_Priorities_v1.tif

These two map layers represent the probability of urbanization in the year 2050 within LSA extant longleaf and the extent of LSA restoration priority areas, respectively. The threat of conversion was developed from the FUTURES model (Petrasova et al. 2023 and Sanchez et al. 2020), thresholded at 0.15 (15% probability). Individual practitioners can use this layer to decide the best strategy to mitigate or address the threat of potential conversion. Only the Conversion Threat with Restoration Priorities is shown in User Guide maps.

Landscape_Fragmentation_v1.tif

Priority classes for the Fragmentation Index, which is a neighborhood spatial analysis of intact landcover to determine the level of habitat fragmentation.

LSA_Longleaf_Suitability_fullmodel_v1.tif

Longleaf pine suitability model developed using Maxent which represents a probability of suitability for longleaf pine based on the relationship of known longleaf pine occurrences and a suite of environmental variables. This layer is intended to identify restoration priorities vs strictly predicting occurrences of extant longleaf. This is the full model with full values 0-1 (e.g., 0.9 indicates 90% probability). The LSA_Longleaf_Suitability_thresholded_v1 layer (CORE DATA folder) was derived from the full model.

Northern Range Priority Area

Longleaf Pine Whole System focal areas selected by The Nature Conservancy (TNC) for Virginia (and slightly into North Carolina). These represent the most important areas for TNC to work to conserve a network of appropriately scaled and representative longleaf forests containing biodiversity, healthy fire management, and natural resilience allowing species to adapt to climate impacts and thrive. Note that LSA restoration priorities are known to be under-represented in Virginia because of data omissions and modeling limitations associated with edges of the longleaf range. The TNC longleaf priority areas are displayed on the map to better reflect conditions in the northern range until this is addressed in a future iteration of the LSA.

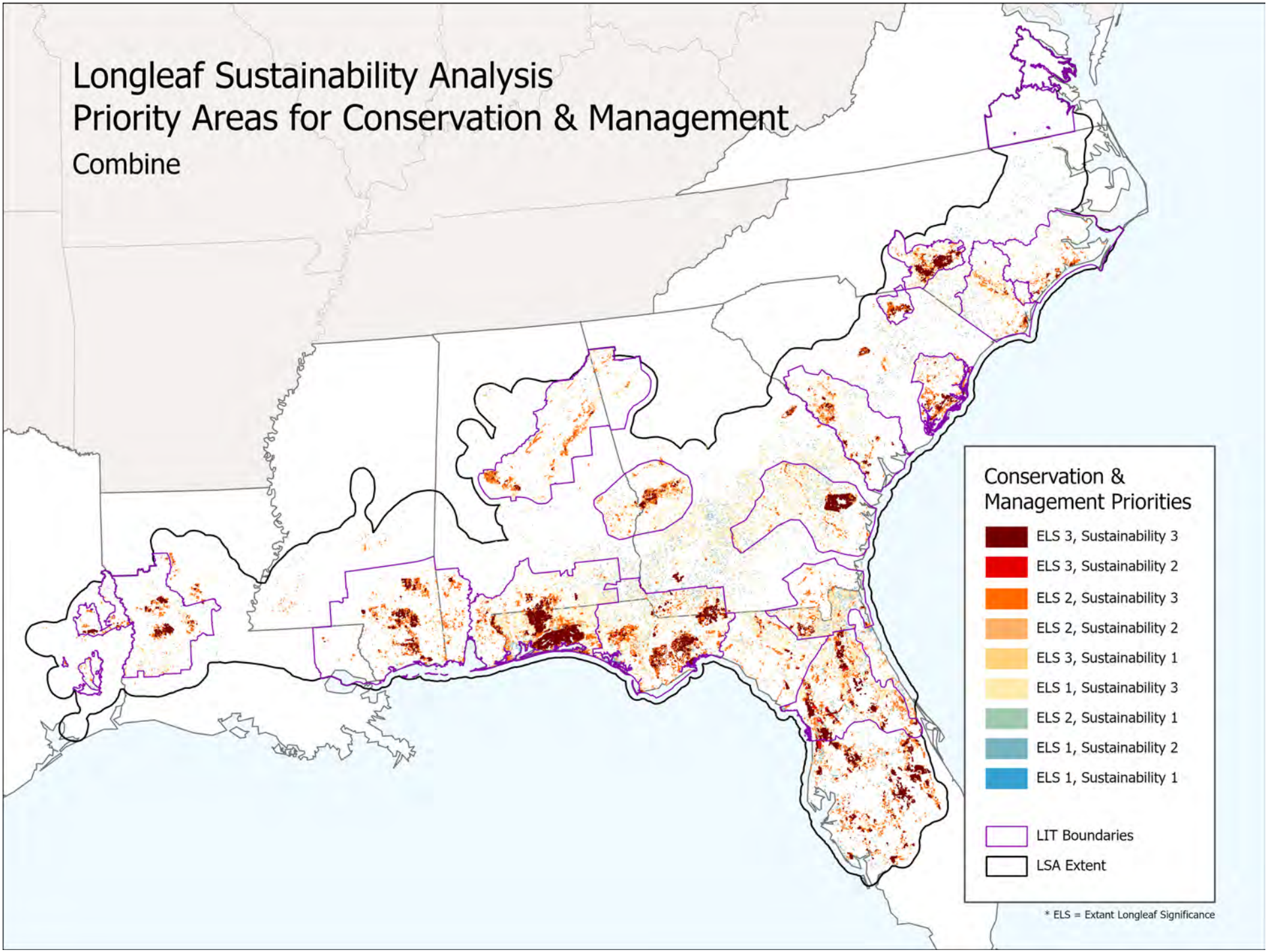
CONNECTIVITY_ADDL_DATA folder [Maps not shown in User Guide.]

LSA_Connectivity_FlowPotential_v1.tif

The flow potential is an additional output of the connectivity model described in Core Data. It depicts current flow under "null" resistance conditions and shows what the current would look like if it weren't constrained by barriers and resistance.

LSA_Connectivity_NormalizedCurrentFlow_Channelized_v1.tif; LSA_Connectivity_NormalizedCurrentFlow_Impeded_v1.tif; LSA_Connectivity_NormalizedCurrentFlow_Intensified_v1.tif

The channelized, impeded, and intensified flow are additional output of the connectivity model described in Core Data. These are derivatives of normalized flow and depict the most severe bottlenecks (>2.0 SD), impediments (<0.5 SD), and intensified restrictions (1 to 2 SD) to flow.



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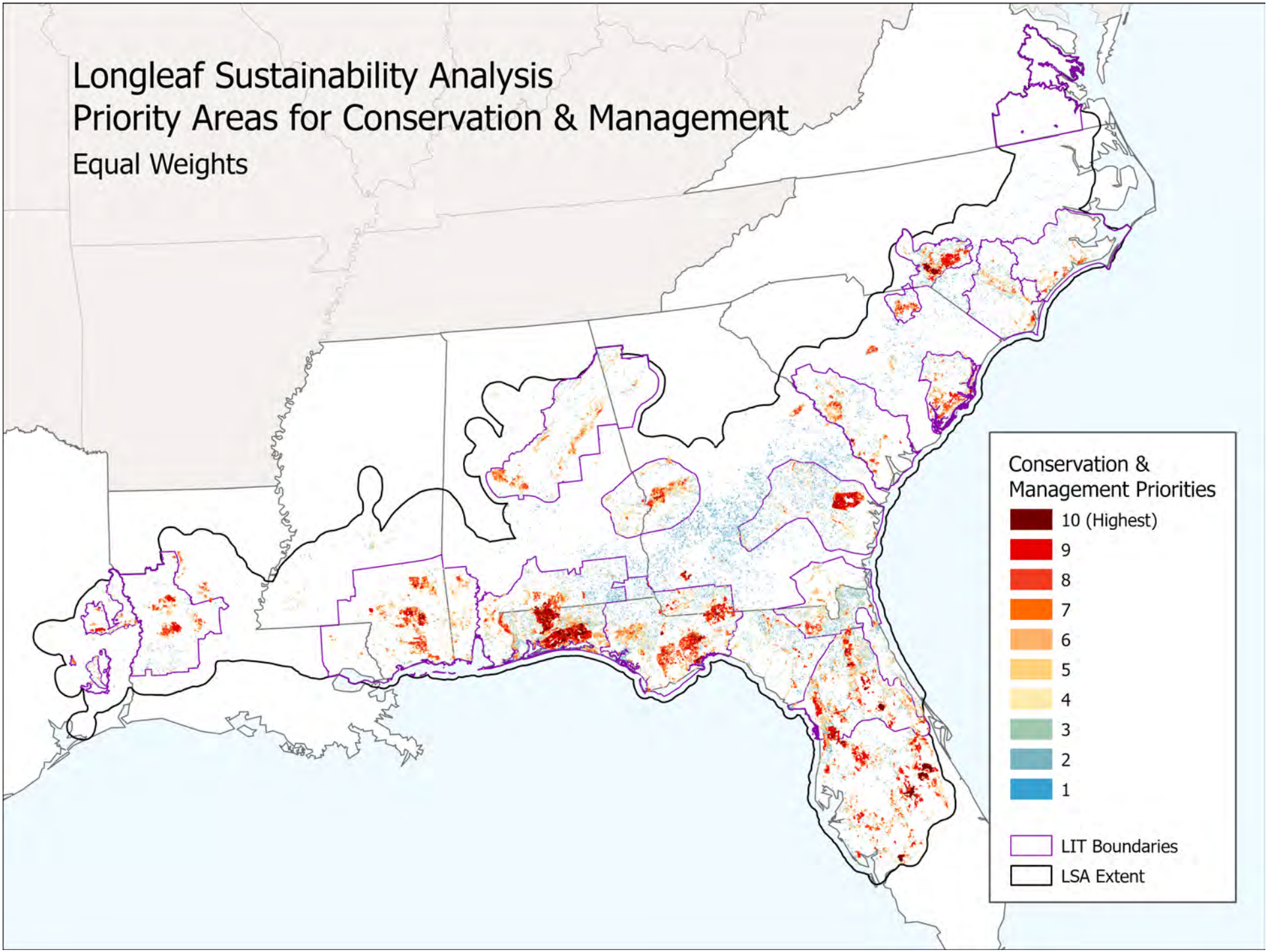

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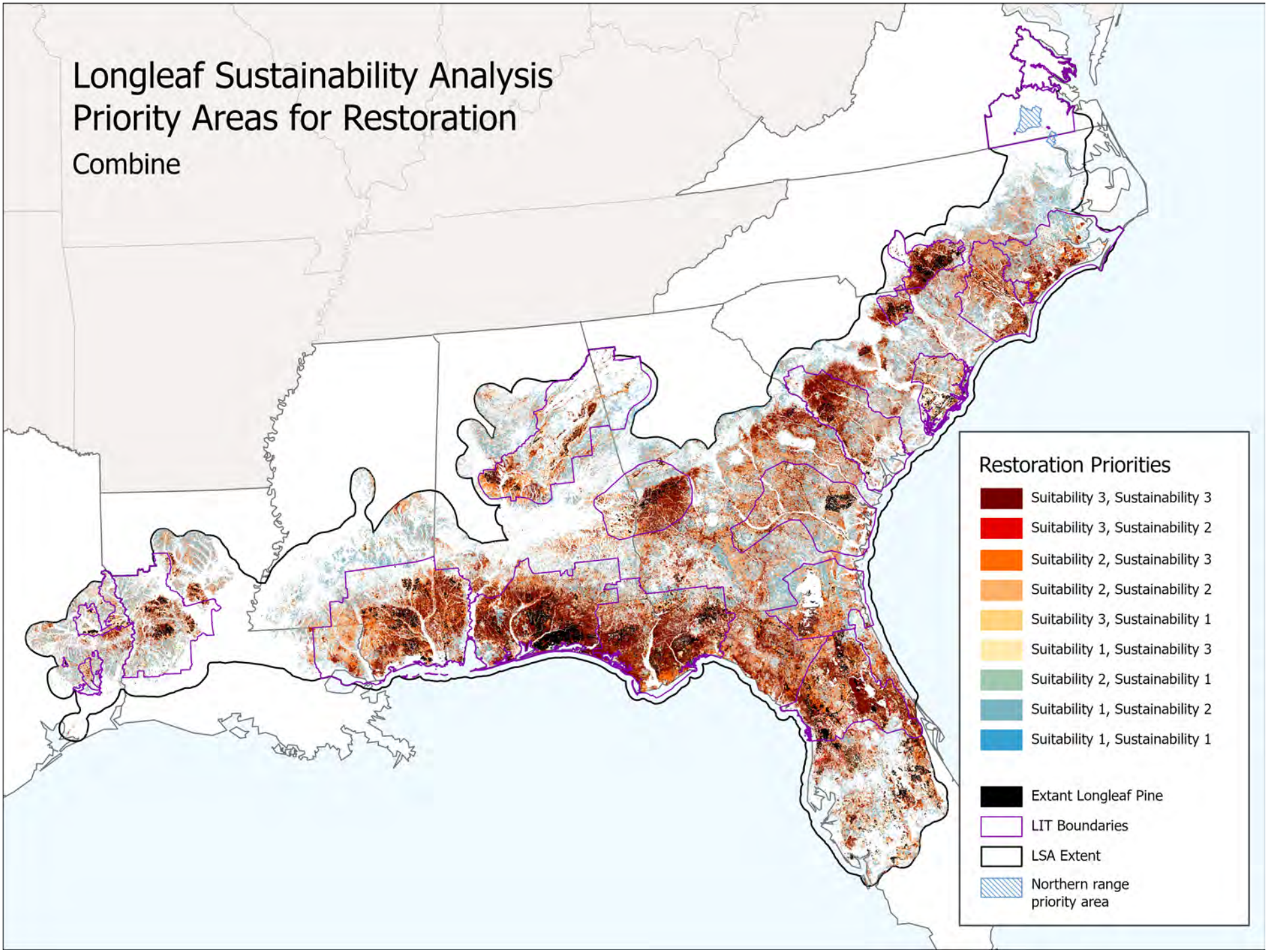

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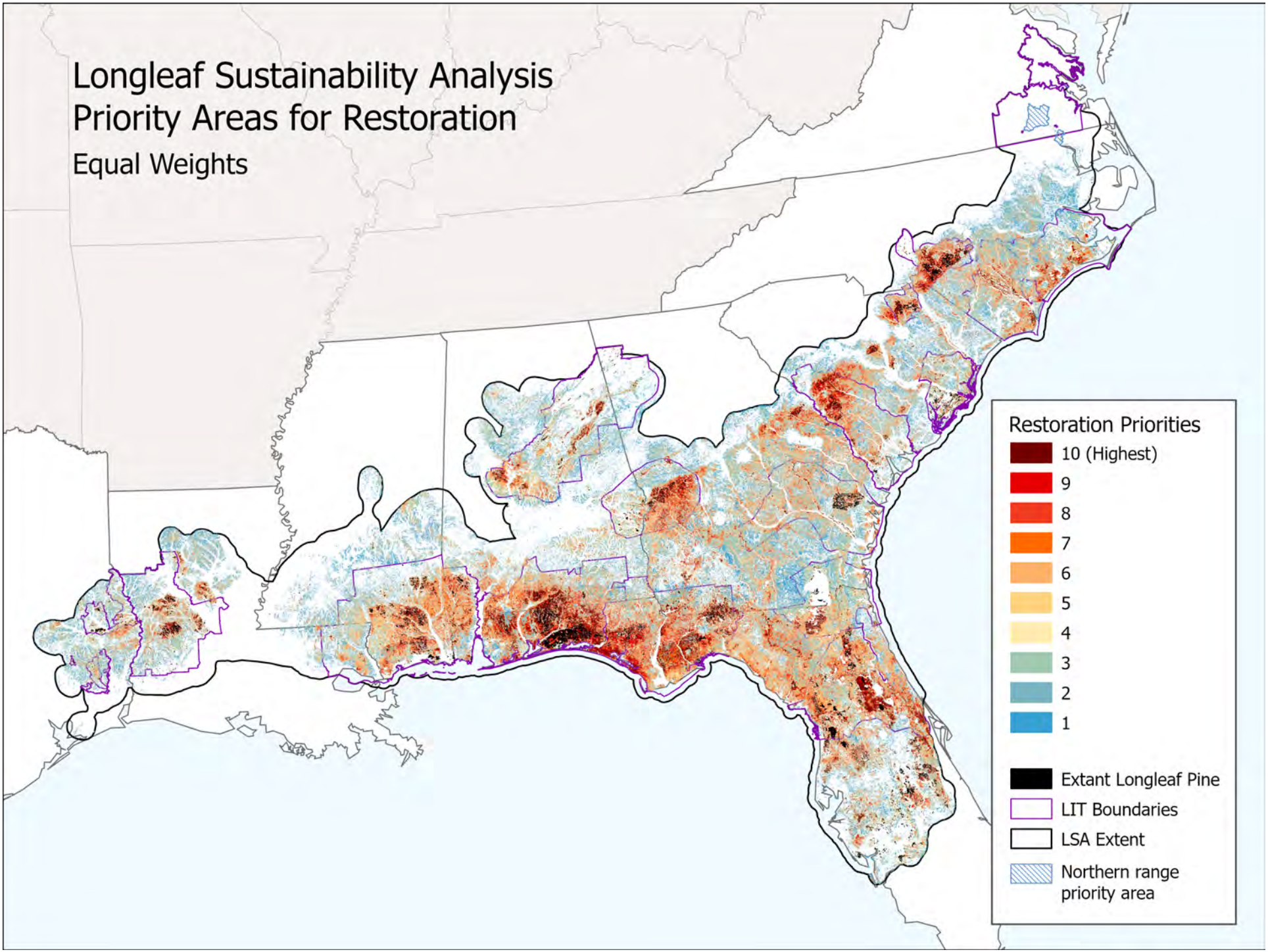
For information about TNC Northern Range Priority Areas see 3_ADDITIONAL_DATA (p. 4)



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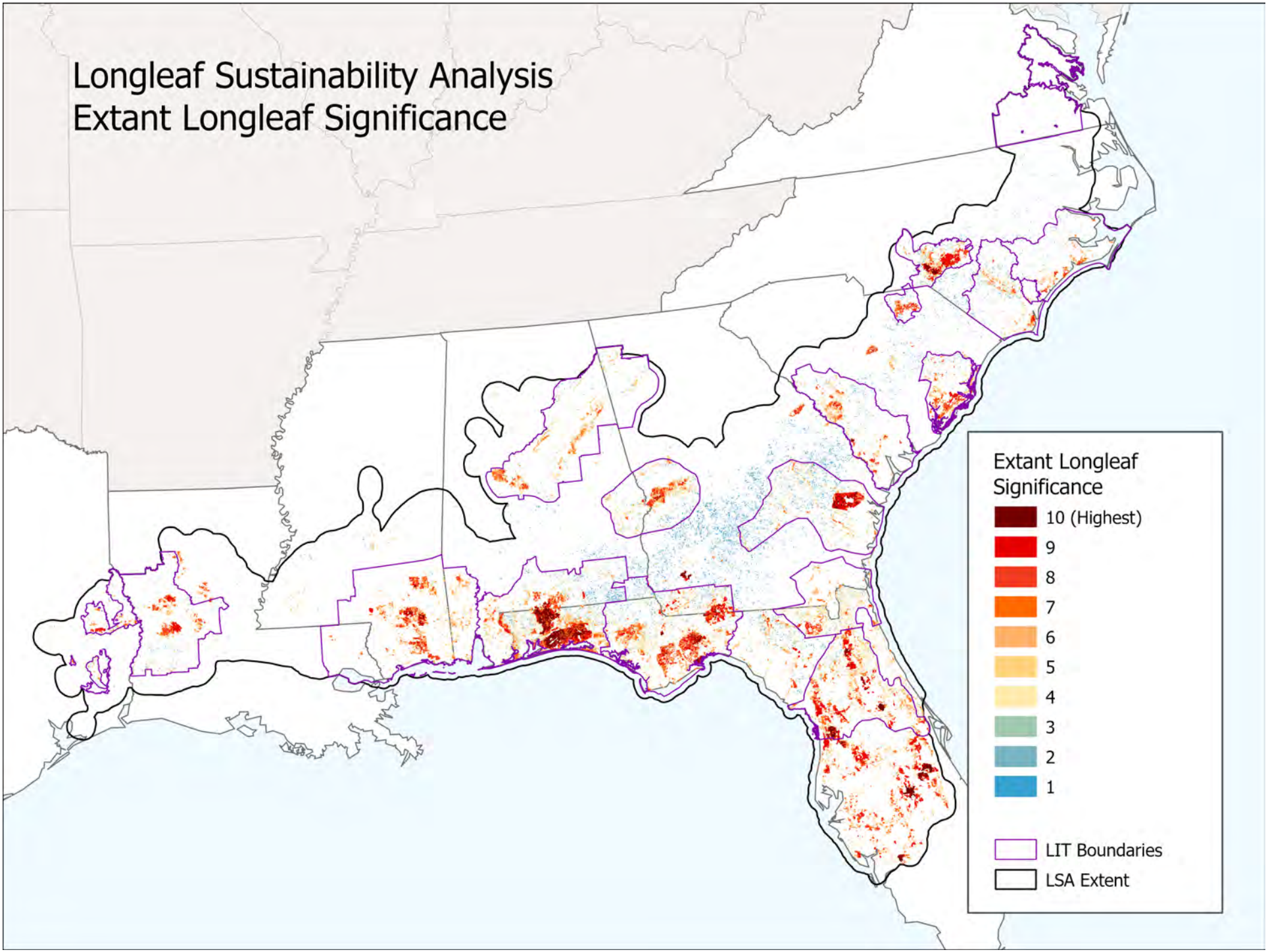
For information about Northern Range Priority Area see 3_ADDITIONAL_DATA (p. 4)



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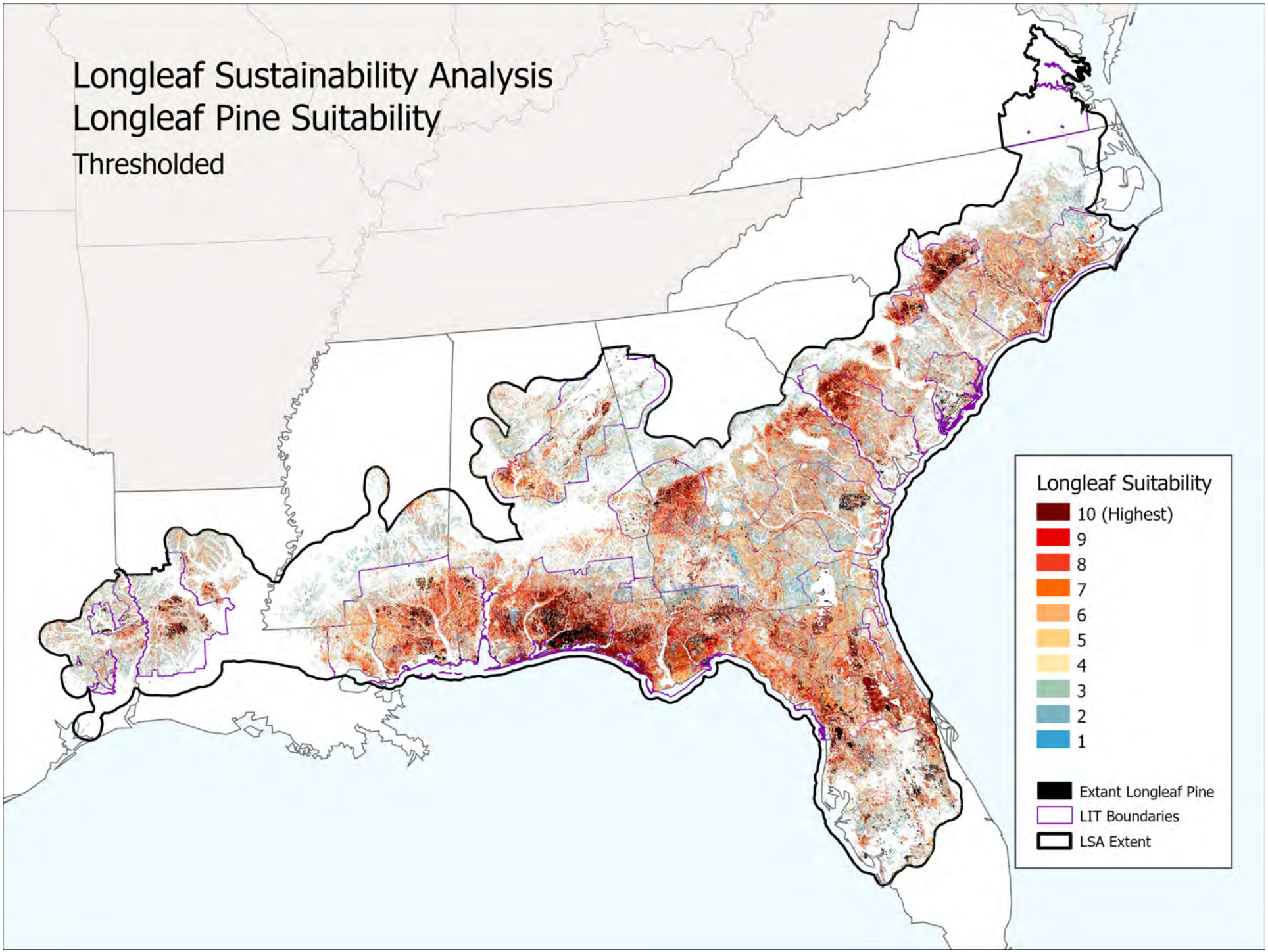

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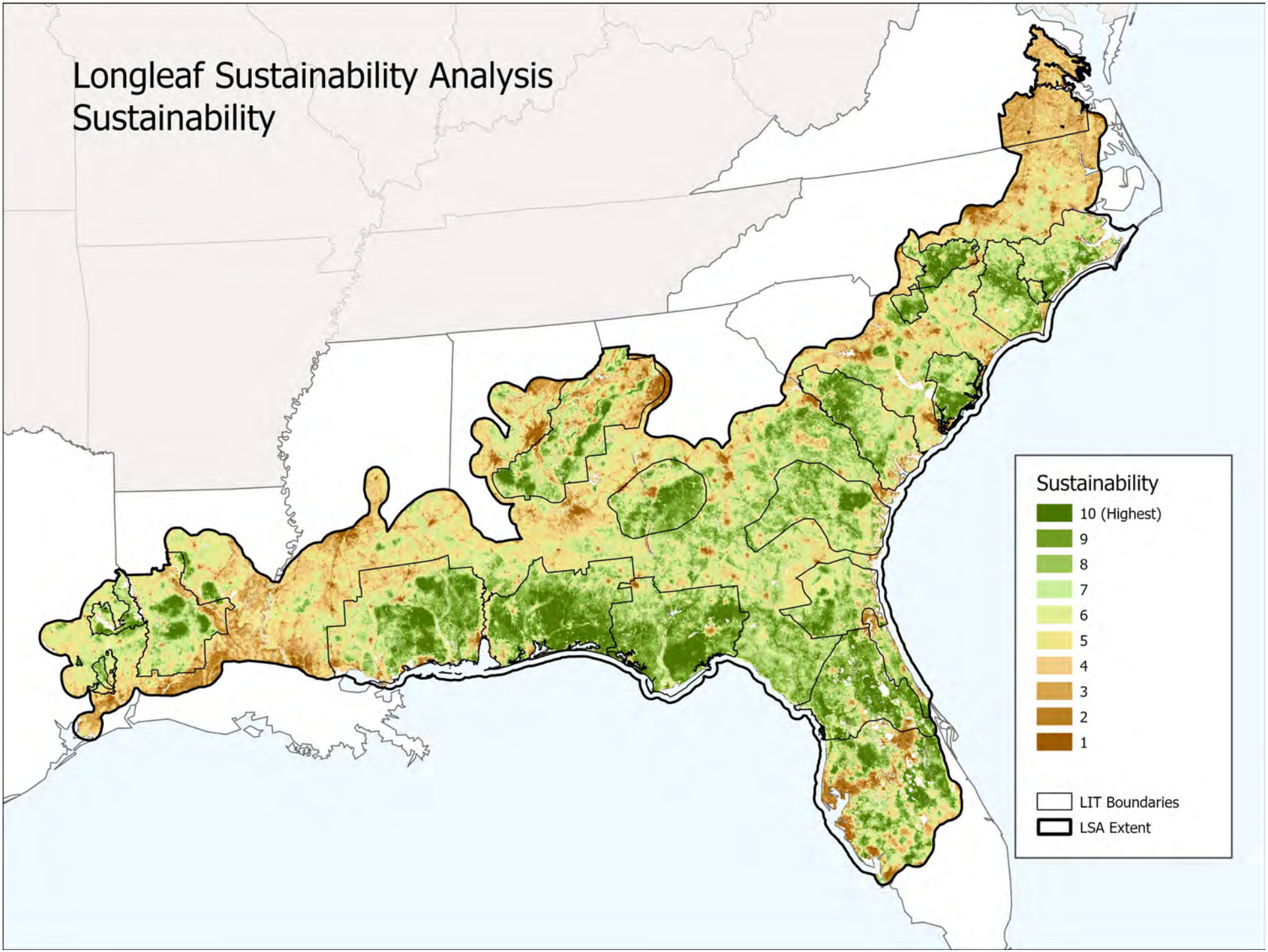

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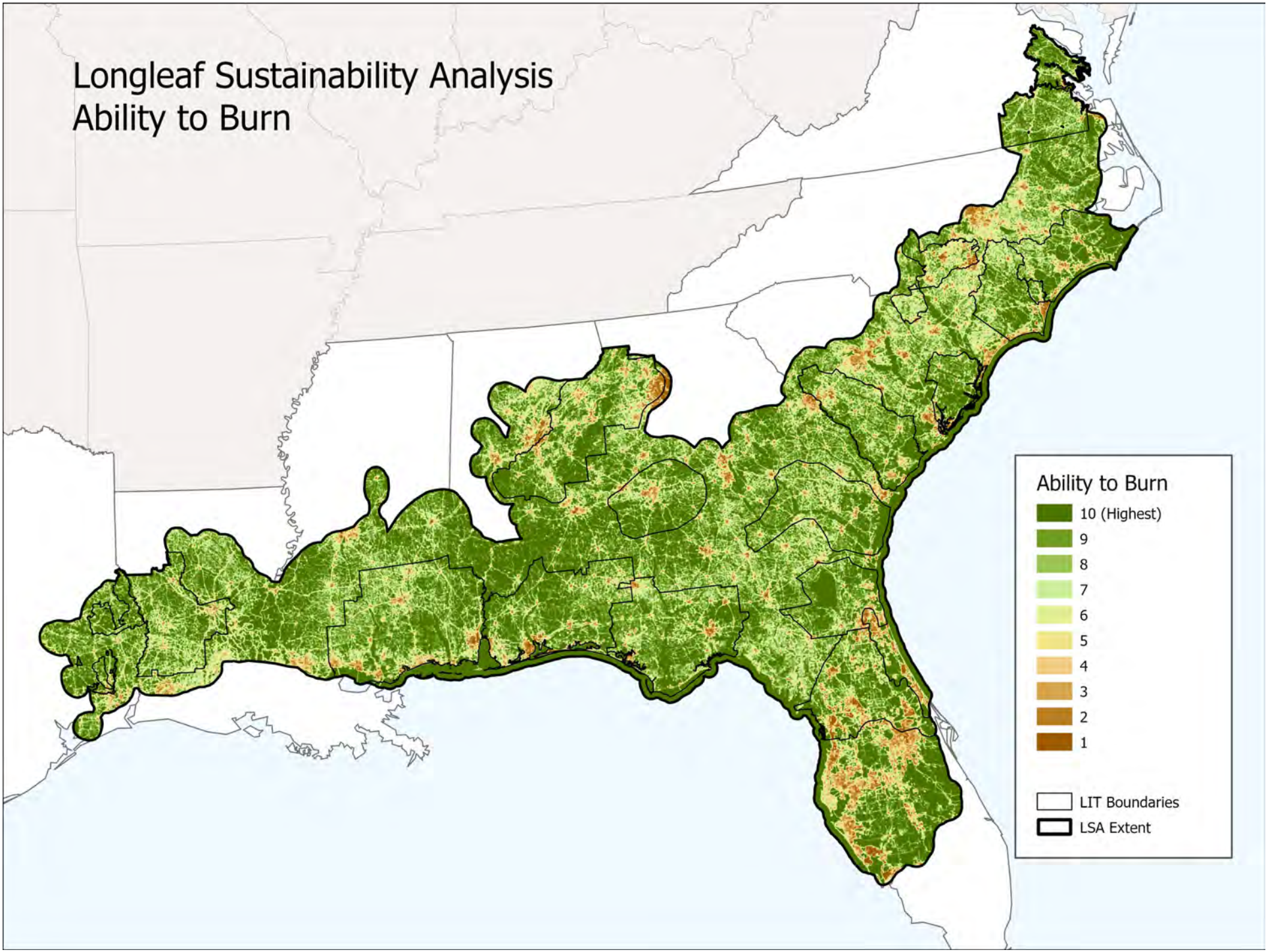

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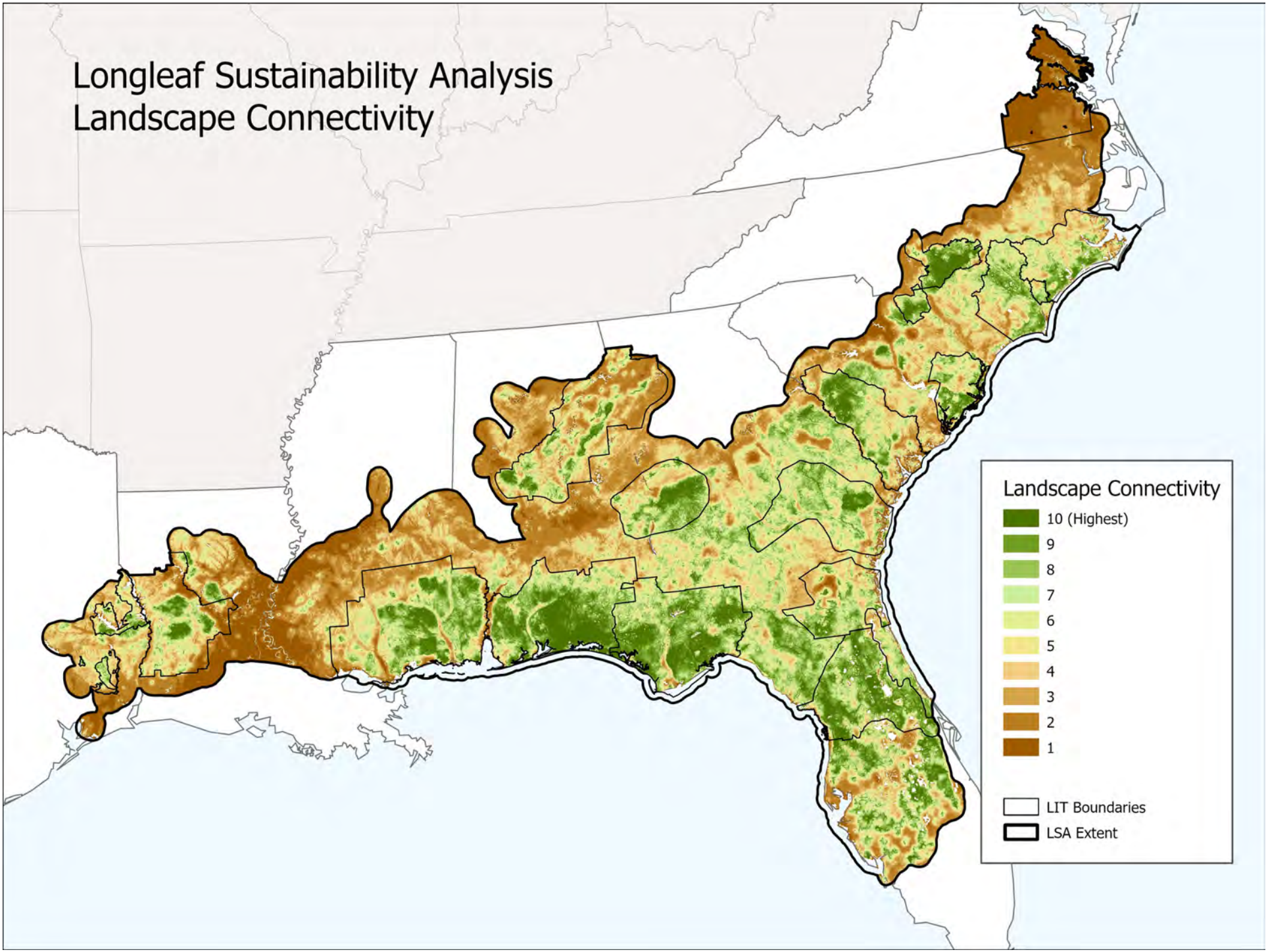

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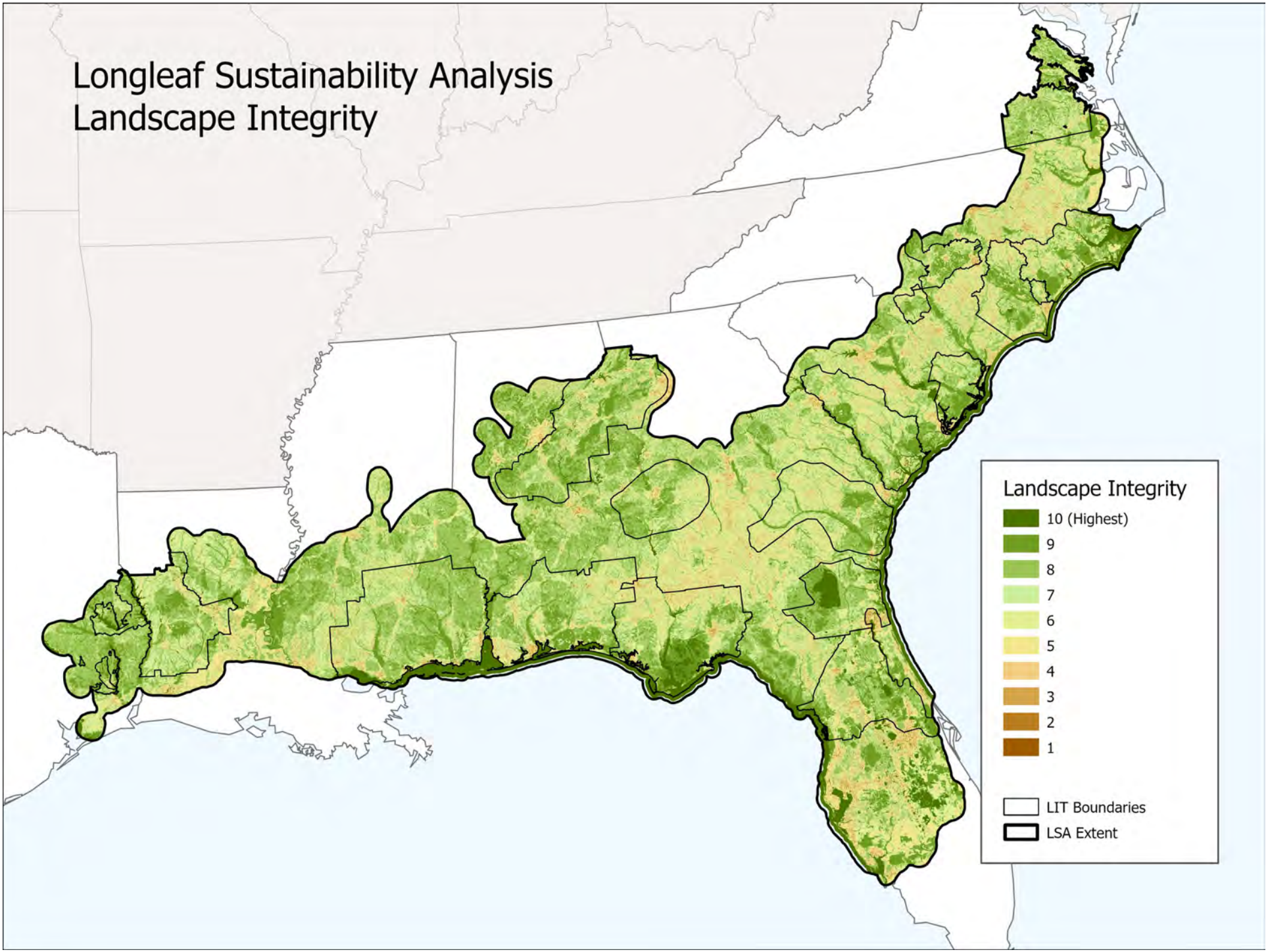

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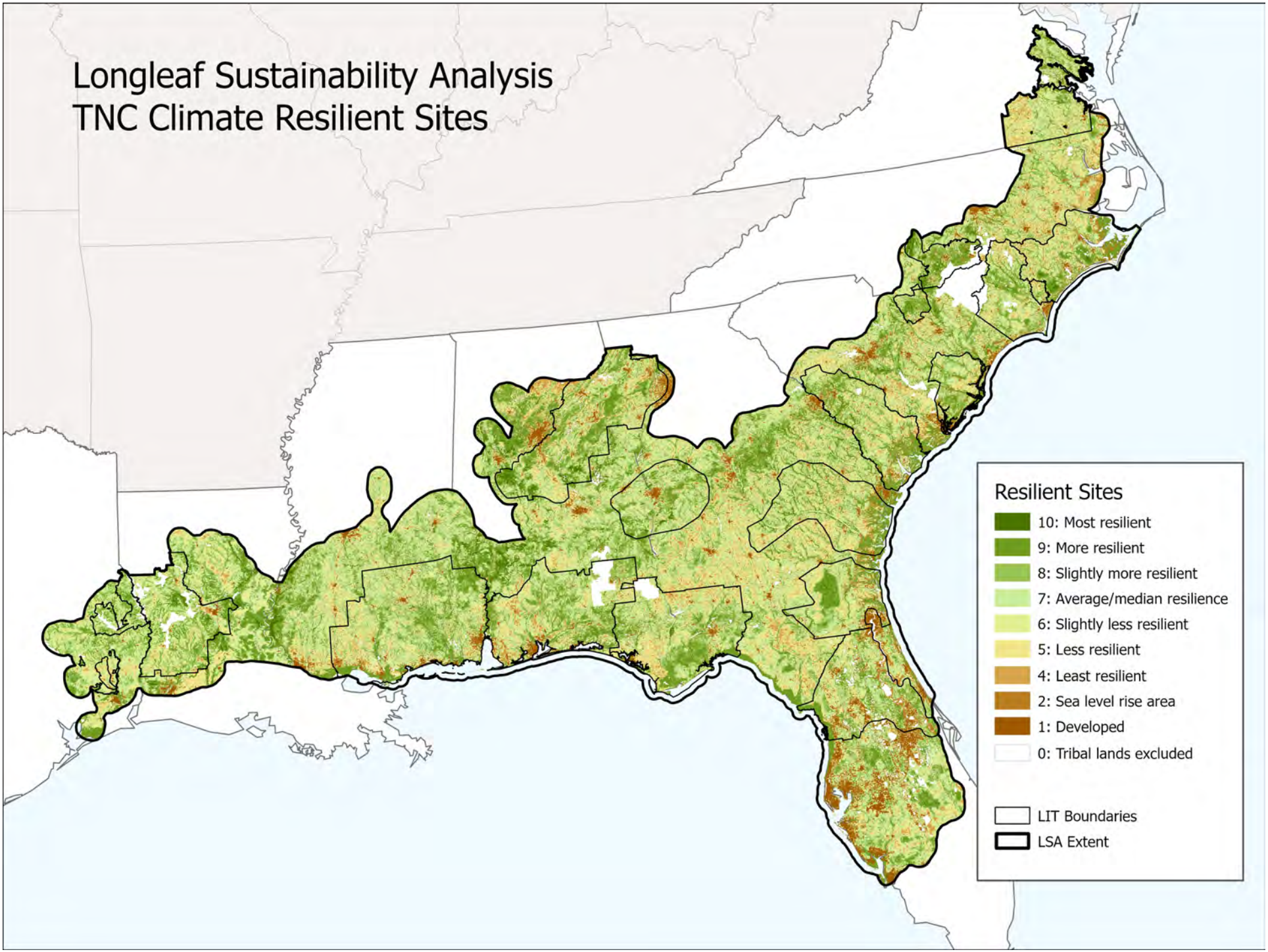

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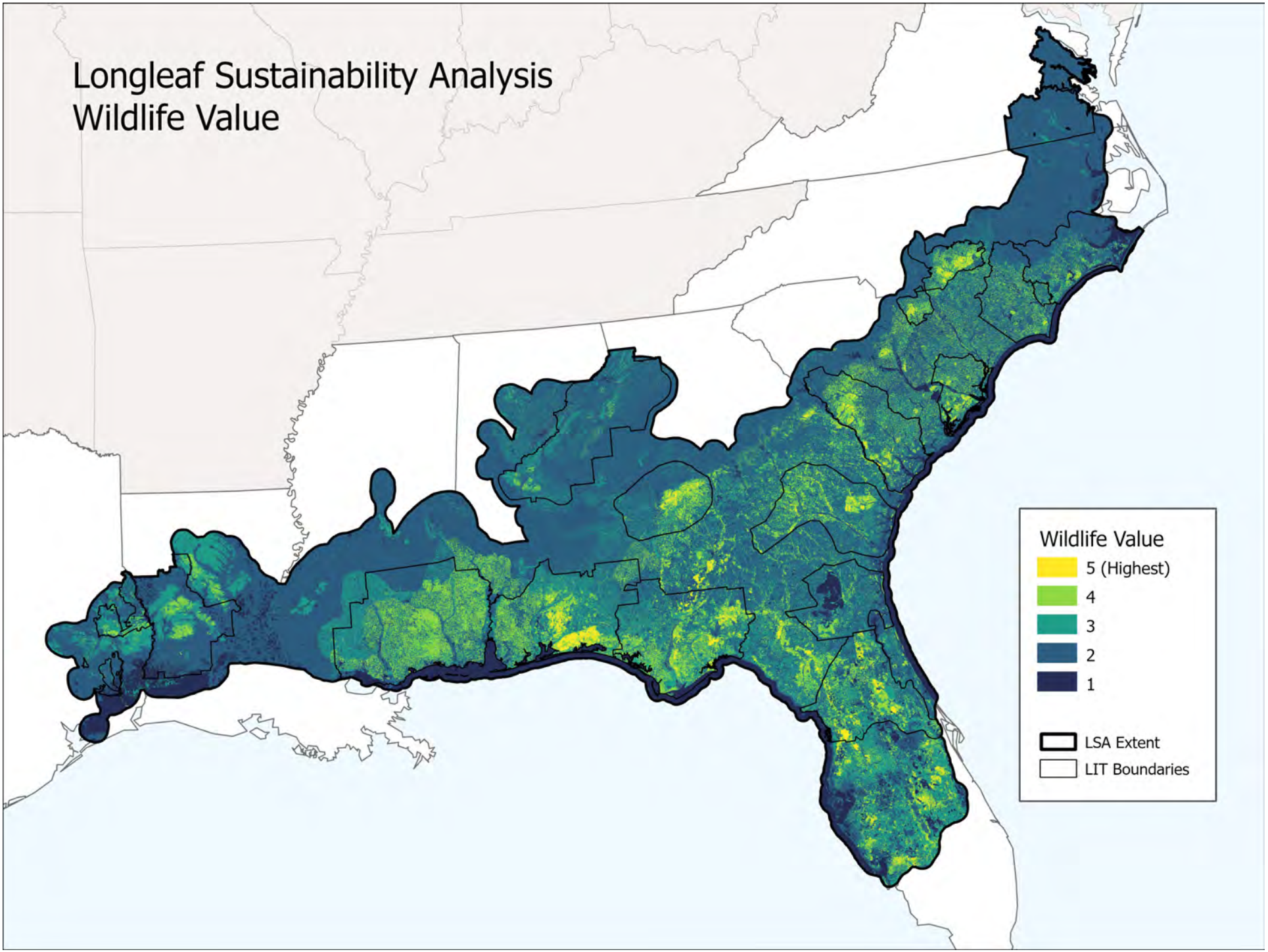

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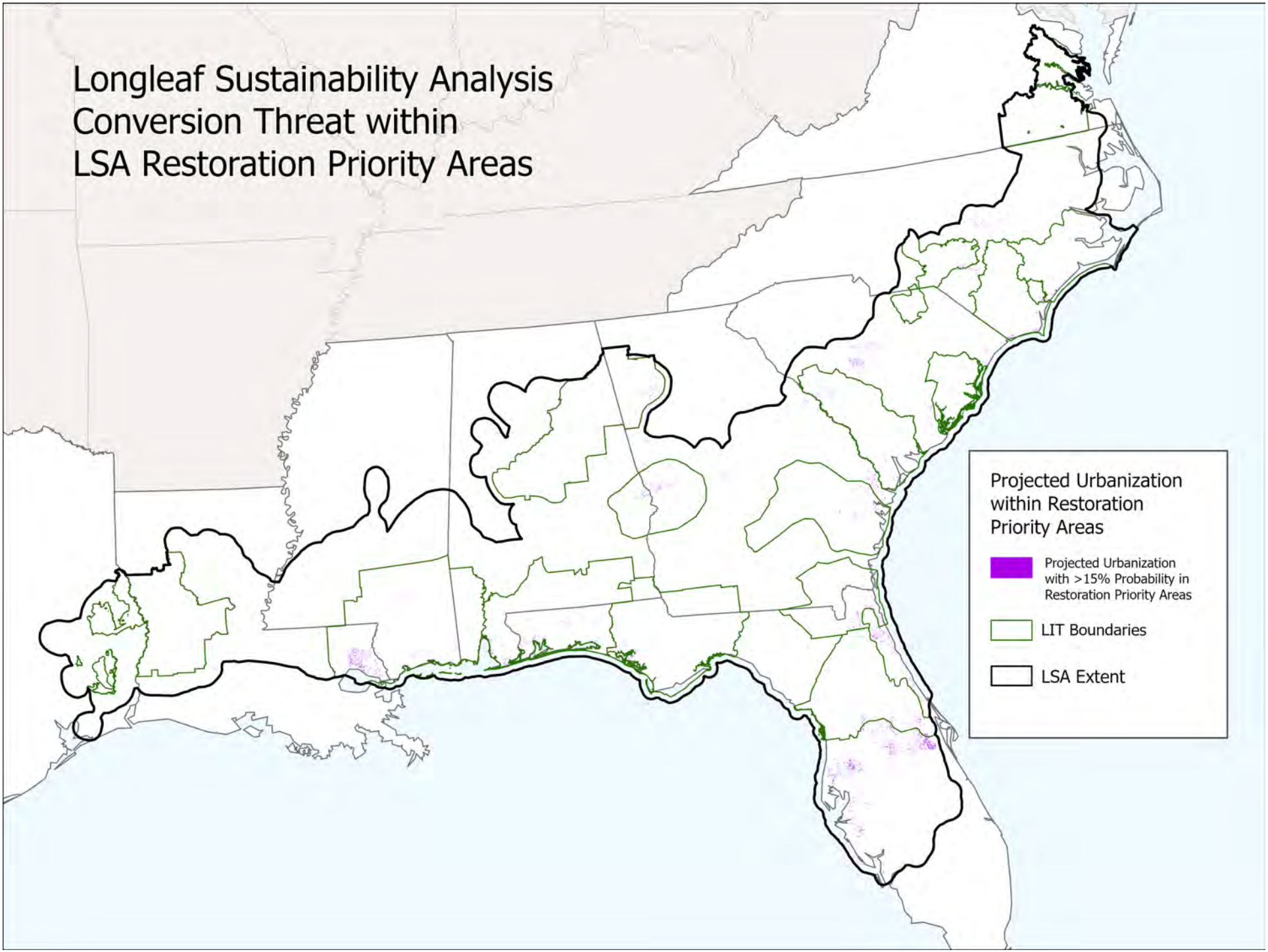

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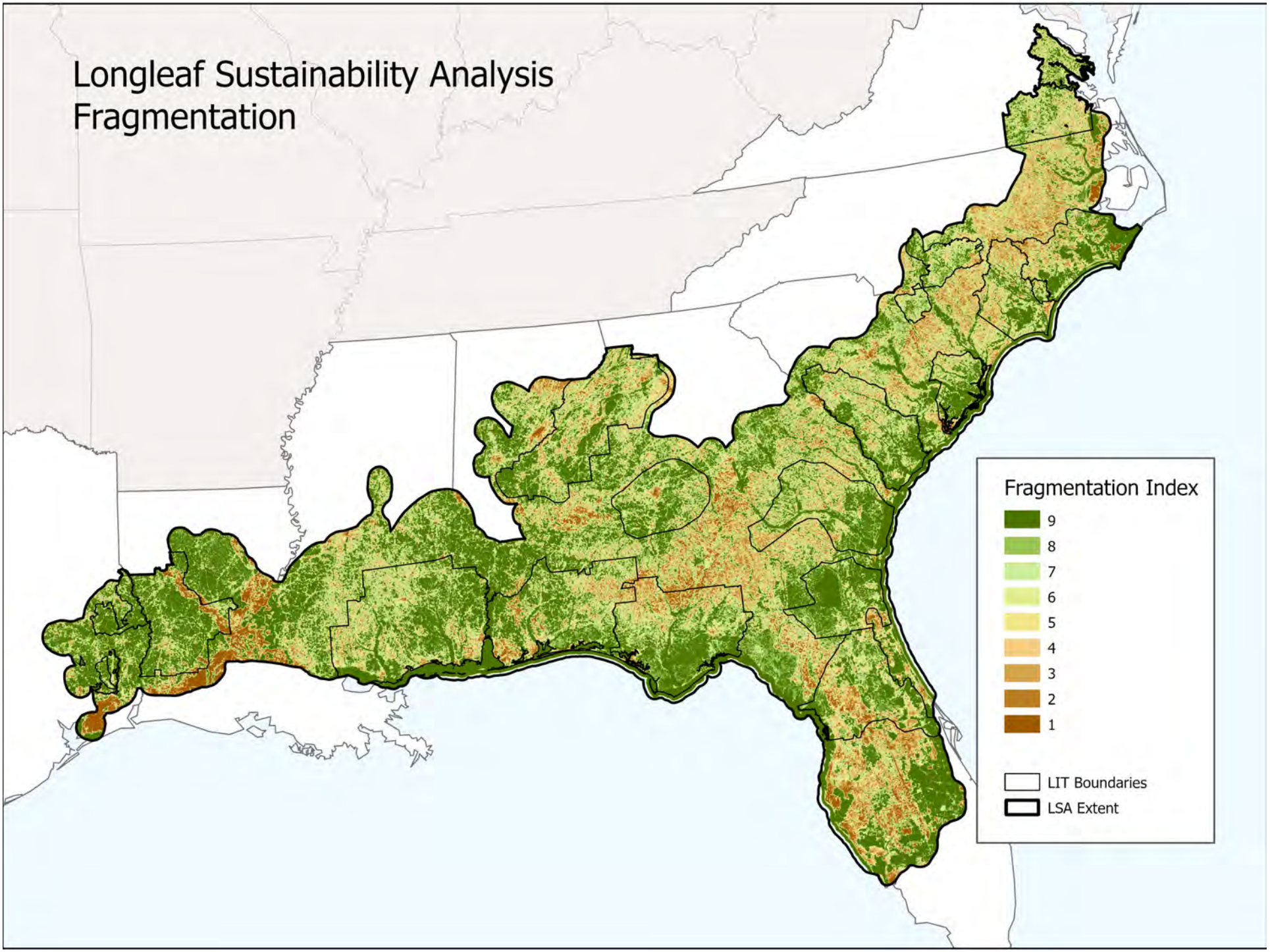

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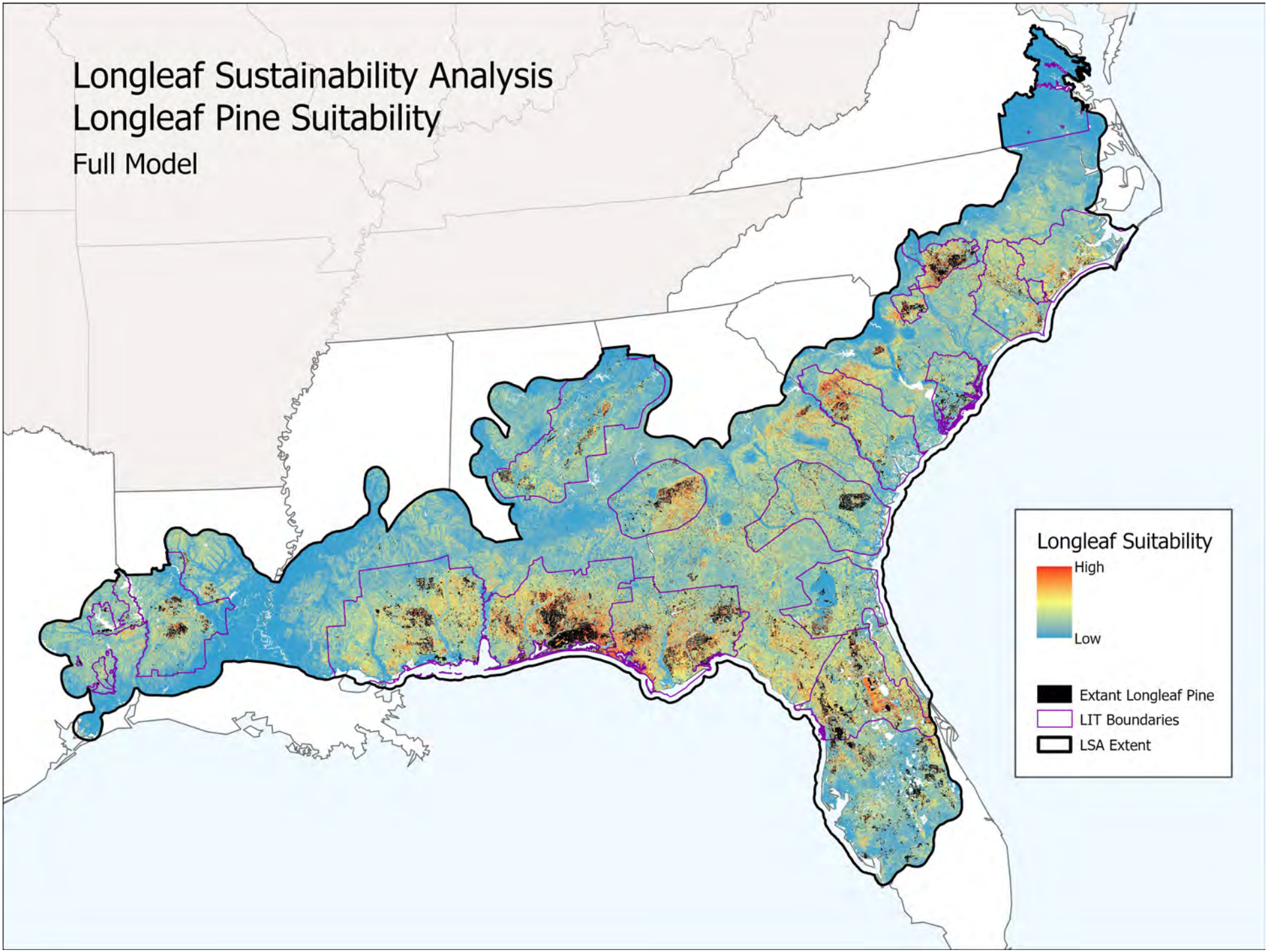

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