



East Texas Longleaf Prioritization Model

The Lower Mississippi Valley Joint Venture (LMVJV), working closely with the Texas Longleaf Implementation Team (TLIT), has recently completed development of a



new East Texas Longleaf Prioritization Model. Since 2010, the TLIT member conservation organizations and their strategic partners have promoted the restoration of longleaf pine (Pinus palustris) on private and public forestlands in the state of Texas. This new prioritization has been reviewed and approved by **TLIT** leadership for guiding future conservation actions in the area by prioritizing

lands adjacent to extant longleaf sites in the TLIT geography of southeastern Texas for longleaf pine restoration. In development of this prioritization, the LMVJV / TLIT utilized the best available landscape design data appropriate and available for the effort.

Methodology and Data Model Inputs

Development of the prioritization involved use of a longleaf-specific soils layer, a habitat suitability index (HSI) for wild turkey, and an open pine priority bird model, along with a distance suitability valuation. These data were normalized and weighted and, then, neighborhood analysis produced the prioritization, with priorities occurring within the historic longleaf pine range receiving slightly elevated valuations in the final output.

TPWD Wild Turkey Priority Zones



Eastern wild turkeys (Meleagris gallopavo silvestris) were once populous in the Pineywoods of eastern Texas, but were nearly eliminated from the area by unregulated overharvest of both turkeys and timber. As a game species of management concern, Texas Park and Wildlife Department (TPWD) developed a landscape scale HSI model for Eastern wild turkeys to help focus restocking efforts, to serve as a decision support tool for ongoing habitat evaluation efforts, and to focus restoration and management efforts. One result of this effort

were landscape hexagons prioritized by the likelihood that they contain suitable habitat for Eastern wild turkey. For the prioritization, these data were subset to the TLIT area boundary and this data was given a 20% overall modeling weight in the output.

LMVJV Open Pine DSM

Pine forest habitat represents the majority of habitat in the West Gulf Coastal Plain / Ouachitas (WGCPO). The ideal condition of pine forest in the WGCPO for birds is



characterized by an open canopy above and herbaceous ground and sparse mid-story layers that are maintained with periodic fires. With fire suppression and conversion of native pine forest to pine plantations planted at high stem densities, many of the bird species dependent upon this habitat have markedly declined. The WGCPO Open Pine **Decision Support** Model (DSM) developed by the LMVJV partnership prioritizes management and protection actions within existing pine and mixed pine/hardwood habitat according to the

landscape-scale needs of three Open Pine Umbrella Species (brown-headed nuthatch, Bachman's sparrow, and red-cockaded woodpecker). In general, the DSM prioritizes for extant forest that is greater than 80 percent pine, with canopy cover

between 25 and 60%." For the prioritization, we used the upper two-thirds of the DSM's priorities only and this data was given a 50% weight in the output.

<u>Soils</u>

USDA-SSURGO (Soil Survey Geographic database) refers to digital soils data produced and distributed by the Natural Resources Conservation Service (NRCS) -

Tyle 773 ft 772 ft The Woodl 119 Sabine National Wildlife Refuge 10 Houston Sugar Land Rosenberg

National Cartography and Geospatial Center (NCGC). The database has information on soil types and their distribution. These data were refined with longleaf pine-specific suitability assessments were provided by NRCS-TX and were subset to the TLIT boundary prior to analysis and were given a full 100% weight in the modeling output.

Anchor Sites

Known locations of persisting longleaf pine stands within protected conservation sites were used as "anchor" sites in which to guide restoration efforts. In order to



focus new pine restoration in close proximity to anchor sites, Euclidean distance buffers of 1 mile each up to 4 miles total were created, with closer proximity having higher values. These data were given were given a full 100% weight in the modeling output.

<u>Summary</u>

By utilizing these data in this fashion, the TLIT and LMVJV look to enable conservation partners to take advantage of quality science and decision-support capabilities to target areas where they will have the greatest impact for longleaf

pine restoration. The East Texas Longleaf Prioritization Model not only puts critical decision support information into the hands of conservation professionals most aptly capable of utilizing this information, it also places the partners in the position

of being uniquely qualified when it comes to responding to grant-funding opportunities.

<u>Acknowledgements</u> – the developers would like to express appreciation for data provided by NRCS-TX (T. Hart), USFS (I. McWhorter), Texas Forest Service (S. Rhodes), The Nature Conservancy (L. Lederle), TPWD (J. Hardin and J. Singhurst), and Resource Management Service (V. Lockhart).