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Missouri Resource Assessment Partnership (MoRAP)

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The over-arching purpose of the current segment of this participating agreement is to provide information for the National Forests and Grasslands in Texas (NFGT) to better conduct watershed/landscape scale analyses for project and Forest Planning efforts. The nature of the work was to use digital data and ecological knowledge to provide GIS-based maps of landtype phases (LTPs), provide information to improve landtype association (LTA) maps, and ensure that USFS ecological classification system (ECS) naming conventions are cross-walked into the new current vegetation map that is in production by the Texas Parks and Wildlife Department (TPWD). This project leverages the TPWD and Texas Water Development Board project designed to map the current vegetation of Texas. Following is a summary of specific goals and accomplishments.

Goals and Accomplishments:

1. Map Ecological Landtype Phase (LTP) concept types outlined in the Ecological Classification System (ECS).

Mapping of LTPs consumed the bulk of effort. MoRAP used the written LTP concept descriptions from the USFS Ecological Classification System (ECS; Van Kley et al, 2007) to develop maps via use of digital SSURGO soils, digital elevation models (DEMs), digital 250:000 scale geologic maps, and a map of the range of longleaf pine (sees Figure 1, 2).

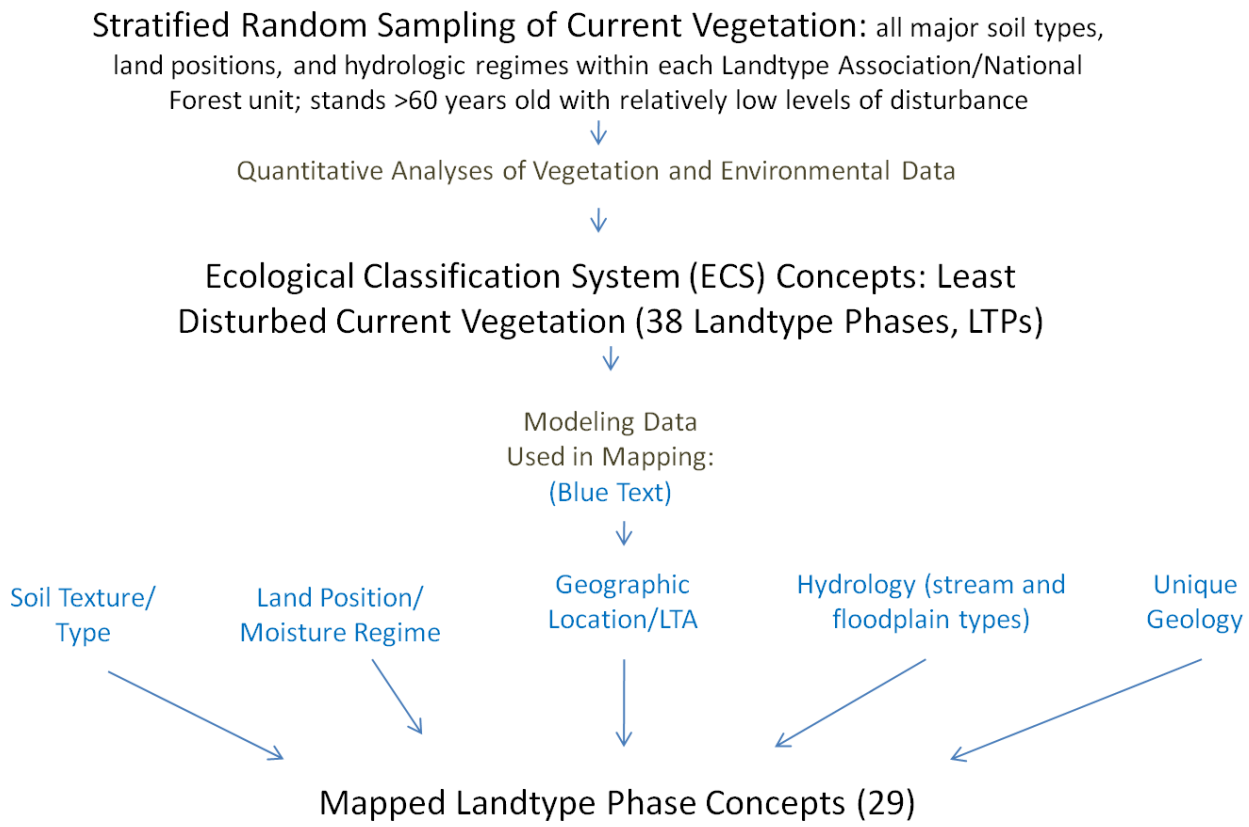

Figure 1. Outline of the development of Ecological Classification System Landtype Phase (LTP) concepts and modeling data used for mapping these concepts.

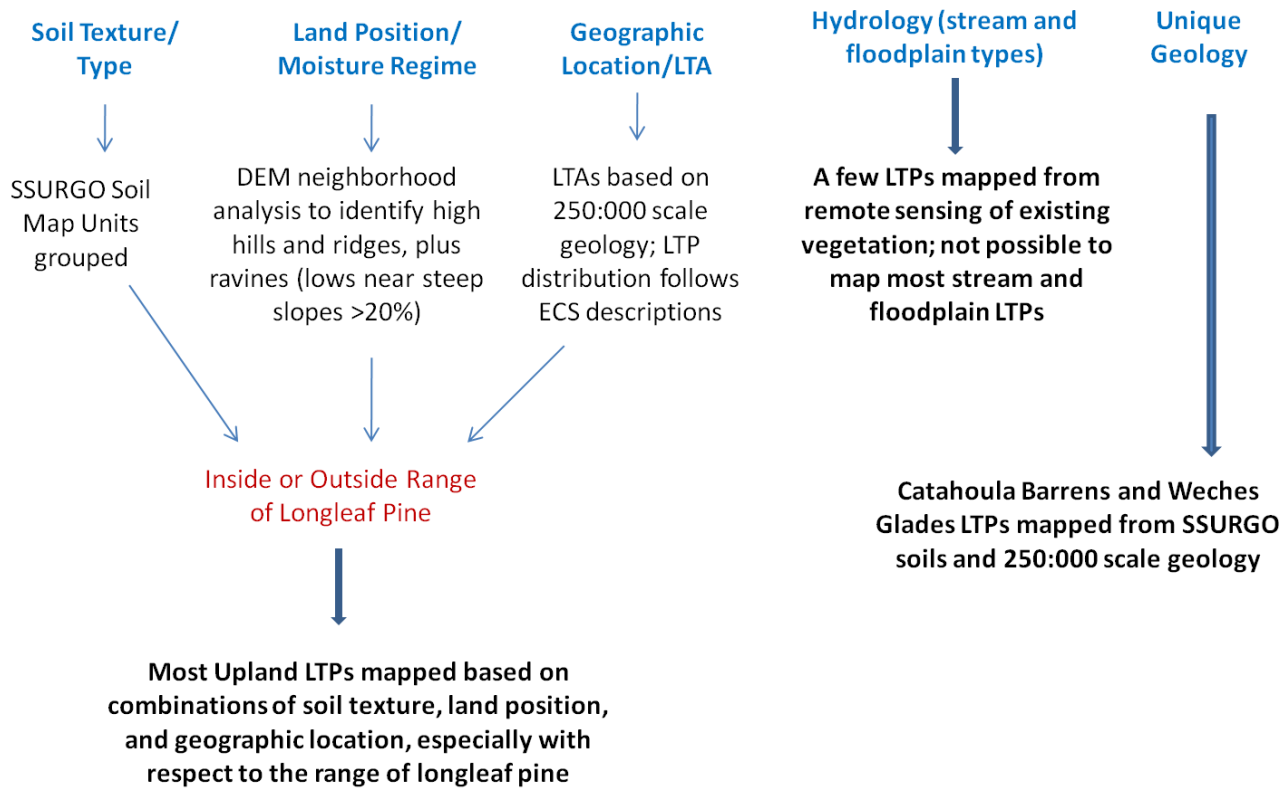

Figure 2. Primary data layers used for modeling and mapping of Ecological Classification System Landtype Phase (LTP) concepts. Twenty-nine of 38 LTP concept types were mapped.

Important caveats in terms of mapping are noted in tabular data contained within the ArcMap personal geodatabase delivered with this report. Caveats most often relate to (1) strict applications of ECS concepts, which may result in un-naturally rigid lines between types in broad landscapes, especially where concept types change at the boundary between geologic strata, (2) unknown natural variation in vegetation due to variations in landscape scale fire regimes, which are not accounted for by the strict application of ECS concept types, (3) ambiguities in ECS concepts, especially as related to Shortleaf Pine-(Longleaf Pine) types; specifically, do these names infer that shortleaf and longleaf generally occurs in mixed stands, or (more likely) that large patches of mainly shortleaf pine or mainly longleaf pine types may occur on the landscape due to minor variation in abiotic habitat or fire regime.

2. Improve Landtype Association (LTA) maps.

MoRAP linked LTA concepts to major geologic strata mapped at 250,000 scale based on descriptions in the ECS document. However, re-drafting of the LTAs within the national ecoregion classification was not possible because (1) we did not re-draft entire sections or

subsections, and (2) revisions of LTAs would have cascaded into difficult to justify revisions in higher level ecoregion lines.

3. Cross-walk Texas Parks and Wildlife Department-led naming of mapped current vegetation to ECS.

Appendix 1 is a list of TPWD mapped vegetation types cross-walked to ECS Landtype Phase concepts. . At least nine LTP concepts are not mapped as current vegetation types and many others do not fit neatly into the TPWD mapped vegetation categories. This is primarily because current vegetation does not match potential vegetation, which is closer to what LTPs represent. Also, remote sensing will not allow separation of physiognomically similar types, and modeling will not allow separation of types that occur on largely similar habitat types such as river floodplains.

Reference:

Van Kley, J.E., R.L. Turner, L.S. Smith, and R.E. Evans. 2007. Ecological classification system for the national forests and adjacent areas of the West Gulf Coastal Plain: 2nd approximation. The Nature Conservancy and Stephen F. Austin State University, Nacogdoches, Texas, USA. 379 pp.