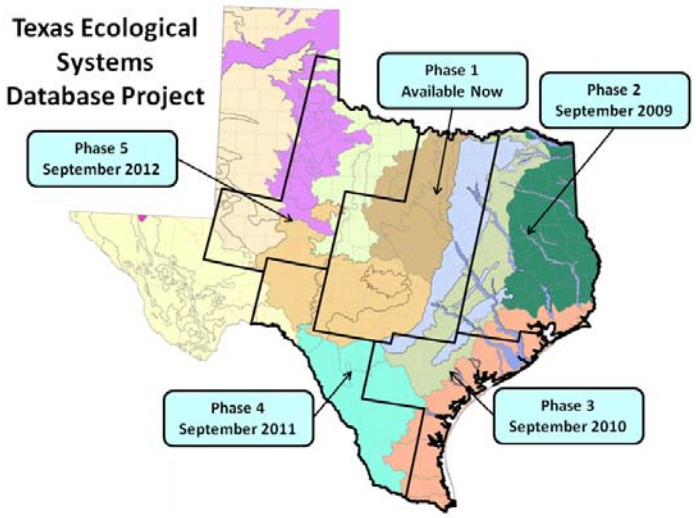
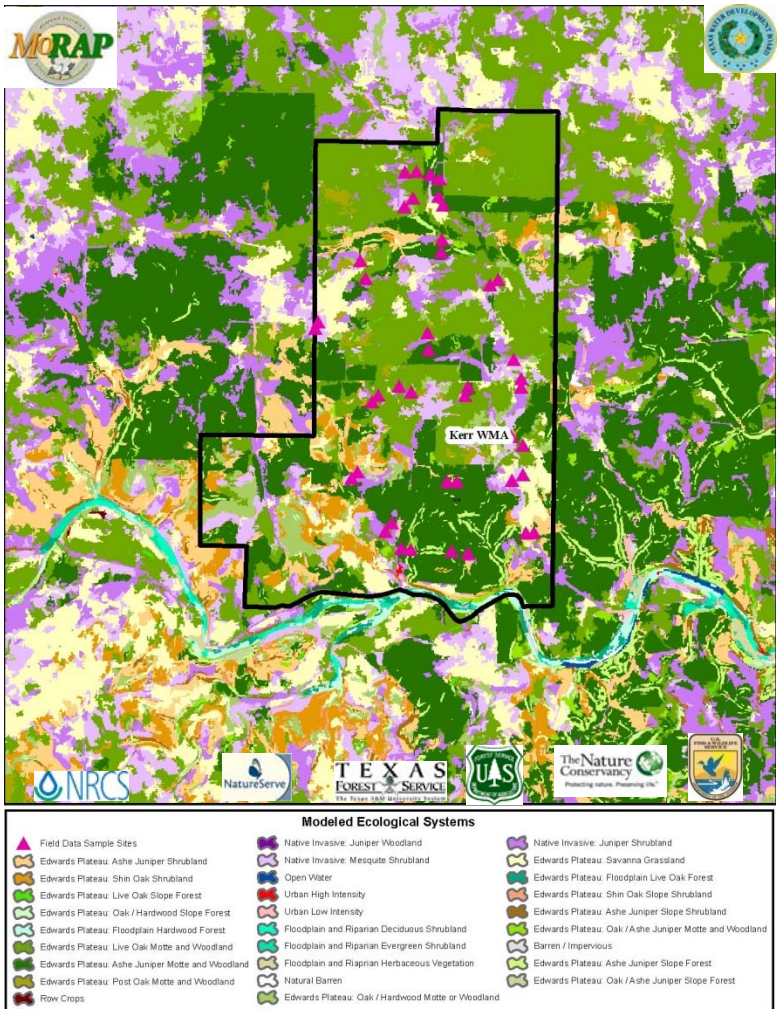


Texas Ecological Systems Classification Project

The Texas Parks and Wildlife Department is cooperating with private, state, and federal partners to produce a new land classification map for Texas, based on the NatureServe Ecological System Classification System as described by Comer (2003)[1]. The basic steps are to identify mapping targets using ecological systems as a starting point, collect data from air photos and the field to implement a supervised classification, and use ecoregions, SSURGO soils, DEM-based variables, and hydrology to help interpret the ecological meaning of final mapping targets. Rapid collection of field data was accomplished by combining ecological expertise with GIS data collection techniques. Improved thematic and spatial resolution is achieved using a decision tree classifier with both remotely sensed and abiotic variables, map objects generated at 10 m resolution, and the modeling of mapping targets using ecological site descriptions from SSURGO soils and data from the NatureServe systems classifications.



[1]Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, and J. Teague. 2003. Ecological Systems of the United States: A Working Classification of U.S. Terrestrial Systems. NatureServe, Arlington, Virginia.

Ecological Systems

Ecological systems represent sets of geographically juxtaposed communities that share similar ecological processes, substrates, and/or environmental gradients. Ecological systems may occur at a variety of scales. Ecological systems must be stable for 50 years or more. These non-hierarchical, associations may occur in multiple systems.

Methodology

Remote sensing-based landcover was developed by applying a regression tree classifier to three dates of Landsat TM satellite imagery and ancillary information including: % slope, aspect, landscape position, solar insolation, % canopy cover, and %impervious cover; plus cropland from FSA Common Land Units. The regression tree approach allows for the inclusion of continuous (satellite image reflectance) and categorical data into the classification process. The final classification was rendered by summarizing the classified data under a set of image objects that were developed from 10m NAIP county mosaics.

Final mapped land cover types (Mapping Subsystems) are made as precise as possible by combining the results of the moderate-resolution remote sensing-based analyses with other information, such as ecoregions/geology, hydrology, county-level mapped soils, and slope. For example, "Deciduous Forest" from remote sensing analyses may be mapped as "Oak / Hardwood Slope Forest" if it is found on Adobe Ecological Site Types, >20% slope; or as "Floodplain Hardwood Forest" if found on floodplains; or as other cover types if found on other site types, soils, or ecoregions. Historic vegetation patterns can also be discerned from the modeling data, and can thus be used to infer vegetation dynamics and management options in the contemporary landscape.

Field data was collected adjacent to public roads and on public lands. Data was collected on private lands with written landowner permission. Minimum site spacing is 1 mile, except for rarely encountered systems which are mapped as encountered. Sites are 1 hectare and a minimum of 30 meters from road edge. Samples document vegetation in the tree, shrub and herbaceous strata. Data collected includes top 3 species per strata, percent cover in each strata, ecological system and land cover class.

Phase 1 Data

ftp://204.64.0.121/
user name = ftpVEGMAP
Password = M8r<%ba!

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