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Hazard Rating of Parks Trees and Establishment of Adopt-A-Tree Program, Nacogdoches, Texas

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HAZARD RATING OF PARKS TREES AND ESTABLISHMENT OF ADOPT-A-TREE PROGRAM, NACOGDOCHES, TEXAS

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ABSTRACT. The purpose of this project is to inventory parks and recreation trees in the city of Nacogdoches, Texas, using a Trimble Pro XRS GPS unit to establish location; and to construct a geographic information system (GIS) database for forest health that can be updated as forest health conditions change in the future. Tree health data collected will include structure of the main bole and branches; insect and disease pests; life expectancy; and shape of the crown and cultural history. An Adopt-a-Tree program, developed in the Arthur Temple College of Forestry at Stephen F. Austin State University, will be established to document planting and maintenance of the urban forest. Each tree planted will have the person planting the tree, a digital picture and the tree species entered into a GIS database for later retrieval, spatial analysis and visual/map display. The project follows the constructs of landscape ecology for documenting structure, function and change of the urban forest.

HAZARD RATING OF PARKS AND RECREATION TREES, NACOGDOCHES, TEXAS

Nacogdoches Parks and Recreation trees will be rating using the Texas Shade Tree analysis. Each tree within 125 feet of a recreation facility will be rated and located using a Trimble ProXRS GPS unit to establish the position of each tree within one-meter accuracy. Data will be entered into an ArcGIS 8.1 software and data storage platform. Data will be layered onto 1996 Digital Orthophoto Quarter Quadrangles (DOQQ's) in conjunction with the Arthur Temple College of Forestry (ATCOF) at Stephen F. Austin State University to provide a database for future reference. The database provides a record of 1) tree location; 2) tree condition; 3) and tree change over time. It is important to assess the current status of parks and recreation trees as 1) the trees are aging; 2) use of parks and recreation areas are increasing; and 3) recommendations need to be made for renewal of the urban forest in these high visibility and high use area in conjunction with a Parks Master Plan for the city of Nacogdoches being developed in 2002 and 2003.

In Nacogdoches, there are 18 parks and recreation areas totaling 343.75 acres that have a forest component. In addition, local cemeteries and historic sites are being inventoried as these are under the purview of either the Parks and Recreation center or the Museum director. There are four local cemeteries, including the historic Oak Grove Cemetery; and the historic areas of Nacogdoches including the Sterne-Hoya House and the previous location of the historic Zion Hill Baptist Church, now a community center.

Within each of these areas, the spatial location of all trees will be identified and inventoried for form and structure, including insects and diseases tied to their spatial location. A monetary value will be placed on each tree as a rating system and the calculated value compared to percent of total value if the tree was healthy. The information will be entered into a comprehensive electronic database entered onto

DOQQ's for reference to the city of Nacogdoches. The database will be merged with the tree hazard rating system for the campus of Stephen F. Austin State University in Nacogdoches that has 7000 trees rated and already located and identified. All GIS data will be combined on Excel spread sheets and interfaced with the city of Nacogdoches for parks and recreation management and planning for future addition of Parks and Recreation trees.

On October 18, 2001, DigitalGlobe increased the spatial resolution capability of remotely sensed data by launching the QuickBird 2 satellite capable of providing digital imagery of the earth at 2.44-meters in a multispectral data format and 61-centimeters in a panchromatic data format. With the advancement of QuickBird 2, and its increased spatial resolution capabilities and high temporal and radiometric resolution, the data now available with the QuickBird satellite promises to revolutionize our raster databases by providing more timely raster information that we can integrate more effectively with our GIS tree data rather than relying on outdated DOQQ's. QuickBird imagery acquired January 3, 2003, will be interfaced with the project.

Urban Forest Workshop on Tree Inventory and Care

An Urban Forest Workshop on Tree Inventory and Care will be conducted at the Arthur Temple College of Forestry, Stephen F. Austin State University in Nacogdoches. Topics and tentative presenters for the workshop include:

The session will include both presentations and hands-on-demonstrations of tree planting and tree care. Each participant will receive workshop material on proper tree planting and tree care. The use GPS and GIS for urban forest planning and mapping will be presented.

Adopt-a-Tree

An Adopt-a-Tree program will be developed and implemented to encourage both the planting and the care of trees in the Urban Forest. For each tree adopted, a GIS database will be developed tied to the inventory of the Parks and Recreation trees and the care and planting of the urban forest. The Adopt-a-Tree program will be run in conjunction with the Arthur Temple College of Forestry; the Society of American Foresters Student Chapter; and Alpha Phi Omega, Nu Sigma Chapter, National Service Fraternity at Stephen F. Austin State University. To adopt a tree, an individual or group will have a digital photograph taken with the tree. The image will be entered onto a database and linked spatially with the DOQQ and tree inventory of the Parks and Recreation trees. For each image, the participants name or organization and date of adoption will be entered. For college students, major, date of graduation and hometown will be entered. The data will be entered onto Excel spread sheets and spatially linked with its corresponding DOQQ maintained in the ATCOF. The data will be available for search information and to promote the establishment of the urban forest.

Participants

Participants include the City of Nacogdoches and the Arthur Temple College of Forestry, SFASU. Volunteers include Alpha Phi Omega, Nu Sigma Chapter, the Society of American Foresters, Student Chapter, National Association of Environmental Professionals, Student Chapter; and the Society of Arboriculture, Stephen F. Austin State University.

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