

## Houston's Regional Forest: *Structure • Functions • Values*

From the region's pine forests and bottomland hardwoods to the street and yard trees that grace our neighborhoods, each tree in the eight-county region surrounding the city of Houston is an integral part of the region's tree cover. ***Houston's Regional Forest: Structure • Functions • Values*** represents the latest effort to quantify the green infrastructure of the region and is the first report of its kind in Texas. Local leaders can use this new information to help craft effective programs and policies that will sustain tree cover in the region for generations to come. A sample of the findings is included here:

### Major Findings & Conclusions

#### ***Houston's regional forest provides impressive value to its citizens:***

- The replacement cost of the region's 663 million trees is valued at over \$205 billion.
- Trees store \$721 million worth of carbon.
- Trees generate \$456 million worth of environmental benefits annually.
- Trees save \$131 million in residential energy costs and avoided power plant emissions each year.
- Houston's trees remove over 60,000 tons of air pollution per year.

#### ***Large trees and urban trees have greater roles in producing forest benefits:***

- Only 30 percent of the region's trees are five inches in diameter or greater, but they generate over 60 percent of total environmental benefits.
- Very large trees—20 inches diameter or greater—contribute 90 percent of the \$205 billion replacement value of the regional forest.
- Urban trees work harder: the average urban tree stores 75% more carbon and has a 76% higher replacement value than the average rural tree.

#### ***Land use change and invasive tree species pose significant threats to the future extent and composition of the regional forest:***

- Land cover in 2000 consisted of roughly one-half **Agriculture/Range**, one-quarter **Forest**, and one-quarter **Urban** cover classes.
- Between 1992 and 2000, **Forest** cover classes declined by 17 percent—a decrease of 486 square miles—resulting in a net loss of over 78 million trees.
- Chinese tallow is now the single most common tree species in the region, at 23 percent of all trees.

## About the Report

**Houston's Regional Forest** report represents a three-year collaborative effort between federal, state, and local researchers to measure and evaluate the tree and forest resources of the region. The report is organized to provide answers in three categories and make useful recommendations for policy-makers. It describes:

**Forest structure** includes tree species, diversity, size, health, leaf area, biomass, and other elements that make up the "regional forest":

- Data collected from 332 field plots throughout the eight counties surrounding the city of Houston: Harris, Waller, Montgomery, Liberty, Chambers, Galveston, Brazoria, and Fort Bend
- Region mapped by residential, commercial, forested, and agricultural areas

**Forest functions** are the environmental services that trees and forests perform:

- Urban FORest Effects (UFORE) model used to quantify air pollution removal, carbon sequestration, carbon storage, and energy savings
- Functions not included in analysis: habitat for wildlife, stormwater management and flood prevention

**Forest values** are the quantified dollar values of forest functions and structure:

- Functional values quantified: air pollution removal, carbon sequestration, and energy savings
- Structural values quantified: carbon storage and the replacement value of the forest
- Values not addressed: mental health benefits, property value increases, and floodwater retention

The full report is available on **October 24, 2005**. For a printed copy, call the Texas Forest Service (713-688-8931 or 979-458-6650) or the Houston Advanced Research Center (281-364-4007); for the web version, go to [www.HoustonRegionalForest.org](http://www.HoustonRegionalForest.org) or <http://texasforests-service.tamu.edu>.

