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Trees to Save San Antonio Millions of Dollars Annually

New study shows financial and environmental benefits of urban trees

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SAN ANTONIO (Nov 12, 2002) According to a new study by conservation organization AMERICAN FORESTS, the Greater Area of San Antonio, Texas is saving more than \$70 million annually from tree cover. AMERICAN FORESTS' conducted an Urban Ecosystem Analysis (UEA) of 788,000 acres of the Greater San Antonio Area, including Bexar County and its surrounding suburbs. The analysis shows changes in tree cover over time as well as measures the value of the area's tree cover for stormwater management, air quality, and energy conservation.

The study not only calculated the functional value of trees, but also serves as an introduction for the city leaders to learn about ways to use tree cover as an asset—building a “green” infrastructure for future city management decisions. American Forests will work with the community over the next year to integrate trees into planning and management operations.

“Based on this study, City Public Service (CPS) will develop a comprehensive tree planting and preservation program called ‘Planting Our Future,’ that will help improve air quality in San Antonio and save CPS customers on air conditioning costs,” said Milton Lee, CPS general manager and CEO.

The Urban Ecosystem Analysis technique conducted in San Antonio used satellite and aerial imagery, Geographic Information System technology, and scientific research to calculate the benefits trees provide to the urban environment. AMERICAN FORESTS' CITYgreen® computer software was used to analyze the environmental benefits of the Greater San Antonio Area.

The findings show that in the Greater San Antonio Area, the existing tree cover reduces stormwater runoff by 678 million cubic feet during a storm event. Stormwater construction costs to contain this amount of stormwater is valued at \$1.35 billion (using \$2 per cubic foot construction cost).

Besides reducing stormwater runoff, the Greater San Antonio Area's tree canopy provides other benefits including the removal of 17 million pounds of pollutants a year, a value estimated at \$42.1 million annually. The city's urban forest currently stores an estimated 7

million tons of carbon and sequesters nearly 56,000 tons of carbon each year.

Trees also help shade and cool the Greater San Antonio Area. Long, hot summers force residents to use their air conditioners at an approximate cost of \$555 dollars per home annually. Residential shade trees were shown to save each home an average of \$76 a year. Assuming that 67.8 percent of the area's residences have air conditioners (U.S. Census Bureau), the estimated annual residential savings totals \$17.7 million.

These benefits become more important with the realization that tree canopy has been lost over the last 15 years. The analysis compared classified Landsat TM satellite images between 1985 and 2001 and revealed a 23% loss in heavy tree canopy cover (50 percent or greater tree cover) over this time period. Fortunately, the area still retains a 20% canopy cover. Similar loss patterns were found within the San Antonio Region, which includes portions of Wilson, Guadalupe, and Comal Counties (13%). Not surprising, the most dramatic loss occurred within the City of San Antonio (39%).

The report makes a number of recommendations for these and other decision-makers. The study suggests the city develop public policies that increase tree cover and promote green infrastructure. Second, the community should include trees and the values associated with trees when making land-use decisions. Lastly, the analysis recommends that the community should set tree cover goals and institutionalize a system to maintain this goal.

If the tree canopy were increased from 20 to 25 percent (American Forests' recommended 25% for arid regions of the US) benefits would increase substantially. Trees would provide an additional 65 million cubic feet in avoided stormwater storage valued at \$129 million, sequester an additional 3,000 tons of carbon annually, and absorb an additional 3 million pounds of air pollutants valued at \$8.5 million per year. If you add annual stormwater and air pollution improvement values together, trees provide an additional \$17.5 million annually.

The results of the study will be used by San Antonio's Alamo Forest Partnership, a consortium of public, private, and nonprofit agencies and organizations, spearheaded by City Public Services, who want to take a proactive approach to planning and managing the area's natural resources. "Alamo Forest Partnership's objectives include improving the climate by helping to lower urban temperatures to offset the 'heat island effect' in the downtown area; urging the planting of native tree species; encouraging water conservation by promoting xeriscape planting and self-sustaining irrigation systems; enlisting community involvement; and educating the public on the value of urban trees," said Jenna V. Terrez, City Public Service environmental analyst and AFP project manager.

Trees help reduce stormwater runoff by intercepting rainwater on its leaves, branches and trunk, where it evaporates, or slowly soaks into the ground, reducing peak flow after a storm. Trees also reduce the volume of runoff. Municipalities must spend millions of dollars for flood control systems and sewer infrastructure to handle stormwater runoff.

“The study shows that San Antonio’s trees are a vital municipal asset,” said Gary Moll, Vice President of AMERICAN FORESTS’ Urban Forest Center. In the next phase of the study, we will use high resolution, multi-spectral imagery to exam these numbers more closely and analyze them by different land cover and land use categories. This will also allow the Alamo Partnership to integrate this “green data layer” provided to them in their everyday planning.

AMERICAN FORESTS is a national leader in the urban forestry movement. The organization combines education, action, and research into programs that improve the trees, forests, and overall environmental health of our communities. In addition to conducting Urban Ecosystem Analyses (UEA) in regions around the US, American Forests developed CITYgreen software for communities to use in calculating the value of urban forests in their local areas. Every two years, AMERICAN FORESTS organizes the National Urban Forest Conference, which brings together practitioners, researchers, citizen groups, legislators, and others interested in improving the urban environment. Findings of the next phase of analysis will be released in September at the 2003 National Urban Forest Conference. San Antonio will also host the meeting.

AMERICAN FORESTS, founded in 1875, is the oldest national nonprofit citizen conservation organization. Its three Centers - Global ReLeaf, Urban Forests, and Forest Policy - mobilize people around the world to improve the environment by planting and caring for trees. AMERICAN FORESTS publishes American Forests magazine and can be found on the Internet at www.americanforests.org.

ALAMO FOREST PARTNERSHIP was established to jointly encourage the conservation and planting of trees in the Greater San Antonio Area. The group consists of representatives from City Public Service (CPS), City of San Antonio (COSA), Alamo Area Council of Governments (AACOG), Texas Forest Service, San Antonio Water System (SAWS), Department of Defense (DOD), National Park Service, Texas Parks & Wildlife, along with non-profit organizations like, SA Forest, SA Trees, Bexar Audubon, and Neighborhood Resource Center.