Earth Day 2020: Trees, Please! Whitepaper

Introduction:

Planting trees is one of the simplest and least expensive ways of tackling the climate crisis, according to scientists, because trees take CO2 out of the atmosphere. As they grow, trees absorb and store the carbon dioxide emissions that are driving global climate change. New research estimates that a worldwide planting program could remove two-thirds of all the emissions from human activities that remain in the atmosphere today, a figure the scientists describe as "mind-blowing." Trees remove carbon dioxide from the air, storing carbon in the trees and soil, while releasing oxygen into the atmosphere. Trees provide other benefits as well. They offer cooling shade, block cold winter winds, attract birds and wildlife, prevent soil erosion, clean water supplies, increase property values, and add grace and beauty to homes and communities.

Teaching children, and, by extension, their parents and other family members, about climate change and the actions they can take that will make a difference is a crucial lesson for all children. Everyone can plant a tree and working through public and private K-12 schools to give each student a tree to plant personally teaches them they can make an individual difference in the fight against global climate change.

This whitepaper outlines the way Esri, Redlands Unified School District (& local private schools), the University of Redlands, the City of Redlands and the Inland Empire Resource Conservation District are working together to plant 15,000 trees in April of 2020 in honor of the 50th anniversary of Earth Day.

Why plant trees:

In addition to the climate change benefits mentioned above, (trees sequester carbon (CO2), reducing the overall concentration of greenhouse gases in the atmosphere, read more here), trees have other benefits, among them:

Environmental Benefits

- Energy conservation: A tree is a natural air conditioner. The evaporation from a single tree can produce the cooling effect of ten room-size, residential air conditioners operating 20 hours a day. Acting as a natural air-conditioner, Palo Alto, California's lush canopy ensures that summer temperatures are at least 6 to 8 degrees lower than in comparable neighborhoods without trees. Tree windbreaks can reduce residential heating costs 10-15%, while shading and evaporative cooling from trees can reduce residential air-conditioning costs 20-50%.

- Water filtration and retention: Urban forests promote beneficial water quality and reduce storm water management costs.
- Wildlife habitat: Trees provide important habitats for numerous bird, insect and animal species.

Public Health and Social Benefits

- Clean air: Trees produce oxygen, intercept airborne particulates, and reduce smog, enhancing a community's respiratory health. The urban canopy directly contributes to meeting a city's regulatory clean air requirements.
- Access to trees, green spaces, and parks promotes greater physical activity, and reduces stress, while improving the quality of life in cities and towns.
- Urban landscaping, including trees, helps lower crime rates.
- Studies show that urban vegetation slows heartbeats, lowers blood pressure, and relaxes brain wave patterns.
- Girls with a view of nature and trees at home score higher on tests of self-discipline.

Economic Benefits

- Communities and business districts with healthy tree-cover attract new residents, industry, and commercial activity.
- Homes landscaped with trees sell more quickly and are worth 5% to 15% more than homes without trees.
- Where the entire street is tree-lined, homes may be worth 25% more.
- Trees enhance economic stability by attracting businesses; people linger and shop longer when trees are present.
- Where a canopy of trees exists, apartments and offices rent more quickly and have a higher occupancy rate; workers report more productivity and less absenteeism.

Tree Benefit "Fun Facts"

- Trees provide inviting and cool areas for recreation and relaxation such as playgrounds and parks.
- Trees create a tapestry of color and interesting form that changes throughout the year.
- The color green is calming and relieves eye strain.
- Trees screen unattractive views and soften the harsh outline of masonry, metal, asphalt, steel and glass.
- People walk and jog more on shaded streets, which encourages interaction with neighbors and improves the sense of community.
- Trees absorb and block sound, reducing noise pollution by as much as 40 percent.

Project Partners
- Funder – Esri
- Logistics and Program -- University of Redlands Offices of Alumni & Community Relations and Community Service Learning
- Recipients – Redlands Unified School District and local private schools
- Educational Resource Development – Inland Empire Resource Conservation District
- Repository for Extra Tree Seedlings – City of Redlands Facilities & Community Services Department

Schools Tree Program Overview
The goals of the Schools Tree Program are:
- Empower children to make a difference in the fight against global climate change
- Plant thousands of trees that will help combat global climate change

By working through school districts and private schools, each child will be educated about the benefits of planting trees and how to plant and care for them. Each child will receive a tree along with instructions for planting, care, and how to record the planting location on the GIS app on the project's website.

Working with Schools/Districts
The first step in this type of program is getting buy in from your local school district and private schools. A few pointers:
- Start at the top – Buy-in at the Superintendent level will make it easier.
- Be flexible – Schools are constrained with their class schedule, work to find a date that doesn't conflict with testing, breaks, or in-service days. Schedule overview presentations as a part of existing school assembly dates.
- Utilize a District-level contact to assist with communications to individual schools and principals.

Communications
- Develop a website to house all information, see Redlands.edu/trees
- Utilize local media to distribute an initial announcement of tree-planting to alert parents and community members of the project and to give visibility to program sponsors.
- As distribution day approaches, utilize school's electronic resources to communicate directly with parents and teachers.
- Recruit volunteers to assist in making school assembly presentations.
- Ready a PowerPoint presentation for use by school assembly presenters. A state agency, the Inland Empire Resource Conservation District developed additional resources for teachers and parents to use. See this page for examples.
- Hold training for presenters or email detailed information.
- Develop instructions for tree planting and care to hand out with the trees. A sticker on the tree container works well. See this link for examples of our stickers. More detailed planting information can be housed on the project webpage. We developed both a document and a video.

GIS Application

The University of Redlands developed an Esri-based GIS (Geographic Information Systems) app that allows participants to report where their tree is planted and also calculates the benefits the tree will provide to the environment when full grown. To see the app, click here.

Tree procurement/cost/varieties

Working with a local nursery to grow seedlings will bring down the cost of the trees and ensure you can get the quantity needed. Approximately seven months is needed to grow seedlings. In considering the species of trees, look for trees that are native to the area and survive well in the climate of the region.

Logistics

Tree delivery – We had trees delivered to our funder's location in the city by the nursery. The school district then delivered the trees to the individual schools. Once at the schools, University of Redlands students assisted the teachers and administrators in handing the trees out to individual classes and students.

Additional Information

For additional information or access to resources mentioned, contact Shelli Stockton, shelli_stockton@redlands.edu