



CWSF
COUNCIL OF WESTERN
STATE FORESTERS

HEALTHY TREES, HEALTHY COMMUNITIES





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Photo Credit Front Cover: Alberto Ricordi.*

FOR MORE INFORMATION

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OVERVIEW

AN INTRODUCTION TO THIS PUBLICATION

The Council of Western State Foresters (CWSF) is a nonpartisan, nonprofit membership organization comprised of state, territorial, and commonwealth foresters whose role is to protect, conserve, and enhance western and Pacific Island forests. CWSF's membership is comprised of 17 western U.S. State Foresters and six U.S.-Affiliated Pacific Island foresters. Unlike other organizations focused on just one aspect of forestry, CWSF takes a broad and comprehensive approach to forest management and provides expertise on the many complex and interrelated factors at play in western forestry.

An important part of CWSF's work is fulfilled through a relationship with the western leadership of the USDA Forest Service. This relationship is realized through the Western Forestry Leadership Coalition (WFLC). WFLC works collaboratively to ensure sustainable management of western forests to meet our needs today and for generations to come.

As part of this work, WFLC supports a network of Urban and Community Forestry (U&CF) Coordinators in the western United States and Pacific Islands. This network meets regularly to discuss U&CF issues of importance.

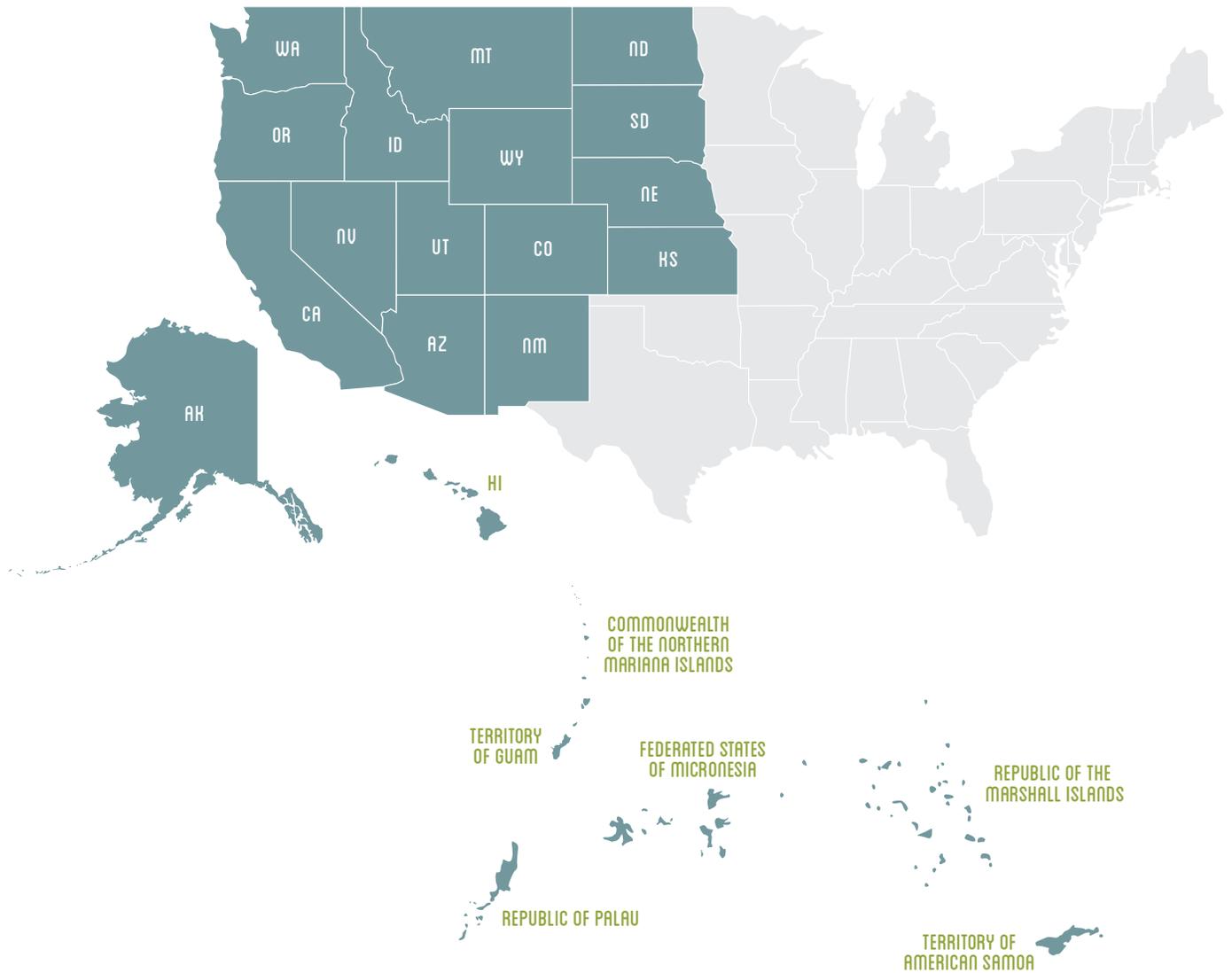
The 2018 Western U&CF meeting included a report-out from attendees on projects in their respective states focused on “healthy trees, healthy communities”.

This publication highlights projects being undertaken by state forestry agencies that focus on the positive impact trees can play in building healthy communities. Examples of projects include efforts that link urban and community forestry to public health, programs that encourage healthy lifestyles and promote outdoor exploration, and programs geared towards ensuring the health of watersheds and food sources. These examples were provided by state forestry representatives in early 2018.



AT-A-GLANCE

CWSF MEMBERSHIP



ALASKA

ALASKA DEPARTMENT OF NATURAL RESOURCES, DIVISION OF FORESTRY

The Alaska Department of Natural Resources Division of Forestry (DOF) received a grant from the USDA Forest Service in 2015 for a project in Fairbanks, AK, entitled “Using Green Infrastructure to Restore the Chena River Watershed.” This grant funding has helped to complete several green infrastructure projects in the Chena watershed, which supports the second largest spawning population of Chinook (King) salmon in the Yukon River drainage.

The Chena River, running through the City of Fairbanks, supports the second largest spawning population of Chinook (King) salmon in the Yukon River drainage. Alaskans rely on salmon; commercial, sport and subsistence fishing are all integral parts of the Alaskan lifestyle. Subsistence users are especially dependent on salmon as part of a healthy diet. In 2012, the U.S. Department of Commerce declared the Chinook salmon fishery a disaster for the Yukon River drainage due to low salmon returns.

Many man-made projects are harming the salmon population. The expansion of impermeable surfaces (buildings, parking lots, sidewalks, streets and other hard surfaces) in Fairbanks and the decrease in natural vegetation has resulted in increased stormwater runoff into the Chena. Cold water fish species like salmon have further been harmed by increased sediment, petroleum products, water temperature, and low dissolved oxygen conditions. Development along the riverbank has also removed much of the riparian vegetation that is critical for food and cover from predators.

Although stormwater runoff and its associated pollutants remain a threat to the Chena River, recent data shows that several changes in Fairbanks have led to positive improvements in water quality during the 1990s and early 2000s. These include: reductions in stormwater runoff; additional permit requirements for construction sites; and efforts to increase green infrastructure applications and reduce the amount of impervious surfaces in the urban area.



Transit Park is using green infrastructure such as stormwater trees and permeable pavers to help retain rainwater and soak it into the ground. Photo Credit: Alaska DOF.



S Salon is using green infrastructure such as flow-through planters to help retain rainwater and soak it into the ground on their property. Photo Credit: Alaska DOF.

In downtown Fairbanks, this 2015 DOF project contributed to this effort by adding trees to intercept stormwater, planting vegetation with large volumes of soil to infiltrate runoff, and putting in landscape features including flow-through planters, pervious pavement and rain barrels to further reduce runoff. Green street designs were incorporated to reduce stormwater within the right of way to reduce the amount of runoff into storm sewers. All of these changes have been put in place to make headway on improving conditions for the salmon population in the Chena River.

Partners for this USDA Forest Service Landscape Scale Restoration Grant funded project include: the Tanana Valley Watershed Association, the Fairbanks Green Infrastructure Group, Alaska Department of Environmental Conservation, Chena Riverfront Commission, City of Fairbanks, Fairbanks North Star Borough, Fairbanks Soil & Water Conservation District, and the U.S. Fish & Wildlife Service.

FOR MORE INFORMATION

Alaska Department of Natural Resources, Division of Forestry, Community Forestry Program
<http://forestry.alaska.gov/community>

ARIZONA

ARIZONA DEPARTMENT OF FORESTRY AND FIRE MANAGEMENT

Being outdoors has a plethora of positive impacts on the human body, from encouraging exercise to stress relief. The Prescription Parks and Trails (Park Rx) project is aimed at improving the physical and mental health of individuals and communities by giving healthcare providers new tools to inspire patients to utilize parks, trails, and open spaces in southern Arizona. A collaboration between healthcare providers, public land agencies, and community partners, Park Rx encourages patients to take proactive steps to improve their health and well-being by providing them with prescriptions to participate in outdoor activities.

The Park Rx project is coordinated by the BEYOND Foundation, an organization committed to improving the health and well-being of communities. BEYOND encourages community members to adopt a comprehensive approach to their health by following a health formula based on four key principles: exploring by getting outdoors and spending time in nature, moving by engaging in regular physical activity, nourishing by eating healthy foods and connecting with one another as a community.

The goal of the Park Rx project is to improve the physical and mental health of individuals and communities with a focus on low income, underserved areas in Tucson, AZ. In collaboration with health care providers, public land agencies, and community partners, Park Rx is assisting and encouraging people to utilize parks, trails, open spaces, and the trees throughout. Through community walking events, ranger led programs, and guided hikes, Park Rx is developing into a unified integration of nature and public health.

Park Rx is also giving health care providers a new set of tools to inspire patients to take proactive steps to improve their health and well-being by writing prescriptions to participate in outdoor activities. Most events, programs, and all walks are open to the public, whether a patient or not.



“Together We Move at Mercado San Agustin” – This event included Jazzercise, Zumba, Hula Fitness, dancing, a walk to the Mission Garden, Dequenes’s Community & Wellness Mobile Unit to take vitals, and drumming. Photo Credit: BEYOND Foundation.



“Witness the Fitness at El Pueblo Neighborhood Center” – A Park Rx event at El Pueblo Regional Neighborhood Center on January 13th included classes led by El Rio instructors in both Zumba and Tai Chi, as well as a jumping castle and an educational booth with health information. Photo Credit: BEYOND Foundation.

To date, Park Rx has hosted 21 walks/hikes and over 200 people participated in events from October to December 2017. The Park Rx team hopes to increase participation and partnerships in the local community and has the overall goal of expansion of the Park Rx programs to be available for prescription by any Tucson doctor.

Plans to replicate the Park Rx program in Maricopa County are currently underway.

FOR MORE INFORMATION

Arizona Department of Forestry and Fire Management, Urban and Community Forestry Program
<https://dffm.az.gov/forestry-community-forestry/urban-community-forestry>

CALIFORNIA

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

In California, a revision of the state building standards is helping to promote urban forestry through policy. By implementing urban forestry elements, a revised policy is helping to increase shade cover for schools and improve campus health while mitigating heat. This is an exciting example of how a statewide regulatory program is having a positive effect on advancing California's Urban & Community Forestry (U&CF) program health objectives. Many of California's existing projects utilize school sites, and this change in standards will further enhance U&CF education and outreach messaging to students and faculty at these sites.

Existing California building standards focused on construction related to public elementary schools, secondary schools and community colleges are being amended under the Division of the State Architect.

California Department of Forestry and Fire Protection (CAL FIRE) Urban & Community Forestry developed a relationship with the Division of the State Architect through a separate partnership, the Health in All Policies Task Force, via the California Department of Public Health. As a result, CAL FIRE and other urban forestry partners (Sacramento Tree Foundation and California ReLeaf) have been able to work with the Division of the State Architect to update the standards to include urban forestry elements.

California building standards include mandatory and voluntary measures to encourage sustainable building practices. These measures are intended to improve public health, safety and general welfare by promoting the use of building concepts which minimize the building's impact on the environment, promote a more sustainable design and creation of high-performance educational facilities. Specific callouts for shade trees are codified in this amendment.

Buildings shall now be designed to include mandatory design elements that specifically relate to health benefits that are solved by requiring urban forestry applications cited in amended code. The amended school building standards state that shade trees "shall" be installed and supporting irrigation "shall" be installed in targeted areas; uncovered parking areas require that 50% of total parking area "will" be in shade within 15 years; and campus landscape and hardscape require that 20% of the total square footage area "will" be in shade within 15 years.

ADDITIONAL RESOURCES

Specific language of the amendment can be found online at http://www.documents.dgs.ca.gov/dsa/green/Proposed_ExpressTerms-T24Pt11.pdf.

A timeline to enact the new standards can be found online at <http://www.documents.dgs.ca.gov/bsc/2018TriCycle/2018TriCycleTimeline-v01-03-2017.pdf>.

FOR MORE INFORMATION

California Department of Forestry and Fire Protection (CAL FIRE), Urban & Community Forestry Program
http://calfire.ca.gov/resource_mgt/resource_mgt_urbanforestry

COLORADO

COLORADO STATE FOREST SERVICE

The South Platte River Watershed provides extensive value, approximately \$7.4 billion per year in ecosystem services, to the economy and people of the watershed. Recognizing the importance and value of this watershed, public and private stakeholders came together to form the South Platte Urban Waters Partnership.

The South Platte Watershed encompasses 3.8 million acres from the mountains to the Denver Metro area and into the plains. In 2011, over 50 public and private stakeholders, under the leadership of USDA Forest Service, United States Environmental Protection Agency (EPA), Colorado State Forest Service and the Greenway Foundation formed the South Platte Urban Waters Partnership.

The primary goal of the South Platte Urban Waters Partnership is to engage stakeholders in protecting and restoring lands and waters in the South Platte River watershed. In order to attain these progressive goals and manage a highly diverse set of natural resources and interests, the Colorado State Forest Service secured funding from the USDA Forest Service and began building the South Platte Natural Capital Resource Assessment – From Mountains to Plains (South Platte Natural Capital Assessment).

The South Platte Natural Capital Assessment is a collaborative natural capital (also called green infrastructure) assessment undertaken by a diverse project team. This team catalogued existing data sources, identified the most important natural assets in the watershed and then mapped the natural capital and valued the ecosystem services produced throughout the watershed. These maps provide a visual representation of the natural assets and ecosystem services provided by each of the three project areas (Upper Watershed, Denver Metro and Plains) and collectively by the entire watershed.

Through this partnership, a decision-support tool was produced to assist stakeholders with prioritizing future investments in the watershed, whether for preservation or conservation. Key areas of prioritization in the tool that involve human health include a respiratory hazard and urban heat island analysis.

Stakeholders can use the data and tools from this assessment to prioritize and invest in preservation and restoration activities that will increase the quality and value of natural capital in the watershed, including human health impacts from EPA's Environmental Justice Screen and Urban Heat Island impacts.



Colorado's South Platte River Watershed encompasses approximately 4 million acres and includes upper watershed, urban, and plains natural assets critical to the environment and people of the watershed. *Photo Credit: Jeremy Cantor.*

FOR MORE INFORMATION

Colorado State Forest Service, Urban & Community Forestry
<https://csfs.colostate.edu/forest-management/community-urban-forestry>

HAWAII

HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES, DIVISION OF FORESTRY AND WILDLIFE

The Blanche Pope Elementary School Wellness Pathway is a 2017 Urban & Community Forestry (UCF) Community Grant, which supports the school's "Wellness Program," encouraging staff and students to adopt healthy lifestyles and activities. The school and local landscape architecture firm, PBR Hawai'i, partnered to plant trees and create a wellness pathway at the school for the benefit of the school and surrounding community.

Blanche Pope Elementary School is a small rural school serving a native Hawaiian Homestead community in the town of Waimānalo, on the island of O'ahu. The school and broader community are strongly grounded in Hawaiian culture, which values growing food on their land for subsistence.

To improve the health and well-being of students and staff, the school initiated a weekly walk around the campus. To support this effort, they applied for an urban forestry community grant to install an 800-foot-long wellness pathway around the campus. This shaded pathway includes exercise stations to create a complete "fitness circuit". The pathway design incorporated breadfruit or 'ulu (*Artocarpus altilis*) trees every 100 feet, so walkers and runners could measure their progress. 'Ulu, which means "to grow, to spread out" in Hawaiian, makes it a natural choice for their tree planting project. 'Ulu trees grow into tall shade trees and are a highly nutritious food source, popular across the Pacific. In addition to being a source of physical sustenance, the tree is also a source of cultural sustenance with multiple medicinal and textile uses, for example its bark is used to make barkcloth and its sap can be used as a glue to seal cracks in canoes and gourds.

Additional fruit and food trees such as banana, papaya, mango, coconut, breadfruit and citrus were planted along the pathway and perimeter of the school as part of a "food forest," which can supplement the nutritional needs of the students and families. With 67% of the school's students eligible for free/reduced lunches, this project meets an important need in the school and community.



Planting Breadfruit trees 100 feet apart to help users of the pathway to keep track of the distance walked, and to use the pathway as a teaching tool. *Photo Credit: Alberto Ricordi.*



Students of Blanche Pope on the pathway, enjoying and taking care of each other and the environment. *Photo Credit: Lily Utai.*

The grant also provided shade to playground areas and the school frontage sidewalk, as well as shaded spaces for outdoor learning activities. These changes on campus allowed for the students to regularly experience the benefits of a greener campus.

Throughout the project, the surrounding community organized "fruit tree care days" to harvest the fruits and conduct periodic tree maintenance. The Wellness Pathway helped to draw positive attention to the benefits of food, exercise, shade and health within the school and greater community.

FOR MORE INFORMATION

Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife,
Kaulunani Urban & Community Forestry Program
<http://dlnr.hawaii.gov/forestry/lap/kaulunani/>

IDAHO DEPARTMENT OF LANDS

With assistance from the Idaho Department of Lands (IDL) in cooperation with the USDA Forest Service, three partner organizations prepared a report detailing the carbon reduction value of trees in Idaho's Treasure Valley (the greater Boise metropolitan area), and calculated the value of City Forest Carbon+ (CFC) Credits (www.cityforestcredits.org). The "+" indication factors in the value of co-benefits for stormwater, energy and air quality. By meeting CFC protocols, tree-planting projects provide quantified, tradeable carbon credits that companies wishing to reduce their carbon footprint can purchase.

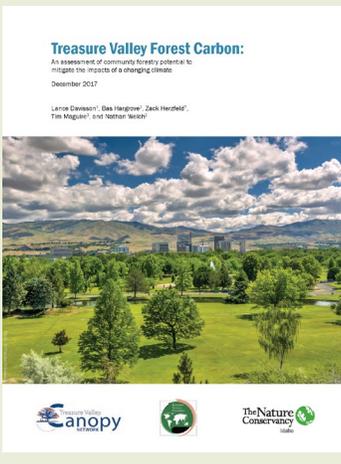
Idaho summers are getting hotter, drier and windier. In the last 30 years, the wildfire season has increased nearly 80 days. Winters are milder and shorter, and average annual temperatures over the past 40 years have increased 2 degrees Fahrenheit. Increased emissions and impervious surfaces in our cities further increase temperatures by producing heat-trapping CO₂. In fact, a University of Idaho study predicts temperatures in the Treasure Valley will increase 5-7 degrees Fahrenheit within 50 years. Higher temperatures lead to increases in air pollution, smog, allergens, energy use, and a commensurate decrease in human health.

Trees help cool our cities by shading surfaces and absorbing CO₂ through photosynthesis. IDL's 2013 Treasure Valley Canopy Assessment found that Treasure Valley trees currently hold 1.36 million metric tons of carbon dioxide equivalents (CO₂e), worth an estimated \$29 million. These trees remove an additional \$1.1 million worth of CO₂ each year and provide \$8.2 million more in annual stormwater, energy and air quality benefits.

As a way to support planting efforts, the Nature Conservancy, Treasure Valley Canopy Network, and Ecosystem Sciences Foundation released a report proposing to market CO₂ offset credits for tree planting projects through City Forest Carbon+ Credits. Using protocols developed by CFC, the partners evaluated four recent planting projects comprised of 8,275 trees. Accounting for tree mortality, these trees will store ~15,000 metric tons of CO₂e over 25 years. Had these projects earned carbon credits under CFC, they could have generated between \$300,000 and \$500,000!



Shaded downtown area in Boise, ID – an example of what a healthy downtown area looks like. Photo Credit: Dave Stephenson.



By meeting CFC protocols and marketing these through the registry, tree-planting projects provide quantified, tradeable carbon credits. The partners' next step is to pilot a project in collaboration with a local carbon buyer—companies wanting to reduce their carbon footprint and/or increase their environmental sustainability, and in future years to expand both the number of planting projects and partners to include transportation agencies, large landowners, nurseries and more.

Funding for the Treasure Valley Forest Carbon report (www.tvcanopy.net/forest-carbon) was provided in part by IDL in cooperation with the USDA Forest Service.

FOR MORE INFORMATION

Idaho Department of Lands, Urban & Community Forestry
<https://www.idl.idaho.gov/forestry/community-forestry/index.html>

KANSAS

KANSAS FOREST SERVICE

Over the years, the state of Kansas has experienced the impacts of insects and disease, and has been hit hard with several major storms and severe weather events. As a result, community partners recognized the need for an active organization to help conserve and protect forests in the Kansas City metro area. The Kansas Forest Service (KFS) played an instrumental role in the formation of a nonprofit organization focused on providing tree care education to the community while also advocating for healthy urban and community forests.

After a severe ice storm in the Kansas City metropolitan area in 2002, a group of partners, from corporate, state (including KFS and Missouri Department of Conservation), organizational, and nonprofits, created the “Right Tree in the Right Place Coalition” to disseminate proper tree care information via broadcast, print, and electronic media sources to the multitudes of people who were affected by the storm. Over time, it became clear that it wasn’t enough to just provide information, it was time to create a nonprofit forestry organization that could provide service to metro communities, teach residents how to properly plant and care for trees, and advocate for a healthy community forest.

In 2005, Heartland Tree Alliance (HTA), an affiliate of Bridging the Gap, emerged to fill that need. In the years since, HTA volunteers have donated 13,000+ hours of time, enabling HTA to plant 17,874 trees, prune 3,264, and provide maintenance by mulching or removing tree stakes to another 2,527 trees. 275 people have completed HTA’s TreeKeeper course that trains city and county staff, Master Gardeners, Master Naturalists, tree board members, and metro residents on proper tree planting, pruning, maintenance, identification and the importance of the community forest. Fittingly enough, HTA’s motto is “Healthy People Need Healthy Trees”.



Trained Heartland Tree Alliance volunteers prune young park trees. Photo Credit: Heartland Tree Alliance.



Participants in HTA’s TreeKeeper course learn how to identify trees, properly plant, prune, and maintain trees, and recognize biotic and abiotic problems. Photo Credit: Lynn Loughary.

Now led by a steering committee and three full-time employees, HTA trains and engages volunteers that help cities plant, prune, mulch, and otherwise care for young trees. To ensure they are properly trained, volunteers either attend a TreeKeeper course held in Missouri and Kansas each year or attend a workday where they first receive training before joining other volunteers to perform the identified tasks.

Bi-state support was critical in the formation and development of HTA, but perseverance and diverse funding opportunities put HTA on solid footing for long term program implementation and success. HTA has been a partner in two Kansas Landscape Scale Restoration grants, one to combat the spread of the Emerald Ash Borer (EAB) in Kansas, and another in FY18 when the KFS and HTA utilize community-based programs to combat canopy loss in metro Kansas City. As a result of the relationship developed with the city during the EAB grant, HTA has successfully replicated their street tree planting program from Kansas City, MO to Prairie Village, KS.

FOR MORE INFORMATION

Kansas Forest Service, Community Forestry Program
http://www.kansasforests.org/community_forestry

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

Montana's Urban and Community Forestry (U&CF) Program has noteworthy efforts that link urban forestry to public health. The U&CF program encourages and promotes innovative ways to support health and well-being through financial, technical, and educational assistance. Several projects are in progress and quickly gaining momentum, serving as examples for other communities across the state. Much of this is due to local stakeholders and organizations working together to bridge the connection between green infrastructure and human health. In Missoula, MT, a large group of partners recently came together to develop projects including health equity neighborhood studies, infrastructure plans, and prioritized improvements toward the walkability and livability of the community.

Missoula, MT has a diverse group of leaders working toward a common goal: Build a healthy, resilient Missoula and promote health equity for all. This group's primary focus includes public safety and the environment.

In 2016, the City of Missoula received a special grant from Invest Health; a collaboration between the Robert Wood Johnson Foundation and Reinvestment Fund. According to Invest Health, "This initiative was developed to provide an opportunity for mid-sized cities to transform the way local leaders work together to create solution-driven and diverse partnerships. These partnerships will emphasize making changes in low-income neighborhoods to improve resident health and well-being."¹



Urban forestry breakout session during the Missoula Invest Health Summit. Photo Credit: Jamie Kirby.

The Department of Natural Resources & Conservation's (DNRC) Urban and Community Forestry program was invited to take part in Missoula's Invest Health Summit in November 2017. Trees For Missoula, a tree advocacy group, partnered with DNRC to facilitate a breakout session focused on urban forestry. Participants in this session included city council members, city/county planners and staff, climate change experts, arborists, landscapers, and university students. At the summit, attendees identified action items to improve Missoula's health equity, listing urban forest improvement projects as priority.

Spurred by the Invest Health Summit and the priority placed on urban forest improvements, Missoula initiated two urban forest improvement projects with ties to human health. The first project increases green infrastructure within Missoula's low-income neighborhoods. The community will prioritize sidewalk and trail networks in new ways by concentrating around community hubs and areas that lack sidewalks and by planning for tree plantings and other green infrastructure.

The second project, funded with a DNRC Urban Forestry grant through the USDA Forest Service, will install a shade shelter along a popular pedestrian and bike path in Missoula. This new shelter stems from efforts by another nonprofit partner, Climate Smart Missoula, as part of their drive to address increased summer temperatures and vulnerable populations. The shelter utilizes reclaimed wood and will provide much-needed shade along the hottest section of the trail. Drought-tolerant trees planted alongside the structure will eventually provide additional shade and protection from the elements. The shelter - designed by a local architect firm - recently received national recognition for the unique design.

The culmination of these efforts will ultimately help improve the health and quality of life for Missoula's residents. These projects are successful examples of broad-scale collaboration and ingenuity and serve as demonstration for other communities to consider when planning for healthy trees, healthy communities.

¹ <https://www.investhealth.org/>



Shade shelter utilizes reclaimed wood and locally-sourced materials. Photo Credit: Climate Smart Missoula.

FOR MORE INFORMATION

Montana Department of Natural Resources & Conservation, Urban and Community Forestry Program
<http://dnrc.mt.gov/divisions/forestry/forestry-assistance/urban-and-community-forestry>

NEBRASKA

NEBRASKA FOREST SERVICE

Community forests are under growing stress. Given the impact of a variable and extreme climate, invasive species, and the increasing reliance on volunteer management support, Nebraska Forest Service (NFS) identified an opportunity to develop resources to support community forestry management operations.

In an effort to address these threats, NFS developed and hosted a series of three tree risk assessment and management workshops throughout the state. These learning workshops were developed to assist those who manage trees in their community to better understand potential risk, how to address it, and how to proactively manage the community forest.

Funding for the workshop series was provided via a Landscape Scale Restoration grant. The series featured speaker Mark Duntemann, owner of Natural-Path Urban Forestry Consultants. Duntemann has traveled internationally speaking on tree risk and urban forestry policy development and has served as an expert witness on tree litigation cases. Workshop participants benefitted from Duntemann's diverse perspectives on tree risk management.

Major concepts covered during the workshop series included: Concepts of Risk Management; Defining what is "Reasonable and Practical" in the eyes of the law; Risk Analysis – an outdoor session on identifying tree defects and measuring the risk they present; Defining Risk Reduction Goals, Refining Operations to Identify and Mitigate High-risk Trees; and Long Term Polices and Management Implications.



Nearly 100 participants from across the state participated in multiple workshops in tree risk analysis and management.
Photo Credit: Eric Berg.



Duntemann has traveled internationally, providing instruction on the policies and management implications of tree risk analysis.
Photo Credit: Eric Berg.

Nearly 100 participants representing 28 communities participated in these full day, hands-on learning workshops. Community leaders and managers who attended the seminars saved significant time and money developing proactive response plans to invasives and extreme weather events. When educated on the methods of active community forest management, community volunteers have tremendous potential to assist and support operations and provide long term health benefits to both the forests and the people.

To further leverage the experiential learning opportunities, one of the workshop sessions was recorded and promoted via social media platforms as well as to membership within green industry organizations. All eight topic specific seminars are available for online sharing and distribution. The recordings can be found online at <https://mediahub.unl.edu/channels/18735>.

FOR MORE INFORMATION

Nebraska Forest Service, Community Forestry and Sustainable Landscapes Program
<https://nfs.unl.edu/>
<https://plantnebraska.org/>

NEVADA DIVISION OF FORESTRY

Parking lots absorb a lot of solar radiation, increasing urban heat island effects for residents. Planting trees in parking lots not only provides shade in these areas, but trees also help to decrease the amount of water runoff for a community. By developing parking lot tree assessments for Mojave Desert communities, the Nevada Division of Forestry is mitigating the heat and environmental stress of parking lots for human health.



Parking lot in Las Vegas demonstrates the lack of trees and shows that there is work to be done. *Photo Credit: Lisa Ortega.*

In the Mojave Desert, parking lots are exacerbating extreme urban heat waves, and the asphalt's heat absorption can add several degrees to the immediate area's temperature. The Nevada Division of Forestry, in conjunction with the University of Nevada, Las Vegas, and The Nature Conservancy will inventory and assess parking lot conditions in the greater Mojave Desert communities.

The assessment centers around two key questions: 1) Are we losing valuable contributions to the urban environment by the lack of parking lot tree success? and 2) What are the outcomes of status quo development features, and what could be better for the future success of this type of green infrastructure in the Mojave Desert for its citizens?

The assessment will also evaluate the health of trees that are currently planted in Mojave Desert parking lots to determine if parking lot trees are surviving. The assessment will help to determine what is working or not working.

This study, will provide the Nevada Division of Forestry and key partners, with a deep dive into parking lots and their impact on Nevada communities, and what success may look like through best management practices (BMPs) for the future.

FOR MORE INFORMATION

Nevada Division of Forestry, Urban and Community Forestry Program
<http://forestry.nv.gov/forestry-resources/urban-and-community-forest/>

NEW MEXICO

NEW MEXICO STATE FORESTRY

Albuquerque NeighborWoods is a neighborhood tree planting program in Albuquerque, NM that uses an innovative tool developed by Portland State University and funded by the USDA Forest Service to prioritize where trees should be planted for maximum health benefit. The program demonstrates that we can improve the health of the urban forest while also improving the health of the people that live in it.

Albuquerque was troubled to find itself identified as having the third highest urban tree canopy loss of major cities in the nation¹, and started work on several urban forest initiatives to reverse the trend. City Councilor Isaac Benton wanted to include a neighborhood tree planting program as part of those efforts, and reached out to the NM Chapter of the American Society of Landscape Architects, the New Mexico State Forestry Urban and Community Forestry Program, and partnership coordinator, Tree New Mexico.

After evaluating successful efforts in other cities, the team developed the Albuquerque NeighborWoods program that engages neighborhood leaders in tree care training, conducting neighborhood tree and planting space inventories, and working with landscape architects to design their neighborhood's urban forest.

Wanting to be strategic about the neighborhoods selected, the team turned to the "Healthy Trees, Healthy People" program at Portland State University. This program provides various tools to communities to enable them to design urban forest canopies that most effectively improve public health². One of these tools is the 'Trees and Health App', which uses geospatial data to find the hottest and most polluted areas in the city as well as its most vulnerable populations, and prioritizes tree planting locations to maximize the positive public health impacts of new trees. This 'Trees and Health App' tool was used in Albuquerque to prioritize neighborhoods for planting. Once the trees are planted, the neighborhood receives follow-up visits from a certified arborist as the trees get established.



The Albuquerque NeighborWoods Team planting trees in the South Broadway Neighborhood. Photo Credit: Rob Loftis.



Newly planted trees in the Wells Park Neighborhood. Photo Credit: Jennifer Dann.

To date, four communities have become Albuquerque NeighborWoods. More than 800 trees and shrubs have been planted in these neighborhoods, where the impacts from transportation-related air quality and urban heat island effects are felt the most. The health of Albuquerque's urban forest and the people that live in it are on the mend!

¹ Nowak, David J. and Eric J. Greenfield, 2012, Tree and impervious cover change in U.S. cities, Urban Forestry & Urban Greening 11(2012) 21-30.

² www.treesandhealth.org

FOR MORE INFORMATION

New Mexico State Forestry, Urban and Community Forestry Program
<http://www.emnrd.state.nm.us/SFD/CommunityFor/Community.html>

NORTH DAKOTA

NORTH DAKOTA FOREST SERVICE

Consumer demand for healthy, locally grown foods has resulted in development of community orchards across North Dakota. The orchards foster community spirit by bringing people together to plant and nurture the orchards and by providing fresh food for schools, residents, and those in need.

While apples remain a favorite, a surprisingly wide variety of fruits can grow and produce abundant harvests in the northern plains. Since 2006, the Northern Hardy Fruit Evaluation project at NDSU-Carrington¹ has evaluated both common and unusual crops to determine selections that are desirable, hardy and productive in North Dakota.

Hardy cultivars of cherries, plums, pears and peaches are now common North Dakota orchard fruits. Fruit-bearing shrubs including Aronia and currants are gaining popularity for their high nutritive value. While blueberries cannot thrive in North Dakota's alkaline soils, honeyberries (*Lonicera sp.*) have proven to be a sweet and tasty replacement. Local consumers enjoy fruit fresh and a handful of commercial wineries across the state have learned to make use of the fruit, too.

The North Dakota Department of Agriculture has enabled dozens of community groups and schools to plant gardens and orchards with ND Community Orchard grants² with awards up to \$7,500. Additional funding from the ND Forest Service supports many of the same plantings.³

Valley City converted barren lots into the Hi-Line Prairie Gardens and Orchard Project. With the support of an America the Beautiful Program Development grant from the ND Forest Service, a master plan was developed for the 4-acre site. Located adjacent to a sports and recreation complex and within blocks of schools, a nursing home and assisted living facilities, the location has evolved into an attractive, colorful retreat with community and educational value. The orchard features 52 different fruit-producing trees and shrubs and is the result of the collaborative efforts of the city, local beautification and Boy Scout groups, and Valley City State University. In pay-it-forward fashion, volunteers from the Valley City project helped establish a community orchard in a vacant lot in nearby Litchville.



Haskaps, or honeyberries, are a sweet and tasty alternative to blueberries and grow well in North Dakota. *Photo Credit: Kathy Wiederholt.*



Dragonfly Garden at United Tribes Technical College. *Photo Credit: Gerri Makay.*

United Tribes Technical College (UTTC) near Bismarck established an orchard as part of the Dragonfly Garden on campus. Harvesting and using the fruit provides hands-on experience for students in the Culinary Arts and Nutrition program. The garden is a source of food and education for families both on and off campus. Additional fruit trees are planted to celebrate the graduation of culinary students. These efforts contributed to UTTC becoming one of the first tribal campuses certified as a Tree Campus USA.

¹ <https://www.ag.ndsu.edu/CarringtonREC/northern-hardy-fruit-evaluation-project>

² <https://www.nd.gov/ndda/marketing-information-division/local-foods/community-orchard-project>

³ <https://www.ag.ndsu.edu/publications/lawns-gardens-trees/starting-a-community-orchard-in-north-dakota>

FOR MORE INFORMATION

North Dakota Forest Service, Community Forestry Program
<https://www.ag.ndsu.edu/ndfs/programs-and-services/community-forestry>

OREGON

OREGON DEPARTMENT OF FORESTRY

Improving the health of Portland's Greater Forest Park ecosystem benefits not only the 15,000 acres of forested landscape, but also the health of the residents in and around Portland, OR. Oregon Department of Forestry is just one of many partners who have played a key role in establishing an innovative and collaborative approach to increasing the amount of healthy, diverse and sustainable forest conditions in a priority landscape.

Near the heart of downtown Portland lies a regional ecological treasure, the Greater Forest Park Ecosystem. The Greater Forest Park Ecosystem consists of 5,200-acre Forest Park owned by the City of Portland, over 1,100 acres of adjacent natural areas owned by public and nonprofit organizations, and over 8,600 acres of private land. These 15,000 acres provide critical ecosystem services to a growing urban population. However, the long-term ecological health of this landscape is threatened due to invasive plants, habitat loss, and fragmentation due to urban growth. This project will implement a portion of the Greater Forest Park Conservation Initiative (GFPCI), a 20-year strategy created to protect and restore this important landscape.

The short-term goals of this project are to advance the GFPCI using a landscape scale collaborative approach, where grant partners will deliver restoration activities and educational programs that will improve the health of the regional ecosystem. The long-term goals of this project are to protect and improve water quality, protect biodiversity corridors, maintain and improve forests, and build strong community support for the long-term health of the GFPCI.

While maintaining and building the health of Greater Forest Park relies on fostering collaborative and aligned partnerships between many land-owning and land-managing partners, it is also imperative to keep as many resource management decisions as possible transparent to the residents of the Portland Metro area. Their continued support and trust is key to the long-term vision of this area. One way to increase the effectiveness of collaboration is to design interactions between partners that allow for fun social opportunities, as well as work-related, short- and long-term visioning meetings. These "chunks of positively-spent social time" can make partnerships stronger, more successful, and last longer.



Landowners in Greater Forest Park area removing invasive weeds and establishing native plants. Photo Credit: Michael Ahr.



Portland volunteers removing ivy from trees in Portland's Forest Park. Photo Credit: Michael Ahr.

Raising awareness and motivating community members to take action is key. Volunteers have long been active in restoration activities, such as vine removal and tree planting. In addition, large wildfires near the City of Portland in 2017 increased the desire for fire preparedness in and around the Greater Forest Park area. Voluntary fuel reduction efforts by nearby communities will increase the area's resiliency to fire, and expand the options for meaningful community engagement with the long-term health of the Greater Forest Park Ecosystem.

FOR MORE INFORMATION

Oregon Department of Forestry, Urban and Community Forestry Assistance Program
<https://www.oregon.gov/ODF/ForestBenefits>

PACIFIC ISLANDS - YAP

YAP STATE DIVISION OF AGRICULTURE & FORESTRY

In the state of Yap in the Federated States of Micronesia, the traditional agroforestry systems are tightly linked and integrated with the islands' natural ecological systems. The ecosystem services of the natural communities are essential to the welfare and survival of Yap's people. The fertile soil, fruits, building materials, fibers, foods, animals, medicines and clear running water provided by forests are extremely valued on Yap. Healthy trees are essential to the well-being of the community, and they ensure the continuation of these vital services.



Chief of the Bureau of Agriculture, Tamdad Sulong, with Yap Forestry staff, Francis Ruegorong and Valentino Orhaitil, and Amanda Uowolo of the USDA Forest Service and Melai Mai surrounded by breadfruit trees that were for communities in Yap Proper and 11 of the Outer Islands of Yap. Photo Credit: Amanda Uowolo.

In 2004, Typhoon Sudal hit the islands of Yap and disrupted many of the island ecosystem services. This resulted in requests from the community for breadfruit seedlings. Breadfruit, like the coconut tree, is considered on many Micronesian islands, as a tree of life with a lot of uses from the leaves to the roots.

Yap's Urban & Community Forestry (U&CF) program initiated a breadfruit project to propagate locally available varieties for the communities. In 2015, Super Typhoon Maysak directly hit several of the Outer Islands of Yap, impacting 90% of crops and trees – including breadfruit. To help mitigate the impacts of Typhoon Maysak, a community based effort to promote the planting of breadfruit called Melai Mai (translates to planting gardens of breadfruit) was initiated and tissue cultured breadfruit plantlets were imported to Yap to increase the number of varieties on the island. Through the partnership of Melai Mai and Yap Forestry, these pest and disease free plantlets (triple index plantlets) were made available to the islands, thus reducing the number of breadfruit trees brought in from the other island states that potentially carry pests and diseases not present in all of the islands of Yap.

For many centuries, Yapese people and breadfruit have depended on each other for their existence, especially for the remote outer island residents. Most of the food, medicine, and materials that come from breadfruit are essential to the livelihood

of the people of Yap. Because of its importance, a breadfruit project was initiated to increase the number of breadfruit trees planted, to identify and revive the local breadfruit tree varieties, and to import additional varieties from other places with variation in fruiting seasons. These actions will help to promote breadfruit availability year-round and will help improve overall food security in the islands. This collaborative effort was done by Yap Forestry, Melai Mai, the Breadfruit Institute, the USDA Forest Service Region 5 U&CF Program, the Forest Stewardship Program, the USDA Forest Service Institute of Pacific Islands Forestry, and Pacific Resources for Education and Learning.

In 2017, 450 triple index plantlets of four varieties were brought in and delivered straight to the atoll of Ulithi and Fais Island to assist with the impacts of Typhoon Maysak. In 2018, an additional 500 trees of the two most successful varieties were imported and nursed at Yap Division of Agriculture and Forestry Nursery for distribution on the main island of Yap and an additional 300 breadfruit were also imported and delivered to 11 Outer Island communities.



Delivery of breadfruit trees in August 2018 to Ulithi Atoll for distribution to the islands of Falalop, Asor, Federai, and Mogmog in Yap State, Federated States of Micronesia. Photo Credit: Amanda Uowolo.

FOR MORE INFORMATION

Yap State Division of Agriculture & Forestry, Urban & Community Forestry Program
Yap State, Federated States of Micronesia
yapucf@gmail.com

SOUTH DAKOTA

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE, DIVISION OF RESOURCE CONSERVATION & FORESTRY

Urban forests provide similar benefits to other types of forests in many regards. Recognizing the importance of urban forests and the impacts they have on the community, South Dakota has been working to promote urban forests and increase canopy cover across the state. Since 1991, the South Dakota Department of Agriculture: Division of Resource Conservation & Forestry has been striving to help communities establish and grow their urban forests through the Community Forestry Challenge Grant program. A portion of the division's annual allocation of Urban and Community Forestry Assistance funds from the USDA Forest Service is awarded to communities in the form of challenge grants in hopes that this will showcase the major benefits of maintaining urban forests.

These challenge grants, of up to \$5,000, are used to fund community forestry projects that solve a specific community forestry problem or demonstrate the importance of trees in South Dakota communities. Deseree Corrales and her daughter's Girl Scout Troup, along with other partners in Pierre, SD, have taken advantage of the SD Challenge Grant to construct and operate a community orchard.



Front of the community orchard showcasing the donated fence and sheltered sign with current events. *Photo Credit: Deseree Corrales.*

Girl Scout Troop #40080 has taken the lead in creating and caring for a community orchard in Pierre, SD - the first community orchard to exist in South Dakota. This project is part of the 'Girl Scout Leadership Experience', which allows Girl Scouts to research, plan, and execute a community service project they feel passionate about. The community orchard began as a conversation amongst the troop which led to bringing the idea before the City of Pierre Arbor Board.

In December 2017, the Girls Scouts presented in front of Pierre City Commissioners asking for land and other vital resources and received unanimous approval. The project received three grants: SD Urban Forestry Challenge Grant, Wellmark Grant, and the USFS Pollinator/Community Garden Grant. Local businesses and families also supported the project through tree sponsorships and ad sponsor signs placed on the orchard fence.

This project engaged community participants by giving them an opportunity to be involved in establishing an orchard. A community planting day was organized to bring together a group of 40 people of all ages to plant 24 fruit trees (peaches, plums, pears, apples, and cherries). A local fencing company volunteered their expertise and time to build a 6-foot-tall fence around the premises. Pierre Young Professionals also donated their time to help with the fence. Small groups have participated in numerous work days over the summer to install landscaping fabric and mulch and to plant perennial plants to attract pollinators.

Troop #40080 has taken the lead in caring for the newly established trees/plants for this first year, watering, weeding, and other tasks with the support of the City of Pierre Arbor Board. A message board is posted at the entrance to the orchard with a list of current activities and educational information. In the coming years, educational events for adults and youth will be provided which will include topics such as: Growing Fruit Trees, Pollinators, Transplanting, Create a Healthy Policulture, Benefits of Sourcing Food Locally, Composting, Rainwater Collection, and Healthy Eating Habits. The troop will also host harvest days to gather produce to donate to local community meals and food pantry. The Discovery Center will utilize the space as an outdoor campus to hold nature and nutrition classes/workshops. Local schools will use the orchard as a hands-on 'Harvest of the Month' classroom to introduce school children to various vegetables and fruits each month. Educational signs, in both English and Spanish, will be posted at the Orchard covering the following topics: benefits of sourcing foods locally, companion planting (plant/soil health), nutrition information/use tips for produce grown in the orchard. Each tree/plant will also be labeled. The orchard will also have a compost pile and rainwater collection system from the shelter and tool shed roofs (to be built in 2019).



Honeycrisp apple tree and sign donated as a memorial for a loved one in the community. *Photo Credit: Deseree Corrales.*

FOR MORE INFORMATION

South Dakota Department of Agriculture, Division of Resource Conservation & Forestry
<https://sdda.sd.gov/conservation-forestry/>

UTAH DIVISION OF FORESTRY, FIRE & STATE LANDS

With the help of the community, the city of Ogden, UT is cleaning up a 1.1 mile stretch of the Ogden River. Using Landscape Scale Restoration (LSR) grant funds, the project plans to remove invasive species and restore native tree and shrub cover.

In early 2018, the community of Ogden City felt a need to clean up a particularly bad section of town that included a stretch of the Ogden River. The city wanted to increase access to the river and raise awareness among the citizens that the river is an asset to the community and not a liability. This river restoration effort included the removal of invasive species, the re-establishment of riparian appropriate vegetation, and education and outreach.

An important first step of this project included a heavy focus on invasive species suppression, targeting species such as Siberian elm, Russian olive, common reed, whitetop, and Japanese knotweed. The treatment focused on a low-stump cut and stump spray method for trees, and spot spraying and mechanical removal of herbaceous weeds.

The next step focused on restoring stream health and function, including restoring vegetative cover through trees, shrubs and riparian plants, as well as willow cuttings and large caliper trees. Tree species chosen included cottonwoods, river hawthorn, peachleaf willow, boxelder, and netleaf hackberry. Additional trees that are commonly planted in urban areas, but not native to the area, will also be planted in more managed areas. The replaced forest canopy will add shade, aiding in the fisheries redevelopment.



Example of bank stabilization and vegetation installation. *Photo Credit: Jeran Farley.*



Rebuilt promenade linking Ogden River to downtown Ogden. *Photo Credit: Jeran Farley.*

Next was green street development to increase access to the river. The 2018 project added dedicated bike lanes, a double alley of street trees, locations for educational signage, and user amenities such as benches and drinking fountains.

The project also included additional trail signage to help explain the important role forests play in riparian systems. Two signs have been installed along the trail with additional signs being drafted and reviewed for installation.

The final step in the river restoration project included educational outreach. Local youth provided much of the labor through the Utah Conservation Corp, and volunteers have played a major role in weed pulling, river cleanup activities and tree planting. Further, the 1.1 mile stretch of the restored Ogden River has been divided into 13 “Adopt a River” sections. Currently, all 13 sections have been adopted by local community groups and businesses.

To ensure success moving forward, the City’s maintenance program has incorporated invasive species control and will continue to eradicate undesirable species. The public will continue to be engaged year-round, through volunteer involvement, community meetings and school projects.

FOR MORE INFORMATION

Utah Division of Forestry, Fire & State Lands, Urban and Community Forestry Program
<https://ffsl.utah.gov/>

WASHINGTON

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

The 'Tenacious Roots' program offers enrichment to teens in south Seattle. The program is a model of science education, outdoor exploration, and leadership training that helps youth develop a deeper appreciation for the natural world, while empowering them to lead environmental conservation efforts toward the future.



After invasive plants are removed, students lay out old coffee sacks and cover with mulch to protect native plantings and inhibit re-growth of invasives. Photo Credit: Seward Park Audubon.

The Tenacious Roots Leadership Team project, administered by Seward Park Audubon Center, focuses on forestry and habitat restoration to train standout leaders that guide their schools, classmates and communities in conservation action.

For the past several years, the program has been held at Seward Park, a perfect learning environment with a 277-acre old growth forest in a diverse neighborhood in south Seattle. In 2017, the program ramped up teen leadership skills by utilizing the knowledge and skills of program veterans to train their peers. Teen leaders encouraged program participation and facilitated sign-up, training and communication with students from their schools. Program lessons are focused on leadership skills and advanced knowledge of urban forestry stewardship.

Throughout the program, students earned learning hour credits while leading and participating in restoration activities to remove invasive species that threaten the forest. Events held at the park were planned and led by student leaders who were responsible for instructing participants in forest restoration, plant identification and tool safety. 119 adults and 77 youth participated in events, completing restoration activities on approximately two thirds of an acre of park land, planting 348 native trees and shrubs.

During the year, students also learned about the science of climate change, conservation advocacy and education. At Seattle's Youth Climate Action Summit, teens learned about the effects of climate change and action steps they can take to make a difference in their neighborhood, including helping to restore forests like Seward Park. Students crafted their own issue statement on climate change and took a field trip to Audubon's Advocacy Day at the state capitol in Olympia.

Today, many Tenacious Roots graduates have become regular volunteers at forest restoration and environmental education activities. These forest advocates play a key role in helping communities learn the importance of healthy community forests.

Funding for Tenacious Roots was through a Washington Department of Natural Resources' Urban and Community Forestry Program grant made possible in partnership with the USDA Forest Service.



Planting a sword fern in Seattle's Seward Park is a fun part of urban forestry restoration. Photo Credit: Seward Park Audubon.

FOR MORE INFORMATION

Washington State Department of Natural Resources, Urban and Community Forestry Program
www.dnr.wa.gov/urbanforestry

WYOMING

WYOMING STATE FORESTRY DIVISION

In many Wyoming communities, street trees planted in the 1880's are over mature and not being replaced when they die. This cycle has resulted in hundreds of vacant planting sites and treeless neighborhoods across Wyoming. In an effort to reverse this trend, the City of Cheyenne Urban Forestry Division partnered with the Wyoming State Forestry Division (WSFD) to embark on a large scale, organized, and sustainable planting program. In a little over a year, the program developed into a community wide initiative that is far more successful than organizers had ever imagined. The initiative continues to grow in both community and financial support and has become a positive example and inspiration for communities within Wyoming and other states.

In 2017, the City of Cheyenne Urban Forestry Division was awarded a \$10,000 grant from WSFD to develop a long-term cost share planting initiative for street trees. The grant provided for program administration costs and development of promotional materials as well as public education. Funding was also used for organizing an advisory board and recruiting volunteers.

A community wide naming contest was followed by an organizational meeting for "Rooted in Cheyenne" in March of 2017. The program soon had an active volunteer board and support from civic organizations, homeowners, local nurseries, and tree care companies. The first major corporate donation was \$25,000. Other financial contributors have included individuals, businesses, the local conservation district, and the Rotary Club. Various green industry businesses have donated staff time and equipment which has resulted in learning opportunities and unique professional relationships among private, public and nonprofit sectors of the community.

Public right-of-way trees were planted by teams of volunteers led by professional landscapers and arborists. Planting and watering for the first year was included with every tree. Trees cost homeowners \$50 each and a few no cost trees were provided to low income residents. Trees were purchased from wholesale nurseries that use modern growing methods to produce healthy root systems resulting in better survival and faster establishment.

The inaugural planting event included over fifty volunteers working with eight tree care companies and nurseries along with city arborists to plant 105 trees. In the program's second year, over 300 trees were planted during both a spring and fall event. Several varieties of species were offered to insure a healthier and more diverse urban forest.



Citizens, green industry representatives, and homeowners work together to plant new street trees in Cheyenne neighborhoods.

Photo Credit: Rooted in Cheyenne.

The average cost to plant and care for each tree was \$125 a year, whereas this traditionally would have cost at least \$300 – a 58% savings. Equally important is the involvement of numerous partners and the professional relationships, friendships, and sense of community that continue to develop.

"Rooted in Cheyenne" has become an active volunteer organization and an inspiration for other communities, all while improving the health of the city's urban forest and its residents.



Photo Credit: Rooted in Cheyenne.

FOR MORE INFORMATION

Wyoming State Forestry Division, Community Forestry Program
<http://wsfd.wyo.gov/forestry-assistance-programs/community-forestry>



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