CWSF
COUNCIL OF WESTERN STATE FORESTERS

Green Infrastructure
IN THE WEST

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Photo Credit Above: Gerri Makay, North Dakota Forest Service

Photo Credit Right: Jamie Kirby, Montana Department of Natural Resources and Conservation

Photo Credit Front Cover: Scott Grimes

Overview

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 the 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 & Community Forestry (U&CF) Coordinators in the Western United States and Pacific Islands. This network meets on a regular basis to discuss U&CF issues of importance. The 2016 Western U&CF meeting included a brief report from attendees on green infrastructure actions within their state.

The term "green infrastructure" refers to a wide range of practices for managing stormwater runoff using the natural environment[1] and planning for connected networks of natural areas[2] at multiple scales. Many cities and communities utilize urban forests and trees as an important component of green infrastructure systems to provide a wide array of social, economic, and ecological benefits. Using the word "infrastructure" can help place community trees and forests on more equal footing with other infrastructure systems (transportation, water, sewer, electricity, etc.) and put the associated costs and benefits in context for managers and decision makers.

The following synthesis depicts the high level of attention and action Western states and Pacific Islands are taking to incorporate urban forestry into green infrastructure work and to increase the understanding of the contribution that trees and forests provide to the urban environment. These examples were provided by state forestry representatives at the 2016 Western U&CF Network Meeting.

1 https://www.epa.gov/green-infrastructure/what-green-infrastructure
2 Benedict, Mark A., et al. Green Infrastructure-Linking Landscapes and Communities. Island Press, 2012.

Alaska

The Alaska Division of Forestry Community Forestry Program provides technical assistance to interested communities to develop management plans that help reach goals of improved forest health, increased canopy cover and species diversity.

Alaskan communities are recognizing the value of incorporating green infrastructure to mitigate runoff and improve water quality in urban waterways. Larger communities are updating aging stormwater systems and including greener infrastructure to reduce the amount of grey infrastructure needed. Smaller communities are working to increase tree canopy cover and improve forest health.

ⓘ **For more information:**

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

Arizona

A variety of positive green infrastructure actions occur within the State of Arizona and through the Arizona Department of Forestry and Fire Management's many partners.

Through grant funding provided by the UCF Program, the City of Tucson created policies that require the incorporation of green infrastructure features such as tree canopies and median chicanes in newly developed or resurfaced roadways. Site design standards have been developed for City Departments to assist with contract management. The City of Tucson has also developed an educational video for green infrastructure feature maintenance that is used in landscape training.

Stormwater Action Plans have been developed by municipalities to improve long-term river health and address localized water deficits. Neighborhood Guidebooks are available to those who want to use green infrastructure practices to improve watershed conditions throughout the neighborhood. Through grassroots programming, volunteer maintenance crews have been established to assist and motivate local participation in long-term maintenance of installed green infrastructure features. Multi-functional projects are implemented that amplify benefits – for example, diversifying urban tree canopy by planting trees that provide both shade and food. Annual training and workshops occur for policy makers, arborists and landscape designers on green infrastructure. Finally, a number of online resources are available to learn about, plan or implement green infrastructure concepts.

ⓘ **For more information:**

Arizona Department of Forestry and Fire Management
Urban and Community Forestry
https://forestryandfire.az.gov/forestry-community-forestry/urban-community-forestry

California's Urban Forestry Act of 1978, as amended, authorizes funding and other assistance to local agencies and non-profit organizations through the California Department of Forestry and Fire Protection (CAL FIRE) to improve the quality of the environment in urban areas and to optimize the benefits that urban forests provide communities and the environment. The use of green infrastructure is promoted by CAL FIRE and carried out by:

Developing projects or programs that use urban forests for water conservation, improve water quality or stormwater capture, as well as for other values and benefits that urban forests and trees provide (e.g., reduction in greenhouse gas emissions, energy savings, urban revitalization); and,

Creating demonstration projects in urban forestry with special attention given to projects or programs that, among other things, capture and filter urban stormwater, improve water quality, and improve energy and water conservation.

With funding from the Greenhouse Gas Reduction Fund[1], CAL FIRE offers grant funds for two urban forestry programs that focus on green infrastructure projects: Green Innovations and Woods in the Neighborhood. Typical activities of these programs include stormwater capture, community garden/orchard, rain garden, green alley, green roof, green wall, low water use conversion and pocket park.

ⓘ **For more information:**

California Department of Forestry and Fire Protection
Urban and Community Forestry
http://www.fire.ca.gov/resource_mgt/resource_mgt_urbanforestry

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1 Authorized by AB1532, SB535, and SB1018 (http://www.publicadvocates.org/2014-06-16/greenhouse-gas-reduction-fund-q-and-a)

Colorado

Colorado's livelihood is dependent upon clean water. Utilizing green infrastructure, whether to control stormwater runoff and erosion or to interconnect networks of green spaces that conserve natural ecosystem values and functions, is an important system to achieve high quality water.

The Colorado State Forest Service (CSFS) is an active partner in the South Platte River Urban Waters Partnership (Partnership). The interdisciplinary, multi-organization Partnership focuses on the headwaters and Denver metropolitan area of the South Platte River watershed. Water awareness, water protection and water quality are the primary goals for action.

Through the Partnership, CSFS awarded a total of $100,000 to four projects to restore and protect Denver area waterways using urban forestry methods, while reconnecting local populations with their invaluable water resources, and to showcase these projects for replication in other urban areas with degraded waterways. Projects funded involved the removal of invasive species and planting native trees in riparian and wetland areas, the development of a volunteer program to monitor tree survivability and exposing underserved youth to nature.

Additionally, CSFS is leading, and the Ecosystem Sciences Foundation is coordinating, the "Natural Capital Resource Assessment", a collaborative green infrastructure project with funding from the USDA Forest Service that will:

• Create an assessment that maps and evaluates the regional network of green infrastructure,

• Prioritize key areas for conservation and restoration based on the economic value of the benefits people obtain from those natural systems (ecosystem services), and,

• Sustain and enhance the sharing of ideas, data and resources across organizations and land ownerships toward accomplishment of common goals.

ⓘ | **For more information:**

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

NATIVE HABITAT
Under the South Platte River Urban Waters Partnership, volunteers for the South Suburban Parks & Recreation District restore native riparian habitat along the South Platte River in the Denver area.

Photo Credit: Scott Grimes

NATURAL CAPITAL
South Platte River Watershed

Hawaii

Hawaii's Division of Forestry and Wildlife's Kaulunani Urban and Community Forestry Program initiated a project to utilize forestry practices to measure water quality from stormwater runoff at Hamakua Marsh, Kailua, on the island of Oahu. Hamakua Marsh is listed by the Environmental Protection Agency as a Section 303(d) impaired waterbody[1] due to the high amount of pollutants entering the marsh from nearby parking lots, streets, and other impervious surfaces. Three strategies were implemented:

• Mitigate the environmental impacts of urbanization in watershed areas with high impervious surfaces and install a demonstration urban-watershed project.

• Demonstrate the effects and benefits that trees may have compared to shrubs and ground covers in treating and infiltrating stormwater runoff.

• Develop innovative solutions to maximize water quality benefits.

Three separate rain garden plots were installed, two planted with trees and herbaceous plants and one planted only with herbaceous plants, in order to compare effects on runoff water quality. Water quality will be tested and measured for oil, metals, nutrients, turbidity, and total suspended solids.

ⓘ **For more information:**

Hawaii Division of Forestry and Wildlife
Kaulunani Urban and Community Forestry
http://dlnr.hawaii.gov/forestry/lap/kaulunani/

1 https://www.epa.gov/tmdl; Section 3(d) of the Clean Water Act (1972)

RAIN GARDEN
Polluted runoff from the adjacent commercial parking lot will be captured and treated by this newly installed rain garden demonstration project in Kailua, on the island of Oahu. Plantings of trees, shrubs and ground covers are valuable assets to filter pollutants and storm runoff before entering the nearby Hamakua Marsh.

Photo Credit: Jolie Wanger

COMMUNITY SUPPORT
Community support is vital to the project's success. Volunteers and contractors for Hawaii's Division of Forestry and Wildlife's Kaulunani Urban & Community Forestry Program provide their time to plant trees and other vegetation.
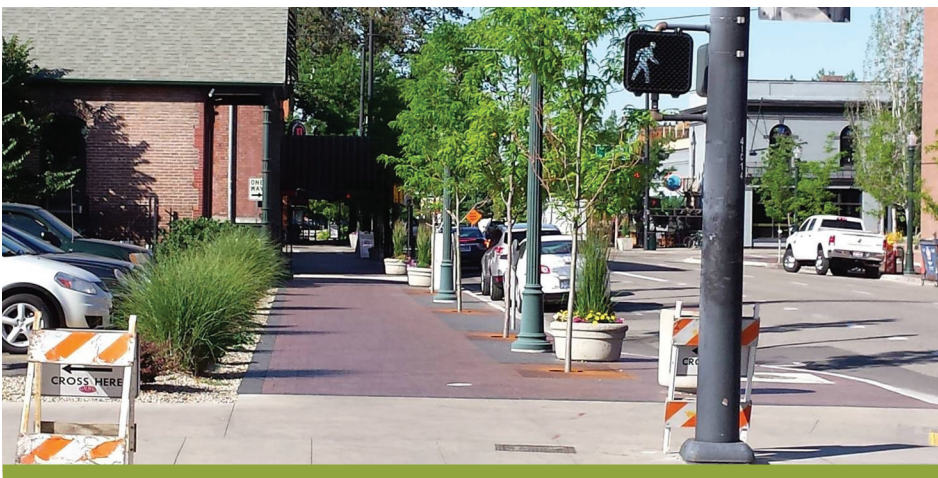
Photo Credit: Jolie Wanger

Idaho

Using the urban tree canopy to mitigate stormwater runoff and other environmental, economic and social issues has taken hold in cities across Idaho. In 2009, Idaho Department of Lands (IDL) Community Forestry Program convened a diverse team of Treasure Valley (greater Boise area) partners to discuss opportunities for addressing challenges facing its rapidly growing communities. Challenges include clean water, clean air, stormwater management, energy use, economic development and planned growth. The Treasure Valley Canopy Network was formalized in 2014 to work collaboratively and support efforts that link urban forests to infrastructure, economy, human health, ecology, and the community.

Many resources have been created to help municipalities, neighborhoods and individuals learn about their urban forest resources and strategically manage the resource for maximum community benefit. In partnership with the USDA Forest Service, IDL was instrumental in providing funding for a tree canopy assessment in the Treasure Valley and for establishing a shade tree program for residential energy conservation.

The assessment helps cities plan where green stormwater installations will be most effective, and has influenced policy changes. In downtown Boise, for example, the use of Silva Cells® under sidewalks during reconstruction is now a standard. Filled with loose soil, Silva Cells® provide structural support for sidewalks, tree rooting space, a repository for stormwater management and conditions that allow trees to grow to their mature size. As the trees grow larger, they provide many additional benefits to Boise's downtown.

ⓘ **For more information:**

Idaho Department of Lands
Urban and Community Forestry
https://www.idl.idaho.gov/forestry/community-forestry/

RECONSTRUCTION
Installation of the first of two levels of soil cells (Silva Cells®) during reconstruction of a downtown Boise sidewalk. Loose soil will fill the entire area, providing more room for better root growth and larger, healthier trees, and space to mitigate stormwater on site.

Photo Credit: Guho Construction

WORKING SIDEWALK
To the average pedestrian, this "working" sidewalk is inviting and visually pleasing. Its other benefits include the ability to manage stormwater, prevent pollutants from entering the Boise River system, and provide clean air and energy conservation.

Photo Credit: Deeproot

Kansas

Much research has been done in assessing the urban forests of Kansas' metropolitan areas under a partnership between the Kansas Forest Service (KFS) and the USDA Forest Service Northern Research Station (NRS). With KFS prioritizing the need for urban forest data, NRS conducted several assessments using the i-Tree eco model (previously known as UFORE (Urban Forest Effects) model) to analyze and identify the benefits associated with urban forests in the Wichita, greater Kansas City and Lawrence metropolitan areas. Results from the i-Tree eco model are used to advance the understanding of tree and forest resources; improve urban forest policies, planning, and management; provide data to support the potential inclusion of trees with environmental regulations; and, determine how trees affect the environment and, consequently, enhance human health and environmental quality in these urban areas.

In 2016, KFS will complete an urban tree canopy study in the Wichita Metropolitan Area, followed by the City of Wichita contracting a complete detailed public tree resource inventory. The resource inventory data will be used with the i-Tree eco suite of models to provide important information on the area's urban forests. The urban tree canopy study will also be utilized to prioritize areas for tree planting and tree canopy increases. Additionally, results will be used for the promotion of green infrastructure principles and practices in the highest priority urban areas in Kansas.

ⓘ **For more information:**

Kansas Forest Service
Community Forestry
http://www.kansasforests.org/community_forestry/communityassistance.html

RAIN TO RECREATION
Lenexa, KS "Rain to Recreation" program, a green infrastructure program, shows a bioswale in a subdivision.

Photo Credit: Tim McDonnell

Montana

Montana's Department of Natural Resources and Conservation (DNRC) conducts a number of green infrastructure-related assessments and utilizes a number of models to help communities and others manage or improve their urban forests. Such assessments and models include public tree inventory analysis, tree canopy assessment, ecological/sample plots assessment, green infrastructure models, visualizations and concept designs.

Many cities and communities in Montana actively manage their trees and green spaces. Even in a small city, the impact of an urban forest project can be great. DNRC recently conducted a comparative analysis between two small cities to determine the amount, location, size, value and ecosystem benefit of their urban forests now and projected into the future. In both cases, tree cover represented less than 10% of the landbase but the benefits provided by those trees was significant. Significant benefits were seen with pollution removal, carbon sequestration and property value increases. Projecting into the future assuming an active urban forestry maintenance and tree planting program showed that sustained investment in urban forestry would lead to high returns to communities and their environment.

ⓘ **For more information:**

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

BENEFITS
Urban forests in the City of Billings, MT, provide significant benefits to the environment, the community and the economy.

Photo Credit: Jamie Kirby, Montana Department of Natural Resources and Conservation

Nebraska

For more than 25 years, the Nebraska Forest Service and the Nebraska Statewide Arboretum have jointly pursued programs in a strategic manner to strengthen community green infrastructure across the state. With funding assistance from a variety of sources, most notably the Nebraska Environmental Trust, several programs have been implemented to increase tree planting and tree diversity in communities, improve green-management of stormwater, reduce potable water consumption for landscape management, increase use of native plants, and develop habitat for pollinators and other beneficial insects. To date, more than 1250 projects have been implemented in over 250 different communities. The total value of these projects is nearly $20 million.

Perhaps the most important component of a community's green infrastructure is its tree cover. Unfortunately, the canopies of community forests across Nebraska have been in decline for several decades. Various insects and diseases (such as Dutch elm disease (Ophiostoma ulmi and O. novo-ulmi)), the general variability of the Great Plains climate and natural age progression has contributed to the loss of millions of large shade trees across the state in recent decades. In 2016, the emerald ash borer (Agrilus planipennis) was detected in the City of Omaha and it is highly likely to kill thousands of ash (Fraxinus spp.) trees throughout Nebraska in the coming years.

Trees for Nebraska Towns (TNT) and the ReTree Nebraska initiative were both implemented in recent years to help reverse this trend by funding shade tree plantings and by working to raise awareness and excitement of people for the benefits of trees. TNT has provided over $1.5 million to communities resulting in the planting of over 12,500 new trees on public property. One of the most effective components was a mini-grant program that provided up to 10 free trees directly to communities that provided volunteers to help with planting. To date, more than 2,500 trees have been planted in over 200 projects across the state. More importantly, over 2,000 volunteers representing a wide variety of ages and socio-economic backgrounds have worked together to get these trees planted.

ⓘ **For more information:**

Nebraska Forest Service
Community Forestry and Sustainable Landscapes Unit
http://nfs.unl.edu/program-communityforestry.asp
Nebraska Statewide Arboretum: http://arboretum.unl.edu/

ACROSS THE STATE
Left: Stormwater retention area utilizing native plants to support pollinators, Scottsbluff, NE.

Top: Peru State college in southeast Nebraska, one of 100+ affiliate sites across the state established to promote green infrastructure practices and utilization of native and regionally adapted plant materials for beneficial landscapes.

Right: Rain gardens bioswale with interpretative signage. Funded via the Nebraska Environmental Trust in cooperation with the City of Scottsbluff, Nebraska Forest Service and Nebraska Statewide Arboretum.

Photo Credit: Nebraska Statewide Arboretum

Nevada

Urban tree canopy on both public and private property is vital to the green infrastructure in Nevada, the driest state in the U.S. with recurring multi-year droughts. Climate change and water restrictions require an effective way to maintain urban tree canopy in the face of extended drought. To increase tree survival under water conservation efforts, Nevada Division of Forestry (NDF) and statewide partners initiated a project in 2016 to conserve and increase public benefits from working trees in Nevada urban centers in concert with water conservation programs. An unfortunate secondary effect of the water conservation program in Nevada is high mortality of trees due to a lack of green industry knowledge on proper irrigation, especially in non-turf landscapes. Conserving trees in non-turf landscapes requires more complex irrigation knowledge. Many turf conversions are poorly executed, trees die, and the many benefits of city trees are reduced.

To protect and maintain critical green infrastructure, an irrigation handbook and video (including website presence) on efficient and effective tree irrigation in both English and Spanish will be created and disseminated. Public outreach, through such actions as workshops for industry professionals and presentation at homeowner association meetings, will also be conducted to present and ensure the guidelines are understood by industry professionals and citizens, and to gain widespread adoption of efficient irrigation practices.

The partnerships built and strengthened with this project will help Nevadans address future issues related to urban forest resources and reduce the effects of potential future threats, including wildfire, insect and disease outbreaks and poor cultural practices.

ⓘ **For more information:**

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

New Mexico

Recognizing the need to address stormwater runoff is not a new concept for New Mexico State Forestry (NMSF). Even the oldest incorporated town in New Mexico, Silver City (1878), gave some thought to mitigate stormwater runoff by constructing high sidewalks and orienting roads so that runoff would drain down them. Unfortunately, these methods were insufficient to handle the amount of water that drove through town during a significant flood event in July 1895[1]. As a result of this flood, Main Street was replaced by a 55-foot-deep ditch. Today, the "big ditch" of old Main Street has been rehabilitated and turned into an open green space with walking paths, trees, vegetation and connection to other green spaces. 20th century stormwater management features have been incorporated into the green space to prevent future damage.

Silver City continues to address stormwater runoff issues using green infrastructure systems that include trees and vegetation. Recently, the town was required to create a stormwater retention area in an underserved neighborhood. New Mexico State Forestry provided funds to help turn the retention area into a usable green space for the community that includes trees, grass and a soccer field/playground.

The infrequent but often torrential rains in New Mexico create sudden, destructive flooding that impact its rivers, infrastructure and public safety. NMSF continues to seek creative and strategic ways to implement green stormwater infrastructure to address these impacts.

ⓘ **For more information:**

New Mexico Division of State Forestry
Urban and Community Forestry
http://www.emnrd.state.nm.us/SFD/CommunityFor/Community.html

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1 https://en.wikipedia.org/wiki/Silver_City,_New_Mexico

DUAL PURPOSES
A green space for community use and a stormwater retention pond in New Mexico. Trees add great value to all communities.

Photo Credit: Jennifer Dann

North Dakota

The North Dakota Forest Service (NDFS) utilizes their Community Threat Assessment Protocol (CTAP) to assist communities in making informed decisions about managing their urban forest resources. CTAP is an inventory and report process conducted by NDFS. Outcomes of the inventory and its analysis to the community include a report, five-year community forestry plan, a one page executive summary, and an infographic including major findings and recommendations.

Since inception in 2012, CTAP has been completed for over 80 communities. Communities are taking action based on their CTAP inventory report. They are developing project proposals that involve tree removals, planting diverse species, and applying for cost-share funds through NDFS's cost-share program.

An added bonus of CTAP is that the data can be aggregated to determine statewide results. Fraxinus spp. (green, black, white, and Manchurian ash) makes up almost 50% of the municipal tree population. The green ash population alone ranges from 10 to nearly 80%, with an average street population consisting of 46% green ash. Increasing tree diversity throughout all communities is highly needed, as the emerald ash borer (Agrilus planipennis) is one of the primary potential threats facing North Dakota's urban forests.

ⓘ **For more information:**

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

BISMARCK ASH TREES
Though emerald ash borer (EAB) has yet to be detected in North Dakota, a pre-emptive strategy of Bismarck's EAB Response Plan is to selectively and systematically remove ash trees to prepare for the arrival of the invasive pest.

Photo Credit: Gerri Makay, North Dakota Forest Service

Oregon

Oregon incorporates green infrastructure systems in many of its high density population cities (e.g., Portland, Bend, Eugene). On the west side of the Cascade Mountain range, green infrastructure is installed to mitigate stormwater runoff while, on the drier eastside, it is used to retain water. Smaller cities find it more difficult to employ green infrastructure systems due to lack of funding, personnel availability, and access to expertise. Research is occurring on the actual barriers to green infrastructure use in small communities and results are forthcoming.

Recognizing the value of urban trees as a green infrastructure system, a low impact development manual, with a focus on trees, has been created.

ⓘ **For more information:**

Oregon Department of Forestry
Urban and Community Forestry
https://www.oregon.gov/ODF/ForestBenefits/Pages/UrbanForests.aspx

South Dakota

The South Dakota Division of Resource Conservation and Forestry (RCF) provides communities an annual opportunity to receive state funding, along with their contributions, for urban and community forestry projects under at least one of the following categories:

• New tree planting
• Existing tree maintenance
• Professional services
• Education and training
• Community tree inventories
• Other related activities

About $20,000 is available each year through RCFs grant program to help communities and organizations meet their urban forestry needs.

Projects that received funding in the past included numerous tree plantings, help with storm damage, provided training to local crews, provided communities with essential urban forestry software and much more. The interest in this program continues to increase as more and more communities and organizations apply for the limited amount of funds.

ⓘ **For more information:**

South Dakota Division of Conservation and Forestry
Urban and Community Forestry
https://sdda.sd.gov/conservation-forestry/urban-community-forestry/

U.S.-Affiliated Pacific Islands

(American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Republic of the Marshall Islands, and Republic of Palau)

The protection, conservation and maintenance of green infrastructure within the six U.S.-Affiliated Pacific Islands are vital to each island's sustainability. Both naturally occurring green infrastructure, such as mangrove forests protecting coastal settlements, and that which is planted and managed, are important island features. Cities and villages depend upon their forests and trees to provide food, fresh water, energy conservation, other products, and protection from major storm and other climatic events, as well as important ecosystem services (soil protection, watershed function, and biodiversity).

For example, in the state of Yap, Federated States of Micronesia, community-based work to restore green infrastructure associated with important food crops recently concluded. Through a grant from the USDA Forest Service, the Yap State Division of Agriculture and Forestry (DAF) provided technical and financial assistance to four villages. Three villages implemented actions to stabilize stream banks and reduce erosion to streams and taro patches. The work, all done by hand, involved clearing fallen logs and invasive vegetation, relocating boulders and reconstructing traditional stone retaining walls, and planting agroforest trees and shrubs along the stream banks to provide bank stability. Visible results are already occurring – the rich silt needed to grow taro is being retained in the taro patches instead of flowing into the streams and other taro patch owners are beginning to renovate their upland taro patches to replace those damaged by past storm surges and rising sea level. Maintenance of the work, especially the hand-constructed retaining walls, will be especially important given predictions of increased rains, storm events and salt water intrusion. Reinforcement of the retaining walls with wire or geotextile mesh will be researched as a viable option.

Community members from the fourth village implemented a project to restore an important fishery in one of their local streams that flows from the upland, under a road and into a lagoon. Due to increased water flows during heavy rainfall events and changes to the streambed after a large cement bridge-type culvert was replaced with smaller culverts, sediment deposition and damage to the fishery occurred. The community felt that clearing debris blocking the stream and stabilizing its banks would deepen and open the waterway to restore the fishery. Unfortunately, a high risk that future storm events will result in the problem returning exists, as it appears that the new culverts are too small to accommodate the fluctuating volume of water.

(i) **For more information:**

USDA Forest Service Pacific Southwest Region
State and Private Forestry
http://www.fs.usda.gov/main/r5/communityforests

Pacific Islands Forestry Committee of the WFLC
Joe Mafnas, Guam State Forester
Joseph.mafnas@agriculture.guam.gov

Yap Project
Francis Ruegorong
ydafwildlife@gmail.com

ROCK WALL
A hand built rock wall prevents the stream from washing away rich silts needed to grow taro in a taro patch in the background. Upland taro patches are now being renovated to replace lower lying coastal taro patches that have been affected by salt water intrusion.

Photo Credit: Yap State Forestry

Utah

The Utah Division of Forestry, Fire and State Lands' (FFSL) Urban and Community Forestry program provides communities with Tree City USA designations, along with their contributions, the opportunity to receive state funding through a partnership grant program for unique community forestry projects. These grants offer communities the ability to enhance their urban forest and to network with Utah FFSL and other agencies. Eligible projects include:

• Green infrastructure
• Tree inventory
• Tree management plans
• Public tree ordinance
• Training and continuing education
• Public education
• Demonstration planting
• Urban tree wood products and biomass recycling
• Invasive species control
• Mulching
• Tree planting projects

ⓘ **For more information:**

Utah Division of Forestry, Fire and State Lands
Urban and Community Forestry
http://www.ffsl.utah.gov/index.php/forestry/urban-and-community-forestry

Washington

Washington State Department of Natural Resources' (DNR) Urban and Community Forestry Program works with all interested cities to promote the concept of planning before planting. DNR provides technical assistance to assist cities in developing management plans and to ensure that cities are able to achieve their goal of increasing tree canopy in an appropriate manner.

DNR is currently expanding and implementing an urban forestry restoration project that partners with cities and towns within the Puget Sound region. The goal of the project is to improve the health of urban forests, including urban natural areas, to build stormwater management capacity and improve the quality of water entering Puget Sound. The project works with Puget Sound Corps crews, part of the broader AmeriCorp program, to remove non-native plants, structurally prune urban trees, and plant trees and native plants in restoration areas to improve the health of the urban forest and to build job skills.

ⓘ **For more information:**

Washington Department of Natural Resources
Urban and Community Forestry
http://www.dnr.wa.gov/urbanforestry

Wyoming

Wyoming State Forestry Division sponsored and participated in a unique multi-year green infrastructure project (Pathway to Water Quality) to protect water quality, reduce erosion, eradicate invasive species, enhance a wetland, and establish native grasses and tree species, while serving as an educational demonstration. Several natural resource agencies were involved and the Wyoming Natural Resource Foundation was the lead organization for this successful project.

The project occurred on the Wyoming State Fairgrounds and along the North Platte River, where effective drainage of animal pollutants and other runoff was needed. Through the use of innovative conservation technologies, a pathway of permeable paving, with a French drain underneath it, was installed from the fairgrounds to the river. Interpretive panels were installed along the pathway to educate visitors on the water quality benefits of each management practice used in the project. A wetland area was created in an existing drainage area to capture runoff from the drainage system. Removal of invasive tree species along the river was necessary to restore the riverbank near the fairgrounds. Following invasive tree removal and establishment of the new wetland, native trees and vegetation was planted along the riverbank, within and around the wetland, and along the pathway. The wetland is thriving as native willows and cottonwoods have become well-established and plentiful.

Additional educational demonstration included an interactive exhibit at the fair showing a model watershed depicting how pollutants get into streams and rivers, use of a stream trailer, wildlife tracks matching game, watershed geographic information system models and more.

(i) **For more information:**

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

TREE PLANTING
Volunteers receive training before planting dozens of native trees to replace invasive Russian olives at the Wyoming State Fairgrounds in Douglas, WY. Removal of invasive trees and restoration with native trees is one of many activities that occurred under the Pathway to Water Quality Project.

Photo Credit: Wyoming Natural Resource Foundation

TREE GUARDS
Custom made protective tree guards with interpretive plaques were placed around many existing and newly planted trees.

Photo Credit: Wyoming Natural Resource Foundation

Additional Resources

The 2016 State & Private Forestry Report, published by the National Association of State Foresters and the USDA Forest Service, summarizes the review of the most recent information prepared by state forestry agencies, including recent accomplishments as well as plans for the future.

The 2016 report focuses on trees and forests serving as American's green infrastructure. View the report at http://www.stateforesters.org/2016-state-private-report.

Non-Discrimination Statement