

Western Urban & Community Forestry 2023 Publication















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This publication was finalized in March 2023.

Each state story was provided by WFLC Western Urban & Community Forestry Committee members.

Cover photos from top left:

1) Cottonwood Creek Canyon in southeast Colorado. Gambel oaks and other oaks were collected here for trialing in Nebraska. Photo: Justin Evertson; 2) Volunteers plant mesquite seeds in individual containers for germination. Photo: Victor Ceballos; 3) Members of the Mighty Few train to use the mill saw for local wood utilization. Photo: Jamie Kirby, DNRC; 4) A mesquite seedling grown through the SOMBRA project. Photo: Victor Ceballos; 5) South Jordan City Urban Forestry Trail demonstrates species diversity adjacent to the Jordan River. Photo: Jeran Farley; 6) A downed urban tree in Coeur d'Alene from the storm. Photo: Coeur d'Alene Urban Forestry; 7) Community members plant fruit trees in a Las Vegas area community garden. Photo: Lisa Ortega.



Introduction to the Publication

The Western Forestry Leadership Coalition's Western Urban and Community Forestry (WUCF) Committee provides a channel for ongoing communication and collaboration between western states, U.S.-Affiliated Pacific Islands, the USDA Forest Service, and forestry partners. The WUCF Committee creates opportunities to leverage and share resources, expand the transfer of technology, and cooperate on shared goals and initiatives, including multi-state competitive grant applications and strategic planning efforts.

The WUCF Committee was formed to serve as a forum to share information, cooperate on program delivery, and advance urban and community forestry in the Western U.S. It provides a valuable structure for continuous communication between western states and regions.

One of the priorities of the WUCF Committee is to share stories that highlight the impact of urban and community forestry. These stories are pulled together into a regional publication and organized around themes that emphasize people, partnerships, events, and the way community forestry enhances people's lives in a wide variety of impactful and inspiring ways. With the ever-present threats of environmental, biological, and social stressors on both our tree canopy and on our mental and physical health, we chose the theme of resilience for the 2023 publication.

In practice, resilience is displayed through many unique forms of program delivery, evidenced by the stories of how our state programs support communities through planning, modeling, organizing, and enabling community leaders to set and achieve goals for their tree canopies.

We invite you to enjoy the stories conveyed from Alaska to Wyoming, which center around the theme of "Resilience." There is no doubt that you will learn and be inspired by the creative people, magnificent trees, and lasting efforts!

To learn more about the work of the WUCF Committee, please visit https://www.thewflc.org/about/committees/western-urban-community-forestry-committee.

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The Alaska Department of Natural Resources Division of Forestry, Alaska Community Forestry (ACF) program received a grant from the USDA Forest Service in 2019 to remove the invasive tree species *Prunus padus*, commonly known as European bird cherry (EBC), chokecherry or mayday trees and *Prunus virginiana*, commonly known as Canada Red or chokecherry. Introduced in Alaska as attractive ornamentals, *Prunus padus* and *Prunus virginiana* are now considered invasive trees that can affect native Alaska ecosystems, negatively impacting their resiliency by creating monocultures that are impacting fish and game. As of 2022, three rounds of grants have been awarded to organizations in Alaska. The ACF program has also used part of the grant for multimedia educational material.

Doth Prunus padus and Prunus virginiana were originally introduced in Alaska as attractive ornamental trees. Since their introduction, they have gone feral in Alaska community forests, parks, greenbelts, and riparian zones, or as the Society of American Foresters described in the spring 2020 issue of Western Forester, they are now "rogue ornamentals."

As invasive trees, *Prunus* has the potential to significantly affect native ecosystems in Alaska.

- It can take over the understory of forests, and form monoculture thickets displacing native trees, seedlings, shrubs, and forbs.
- Young moose have died from cyanide poisoning from eating Prunus padus.
- One study has indicated that due to the increasing streamside growth of Prunus, the insect biomass that falls into the water to provide food for juvenile salmonids has decreased.

The ACF program offered grants to help recipients identify and remove prominent stands of the two *Prunus* species from Alaska, and to train additional certified pesticide management consultants and

applicators. The efforts to remove this invasive were also a great opportunity to encourage tree planting, tree care, and community forestry in general.

Grants were issued to the Fairbanks, Palmer, Wasilla, Homer, and Anchorage Soil and Water Conservation districts, the Southeast Alaska Watershed Coalition in Juneau, the Talkeetna Community Council, the Anchorage Cooperative Invasive Species Management Area, the Municipality of Anchorage Parks and Recreation Department, and the University of Alaska Anchorage.

Some of the grant monies were also used for the brochure "This Beauty Is A Beast," and a public service announcement on the Alaska Public Radio Network.

In 2021, the ACP program launched the "Remove and Replace" program using funding from the USDA Forest Service. Partnering with four local nurseries in Anchorage, ACF designed the program to award homeowners a \$100 voucher for a new tree from a partnering local nursery upon removal of their *Prunus* species. Even though there was a limited amount of funding available for this program, it attracted interest from the public and media. Stories featuring ACF

staff were aired on local television, and a story featuring a state biologist and a local citizen invasive weed warrior was featured in the Anchorage Daily News, Alaska's largest newspaper.





Header: Prunus padus can produce monoculture thickets. Photo: Homer Soil & Water Conservation District. **Top:** Photo of a mature Prunus padus. All those white flowers produce a lot of berries! Photo: Patricia Joyner. **Bottom:** Cut stump treatment of Prunus with a systemic herbicide. Photo: Homer Soil & Water Conservation District



angerous heat islands in Tucson, Arizona's south side neighborhoods register temperatures up to 8 degrees hotter than citywide averages and 12 degrees higher than in more affluent well-canopied neighborhoods in the summer. The SOMBRA Project works with a network of community members and local organizations to create urban mesquite tree forests to increase urban canopy and decrease temperatures. These native trees are drought adapted and a food source, increasing the area's resilience in many ways.

/ith funding provided by V the Arizona Department of Forestry and Fire Management's Urban and Community Forestry Program and the USDA Forest Service, The Community Food Bank of Southern Arizona works toward resilient forests and communities with the SOMBRA project, which stands for Sonoran Mesquite Barrio Restorative Alliance and is also the Spanish word for shade.

In collaboration with a network of 12 community organizations, several based in the Tucson neighborhoods most vulnerable to the

with the City of Tucson's plan to plant one million trees by 2030 and is supported by Mayor Regina Romero's Office. A core aspect of the SOMBRA

Project is ongoing, hands-on training, so that community members have the knowledge and skills necessary not only to cultivate and plant

impacts of urban heat

incorporates short- and

long-term planning for the

maintenance of thousands

of velvet mesquite (Prosopis

velutina) bean pod trees. In

addition, the project aligns

cultivation, growing out, and

islands, the SOMBRA Project

the mesquite trees but to maintain the trees in public green spaces for generations to come. Training also includes harvesting and milling of mesquite bean pods, which provide a nutritious, protein-dense flour - a heritage food among the Tohono O'odham, Pima, and Yaqui people of the Sonoran Desert region.

The SOMBRA Project directly addresses the lack of tree canopy and climate resiliency on Tucson's south side. The Project takes a long-term approach and anticipates planting more than 20,000 mesquite trees by the end of

2030. Major outcomes from this project's initial phase include the establishment of four new mesquite tree cultivation sites, 16 training sessions for over 300 community members, and the cultivation of over 2,000 seedlings. Once established, the project will see the creation of two additional cultivation sites, a minimum of eight trainings per year, and the distribution and planting of approximately 2,700 trees per year through 2030.





Header: A donated shade structure that will be used at the San Xavier Co-op Farm to grow out mesquite seedlings. Photo: Community Food Bank of Southern Arizona. Far Left: A mesquite seedling grown through the SOMBRA project. **Left:** Volunteers plant mesquite seeds in individual containers for germination. Photos: Victor Ceballos



The state of California is acting to grow more resilient urban forests. Assembly Bill 2251, <u>AB 2251 (capitoltrack.com)</u>, requires the creation of a strategic plan to achieve a 10% increase in urban tree canopy cover by 2035.

The budget for the California Department of Forestry and Fire Protection (CAL FIRE), Urban and Community Forestry Program (U&CF), for 2022-2023 allocated \$117 million to school greening and \$50 million for urban forestry practices to address extreme heat, climate, and forest resilience.

Unprecedented funding, in conjunction with stronger statutes, will prompt actions to address vexing problems such as the lack of tree canopy on school campuses.

Recent analysis has revealed, that of the 5.9 million K-12 public school students, approximately 2.25 million attend schools with less than 5% canopy cover. The average canopy cover across nearly 11,000 K-12 public school campuses is 8.9%, as compared to the statewide average for urban areas of 15%. Transforming gray (concrete and asphalt) to green landscapes provides a multitude of ecosystem benefits to students. Priority for assistance is given to populations with the greatest needs to correct historic disparities.

Collaborative efforts leverage impact. The U&CF Program awarded a grant to the City and County of San Francisco that leveraged a property lease and complementary grant from the California Department of Transportation, Clean California Program. This project, between sections of I-80 in downtown, creates workforce development opportunities, invigorates a blighted site, and grows public trees for the future. This is one example of many where urban forestry practices are employed by aligned programs.

Other collaborations include Strategic Growth Council's Transformative Climate Communities, California Natural Resources Agency, Urban Greening Program, the USDA Forest Service, and local convening organizations. Project scale varies up to large initiatives such as the Los Angeles Urban Forest Financing Study, which proposes strategies to increase the city's canopy cover by investing an additional \$88 million annually, complementing Los Angeles Unified School District's commitment to invest more than \$50 million annually in school greening.



Header: San Francisco tree nursery. **Above:** Going gray to green in Altadena, CA. Photos: CAL FIRE



The Idaho Department of Lands (IDL) Urban and Community Forestry (UCF) program works with municipalities across the state to ensure that Idaho's forests continue to be diverse, resilient to human activities, climatic changes, other unique stresses, and that threats to Idaho's forests are reduced. The North Idaho Pest and Storm Preparedness Project described here was developed with input from the Coeur d'Alene tree committee, city forester, USDA Forest Service Region 1 Forest Health (FH) staff, and IDL UCF & FH personnel.

n 2021, a destructive windstorm swept through parts of Northern Idaho, resulting in the loss of thousands of trees in the urban forest, including many large Douglas-fir trees that were uprooted. Because the Douglas-fir beetle is highly attracted to windthrown and/or stressed Douglas-fir trees, the amount of downed material from the storm led to the expectation of increased bark beetle infestations in the following years.

The IDL UCF program was awarded a State Urban Forest Resilience (SUFR) grant to implement strategies that will help communities mitigate the effects of invasive and native pests within their urban forests.

A portion of these funds went towards the purchase of Methyl Cyclohene-one (MCH) bubble caps to be applied to the remaining stands of Douglas-fir throughout the city of Coeur d'Alene. MCH is an anti-aggregation pheromone for Douglas-fir beetle. The substance (which has a proven track record of effectiveness) sends out a chemical signal that tells other beetles that the tree is "full", there is "no vacancy," and to "go find another tree."

Applying the 1000mg bubble caps at the rate of 15 packs per acre on a 54ft spacing, effectively floods the area with pheromones protecting trees in the treated area for the season. Beetles will continue flying around looking for suitable hosts, and as they expend more energy, they are more likely to be killed by predators.

The bubble caps are applied by attaching them to the north side of trees larger than 12" diameter at breast height (DBH) with a staple as high as one can reach.

Idaho communities need an effective plan to mitigate risks associated with storms, and to secure avenues for the safe and responsible disposal and/or reuse of downed wood. With the intent to provide direction and assistance to these communities,

IDL UCF and FH staff are working together to develop a storm preparedness and mitigation plan utilizing data generated in the PlanIT Geo TreePlotter™ Inventory and the USDA Forest Service planning toolkit. IDL UCF provides free user accounts for over 30 communities within the state to use the PlanIT Geo TreePlotter™ Inventory program.

The city of Coeur d'Alene urban forestry department staff used this program to locate and create a map of over 700 Douglas-fir trees throughout the city, including additional trees that were located on Tubbs Hill, and with help from volunteers, the MCH bubble caps were installed on the north side of trees as high as the applicator could reach.

In addition to the storm preparedness planning, IDL is also conducting forest health seminars across the state to train arborists, city foresters, parks and recreation employees, and professional applicators

in techniques to inventory urban trees and prepare for and manage invasive pest species such as emerald ash borer, Asian longhorned beetle, and Japanese beetle. These efforts will go a long way towards helping to keep Idaho urban forests resilient to the impacts of storms, and invasive pests and pathogens.



Header: Coeur d'Alene forestry crew works to clear a fallen tree from the storm. Photo: Coeur d'Alene Urban Forestry. Above: Nick Goodwin, Coeur d'Alene city forester installs MCH bubble caps on a Douglas-fir in front of City Hall. Photo: Idaho Dept of Lands UCF



This year, one of the most compelling examples of resilience in urban forestry comes from Montana's indigenous communities. The challenges facing these communities may include a lack of reliable and essential necessities in infrastructure, internet, water, and mobile accessibility. Despite this, the passion and commitment of residents to build resilient urban forests by coming together persists. In working with the tribes, the term 'community forestry' has taken on more meaning in the sense of establishing true sustainability and resilience.

/yola is a remote V community located on the Crow Reservation in southeast Montana, just 10 miles from the Wyoming border. The community is about 80% Native American with a population of approximately 215 people. While eastern Montana is sparsely forested, the Little Bighorn River that runs nearby boasts cottonwood trees commonly over 100 feet high and native ash tree riparian draws.

The Montana Department of Natural Resources and Conservation Urban and Community Forestry program worked with Wyola community leaders on a tree planting project along a new walking path that focused on three main components: trees that provided cultural value;

food source and production; and shade, shelter, and protection. Additionally, the UCF program - through a Landscape Scale Restoration grant – purchased a portable Alaskan sawmill and provided training to the community group called the Mighty Few. The community now has the means and training to mill wood from their community and utilize it for essential needs such as building fencing and handicap ramps to the homes of their elders.

A stark reminder of the challenges facing remote populations is water availability. Ensuring the newly planted trees along the walking path received adequate water was another task requiring creativity and resourcefulness. Wyola recently experienced a

collapse to one of its few water wells, impacting the community center and surrounding residents. The UCF program staff, with the support of the Wyola leadership, designed a water capture system to collect rainwater from the community center building and assembled a portable water sprayer to reach the newly planted trees across the one-mile path. In its first test the system proved successful completely filling the 1,500-gallon tank after the first storm. The community was grateful to see the success and is looking to expand this type of water access to other areas for future community forestry projects.

Building relationships with tribal communities is



essential to understanding and building community resiliency. When tribal members share the cultural values, historical relevance, and knowledge of trees and plants, better planting selections can be made for trees that will provide longterm social, economic, and environmental benefits. The views shared by tribal leaders to UCF staff have changed the overall approach to assisting tribal communities. We look forward to continuing to strengthen our relationships and contributing to future generations.

Learn more about the project.

Header: Members of the Mighty Few train to use the mill saw for local wood utilization. Photo: Jamie Kirby, DNRC. Far Left: Lesley Kabotie and Wyola Tribal Senator Harold Male Bear on the Wyola walking path, soon to be enhanced with trees and improved accessibility. Photo: Jamie Kirby, DNRC. Left: DNRC contractor Lydia Heser and Harold Male Bear Stone show the newly assembled portable water tank. Photo: Lydia Heser, via DNRC





With the threat of climate change, as well as emerging insects and diseases, it's vitally important to identify more tree species that can survive these threats and help expand the species diversity of Nebraska's community forests. In 2020, Nebraska Forest Service (NFS) joined with forestry organizations in several other Great Plains and Southwestern states to help expand the awareness and availability of underutilized, climate-adapted tree species in the region through a program titled Urban Tree Improvement: Climate-resilient Trees for the Arid Urban Landscape (UTIP).

TIP is modeled on a long-standing program in Texas that also goes by UTIP, and has identified several tree species tolerant of hot and dry conditions of the southern Great Plains. Through UTIP, these Texas trees are being distributed to other state participants for trialing, including Oklahoma, New Mexico, Arizona, Kansas, and Arkansas. Nebraska is the most northern state in this consortium and is far enough north that many of the Texas trees would likely not be cold hardy in Nebraska. As such, NFS decided to go a different path, and instead of using the Texas trees, trees are being sought out that will likely have the cold tolerance necessary to survive in Nebraska.

In the spring of 2022, NFS obtained a variety of tree seedlings and small nursery trees to be distributed for trialing across Nebraska. Species included southwestern white pine, lacebark elm, desert willow (*Chilopsis*), American smoketree, thornless Osage orange, several oaks, and a loblolly/ pitch pine hybrid. Over 310 seedlings were then distributed to 12 trial sites across the state. Trial sites include parks and Nebraska Statewide Arboretum (NSA) affiliates. NFS will be tracking the survivability and suitability of these trees going forward, and if they prove adaptable, NFS will work with nurseries to make them more commercially available in Nebraska.

Recently, NFS staff worked with a city forester in Colorado to collect acorns from a variety of gambel oaks and gambel oak hybrids growing in Colorado and brought them back to Nebraska to be grown by the NSA and distributed to trial sites in the coming years. Gambel oak can be somewhat of a shrubby tree,

but has good heat and drought tolerance and can grow into a nice shade tree over time. These trees should be especially well-adapted to western and southwest Nebraska.

In the coming years, NFS anticipates targeting additional tree species from surrounding states, especially looking south and southwest to Kansas, Oklahoma, Colorado, New Mexico. NFS will seek soapberry, netleaf hackberry, pinyon pine, limber pine, Shumard oak, Buckley's oak, pecan, and other species. NFS is concentrating mostly on regionally native species, but will also have an eye out for uncommon urban survivors already growing in Nebraska communities. NFS anticipates that these tried-and-true species hold the best genetic formula to be adapted to Nebraska's climate-shifting future.





Header: Cottonwood Creek Canyon in southeast Colorado. Gambel oaks and other oaks were collected here for trialing in Nebraska. Far Left: Collecting seed in SE Colorado. Left: Wavyleaf oak with acorns in SE Colorado. Photos: Justin Evertson



Partnering with a burgeoning tree-planting non-profit enables the Nevada Division of Forestry (NDF) to connect public-private spaces and achieve tree canopy and community building outcomes. By supporting programmatic development, NDF has helped build a new community resource that thinks about community needs first in areas that lack the most, and yields social and environmental benefits along the way.

ow do we support a sustainable, equitable, and resilient tree canopy in the hottest, driest desert in North America? With all the struggles and environmental barriers that we face, the answer lies in partnerships.

Over the past year, NDF has been partnering closely with Nevada's first tree-planting-focused nonprofit, Nevada Plants. The Nevada Urban and Community Forestry program has historically focused efforts on trees in the right-of-way and park trees, without focus on other areas of the urban forest. To achieve equitable tree canopy distribution, NDF is now looking to "fill in the blanks" and expand planting beyond street trees and parks. Focus groups that address air quality, heat mitigation, and outdoor recreation determine that "trees are the answer", but to get there, Urban and Community program staff need to engage, support, listen to, and involve residents. Without engagement from residents, progress will be unable to move beyond the fragmented public spaces to measurably increase tree canopy in a place like Nevada.

NDF worked with Nevada Plants to develop a comprehensive program that is a "one-stop shop" for tree planting and care resources throughout Nevada. Nevada Plants is focusing intently on communities that experience extreme urban heat, food deserts, and lack of tree

canopy resources. They start by asking communities what they want, where they need it, and how they'll care for it – getting the "buy-in" that is necessary for future maintenance, care, and to achieve needed tree establishment outcomes. Because of this approach, NDF has seen an immense swell of public-private partnerships, with private investments in plant material to match the USDA Forest Service funded programmatic infrastructure support enabling NDF to work in the most vulnerable communities – where NDF believes they can achieve the greatest change, the greatest benefits, and detectable desired outcomes.

Because of the community-driven approach, NDF sees that those that want trees care enough to call when they see problems with their newly planted trees. They tell their neighbors about the programs and tell organizational staff about how much trees mean in their lives. They engage as multi-generational families to pick up and plant trees, passing down knowledge and strengthening family and community bonds. This approach has even resulted in the first-ever state-sponsored community tree planting on tribal land working with the Ely-Shoshone tribe to plant trees in neighborhoods completely devoid of tree canopy cover.



Header: Ely-Shoshone tribal members plant shade trees in neighborhoods in eastern Nevada, NDF's first-ever tribal tree-planting project. **Above:** Community members plant fruit trees in a Las Vegas area community garden. Photos: Lisa Ortega



Nestled in the badlands of western North Dakota, Watford City felt the pains of rapid growth during the Bakken Oil Boom. The county's population blossomed ten-fold, followed by the demand for services and infrastructure to support the workforce and new residents. Local visionaries never lost sight of the importance of green infrastructure as a vital part of the landscape.

Resiliency: "the capacity to recover from and adapt in the face of adversity, trauma, threats or stress..."

Watford City is the hub of McKenzie County, North Dakota – an area identified by population watchdogs as the fastest-growing county in the U.S. over the past ten years (2010-2020), spurred by the Bakken Oil Boom. The tiny rural town nestled in the badlands along the western edge of the state quickly blossomed from 1,200 to more than 15,000 people. To accommodate the need for basic services, new infrastructure including roads, a high school, a medical center, a wastewater treatment facility, and a new law enforcement center, were quickly built. The North Dakota oil boom turned black gold into green for some public and private interests.

In the midst of this activity, visionary local leaders waited for the right time to soften the hardscape of construction with another type of green. In 1992, Watford City earned Tree City USA status and has

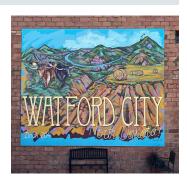
been firmly committed to planting and maintaining the community's trees.

In 2017, they hosted the State Arbor Day in celebration of the community's 25th Anniversary as a Tree City USA. The event was held in Kent Pelton Park, a living tribute to a former local educator and community leader. The park evolved from a small fishing pond to an elaborate community gathering space with a shelter and a paved walking path lined with trees. The trees featured are releases from the North Dakota State University (NDSU) Woody Plant Improvement Program, showcasing the diversity of trees that can withstand the harsh elements of the Northern Plains, including Dakota Pinnacle® birch. Prairie Horizon® alder, 'Prairie Cascade' willow. Prairie Torch® buckeye, and Prairie Expedition® elm.

In 2022, Watford City implemented an EAB (emerald ash borer) Preparedness and Readiness Plan, funded as a USDA Forest Service Urban Priority Project. The project enabled the community to remove declining ash trees from streets and in parks where green ash dominates the palette, replacing them with a diverse mix of tree species.

Although EAB has not yet been detected in the state, an updated tree ordinance widens the regulatory umbrella so EAB and future invasive pests can be managed in a sustainable manner. The North Dakota Community Tree Inventory/ Planning Tool (ND TIP Tool), a Landscape Scale Restoration (LSR) funded online statewide tree inventory and planning tool, is used to update the city's tree inventory as changes are implemented.

While the area's economic growth has slowed down, Watford City's community forest continues to grow. There's a resilient shade of green on the McKenzie County landscape.





Header: Northern-hardy NDSU tree selections grow along the walking path in the Nature Park. Photo: Gerri Makay, NDFS. Top: Colorful mural on a downtown building depicts the beautiful McKenzie County badlands landscape. Photo: Joel Allen, NDFS. Bottom: Sign in new Nature Park, a tribute to the local educator and civic leader that inspired the outdoor community space. Photo: Gerri Makay, NDFS



regon Department of Forestry's (ODF) Urban and Community Forestry Program is collaborating with an interdisciplinary, cross-sector team of partners to improve local production capacity and utilization of biochar, a charcoal-like substance used to amend soils and sequester carbon in urban and peri-urban settings. Soils amended with biochar are known to have far greater water- and nutrient-holding capacity and to support better tree growth and resilience than unamended soils. Biochar is made from burning low-value woody biomass in a controlled, low-oxygen, and relatively smoke-free environment. Use of biochar in urban settings can make an important contribution to improving urban soil structure and functionality and promoting better tree health and longevity.

ike many other Western states, _the resilience of Oregon's urban and community forests is currently being put to the test by many serious challenges related to climate change, severe weather, catastrophic wildfires, destructive pests and pathogens, and unsustainable development.

These various challenges are all interrelated and hard to tease apart; resolving them will necessitate a wholesystems approach. ODF and its coalition of partners are doing just that, using biochar as the primary tool in the effort. Due to the recent discovery of emerald ash borer (EAB) in Oregon, the urgency of this effort has increased exponentially. Over the next decade, Oregon expects to lose tens of millions of ash trees to EAB in its urban and peri-urban forests.

to serve as a carbon-sequestering

technology that can help stressed urban landscapes regain their health and resilience, there are several economic and regulatory barriers that have historically limited its production and use in Oregon. Two of the biggest barriers for biochar production are material hauling and air quality permit costs. It has always been cheapest and easiest for forest managers to either chip up trees or burn forest debris/waste products in open slash piles on the sites where they came from to avoid hauling costs and air quality permitting fees. The drawbacks to these types of treatment are many: wood chips quickly release their carbon back into the atmosphere, and open pile burning is known to release significant amounts of smoke, ash, and black carbon particulate matter into the atmosphere (up to 80% more than in a biochar production unit); open pile burning cannot be done within city

limits due to smoke and wildfire risks; and open pile burning does not produce an acceptable quantity or quality of biochar by-product.

Thanks to recent technological advancements with portable biochar production units known as air curtain burners, it is now possible to process large quantities of woody biomass directly on work sites within city limits and avoid material hauling costs, while also minimizing air quality impacts and fire risks. ODF is actively working with coalition partners to remove barriers and create more market-based incentives for biochar production and use, and to educate stakeholders about the numerous benefits of biochar for urban and community forests.





Header: Coalition partners from ODF, Oregon Dept. of Environmental Quality, USDA Forest Service, Sustainable NW Woods, Oregon Forest Industries Council, and Valley Environmental participate in a field demo of a portable biochar production unit/air curtain burner. Photo: Scott Altenhoff, ODF. Far Left: An overhead view of the air curtain burner shows the nearly smokeless firebox. Photo: Marcus Kauffman, ODF. **Left:** Coalition partners watch the portable air curtain burner in operation. Photo: Scott Altenhoff, ODF



One major challenge facing Utah's urban forest is a general lack of tree species diversity, which increases insect and disease susceptibility and reduces overall aesthetic appeal to the urban forest. To help alleviate this problem, the Utah Division of Forestry, Fire and State Lands has implemented a new grant program, focusing on Tree Species Diversity.

The tree canopy for most communities in Utah is composed of the same 10-12 tree species. In some extremes, street after street is lined with the exact same tree species. This practice is a recipe for disaster in light of possible threats from emerald ash borer and other insect and disease infestations.

The <u>Tree Species Diversity Grant</u> has been created for communities and public educational institutions, across the state, to address this lack of diversity. Forestry, Fire and State Lands collaborated with the Utah Community Forest Council and Utah State University to create a <u>list</u> of over 100 underutilized

tree species. Some of these species currently exist in small scatterings in the state, whereas others only exist as a handful of examples thriving on college campuses.

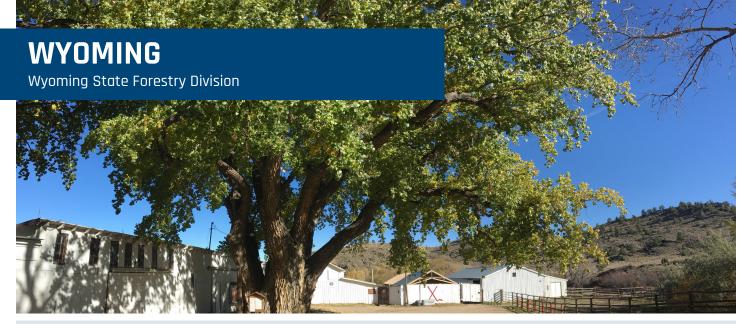
To qualify for this grant, communities must plant species from this list, and provide a maintenance plan to ensure they are provided with proper care. The intent is to inventory and monitor each of these plantings. Not only will this species diversification increase the overall health of the urban tree population, but it will provide for some experimentation of what species will grow where in the state.

The biggest challenge to this program is acquiring these tree species; many of which are nearly impossible to find in local nurseries. As word of this campaign spreads, some nurseries are getting on board and striving to provide a broader array of species for communities to purchase. This, in turn, will hopefully provide more options for homeowners as well.

Although this program is still in its infancy, it has been thrilling to see communities planting an array of underused species from Turkish filbert to American beech.



Header: Herriman City utilizes the Tree Species Diversity Grant to diversify plantings on its streets. **Left:** South Jordan City Urban Forestry Trail demonstrates species diversity adjacent to the Jordan River. Photos: Jeran Farley



Wyoming's champion trees provide more than a sense of awe and healthy competition; these trees demonstrate resilience. They have weathered many challenges and still stand strong.

Forests nomination and measurement guidelines, the Wyoming Champion
Tree Program has nearly 60 species on its state register. It includes native and ornamental species that are naturalized or grow well and are not invasive to the state. These trees prove that large specimens can grow in a tough climate and serve as prized individuals, highlighting species diversity.

In order to recognize the Champions, letters of recognition and certificates are created and signed by the State Champion Tree Coordinator and State Forester, which are sent to the nominator and the property owner. The official State Champion Tree Register is updated with the measurements, photos of the tree are added to the slide show, and these two items are displayed on the Wyoming State Forestry Division website. Social media posts are also created and shared to highlight these trees.

Wyoming's champion trees are scattered across the state. Many of the native species are found in natural forests, most are found in community canopies, and some populations are concentrated in Wyoming's communities!

As of 2022, Cheyenne has 17, Sheridan has seven, and there are three in Buffalo.

Over the course of 20 years, when the program was initially started in Wyoming, many trees have been nominated and recognized. Some champions have been removed or replaced, and some have been honored by having news articles published about the history of the trees. In 2021, the City of Sheridan created a video to highlight the champion trees in their local area, which can be viewed on their website.

A benefit of the Champion Tree Program is that it has encouraged tree enthusiasts to look for large trees and submit nominations when they find a grand specimen. It also provides a bit of competition. Finding trees that are large, old, and inspire a sense of wonder and awe is part of why foresters seek out their professions. In order for these trees to reach the size they have, they must have survived many storms and severe weather systems, proving they are resilient.





Header: Champion Plains Cottonwood has a 31-foot circumference, 100foot crown spread, and stands 80 feet tall, the largest Champion Tree in WY. Photo: Tara Costanzo. Left: New tree species added to the champion tree register and new champion trees replacing former champions. Graphics created by Tara Costanzo



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