

Life-saving landscaping: ASU program works to increase shade on Phoenix's sidewalks

Urban Nature partners with neighborhoods to identify priority areas to plant trees

By Joanna Allhands, ASU News
March 18, 2026

Metro Phoenix has an estimated [2.7 million](#) trees.

Yet woefully few sidewalks are shaded during the heat of the day.

For [Urban Nature](#) — a partnership led by the Rob and Melani [Walton Sustainability Solutions Service](#), a division of the Julie Ann Wrigley [Global Futures Laboratory](#) at Arizona State University — this isn't just a lapse in landscaping.

It's a public health issue that must be addressed.

"Our summers are starting earlier, getting hotter and staying longer," said [Jen Clifton](#), the service's assistant director and Urban Nature's project lead.

"It doesn't take long for someone to become ill in this heat. People are getting serious burns from falling on pavement. We're going to need a lot more protection from the sun."

It's not enough to plant trees anywhere

Trees are a logical choice to offer that protection.

Even a single tree can reduce mean radiant temperature — the overall impact of the heat we feel — by up to 30 degrees.

This can make outdoor spaces safer and feel far more comfortable in triple-digit heat.

That doesn't mean any tree should go anywhere.

Overhead power lines, underground piping and other constraints can cut into the space needed to support a full-grown tree. And even so, a tree's cooling benefits don't extend far beyond its canopy.

Plant a tree too close or far from the area it's intended to shade, or at the wrong angle to the sun, and the benefits can quickly dissipate.

Ensuring that the right tree is planted in the right place to most effectively cool public spaces is more complex than it may seem.

But it makes sense, particularly for desert cities where water for irrigation is at a premium.

Rethink the strategy to maximize cooling

"Not all shade is equal," said [Paul Coseo](#), an associate professor of landscape architecture and environmental design at [The Design School](#) at ASU who also works with Urban Nature.

A groundbreaking [2022 ASU study](#) found that while all forms of shade cooled their surroundings, the effect varied widely, depending on the type of shade and the space it is cooling.

"We need to use all of the above — buildings, trees, shade structures," Coseo said. "They all have trade-offs, but the goal should be to create as much shade as you can in public spaces, particularly sidewalks."

Before air conditioning, lush, non-native trees like eucalyptus, olive and citrus covered wide swaths of metro Phoenix.

Then, as mechanical cooling proliferated, many were cut down in the name of water savings.

Now, increased heat is straining many established trees, while some newly planted trees don't live long enough to offer any real shade.

As a result, tree canopy has fallen in recent years, covering [less than 10%](#) of metro Phoenix's vast land area, on average. That's less than the global average of [12% for desert cities](#), but averages only tell part of the story.

While some older, wealthier neighborhoods have closer to 30% coverage — rivaling the canopy in cities that get far more rain — many of the poorest neighborhoods have [less than 5%](#).

This isn't just an Arizona problem.

Urban tree canopy has [declined across the globe](#), despite efforts in dozens of countries to plant more trees.

Most cities also have marked cooling disparities, with those who could benefit the most from trees often the least able to take advantage of them.

What ASU is doing to help

That's why Urban Nature's work could be so significant.

ASU scientists have joined forces with cities, schools, community groups, property managers and landscaping professionals to prioritize the locations where desert-adapted trees can provide the maximum cooling benefit.

They are working with neighborhoods in Phoenix, Tempe, Mesa and Guadalupe that have little shade to create tree-planting plans, using 3D software to model how much shade could be produced and at what time of day.

The partnership also recognizes that a larger, skilled workforce is needed to properly plant, irrigate and prune trees — because this also can markedly impact how well trees cool the areas they are meant to shade.

Urban Nature has created a [community trade school](#) with arborists, landscapers and irrigation specialists to educate the next generation of urban foresters.

It offers hands-on, in-field training, ensuring that workers have the latest information to maintain trees in ways that maximize this public investment.

The three-year effort is funded by a \$5 million grant from the United States Department of Agriculture's Forest Service Urban and Community Forestry Program, part of the Inflation Reduction Act.

Tips to help trees survive heat, keep us cool

Water deeply and infrequently. This helps roots grow, anchoring trees and keeping them healthy. Even in the hottest heat of summer, desert-adapted trees should only be watered every 7 to 21 days and long enough for water to reach 2 or 3 feet deep.

Water the “drip zone.” Irrigate the edge of a tree's canopy, not too close to the trunk. Think of where water would drip down after a rainstorm. This ensures that water reaches roots effectively.

Prune established trees regularly. Trees remain healthier when small portions are trimmed regularly, instead of many branches being removed at once.

Don't over-prune. Removing too many branches from a tree lowers its cooling potential and can turn it into a catapult in wind and storms, increasing the chances of damage.

This story originally appeared on [ASU News](#).

Main image



A resident identifies priority areas to plant trees during a workshop in Phoenix's Desert West neighborhood. Photo courtesy of Urban Nature/ASU

Text image(s)



Project lead Jen Clifton (right) and other members of ASU's Urban Nature team inspect a Chinese elm during a Phoenix housing development tree planting event. Photo courtesy of Urban Nature/ASU