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EDITORIAL

Nature's coolers

Our stand: Trees dilute urban heat effect, so we just need to plant 'em

When people think "desert," they picture cactus, sand and rattlesnakes. Trees? Are you kidding?

Yet our desert metro area desperately needs trees. They're one of the best antidotes to heat.

Trees pack a one-two punch: Their shade keeps surfaces from warming up, while they act as natural evaporative coolers through biological processes similar to sweating.

They can offset the way buildings and broad expanses of asphalt absorb sunlight and radiate warmth, especially at night. The effect, known as the urban heat island, is why nights don't cool off like they used to. The average daily low in July is more than 10 degrees higher than in 1950.

SUNSTROKE

Our urban heat island, and how to escape it

When it comes to trees, though, we're seriously bald.

The tree cover in Phoenix is estimated at a skimpy 13 percent, according to Chris Martin, professor of urban horticulture at Arizona State University. Southwestern cities should aim for 30 percent, balanced between lower levels in industrial areas and high ones in suburban neighborhoods, says the nonprofit American Forests.

We need the forestry version of Rogaine.

The Valley needs a major campaign to plant trees. The right trees, in the right places, the right way. And we need to get more shade onto streets and parking lots, two of the big culprits in heating up urban areas.

The payoff is at the individual level, as well as the macro scale. Adding a single, well-placed tree to a yard, one study found, would cut air conditioning costs at a home in Phoenix by 12 percent.

We don't need water-guzzling varieties of trees like elm, oak or maple. Mesquite, paloverdes and other trees adapted to arid climates can create an amazingly cool umbrella — as anyone knows who's walked to America West Arena or Bank One Ballpark under a scorching sun and had a brief respite while passing under a tree.

The No. 1 place we can benefit from putting trees is parking lots: They're like charcoal briquettes, cooking the Valley.

Unshaded lots actually create their own mini-urban heat islands, forming a dome of higher temperatures. Not only does that make customers miserable, it can raise temperatures in the surrounding neighborhood for up to a quarter-mile downwind. Add shade, researchers found, and peak summer temperatures in a parking lot can run 4-8 degrees cooler.

Valley cities require trees to shade a certain percentage of a parking lot, but they aren't terribly ambitious. Gilbert and Phoenix, for instance, require 5 percent coverage, but they're going up to 10 percent.

We must have buy-in, though, from business people, who tend to see trees as an unnecessary frill and something that blocks their signs. They need the foresight and commitment to give trees enough space and care to survive the hostile environment of a parking lot. That could include special paving around trees that lets water reach the roots.

Our streets need more shading, too. Valley cities lost a lot of opportunities for cooler streets when the traditional landscaping strip between the sidewalk and curb disappeared. Some cities are now offering incentives to encourage developers to install them, and some subdivisions are adding them.

But the mistaken notion persists that planting trees is a beauty project. It's cold, hard economic sense, in energy savings alone. Fortunately, we'll soon have a new tool to measure the impact of trees in the Valley. The Center for Urban Forestry is gathering data on tree cover in Glendale, which will be plugged into a computer model that shows the effects. (Preliminary results from other research at the center, by the way, indicate that shade from trees can extend the life of pavement by five years.)

The Sacramento Municipal Utility District doesn't need convincing. Planting trees is one way it's meeting California's requirements for utilities to reduce electric demand. Working with the Sacramento Tree Foundation, SMUD has put in 330,000 trees since 1990, at a cost of $20 million. There are strict siting requirements, including size and orientation, to make sure that the tree really reduces heat, and thus saves electricity. Over its lifetime, a large tree on the west side of a building would save the utility $170 in electric capacity that it doesn't need to buy. And that doesn't count the property owner's savings on air-conditioning bills.

Arizona utilities have been far more modest in their efforts. Arizona Public Service planted about 1,000 trees around the state last year, many to replace those it removed around power lines. Salt River Project offers $80,000 a year in grants for tree planting. Tucson Electric Power pays $78,000 annually to support residential tree-planting. It works with Trees for Tucson, a grassroots forestry program.

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You'd think we just learned about how trees cool off cities. But a 1990 staff report from the Arizona Corporation Commission made detailed recommendations for using landscaping to reduce the heat island effect and shrink electric bills. It was mostly ignored.

Now, of course, we're in a drought. Should we still plant trees?

Absolutely.

While they use water, trees also help save some water. The shade can reduce the irrigation needs for the rest of the landscaping. Lower demand for air-conditioning can shrink electric demand, so less water is used in power generation.

And we also have to think ahead — the full value of trees doesn't kick in until they mature. As Jonathan Arnold, president of the Arizona Community Tree Council points out, "When we delay planting trees, we never get that time back."

More trees in the desert: It's not a mirage, it's a vision of a cooler, more livable Valley.

Written and researched by Kathleen Ingley.

Series at a glance

SEPT. 14: The Valley's urban area generates extra heat, putting a burden on our comfort, our wallets and our health. It's time to fight back.

SEPT. 15: Turn roofs into solutions, not problems.

TODAY: Use the cooling power of trees.

PART 4: Make roads more reflective.

Information:
www.americanforests.com
www.aztrees.com