

## Water in the American West – Demand-Side Management



I wrote about [Cadillac Desert](#), the classic book about water in the American West, in September. Scores of millions of people depend on the waterworks that were built up over the 20<sup>th</sup> Century there, and many millions more benefit from the bounty of fruits and vegetables that grow there, much of it in California, where agriculture accounts for [80% of overall use](#). The story of *Cadillac Desert*, though, is that there has been a tremendous price paid for all that concrete, steel, energy, and the treasure needed to build and operate the waterworks. Environmental destruction has been catastrophic, lives were lost when dams broke, thousands of small farmers and their communities were destituted because the water too often benefited Big Ag, and the American taxpayer was bilked out of billions over time.

The [wildfires](#) and [drought](#) over the past couple of decades have been apocalyptic. As of the beginning of this month, nearly 98% of the West was in drought, 51% categorized as extreme or exceptional. Think heat, fires, and drought aren't a problem? Well...

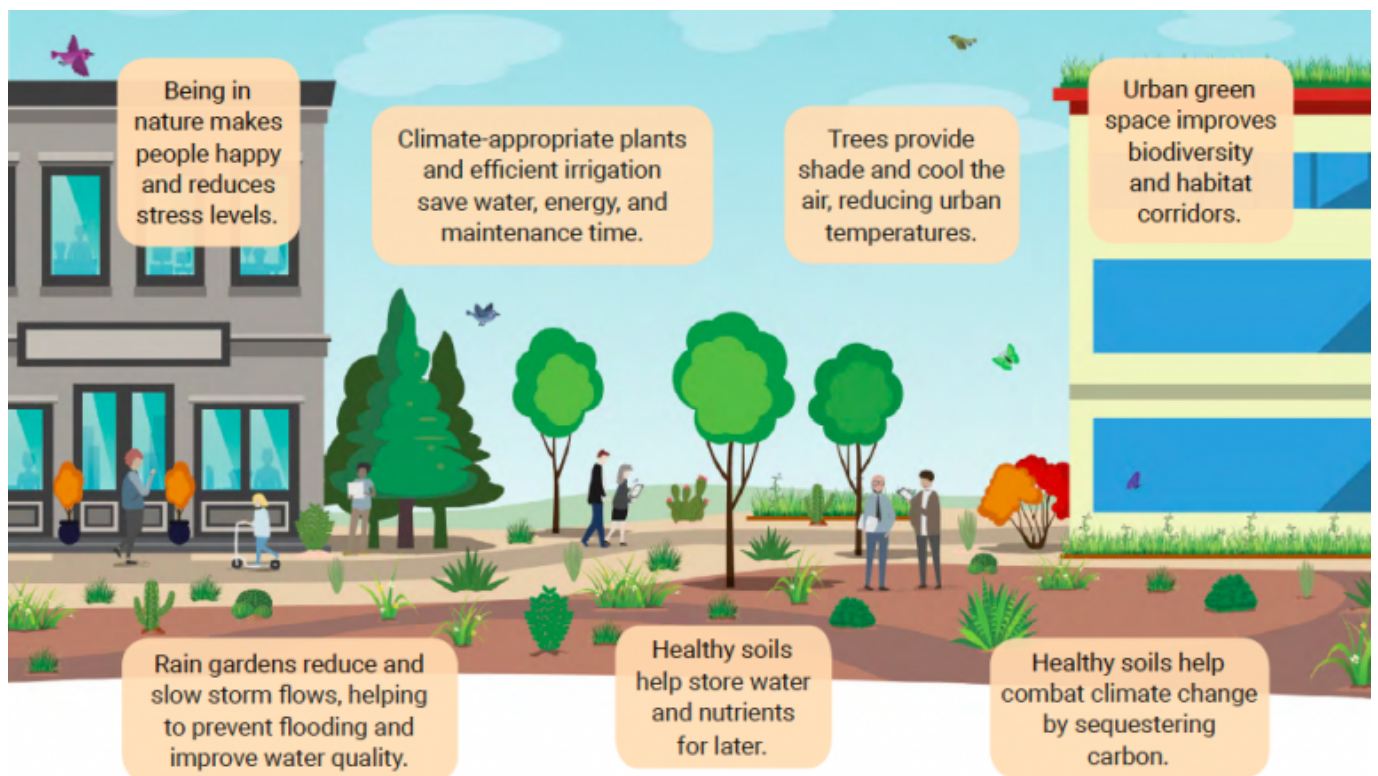
Another [capsule description of the impacts](#) of the Western drought identifies the key areas of concern: fish and wildlife, agriculture, wildfires, water stress for both urban and rural areas, and overloaded energy systems because lower reservoir levels can radically reduce the generating capacity of hydroelectric plants.

Climate change is already a principal driver of these problems and it's not going to get better soon in Western North America, according to the Fourth National Climate Assessment [here](#) and [here](#) (2018) and the [Sixth Assessment Report from the IPCC](#) (2021). And people in the West aren't going anywhere. In fact, [the population continues to increase](#).

As Amory Lovins likes to say, "[I don't do problem. I do solutions.](#)" So, what are the solutions? The first priority, as in most matters pertaining to sustainability, is to be more efficient. This is one of the three key focus areas for the [Pacific Institute](#), a highly effective non-profit founded in 1987. One of the most important ways to be efficient, of course, is to curtail activities that don't have any particular ecological or financial benefit. The American lawn is one prime example of

a cultural phenomenon that has no particular practical benefit and, for that matter, is not particularly aesthetically valuable. Elizabeth Kolbert, our best environmental journalist, wrote about the American preoccupation (obsession perhaps?) with lawns a few years back: [Turf War](#). A [more recent article](#) highlighted the fact that lawns had become the “No. 1 irrigated ‘crop’ in the United States.” NASA scientists and their colleagues in [this study](#) found that “in most regions outdoor water use already reaches 50-75% of the total residential use. Because of demographic growth and because more and more people are moving towards the warmer regions of the country the potential exists for the amount of water used for turf grasses to increase.” So, in the simplest possible terms, in order to alleviate a considerable amount of the water stress the American West is under, transitioning landscapes to native species needs to be a key task. In Arizona, for instance, the state is promoting “[water-efficient landscapes](#).” In California and elsewhere in the West, “[Xeriscaping](#)” has been embraced by more and more homeowners and landscapers. NRDC has [this guide](#) as well.

The Pacific Institute list six characteristics of [resilient water systems](#): They should be robust, redundant, flexible, integrated, inclusive, and just and equitable. For the West to survive the coming decades of water stress, all six of these criteria need to be met. They have a [compendium of best practices](#) for businesses and the manifest benefits for society in sustainable, resilient landscapes.



One enormous concern is agriculture’s water footprint. In California, with one of the world’s most productive and profitable farm economies, irrigation water is essential. Agriculture uses about 80% of all the water used in California. “In an average year, approximately 9.6 million acres are irrigated with roughly 34 million acre-feet of water; an amount that would cover 31

million football fields with 1 foot of water.” Got that?! The California Department of Water Resources has enormous responsibility for making sure that there's enough water for crops and livestock so [efficiency](#) is quite central to its mission. Management plans are required by the state, along with strict measurement and reporting by farmers and ranchers. Among the resources available for farm businesses are the [Center for Irrigation Technology](#), the [Irrigation Training and Research Center](#), and the [University of California Drought Management Crop Irrigation Strategies](#). There's simply too much at stake in California, and elsewhere in the West for that matter, to leave agricultural water conservation to be left to chance.

Water markets have a central role to play as well. The [Environmental Defense Fund](#) outlines a number of reforms that California, and other states, can institute:

- **Improve market transparency** by, among other things, standardizing and publicly disclosing supporting data for all transfers.
- **Reduce transaction costs and eliminate barriers to participation** by, among other things, establishing a new entity to coordinate the approval process and develop a centralized exchange platform.
- **Ensure benefits to disadvantaged communities and the environment** by incorporating incentive mechanisms into the market.
- **Free up more water for sharing** by rewarding transfers that achieve water savings.
- **Alleviate pressure on overstressed aquifers** by integrating markets into implementation of the Sustainable Groundwater Management Act.

San Diego has been a pioneer in sustainable water management. While much of the West has been suffering from drought, San Diego has been thriving. In fact, according to [this recent article](#), “The San Diego County Water Authority estimated that it would have [sustainable water supplies through 2045](#), even if dry conditions persisted for years.” How? First, government and its citizens acknowledged the need for a water conservation ethic and have welcomed it. Sustainable landscaping has been a big part of the program. *Per capita* water use has been more than halved over the past three decades! Next, infrastructure improvements like lining water supply canals with concrete to prevent exfiltration has saved 26 billion gallons a year.

All of these measures reflect the importance of “demand-side management.” In my next post, I'll highlight some of the supply-side initiatives that are critical for the continued existence of the American West and other increasingly water-stressed regions of the world.

In the meantime, this recent webinar from [Circle of Blue](#) and their partners is well worth watching.

[Drought in the American West - What You Need to Know Now and Solutions for a Better Water Future](#)