Water Conservation

BY JOLAYNE LACOUR

Rain, and Drought, and Summer, Oh My!

Aren't we lucky to be living in a place where we receive almost four inches of rain in one hour and then spend the summer waiting for more rain? Such is living with our El Niño and La Niña weather cycles, so let's talk water conservation or rather the efficient use of water in our landscapes.

Water Conservation

According to Merriam-Webster, conservation is defined as "a careful preservation and protection of something, especially: planned management of a natural resource to prevent exploitation, destruction, or neglect."

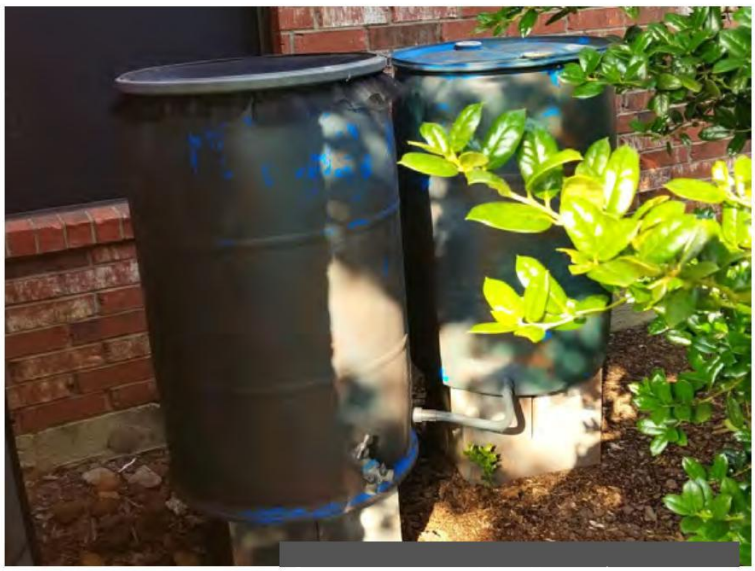
How can we challenge ourselves to be better stewards of the water that falls from the sky above us or flows out of our faucets?

Currently, we are receiving approximately the same amount of rainfall each year, yet less frequently, such that when we do receive precipitation, there is a greater quantity of water falling on our property in a shorter amount of time. These are referred to as "significant rain events." In these significant rain events, the water falls so rapidly onto our landscapes that most of the water runs off rather than percolating into the soil to benefit our plantings. Our soils and plants often do not retain enough moisture to be sustained until the next rain event. These significant rain events negatively impact our reservoirs and aquifers by creating flood conditions and causing less water to penetrate the soil, thereby lowering the water table and threatening wells to run dry.

What can we do? There are so many perspectives to consider.

Rain Water Collection

We could catch the water which runs off our roofs. If we have gutters, we could add one or more rain barrels to contain some of this rain. If we have no gutters, it is possible that we utilize the valleys of our roofs to funnel the rain into a rain barrel or perhaps more than one rain barrel if we connect or daisy chain them together. Also, a rain chain is a decorative addition which can guide small water roof runoffs into a rain barrel or other catchment container.



Passive Rainwater Collection

Water Conservation (Cont.)

A rain catchment container or rain barrel can be placed close to a garden where there is no roof runoff and elevated on cement blocks to provide enough pressure to use the water in the garden.

How can we use the wonderful rain water that we collect? Rainwater is zero hardness, sodium free, and nearly neutral pH on which plants and trees thrive whether they are inside or outside, in the ground, or in a container. Wildlife or livestock can be provided rain water, as well. Also, harvesting rainwater can reduce demand on traditional water sources.

Last, and certainly not least, USE your collected rainwater for plant and tree watering, washing plant pots, and tools.

Permaculture Adaptations

One of the first things we learn as gardeners, which is so rewarding, is to watch and study our landscapes. Where does the water flow when it rains? What impedes the water as it travels across the landscape? What damage does the runoff do to our landscape design or our property? Using these observations, we can address erosion, loss of soil and nutrients, and retention of the runoff to the benefit of our plantings.

One-Rock Dams

One-rock dams (ORDs), also referred to as one-rock check dams, can be used alone or in combination with other permaculture techniques to retard the flow of water through an area. An ORD is one rain harvesting tool we could use for impeding the flow of water through a channel or ditch. ORDs are built with a single layer of rock or gravel on the surface of the channel. They reduce erosion by slowing the flow of water, capturing sediment, which allows vegetation to flourish, and can gradually raise the bed level over time. These passive water harvesting structures increase soil moisture, infiltration of water, and plant growth, and have been typically used in field preservation. These ORDs do not stop the rainwater flow; they slow down the flow long enough so that more rainwater is allowed to infiltrate the soil over a longer period of time and aide with the growth of the adjacent plantings. An added benefit is watching the vegetation, i.e., grasses and wildflowers, which grow in and around the rocks which make up the ORDs and help filter the runoff before the runoff reaches a nearby drinking water lake.

Water Conservation (Cont.)

Another permaculture concept which could be adapted is Hügelkultur. By taking the Hügelkultur use of logs and sticks, which retain moisture and nourish plantings, we can adapt this concept with an eye toward water retention. Strategic placement of broken tree limbs and twigs can provide a small structure beside a bed or single planting, which will retard the flow of water and retain the mulch, absorb this water to the benefit of the planting during drought, and provide a home for invertebrates which, in turn, help break down or compost the wooden material, returning those nutrients to the soil for the plants. This is a win-win for all parties concerned!

Screening Bed with Hügelkultur Adaptation

Perhaps there are other gardening concepts you may think of and adapt for your landscape, such as rain gardens, swales, sheet flow spreaders, etc.

Plant Choices

Now, to turn our attention to our planting choices! Native plants and trees require less water and are more likely to survive our periods of drought. The placement of our plantings can help reduce erosion, thereby adding to the moisture content of the soil on our property and helping our other plants. Again, observation is key! Perhaps you see an opportunity in your landscape to put your rainfall to use. Is there an area where you have considerable rain runoff? Could that be a screening bed, a butterfly garden, or an herb garden?

It is also possible to naturalize plants. After they are established, water deeply and infrequently to help develop deeper root structures, which help them survive periods of drought and help with erosion issues. Mulching our plants and trees helps them retain moisture during the dry months, which also assists with lowering our water usage. Select plants that need less water and place plants with similar water needs together.

Are there other landscape ideas which you could apply in your landscape to reduce water needs?

Water Conservation (Cont.)

Resources

Rainfall History Denton, TX Volunteer Rainfall Totals, "Denton Rainfall"
https://dentonrainfall.com/rainfall-history.html

National Weather Service, "What are La Niña and El Niño and why do they matter?"
https://www.weather.gov/media/ajk/brochures/ENSOFactSheetWinter1617.pdf

NASA Earth Observatory, "Drought"
https://earthobservatory.nasa.gov/topic/drought

Hargrove, Brantley. "Goodbye to an Aquifer." *Texas Monthly* 47, no. 4 (2019): 90 – 102.

Texas A&M University, Texas Water, "Texas Water Law"
https://texaswater.tamu.edu/water-law

Texas Water Development Board, "Rainwater Harvesting:
https://www.twdb.texas.gov/publications/brochures/conservation/doc/RainwaterHarvestingManual_3rdedition.pdf