



HOW TO SAVE WATER & YOUR LANDSCAPE

Your Drought Survival Guide

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Introduction

When it comes to water management, there certainly is no shortage of resources. Much has been written on the topic, yet there's no comprehensive guide for surviving the circumstances the western United States finds itself in today.

From the Pacific Coast to the Gulf Coast and everywhere in between, many states remain in the grips of the mega-drought. The extraordinary, once-in-a-lifetime event has pushed many states into the U.S. Drought Monitor's extreme or exceptional drought categories and a search for solutions. Yet the magnitude of the megadrought means the problem solving extends far beyond local governments and water authorities. It's an all-hands-on-deck situation that's deputized every business, organization, and property manager to take action-- for the sake of their properties, the environment and their bottom line.

The drought may not be easing but the struggle to find answers should. We created this e-book to offer sound advice and decision-making guidance to not only save water, but also save your landscape. In the pages that follow, we'll help you develop your own action plan, show you how to assess your opportunities, and identify the steps you can take next. Before wells run dry, let's get the ideas flowing.



Quiz: Is Your Landscape Water Smart?

It's time to get the lay of the land. To understand how your landscape can be more water efficient, we first need to understand how efficient it is now. Take the quiz below, then check out the answer key on the next page to see where you can make tweaks.

1. What time of day is best to water your landscape?

- a. Morning
- b. Afternoon
- c. Evening

2. How often should your irrigation system be inspected?

- a. Never
- b. Sometimes
- c. Regularly

3. What is the best method for watering your planting beds?

- a. Spray heads
- b. Drip irrigation
- c. Soaker hoses

4. Should you have a rain shut-off device or ground moisture sensors installed?

- a. Yes
- b. No

05. What is the ideal length to keep your grass?

- a. Around 1 inch tall
- b. Around 2 inches tall
- c. Around 3 inches tall

06. How deep should mulch be in planting beds?

- a. 0.5 - 1 inch
- b. 1 - 2 inches
- c. 2 -3 inches

07. How often should seasonal flowers be swapped out?

- a. Once per year
- b. Twice per year
- c. Every quarter

08. Should you keep your unused turf areas?

- a. Yes
- b. No

Answer Key

01. A: Morning

By watering early in the morning, just before dawn, you'll reduce evaporation due to sun and wind.

02. C: Regularly

Leaks in your irrigation system or inefficient watering can run up your water bill. Regular inspection by an irrigation professional enables timely repairs and sprinkler head adjustments to avoid waste.

03. B: Drip irrigation or C: Soaker hoses

Drip irrigation and soaker hoses are a better choice for planting beds. Save the spray heads for lawns, where it's a more efficient choice.

04. A: Yes

By installing a rain shut-off device or ground moisture sensors, you'll only water when absolutely necessary.

05. C: Around 3 inches tall

By keeping your grass at a slightly longer length, you'll increase ground shade and water retention in the soil.

06. C: 2 - 3 inches

By adding compost and dressing your beds with a 2-3 inch layer of mulch, you'll improve water retention, soil health, and reduce weeds.

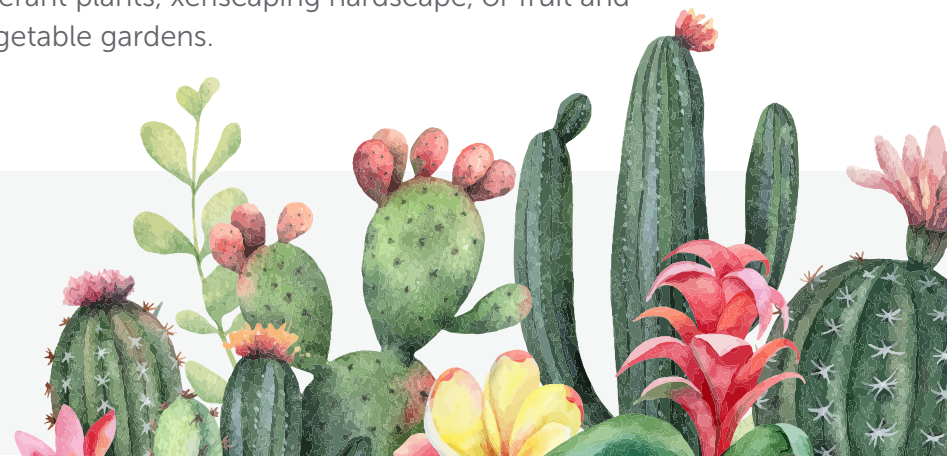
07. Trick Question!

Instead of water-guzzling seasonal flowers, fill your planting beds with drought-tolerant flowering shrubs instead.

08. B: No

Replace lawns in unused areas with native, drought tolerant plants, xeriscaping hardscape, or fruit and vegetable gardens.

*Whether you found a couple opportunities for improvement or many, every bit of action makes a difference. That's why in the chapters that follow we'll share steps both big and small steps you can take to **enhance your water conservation.***





Small Steps: Maintenance Practices That Make a Difference

If you wanted to improve your physical endurance, you'd design a training program to condition your body to meet your goals. Training your landscape to better survive drought conditions isn't much different. Just as you would for an athletic endeavor, you can adopt certain practices for your landscape that will help it build strength and resilience. Here's how to flex some water conservation muscle in your maintenance program to yield a healthier landscape.

Small Steps: Continued

PRUNE PRUDENTLY

Does your maintenance plan currently include shearing of your shrubs each month during the growing season? Good news: you can cut that back (no pun intended).

Shearing-- also known as formal pruning-- is employed when people like a tight manicured look for their shrubs. It's often used as a remedy for shrubs that have outgrown their allotted space. But just because it's frequently done doesn't make it a good idea, especially amidst a drought.

In response to shearing, plants will grow a twiggy outer layer that shades the interior of the plant and enables the accumulation of dead wood leaves. This can obstruct the flow of water and nutrients to the plant, which is especially problematic during a drought. Further, shearing causes greater susceptibility to disease or infestations, and causes the plant to burn more energy, which in turn increases its water needs.

So, what should you do instead? Rejuvenation pruning. Rejuvenation pruning is conducted after a plant has flowered, and depending on planting density, happens every 1-3 years. Depending on the type of plant, the crown is reduced by approximately 30-50% or cut back almost to the ground. As the plant grows back, it will naturally assume a shape that maximizes its ability to survive in the location it was planted.

But what if shearing is currently being used to control the size of a plant? That's usually a good sign the plant is too large for the location. In that case, the best bet is to replace it with one better suited for that area of your landscape, preferably a drought tolerant one!



Small Steps: Continued

PAY SPECIAL ATTENTION TO YOUR TREES

As you think about how to protect your landscape from the effects of the drought, be sure to give extra care to your trees. That's because trees are among your property's most valuable assets. Just one 25-year-old oak is worth around \$25,000! Given that the cost to replace a mature tree with one of the same size could be cost prohibitive, preventative measures are more than worth it.



01. Rethink how you irrigate your trees

To minimize waste and maximize uptake, employ one of these three methods

- ***Temporary Drip Line***

Two things you want to avoid when watering: evaporation and encouraging the development of a shallow root system. Frequent watering in fast bursts can lead to both. Instead, place a temporary drip line around the outer tree perimeter, which will slowly release the water. This option works especially well for larger trees in turf areas or parking lots. (Learn more about drip lines in our next chapter.)

- ***Deep Root Watering***

In periods of drought, the top layers of soil will dry out first, making it difficult for water applied at the surface to reach deeper roots. Deep root watering delivers an injection of hydraulically pressurized water at root depth. This method can be administered by a qualified tree care crew. Not only is less water used than traditional frequent watering, but you'll also have peace of mind knowing the water is getting precisely where it needs to be.

- ***Water Bags***

For smaller trees, or newly established trees not in proximity of an irrigation system, water bags are an excellent option. Like the drip line, a water bag is placed at the root zone and ensures a slow release of water.

Small Steps: Continued

02. Make use of mulch

When the name of the game is water retention, mulch is your best friend. Mulch minimizes evapotranspiration and helps retain water around tree root zones. Add it to your tree wells and remove any water-intensive plants or groundcover from the root zone. For the type of mulch, we suggest:

- **Mulch from Your Pruning Byproducts**

This is a cost-efficient option with high water content and nutritional value. It's best used in areas that are not a focal point.

- **Processed Mulch**

This type of mulch is aesthetically pleasing, though the cost is higher. It's a good choice for noticeable areas.

- **Sheet Mulch**

This consists of compost over a layer of cardboard, which is used to keep grass and weeds from coming through. It offers good value and curb appeal for the cost and the highest water retention of the options listed here.

03. Fertilize at the source

Fertilization is an important step in developing healthier plants. Yet when it comes to trees, surface fertilization-- like the type used on a lawn-- doesn't provide the same benefit.

That's because the nutrients are unable to reach the deeper soil layer where the roots lie. Deep root fertilization ensures it gets where it needs to be. Similar to deep root watering, deep root fertilization injects the fertilizer directly into the root layer. In the process, it also aerates the soil, alleviating compaction that could prevent precious water from reaching the roots.

Certain tree species are especially vulnerable to drought and may find deep root feeding to be particularly beneficial. These include:

- *Sequoia sempervirens*
Coastal Redwood
- *Prunus cerasifera*
Purple Leaf Plum
- *Salix spp., Geijera parvifolia*
Willow
- *Cupaniopsis anacardioides*
Carrotwood
- *Alnus sp.*
Alder
- *Gleditsia sp.*
Locust
- *Populus spp.*
Poplar
- *Ligustrum sp.*
Privet
- *Betula spp.*
Birch

Small Steps: Continued

AVOID EXCESSIVE WATERING

Most people water too frequently and far too much. Just because the soil surface appears dry doesn't mean it's time to water your plants. Plants only need enough water to replenish what was lost through evapotranspiration, or ET. ET is a combination of moisture lost from evaporation off of the plant and soil surfaces along with transpiration through the plant. Ideally you want to hold off on your next irrigation cycle until the moisture is reduced by at least half around the root ball. Watering every day would be like refilling your gas tank every time you drive your car. Don't refill until you need to.

DON'T DISREGARD SEASONAL IRRIGATION TUNE-UPS

Do you ignore your car's service reminder light when it comes on? *Okay, don't answer that.* Like your car, your irrigation system needs regular tune-ups to run at peak efficiency. During a tune-up, an irrigation specialist will check the pressure of your system to ensure there are no leaks that could drive up your water bill. They'll also adjust the sprinkler heads to minimize run-off and maximize delivery to all landscape zones. And finally, they'll make adjustments to your scheduled watering program based on the season, your landscape's current needs, and any changes in restrictions from your local water authority.

These are the small but mighty steps you can take to increase water conservation through your routine landscape maintenance. If you're ready to go one step further, let's discuss some of the other ways to enhance your water conservation efforts.





Big Steps: Investments That Yield Instant Impact

First, pat yourself on the back for seeking out more water management knowledge. That alone is one of the biggest steps you can take, and already puts you ahead of the curve.

In this chapter, we'll examine some of the modifications you can make to your landscape or irrigation system to lower your water usage. While the last chapter focused more on changes you can make to your maintenance regimen at little or no cost (or in some cases a savings!), the solutions here require some investment. We'll start with relatively small investments and work our way to larger solutions, like turf conversions. Keep in mind any investment you make will most certainly have a measurable ROI, especially as water restrictions tighten and fines for non-compliance grow. Many water authorities offer rebates that can offset the cost of your improvements.

Without further ado, let's start from the ground up. **Our first stop: irrigation.**



Big Steps: Continued

THE NO IRRITATION GUIDE TO IRRIGATION INNOVATION

You don't have to be an ultra techie or a water management expert for this section. Here we're going to distill down some of the most important innovations in irrigation that are worth consideration for your property. And believe it or not, some are as simple as a sprinkler head swap.

- **High Efficiency Nozzles**

If you've got a high efficiency washer, then you already understand the basic idea behind a high efficiency nozzle: to do as good of a job, if not better, with less water.

Many properties have older, fixed-spray nozzles, which create a lot of mist (and as a result, a lot of water waste). The fine droplets are easily carried away by the wind. High efficiency nozzles solve this by using larger droplets that are too heavy to

blow away. Plus, they're dispensed at a slower speed, which allows more time for soil absorption. Though high efficiency nozzles must run longer than fixed-spray nozzles, they're able to achieve a better result than fixed spray using the same amount of water or less.

- **Drip Conversions**

Drip irrigation is revered for being both extremely efficient and highly cost effective. It's an excellent choice for planting beds and hillsides, on rooftops or container plants and more. Drip irrigation works by slowly applying water at the root zone through tubing in the ground. The tubing has emitters that drip water into the soil. This delivery method reduces water loss due to runoff and evaporation, making it a highly effective way to save water without compromising plant health.

Small Steps: Continued

- **Pressure Regulator**

Pressure regulators create a low water pressure that's consistent throughout your irrigation system, eliminating fluctuation. Why is that important? First, as we learned earlier, a slower application is more conducive to soil absorption, which makes lower pressure a better choice. Second, high water pressure can damage your irrigation system, as many drip systems were designed to operate under low pressure.

- **Smart Controllers**

No one can be everywhere at once, which makes manual real-time adjustments to your irrigation system impossible. That's where smart controllers come in. A smart controller can automatically adjust your watering schedule daily, or on-demand, since it can be managed remotely from an app. Smart controllers can also be a valuable tool for protecting against leaks, sending you an alert and shutting down water in the affected zone if a potential problem is detected.

- **Flow Meters**

You know how we mentioned a smart controller could alert you if you might have a leak? That's due in part to flow meters, as many of today's smart controllers can read flow meter data.

While a water meter measures your overall water use, a flow meter measures what your irrigation system uses specifically. Should there be a change in the flow rate that could be indicative of a leak you'll be notified. But aside from early detection of potential problems, a flow meter is also an important tool to monitor how your water saving efforts are working.



There you have it-- a download on some of the best swaps you can make to your irrigation system to lower your water usage. But what if you were thinking of a swap of another kind; namely, a turf conversion? Then you're in the right place.

Big Steps: Continued

IT'S TIME TO TALK ABOUT TURF CONVERSION

In the years following WWII, rolling stretches of lush green lawns became the latest trend. Yet after years of the punishing drought, what was once a desirable feature has become a drain on resources for many in the West. If maintaining your turf has become too hard to sustain, it's time to consider a turf conversion.

A turf conversion removes turf completely and replaces it with a more sustainable option.

Here are some of our favorite water-wise options:

- **Install Drought Tolerant Plants**

Removing turf completely and replacing it with clusters of low-water-use shrubs, such as Abelia, Phormium, Coleonema, Nandina's, and Oleanders, can be an attractive option. Of course, when choosing drought-tolerant plants, it's important to consider how they'll blend with your existing landscape. Your landscape partner can help you create a design that fits with your long-term vision for your property.

- **Extend Existing Shrubbery to Replace Turf**

If it works aesthetically with your landscape, you could simply extend surrounding or adjacent shrub beds with similar plantings. The only downside to this alternative is if the shrubbery you're extending isn't water wise. In that case, this solution may not be your best option for improving water management.



Big Steps: Continued

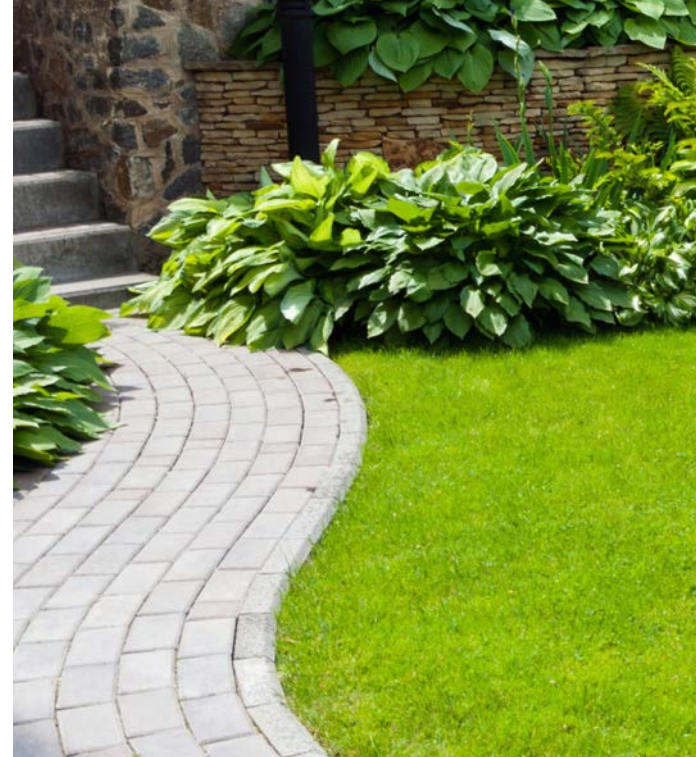
- **Blend Drought-Tolerant Shrubs with Existing Shrubbery**

Mixing it up is a smart transitional approach. Go ahead and remove the turf and extend the existing shrubbery while adding in some low water-use plant material. This is an appealing option as it updates tired shrubbery that has grown woody and scores points for smart water management.

- **Convert the Space by Adding Hardscape**

Finally, one of the smartest moves in terms of water management is to think long-term and incorporate decomposed granite, cobblestone, or some kind of decorative paver or stone, as well as drought-tolerant plantings, into the area you're rehabbing.

Obviously, you'll want to consider the surroundings, traffic patterns, and your overall landscape before doing this. But if this move is simpatico with your landscape, it's a water-efficient and attractive choice. It's also the costliest, but money spent on this project could be savings gained in terms of decreased water use and increased property value.



And don't forget-- when undertaking turf conversion projects, it pays to check with your local water authority to see if your project qualifies for any of the cash-for-grass rebate programs. Typically, these programs require you replace grass with qualified low water-use plants and xeriscaping. Every rebate program differs, so check in with your local water authority before undertaking any extensive turf replacement work.

Speaking of xeriscaping, let's take a closer look at what it is and the potential benefits.



REDUCE
WATER USE BY
**60% OR
MORE**

ZEROING IN ON XERISCAPING

It may have a funny name, but the results are nothing to laugh about. Xeriscape is a landscape technique that reduces the need for supplemental water from irrigation by using plants with requirements appropriate to the local climate. Doing so can reduce water use by 60% or more, in addition to decreasing maintenance, waste, energy consumption and the use of fertilizers and other chemicals.

Many people mistakenly assume xeriscaping is spelled “zeroscaping,” contributing to the misnomer that it produces a barren appearance. Yet that couldn’t be farther from the truth. Xeriscaping’s minimalist objective is not its look, but rather its maintenance requirements. In fact, good xeriscaping design often includes groundcovers, flowering plants, decorative grasses, and a variety of interesting hardscape materials. The key is native, drought tolerant plants well-acclimated to your region-- many of which you may be surprised to find can be lush, colorful and striking!

Big Steps: Continued

PLANTING FOR THE FUTURE

If a turf conversion or complete overhaul of your landscape isn't in the cards, don't be discouraged. There's plenty you can do in the planning of new spaces, or the routine refresh of existing spaces, to move your landscape in the right direction. For example, you can:

- **Reduce Plant Density**

Dense or overgrown plantings equal greater competition for water. As discussed in the earlier section on shearing, this may be an opportunity to correct a case of ill-suited plant material through strategic reduction.

- **Removal of Groundcover and Plants in Tree Root Zones**

Groundcover and ornamentals may be smaller than a mature tree, but they're still competing for water. Give your tree a better shot at survival by removing the competition.

- **Eliminate the Need for Seasonal Plantings**

This is another swap that will help you save money in your landscape budget and your water bill. Ask your landscape partner to design eye-catching displays using perennial plants in the areas you typically install seasonal color. Annuals tend to have much greater water needs; whereas perennials will require less and look good year-round.

- **Make 1:1 Swaps**

Should a particular plant in your landscape decline or otherwise require replacement, consider where you might be able to swap for a drought-tolerant option instead. Consult with your landscape partner, who can provide options with similar features to the plant material that was there before. This will help you move in the right direction over time.

Drought tolerant plants really don't get the love they deserve. They're truly the unsung heroes of the nursery-- hardworking, attractive, and dependable. When you prioritize drought tolerant specimens in your planting decisions, you can't go wrong.



Your Next Steps: Finding the Right Plan & Partner for You

When it comes to navigating drought conditions and your best path forward, having the right landscape partner can make all the difference in the world. In addition to proactively monitoring local city and water agency restrictions so you don't have to, BrightView also offers a wealth of knowledge on maintenance practices and landscape modifications that will preserve the quality of your landscape.

Wondering what that looks like? Here are some of the ways a good landscape partner can help:

01. Create a short-term and long-term plan to address your property needs and local restrictions.
02. Complete system inspections regularly to identify sources of water waste as quickly as possible.
03. Implement irrigation system and component upgrades that increase water savings.
04. Aerate turf and add mulch around trees, shrubs and planting beds.
05. Check water levels in soil around important assets like trees which are susceptible to drought.
06. Prioritize areas that require maximum aesthetic value so water can be applied wisely.
07. Consider selectively removing or replacing high water use plants and capping non-essential irrigation.
08. Modify your plant palette and convert fountains to planters.
09. Evaluate your overall landscape design and how sustainable it is.
10. Communicate proactively to keep you in the loop and stay aligned with your goals.



Prevailing over a drought of this magnitude doesn't just take a team; it takes a great one. If you're looking for a dependable landscape partner to help you turn challenges into solutions, give us a call. With industry leading water management experts on-staff, local expertise, and a wealth of experience with the latest smart irrigation technology, we've got the right resources to ensure the ideas you need flow freely.



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