

Green Gardens under Rainless Skies

By Scott Ogden

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With droughts and water shortages becoming commonplace features many gardeners are wondering which plants will make good choices for their gardens. It's not so much survival that's at issue; there are many plants (including nearly all the native flora) that seem to survive occasional droughts. It's just that most of these look the worse for wear. The real question is, "What can I plant that will keep my garden looking lush and green in July, even if it doesn't rain and I can't water?" This is a serious challenge, to be sure. Yet, a surprising number of plants stand ready to meet it.

The first acquisition for any drought challenged garden might be to place some tough trees to assure a measure of shade. For this purpose pines like the Southern native loblolly pine (*Pinus taeda*) or for alkaline soils, the graceful Mexican *Pinus montezumae* often sold as *P. pseudostrubus*, or the Chinese lacebark pine, *P. bungeana*, are unsurpassed, making tall canopies that supply generous filtered shade, and rooting deeply to make gardening easy beneath. Many oaks are also remarkably tough and drought resistant; the coarse-leaved bur oak of the prairies states (*Quercus macrocarpa*) is especially rugged, eventually growing to majestic proportions and supplying crops of huge, scale-cupped acorns each fall.



Purple Coneflower from *the real dirt: A Gardening Handbook for Parker County*

Exotic trees like Chinese pistache (*Pistacia chinensis*), with a rounded canopy of feathery sumac-like foliage that turns a spectacular red-orange in fall, and the umbrella-shaped Chinaberry (*Melia azederach*), with fragrant lavender flowers in spring, glossy fern-like foliage in summer, and golden berries and leaves in the fall, will make fast growing, drought tolerant trees even on thin, rocky soils. Goldenrain tree (*Koelreuteria paniculata*) affords another rugged subject, with unusually divided dark green foliage and branched panicles of small golden flowers that ripen to papery lantern-like seed capsules. These small trees seem to relish drought, retaining their rich, lush green foliage whether it rains or not.

Among flowering trees the same might be said for several selections of redbud from the Southwest. 'Oklahoma' (a rich wine-purple), 'White Texas' (with creamy white flowers), and 'Traveler' (with a weeping habit) are all selections of *Cercis canadensis* var. *texensis*, the Texas redbud, and all three have glossy rounded leaves that hold up in the worst dry weather, even in

full sun. Another small native tree or large shrub, the Southern or rusty blackhaw (*Viburnum rufidulum*) also laughs off drought, displaying white flowers in spring and rich glossy foliage in summer that turns burgundy in fall as a foil for steel blue berries.

Evergreen shrubs provide much of the structure in gardens, and here the choices of drought-enduring materials are also wide. Most hollies are very tough, with good glossy foliage even when they are not in active growth. The Southern native yaupon holly (*Ilex vomitoria*) is versatile and popular in its rounded dwarf forms, ‘Stokes’ and ‘Condeaux’ (commonly sold as “Bordeaux”) and also in weeping (‘Folsom’) and columnar (‘Will Fleming’) selections. Other lush-looking evergreens with remarkable drought resistance include several cultivars of rosemary (*Rosmarinus officinalis*), boxwoods like *Buxus microphylla* ‘Wintergreen’, red clusterberry (*Cotoneaster lacteus* ‘Parneyi’), and feathery conifers like the oriental arborvitae (*Platyclusus orientalis*) and junipers in varieties too numerous to count. One of the most refreshing of these, ideal for reviving a drought-stressed landscape, might be the cool gray *Juniperus virginiana* ‘Grey Owl’, with sprawling shrubby branches laden with tiny powder blue berries.

An unusual “shrub” native to the Mediterranean deserves special mention: the broom fern (*Asparagus virgatus*), an evergreen perennial from South Africa with innumerable tiny flattened stems (called “cladodes”) that coalesce in graceful masses of bright green froth. This makes a choice evergreen in partial or full shade, impervious to drought, with slow-growing glossy foliage and tiny red-orange berries in the fall. It spreads slowly by questing roots like a bamboo, so can become somewhat naughty over time.



Gaura courtesy of The Parker County Master Gardener Association

Some of the most verdant plants in any summer landscape are grasses and sedges, and many of these are among the most drought resistant choices. Inland sea oats (*Chasmanthium latifolium*), little bluestem (*Schyzachirium scoparium*), feather needlegrass (*Nassella tenuissima*), canyon ricegrass (*Leersia monandra*) and innumerable species of *Muhlenbergia* all hold up superbly under dry conditions and give freshness and movement to a garden. Dwarf sedges such as *Carex retroflexa* make good choices for evergreen groundcover in sun or shade.

Finding colorful flowering plants for a drought-afflicted garden might seem like an unrealistic challenge, but there are choices here, as well. Among annuals, tried and true varieties like bachelor’s button (*Gomphrena spp.*), purslane (*Portulaca cvs.*), narrow leaf zinnia (*Zinnia angustifolia*) and several *Lantana* varieties seem to bloom whether it rains or not. Perennials like salvias, verbenas, wild indigos (*Baptisia spp.*), Mexican petunia (*Ruellia brittoniana* ‘Chi-Chi Pink’), purple heart (*Setcreasea pallida*), hybrid oregano (*Origanum* ‘Hopley’s’), pink skullcap (*Scutellaria suffrutescens*), Arkansas blue-star (*Amsonia hubrechtii*), and aromatic aster (*Aster oblongifolius*) can guarantee a lush display of bloom and texture over a long season. In shaded gardens leafy plants like holly fern (*Cyrtomium falcatum*), cast iron plant (*Aspidistra spp.*),

white-variegated *Liriope spicata* ‘Silver Dragon’ and dwarf, dark green *Ophiopogon chingii* (aka ‘Sparkler’) can maintain a lush appearance when other perennials fail.

Of course, gray-leaved shrubs and perennials like ceniza, germander, artemisia, dusty miller, and Jerusalem sage can be called upon to keep a garden well furnished in drought. But these, and other drought hardy flora like pomegranates, chaste trees (*Vitex agnus-castus*), yuccas, figs, sotols (*Dasylyrion spp.*), agaves, and the hardy spineless prickly-pear cactus (*Opuntia ellisiana*) convey the spirit of a Mediterranean or dry-climate garden. Verdant bamboos or hardy dwarf palmettos (*Sabal minor*) and needle palms (*Rhapidophyllum hystrix*) make more appropriate choices if a lush, green garden is the goal. Where they are hardy dwarf cycads like Florida coontie (*Zamia integrifolia*), sago palm (*Cycas revoluta*), and the Mexican sago or chamal (*Dioon angustifolium*) combine fernlike evergreen texture with the drought tolerance of cacti.



Red Yucca on a Berm from *the real dirt: A Gardening Handbook for Parker County*

Finally, when the rains do come it’s great to have some opportunistic plants to respond and get the garden blooming in a hurry. Crinum lilies, with their massive fountains of foliage and tall stems of fragrant lily-like blooms are perfect for this, as are rain lilies (*Zephyranthes spp.*), tiny crocus-like cousins of Amaryllis. These subtropical bulbs will come into bloom in just a few days or weeks following a summer thunderstorm and can do wonders in reviving the spirits of a drought-plagued planting. By taking advantage of a range of plant materials, keeping a garden lush and intriguing under drought conditions can be a realistic achievement.

Plants For The Dry Years	
Common Name	<i>Botanical Name</i>
White & Navy Texas Bluebonnet	<i>Lupinus texensis</i>
Gaura, Plume Poppy, and Cosmos	<i>Gaura lindheimeri</i> & <i>Macleaya sp.</i>
Dahlberg Daisy	<i>Dyssodia sp.</i>
California Poppy	<i>Elsholtzia californica</i>
Pink Evening Primrose	<i>Oenothera speciosa</i>
Sundrops	<i>Calylophus drummondianus</i>
Silver Fluttermill	<i>Oenothera macrocarpa v. incana</i>

Purple Coneflower	<i>Echinacea purpurea</i>
Hill Country Penstemon	<i>Penstemon triflorus</i>
Sweet Alyssum & Silver and Gold Mum	<i>Ajania pacifica & Lobularia maritima</i>
Mountain Sage	<i>Salvia madrensis</i>
Big Red Sage	<i>Salvia darceyi</i>
Pink Skullcap	<i>Scutellaria suffrutescens</i>
Arkansas Blue Star & Aromatic Aster	<i>Aster oblongifolius & Amsonia hubrechtii</i>
Red Batchelor's Buttons	<i>Gomphrena haageana</i>
Gregg Mistflower	<i>Conoclinium dissectum</i>
Gayfeather	<i>Liatris sp.</i>
Cigar Flower and Compact Ceniza	<i>Cuphea micropetala & Leucophyllum</i>
Orange Bulbine (pronounced "Bulb-Eye'-Nee")	<i>Bulbine 'Tiny Tangerine'</i>
Trailing Lavender Lantana	<i>Lantana montevidensis</i>
Hybrid Verbena	<i>Verbena x teasei</i>
Pink Wood Sorrel	<i>Oxalis crassipes</i>
Oxblood Lily	<i>Rhodophiala bifida</i>
Velvet Creeper	<i>Tradescantia sillamontana</i>
Purple Heart	<i>Setcreasea pallida</i>
Early White Flag	<i>Iris albicans</i>
Algerian Iris	<i>Iris unguicularis</i>
Spuria Iris	<i>Iris spuria hybrid</i>
Cretan Tulip	<i>Tulipa bakeri 'Lilac Wonder'</i>
Lady Tulip	<i>Tulipa clusiana 'Lady Jane'</i>
Early Red Tulip	<i>Tulipa praecox</i>
Virgin's Spray	<i>Ornithogalum narbonense</i>
Spring Starflower	<i>Ipheion uniflorum</i>

Byzantine Gladiolus	<i>Gladiolus byzantinus</i> 'Cruentus'
Narcissus	<i>Narcissus italicus</i>
Fall Crocus	<i>Crocus goulimyi</i>
Dwarf Myrtle	<i>Myrtus communis</i> 'Compacta'
Wall Germander	<i>Teucrium chamaedrys</i>
Silver Germander	<i>Teucrium cossonii</i>
Love in a Mist	<i>Nigella damascena</i>
Hybrid Oregano	<i>Origanum x 'Hopley's'</i>
Oleander	<i>Nerium oleander</i> 'Single Hardy Pink'
Jerusalem Sage & Corn Poppies	<i>Phlomis fruticosa</i> & <i>Papaver rhoeas</i>
Artemisia and Drumstick Allium	<i>Artemisia</i> 'Powis Castle' & <i>Allium</i>
Rosemary	<i>Rosmarinus officinalis</i>
Hacienda Creeper	<i>Parthenocissus cv.</i> 'Rancho Viejo'
Orange Crossvine	<i>Bignonia capreolata</i> 'Tangerine Beauty'
Variegated Giant Cane	<i>Arundo donax</i> 'Variegata'
Mexican Feather Grass and Mealy Sage	<i>Stipa (Nasella) tenuissima</i> & <i>Salvia</i>
Canada Wildrye	<i>Elymus canadensis</i>
Four O'clocks	<i>Mirabilis jalapa</i>
Milk and Wine Lily	<i>Crinum</i> 'Empress of India'
Texas Ash	<i>Fraxinus texensis</i>
Texas Redbud	<i>Cercis texensis</i>
Arizona Cypress	<i>Cupressus arizonica</i>
Live Oak with Oxblood Lily	<i>Quercus fusiformis</i> & <i>Rhodophiala</i>
Mexican Plum	<i>Prunus mexicana</i>
Possumhaw	<i>Ilex decidua</i>
Rusty Blackhaw	<i>Viburnum rufidulum</i>
Bourbon Rose	<i>Rosa x borboniana</i> "Maggie"

Mountain Laurel	<i>Sophora secundiflora</i>
Redberry Juniper	<i>Juniperus pinchotii</i>
Bermuda Palmetto	<i>Sabal bermudana</i>
Barbados Pride	<i>Caesalpinia pulcherrima</i>
Convent Ceniza	<i>Leucophyllum frutescens</i> ‘Convent’
Red Yucca	<i>Hesperaloe parviflora</i>
Sacahuista or Beargrass	<i>Nolina texana</i>
Pale-leaf Yucca	<i>Yucca pallida</i>
Mountain Maguey	<i>Agave montana</i>
Prickly-Pear	<i>Opuntia</i> sp.
Hen and Chicks	<i>Echeveria runyoni</i>
Little Gray Stonecrop	<i>Sedum potosinum</i>
Hinckley’s Columbine	<i>Aquilegia hinckleyana</i>
Palmer’s Stonecrop	<i>Sedum palmeri</i>
Shrimp Pink Tropical Sage	<i>Salvia coccinea</i> ‘Jones’ Pink’
Naples Onion	<i>Allium neapolitanum</i>
Chinese Ground Orchid	<i>Bletilla striata</i>
Purple-leaf Wood-Sorrel	<i>Oxalis regnellii</i> ‘Triangularis’
Mixed Water Lilies	<i>Nymphaea</i> spp.

With unusually dry weather over the past few years and consequent water shortages, many gardeners have been asking themselves a new question: “When rains fail to arrive on schedule and the water available for my garden is limited or unreasonably expensive, can I keep my yard looking lush and green?” The answer is “yes,” but traditional gardeners may want to reconsider some of their strategies and assumptions.

When considering the drought issue, it’s worth taking a look at native vegetation since the wild flora has evolved over millennia to deal with tough situations. Admittedly, even native trees, evergreens, and meadow flowers can have trouble enduring unusually dry weather, but they often fare better than the pampered shrubs and lawns in urban gardens. There are several reasons for this. One has to do with the constitutions of the plants themselves. Certain plants are simply designed to endure drought, but there is more to beating drought in nature than just adaptation.

In the natural world, no one tidies up the place by raking leaves. The organic debris that falls on the ground creates mulch that cools the earth and helps keep moisture in the soil. When rains do arrive, this loose, organic surface also helps trap the water and encourages it to percolate into the soil instead of evaporating. As this debris decays, it forms humus, a spongy organic residue that helps bind particles of soil together, increasing the capacity of the earth to hold moisture and nutrients. Plants grown in humus-rich soils withstand the rigors of drought because the soil retains more water and because the plants are better nourished and do not need to drink as much. For gardeners, the lesson here is that plants will better survive dry weather with mulch on the soil and plenty of organic matter enriched in the earth of garden beds.

In nature, nobody cuts the grass. Many gardeners realize that mowing a lawn removes nutrients from turf. They have learned to leave the grass clippings on their lawns to rot and act as a natural fertilizer. Few gardeners, however, realize that mowing has another profound effect on grass: when the tops of the plants are removed, the roots die back in proportion. Keeping a neat, short lawn may seem handsome, but the shallow root system generated by short mowing will likely not endure many droughts. If a lawn is facing severe dry periods, it should be allowed to grow as tall as possible in summer. The lesson for gardeners is that keeping a St. Augustine lawn at one-and-one-half inches may be fine for the spring and fall, but in July a three-inch turf would survive better.

Keeping as much humus as possible in the soil of a lawn also improves its drought resistance. This can be accomplished artificially by top dressing the grass with finely sifted compost or an organic fertilizer, such as alfalfa pellets. Keeping the grass well nourished with foliage feeds of liquid seaweed or other water-soluble organic fertilizers can also help. However, to get the most out of these natural feedings, gardeners will also need to commit to not adding other chemical sources of nitrogen to their lawns. These commercial fertilizers can promote overly-fast growth and will rapidly destroy and interfere with the development of humus. Most lawn pesticides, weed killers and fungicides can retard the natural processes that allow humus to form, so these should also be used with restraint.

When gardeners do add water to their drought-afflicted gardens, it's better to imitate the infrequent, deep irrigations of nature than to water lightly and frequently. An inch of water applied to a lawn or garden bed once a week is more than enough for any plant, except a water lily, even in drought. If plants are watered deeply at widely spaced intervals they will be encouraged to form deep, penetrating root systems. This will better prepare them to endure future dry periods. In contrast, watering lightly every two or three days with an in-ground sprinkler system is a sure way to create shallow-rooted plants that may yellow when put under stress.

Over-used sprinklers are often culprits in humus depletion as well. The hard, treated water supplied by many cities can cause organic matter to disappear rapidly during warm weather. For gardeners with in-ground sprinkler systems, the best course is usually to turn off timers and automated controls and to apply water only when necessary by turning the system on manually.

Finally, when rains do come, it's worth taking time to keep the water where plants can use it. Many gardens can be terraced or designed with berms and swales to trap water on the property instead of letting it run away. More elaborate schemes might make use of cisterns, Japanese

water chains, or other rain-harvesting technologies. Extra water from rooflines or gutters can be taken advantage of by plants that need an extra drink if they are planted nearby. In certain beds, soils can be built up with decomposed granite or coarse sand to help absorb and store moisture. Lawns should usually be level or near-level spaces so that they can be readily mowed and irrigated. Rough slopes would be better used as beds of groundcovers or perennials, or as wooded borders.

These suggestions may seem to contradict some traditional garden practices, but they are right in tune with nature where drought is a way of life. Well thought-out designs, good culture, and appropriate plant selections can make it possible to enjoy a lush garden with minimal irrigation. And if drought comes again, gardeners employing these drought-defeating strategies should have no real trouble making it through the dry spell (just as long as they have a pitcher of lemonade handy).

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Mr. Ogden's website is www.plantdrivendesign.com. His new book *Plant-Driven Design* (winner of the 2009 American Horticultural Society book award) can be found here: www.timberpress.com/books/isbn.cfm/9780881928778/plant_driven_design/ogden