

Drought-Tolerant Trees

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Tree choices for wet winters, dry summers

Western Washington has long had a weather pattern of wet winters and dry summers, but if it seemed like the past couple of summers were warmer and dryer than usual, you're right. Many gardeners in the Pacific Northwest have noticed trees, both in their gardens and in the wilderness, wilting, getting leaf burn or insect infestations, even dying. Months without water can be fatal to many plants.

When a plant dries out, the stomata on the leaves close up. Stomata allow transpiration, the loss of water through leaves, which helps the plant cool itself. Also, lack of water can increase nutrient deficiency. Eventually symptoms will manifest like leaf scorch on edges, wilted leaves, leaf drop and eventually twig dieback.

A tree may survive drought stress after one season but die after several drought exposures. Younger, less established trees are more likely to die. And a drought stressed tree is more likely to succumb to insect damage or disease. The two-spotted spider mite, for example, loves hot and dry conditions. Even fungal diseases, often associated with damp conditions, may set into wood which was damaged years previously from drought.

Despite this, the occasional dry spell isn't much of an issue, but the kind of drought we're starting to see may be getting worse. According to some climate projections, annual average global temperatures could rise between 1.5 and 7 degrees Celsius (2.7 to 12.6 degrees Fahrenheit), and it's expected that winters will be wetter, and summers will be dryer.

How can we keep this from affecting our gardens? You could water more, or better yet, install an efficient drip irrigation system. If you have the option of putting in new plants, then selecting trees more tolerant of our summer drought conditions pays off with happier trees and a much lower water bill.

So many of our popular garden trees are not at all drought resistant: Japanese maples, katsura, Chinese dogwood, magnolia, and *Stewartia*, for example. If you've seen katsuras planted as street trees with no additional water, you might notice them looking very stressed at the end of every summer. But there are many kinds of trees that have evolved specifically for dry summers.

If you decide to go shopping for new trees, remember that "drought tolerant" doesn't mean that it doesn't need any water at all. It just means that the plant can withstand periods of dryness. Unless you've purchased a plant that specifically prefers to be hot and dry all summer, assume that it will need at least occasional water, especially during the crucial first two seasons in its new location. Once it is established, with a healthy root system, you can back off on irrigating. But when you do water, do it deeply so that it reaches the tree's whole root system and not just the top inch.



Dead western red cedars in Little Mountain Park. *Photo by Jessamyn Tuttle / WSU Skagit County Extension Master Gardener.*

As a rule, drought tolerant trees will have leaves that are thick, waxy, hairy or all of the above. Think about succulents that hold water in their leaves, or fine leafed or needled plants like conifers that have little surface area for transpiration.

A good place to start is looking at native varieties, but just because a plant is native doesn't mean that it will grow anywhere in the Northwest. Douglas fir and ponderosa pine are well suited to hot dry slopes, but western red cedars and big-leaf maples do best in damp locations. But you needn't limit yourself to natives! Look for trees that evolved in other locations with similar patterns of wet winters and dry summers, like parts of the Mediterranean.



Left: Native madrone trees are perfectly suited to our dry summers. **Center:** A strawberry tree can be grown as a tree or a shrub. **Right:** Paperbark maple has beautiful peeling bark for interest in winter. Photos by Jessamyn Tuttle / WSU Skagit County Extension Master Gardeners.

Some recommended drought-tolerant trees for Western Washington:

- *Arbutus menziesii* (the native madrone, or madrona, tree) or its relative, *Arbutus unedo*, the strawberry tree (from the Mediterranean).
- *Clerodendrum trichotomum* (harlequin glorybower): a showy shrub or tree with fragrant flowers, colorful berries and leaves scented like peanut butter.
- *Cupressus sempervirens* (Italian cypress): a fast-growing conifer that is shearable and very drought tolerant.
- *Laurus nobilis* (sweet bay): a vigorous, evergreen shrub that can be easily pruned into a tree. Excellent in soup.
- *Lagerstroemia x fauriei* (crepe myrtle): has showy flowers, bark and fall color.
- *Cercis occidentalis* (western redbud): is a California native well suited to the PNW with pink flowers in spring.
- *Ginkgo biloba*: a striking tall tree with yellow gold leaves in fall. Make sure to plant only the male version.
- *Cotinus coggygria* (smoke bush): can be pruned into a shrub or tree and is noted for its fall colors.
- *Styphnolobium japonicum* (Japanese pagoda tree): a handsome shade tree with showy flowers in late summer.
- *Quercus species* (including red oak, scarlet oak, silver-leaf oak, and particularly the native garry oak).
- *Acer species*: *Acer circinatum* (the native vine maple), *Acer triflorum*, (rough bark maple), *Acer rubrum* (red maple), *Acer griseum* (paperbark maple).
- *Cornus mas* (cornelian cherry): early blooming with bright red fruit in autumn.
- *Parrotia persica* (Persian ironwood): a handsome small tree noted for its fall color.
- *Liquidambar styraciflua* (sweet gum): popular street trees, tolerant of varying conditions.

RESOURCES:

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- “Coping With Drought: A Guide to Understanding Plant Response to Drought.” Barbara Fair, PhD, North Carolina Cooperative extension, January 1, 2009. <https://en.calameo.com/read/001614061c25120ef1eb2>
- “A warmer future for the Pacific Northwest if carbon dioxide levels rise, climate projections show.” Nick Houtman, OSU College of Forestry, February 19, 2018. <https://today.oregonstate.edu/news/warmer-future-pacific-northwest-if-carbon-dioxide-levels-rise-climate-projections-show>