



## Water Wise Wonders

In California and other regions with Mediterranean climates, much of the year is hot and dry. This means that these areas are also likely to experience **droughts**, when little winter rain or snow lead to especially extreme **summer conditions**.



How do organisms in environments like this **survive with little water**?

California's native plants have evolved special characteristics that help them thrive in the wild and in our gardens without needing extra care or water during droughts.

Let's go on a scavenger hunt and explore what makes plants "**water wise**"! See if you can find any of these special drought-related **adaptations** in the plants of your local environment.



**Waxy leaves** help plants like the California lilac (*Ceanothus*) to seal in water and reflect away extra heat on a hot day.



**Leaf shape** is important in helping plants avoid water loss. A small or thin leaf shape has less surface area for water to escape from the plant.

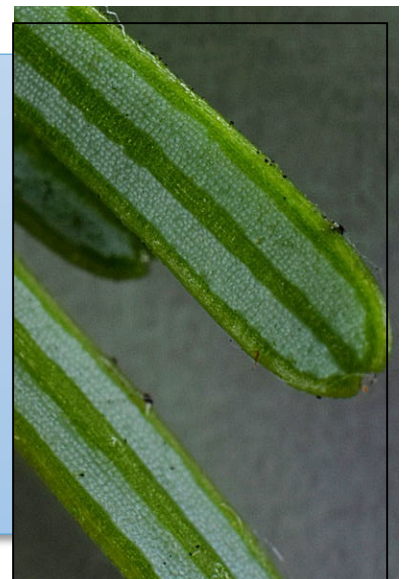


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**Hairy leaves** insulate the plant from high temperatures, conserve moisture in the air, and shade the plant from direct sunlight.



**Stomata** are tiny pores on leaves that help plants regulate gas and water. Stomata that are sunken into the leaf, like in conifers, help trap moisture in the air. In conifers, these sunken stomata are on the silvery undersides of the needles.



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**Taproots** and other deep root systems help many plants find groundwater that would otherwise be out of reach.





**Desiccation** means drying out. Some organisms like ferns, mosses and lichens get dry and crispy in the summer and may appear dead, but a splash of water reveals that they are alive and waiting for the next rain.

**Thick bark** like the bark of the giant sequoia insulates many tree species from fire as it clears the understory of the forest below.



**Serotiny** is a strategy of plants that produce seeds that are only released after they've been burned by fire. This helps these plants grow and reproduce even in fire-prone areas.

**Succulents** avoid drying out by only opening the stomata in their leaves for gas exchange at night. This helps them avoid losing the water stored in these fleshy leaves during the heat of the day.



**Early leaf drop** helps some plants like the buckeye avoid using extra energy to keep their leaves throughout the warm seasons. Buckeyes and some oaks may lose their leaves in late summer instead of fall.

