

“Survivor Plants” of the Mojave

Listed are some of the categories of and techniques used by “survivor plants” in the Mojave, as well as some of the specific plants that have adapted special features to survive.

Some desert plants, called Phreatophytes, including willow, cottonwood, and mesquite trees, and creosote bushes have developed long tap roots or root systems to tap into underground water. Phreatophytes are good indicators of a relatively shallow water source – which is why it’s important for desert travelers to learn to identify them.

Mesquite trees can have roots that go down 80 feet, while creosote roots may grow 50 feet to reach water. Many of these plants, like creosote, also have some roots close to the surface to capture rainfall.

Xerophytes are plants that have changed their physical characteristics to withstand long periods of dryness. One classic example is a cactus. Instead of having leaves, which have a big surface area and thus lose a lot of moisture to evapotranspiration, a cactus has spines. The stem (cactus pad) is green and contains chlorophyll, acting as leaves do in other plants. However, this stem is often covered with a waxy coating which prevents water from leaving. Many cacti can store water within their stems, and have shallow, spreading roots to absorb moisture.

Some plants, known as Annuals (for example, the Indian Paintbrush), will only bloom when their seeds have had the right moisture and temperature. Sometimes the seeds will lie dormant for years until the right conditions are met. Then the plant will produce spectacular flowers. In a few days or weeks, the seeds are scattered and await the next time climate conditions will allow them to bloom again. The drier the conditions, the more annual plants that will be found. Remaining dormant until optimal conditions exist is a tenacious form of survival adaptation! Some desert plants, including creosote, will go dormant during periods of drought. They will often drop leaves and appear dead, but once they receive water, they miraculously come back to life!

<u>Plant</u>	<u>Zone</u>	<u>Adaptation</u>
Creosote	Lower Sonoran	Creosote can live two years without water. It has small, resinous leaves that inhibit evaporation, and deep, (up to 100 ft.) roots that tap and absorb limited water sources. During long droughts, creosote may drop leaves and branches and conserve water in its roots. The substance secreted by Creosote roots inhibits the growth of its main competitors, other creosote and white bursage, near to them; their superiority at obtaining and using up water resources also inhibits adjacent plant growth. Some creosote root colonies are believed to be over 10,000 years old – that’s a survivor!
Joshua Trees	Upper Sonoran	Joshua Trees have a very slow metabolism to reduce energy requirements. A Joshua tree only grows about two feet in ten years!
Yucca	Upper Sonoran	Yucca, like the Banana Yucca, have spiky leaves that prevent it from being grazed, helping ensure its survival. They also have thick skins that retain precious water.

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Bristlecone Pine Hudsonian Slow, miniscule growth and the death of some of the tree reserves energy.
Thick bark protects from cold and wind.

Web resources: <http://mojavedesert.net/overview/a02.html>
<http://pubs.usgs.gov/wsp/1423/report.pdf>