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If I had to pick any single reason people avoid desert landscaping, it would not be that there is a limited floral palette, since that is untrue, nor that a water thrifty landscape is hard to maintain, when it requires much less maintenance than other types of landscaping. No, I think people are nervous about the sharp objects growing from desert plants, challenging even an intrepid gardener.

Cactus is the quintessential thorny desert plant. But thorns, spines, or prickles can hurt; they make gardening with certain plants intimidating.

Aside from the obvious one, why would it benefit a plant to be covered in such weaponry? Definitely, those spines, thorns and prickles are good defense. Few people are going to pick a cactus, agave, or mesquite without sufficient preparation, and not many animals can make a meal by grazing on a buckhorn cholla.

Still, why would any plant need such ferocious armament?

The answer, like so much else in the Mojave, has to do with *water*. We all agree - the desert is dry. Plants need water, and survivors are most frugal with the small supply available.

There are ways that plants resemble animals, and one of them is pores, through which they lose water. When animals need to replace fluids, we go and find something to drink.

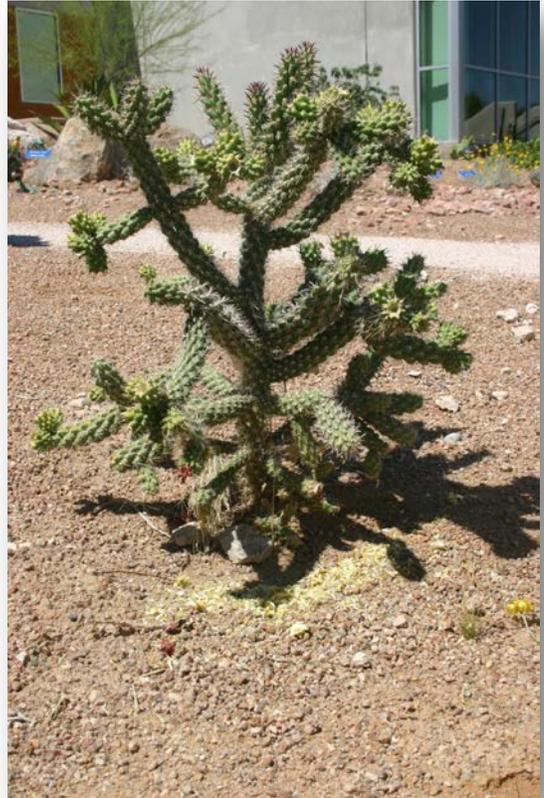
Plants do not have that luxury. Survival means being careful with water in the first place.

One efficient way to do this is to reduce the number of pores. While desert plants were doing that, the leaves became smaller, until in cases like cactus, those leaves lost all their pores, and became hard, dry spines, with no leaf activity. Spines lose no water, and incidentally defend the plant against anyone who might try taking a tasty nibble.

For most plants, leaves are the factories creating material for growth. How does a cactus grow without leaves? It does grow, slowly. The functions that would occur in the leaves happen somewhere else. Under the spines, the cactus is green; wherever a plant is green is where the fundamental processes for growth occur.

A plant with many or big green leaves will have rapid growth. With a relatively small amount of green, cactus grow slower. An animal taking a nibble of green tissue causes significant growth loss; hence the armor.

Desert plants have a much slower growth rate than plants from other environments. Some of the cacti along the road in our wild areas may be only a couple of feet tall but could be decades old. Even the slow growth is a survival mechanism.



Cholla Cacti

A fast-growing plant *needs* high levels of soil fertility. Not surprising, deserts are not only dry, desert soil isn't very fertile, and what gets used is only slowly replaced. Fast growers could suffer and die under our conditions. Desert plants use the limited resources at a pace in keeping with what is available.

So, spiky plants are slow growing, resource conserving, and well defended. In this part of the world, those are smart plants.

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