



## Parasites for survival

Travelling around the desert and mountains, I occasionally see striking examples of plants surviving some of the harshest conditions anywhere.

Plants use obvious mechanisms to endure heat, lack of water, infertile soils – cactus spines slow water loss; thick agave leaves store water; mesquite trees send roots down 80 feet or more, to catch any water percolating through soil. There are other approaches to survival in the Mojave environment.

Many desert plants have associations with other life forms. Certain bacteria provide plants with part of the raw material necessary for constructing proteins, while other plants create links with fungi in the soil, and those associations serve as huge extensions of their root systems. These are *symbiotic* arrangements, where plants and microorganisms both benefit. In other kinds of connections, only one side gets an advantage.

Call somebody a “parasite” and you are rarely giving a compliment. Aside from people who sell mistletoe at Christmastime, few of us grow parasitic plants. Why would we want to cultivate something that sucks the products of other plants’ labors? That can seriously weaken its host? “Host” is the word pathologists use; it sounds much less judgmental than “victim”.

In the desert, parasitism might be essential. What happens when a plant is missing something essential for survival? What if it has no fuzzy leaves to shade it from the searing sun? What if its root system cannot penetrate our rock-hard soils? With no escape, a plant in that kind of situation will usually die.

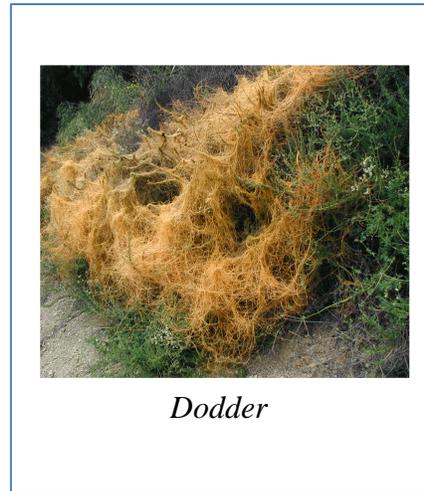
Some plants, however, have come up with ways to endure, despite having little to offer. They may hurt their hosts, but they will live.

I mentioned mistletoe, and that is a parasite. Outside of town are many evergreens where one or more sections appear to have much denser foliage and prolific twigs - a sign that it has been infected by another plant, which is drawing all its nutrients from the host. The parasite tricks the host to develop a new flush of growth to provide more food. There are different mistletoes, including some with berries that are a favorite food of one of our native birds.

Dodder is a strange plant. While driving along some quiet road, look to the side. You might see orange or yellow “silly string”, like a mass of yarn that the cat shredded, on top of plants. That is dodder. It has no chlorophyll, nor does it pull moisture from the ground. It lives completely off the stems of the green plant beneath.

Not all desert parasites are bizarre, or ugly. Indian paintbrush is a semi-parasite with a pretty red flower. It sends its modified roots into the roots of another plant to obtain water and nutrients.

Even parasites are not **all** bad. The phainopepla eats mistletoe berries. The only good thing about dodder is - it dies after producing seeds, so the host gets a break to recover before next season. Indian paintbrush is pretty **and** was used medicinally by Native Americans.



*Dodder*

Desert survival comes in many forms, including being a parasite.  
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