



Coexisting Flora and Fauna

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Much like our desert environment, most of Namibia is arid and provides a challenge to flora and fauna.

The beautiful, slow-growing camel thorn tree (*acacia erioloba*) is common to southern Africa and grows well in poor soils and in harsh environmental conditions. It can survive on as little as 2 inches of annual rainfall and tolerates hot summer temperatures and severe frosts. In extremely dry areas it occurs where underground water is present. The taproot can descend to 200 feet which is very unusual in a tree.

In southwest American deserts, mesquite tree roots have been reported as deep as 80 to 190 feet (resources differ). In the United States, many people, especially ranchers, consider the mesquite tree a nuisance because it competes with rangeland grasses for moisture.

Overgrowth of camel thorns is generally not a problem in Namibia. While acacias have vicious thorns (acacia comes from the Greek word for thorns – *akis*), they are a favorite food of elephants and giraffes. Don't be misled by the name; in the Afrikaans language, giraffes are known as camel-horses.

Elephants routinely knock down acacias to get to the foliage and seed pods at the top of the tree. Some scientists suggest that this prevents acacia forests from taking over and promotes growth of grasses and other vegetation useful to animals.

I'm not sure how elephants avoid the thorns, but giraffes have developed incredible tongues. The giraffe's tongue is about 18 inches in length and highly prehensile. This allows the animal to successfully negotiate the bigger thorns and pull the leaves from the branch. Coupled with tough lips and palate, the giraffe has seemingly overcome this particular hurdle.

The acacia tree has another line of defense – the release of tannins. Besides tasting awful, tannins inhibit digestion by interfering with protein and digestive enzymes and binding to consumed plant proteins making them more difficult to digest, according to the African Safari website. Further, the release of tannin is communicated to acacia trees within 50 yards. In turn these trees release their own tannin. The simultaneous tannin release by all nearby acacias essentially thwarts the hungry giraffe, which must travel upwind to trees that have not yet 'caught wind' of the giraffe's (or elephant's) presence.

In the United States, the creosote bush is one of the most successful of all desert species because it utilizes a combination of many adaptations. Instead of thorns, it relies for protection on a smell and taste that wildlife find unpleasant. These bad tasting and sometimes toxic compounds are called secondary metabolites. It has tiny leaves that close their stomata (pores) during the day to avoid water loss and open

them at night to absorb moisture. Creosote has an extensive double root system -- both radial and deep -- to accumulate water from both surface and underground water.

In African savannas (regions with both trees and grass), acacia-dwelling ants are an ally of one species of acacia tree (*acacia drepanolobium*). The ants can repel voracious, tree-eating elephants, according to a 2010 article in Scientific American. This ant-driven tree protection has large-scale implications for savanna landscapes, report zoologists J Green and T Palmer. That's because elephants are one of the primary shapers of tree cover in sub-Saharan Africa—too few tree-grazing elephants, and savannas may transform into woodlands; too many, and open grasslands may soon result. According to the zoologists, it looks like ants may help to strike a balance between these two extremes, helping to preserve one of Africa's largest yet endangered ecosystems.

The researchers suspect that the animals' trunk, with its thick outer skin belying a more sensitive interior lining, makes elephants vulnerable to ants, which swarm aggressively in response to disturbances and attack by biting thin skin and mucous membranes. In the words of the researchers, "attack by scores of biting ants probably serves as a strong deterrent."

Touring Southern Africa recently, much of the landscape reminded me of the southwestern United States. Of course, I've never seen a giraffe pop up from behind a tree or a group of elephants protectively surround a baby elephant here in the San Luis Valley. But wouldn't it be great?

"Wisdom is like a baobab tree; no one individual can embrace it." African proverb.