
Fires Threaten Balance

by: Lynn Walsh¹

NON-NATIVE GRASSES, INTRODUCED BY MAN, ARE THE CULPRIT

Wildfires, with their power and fury, are feared by all living things.

Those of us who live in the most beautiful desert in the world know that fires can destroy vast areas endangering our homes. In the past, the desert did not burn the way chaparral grasslands and forests do because there were large gaps of plant-free space separating shrubs. Wild fires had little fuel with which to spread.

Now man has disturbed the natural balance, with potentially devastating consequences for the future of the Sonoran Desert.

Joe McAuliffe, director for research at the Desert Botanical Garden, told garden volunteers that the threat of fire to the Sonoran Desert is increasing at an alarming rate. The pressures of encroaching urbanization, loss of habitat, and the increased



Invasive grasses are making desert landscapes more prone to fire.

Image courtesy of T. Esque, USGS

¹ Article first published November 1997



presence of people in natural areas are well known, but other factors have led to the rapid change of the total ecosystem. The invasion of non-native grasses, which compete with native plants, is causing the evolution of lush Sonoran Desert vegetation into a chaparral grassland.

The El Niño phenomenon has resulted in several incredibly wet winters during the past six years. This unusual weather pattern has led to a dramatic increase in the proliferation of exotic, non-native grasses, especially red brome grass. This pervasive weed may have come to the Sonoran Desert in grain shipments, but it was also intentionally sown. It loves the wet, warm winters, which mimic its native habitat near the Mediterranean.

Red brome outcompetes all native annuals and wildflowers, leading to active displacement of native vegetation. Native Sonoran annuals have soft stems that dry out and blow away during the spring and early summer dry spells. Red brome remains a dry, highly flammable grass that fills in naturally bare areas between native shrubs and trees, ready to carry fire across open spaces. Its dense thatch acts as kindling that ensures those desert fires completely burn native trees and shrubs.

McAuliffe studied the aftermath of local fires in 1992 at Troon and Carefree. He predicted that after five years, more than 75 percent of the saguaros in those areas will be dead. The foothills paloverde trees in his fire survey area had a 100 percent mortality rate. The native trees, shrubs and annuals have not evolved strategies to survive this kind of fire storm, because fires formerly burned out rapidly and did not cause widespread habitat damage.

The plants that grow naturally in grasslands and chaparral areas, such as catclaw, acacia, jojoba and some yuccas, re-sprouted immediately after the fires. Most native Sonoran plants do not re-sprout.

McAuliffe was concerned that the three indicator plants of the Sonoran Desert foothills - the saguaro, paloverde and bursage - had died, not re-sprouted, and could not compete with more fire adapted plants. After three years, the red brome came back in greater numbers, setting the stage for another grassland fire. He



doubts that saguaros, which need both bursage and paloverde trees for nurse plants, can re-establish themselves in such a hostile environment.

Areas along the Beeline Highway and Interstate 17 have been the sites of repeated human caused roadside burns. They are neither grasslands nor Sonoran Desert. The shoulders of Cave Creek, Scottsdale and Pima roads and the Carefree Highway ripple with standing dry grasses. Governments have hydroseeded - sprayed seeds mixed in a solution - areas along roadsides and vacant fields with non-native grasses, exacerbating the problem with good intentions.

The summer monsoons of the Sonoran Desert nurture a rapidly spreading perennial grass from South Africa that was introduced by the government from 1950 to 1970 to provide restoration so that cattle could graze in denuded cotton fields.

The plant, called buffel grass, is so happy in its new habitat that it is taking over vacant areas and is widespread in the Foothills. Frost-sensitive, it grows on south-facing hillsides, while red brome prefers cooler, wetter, northern slopes. Buffel grass sprouts earlier in the spring than native plants and outcompetes them. After fueling grassland fires, it simply re-sprouts from its massive perennial roots.

Fire, predominately human-caused, is now a fact of life in our area. The grasses are too widespread for elimination from the total environment. There is no easy way to re-vegetate.

My experience with a small fire on our property 17 years ago has led me to advise the removal of as much of the dead, dry thatch as possible and the use of a pre-emergent weed stopper like Surflan that prevents germinating seeds from sprouting. Applying the pre-emergent the last two weeks in October and again six weeks later has worked for me. This also stops the germination of native seeds, so use it only in disturbed areas where red brome is likely to invade.

I found that reseedling with Sonoran wild-seed mix led to invasion of red brome in my yard, as any disturbance of the desert floor encourages seed germination. Running drip irrigation to native tree and shrub seedlings can help by accelerating their re-growth.



Tidying up dead twigs and plant matter will reduce the fuel available for fires, but removing desert natives eliminates important habitat like nurse plants that nurture our unique plant palette.

We must learn to tread softly on the desert, for we are unknowingly creating another ecological time bomb that threatens the very existence of the Sonoran Desert.

