

Fire and Exotic Grasses Changing Mojave's Face



Night view of fire burning in the Mojave Desert. Photo by T. Esque

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THREE RIVERS, California—Historically, fires in the Mojave Desert appear to have been an infrequent occurrence. When fires did occur, the gaps of plant-free space that separated individual shrubs, bunchgrasses, cacti, and trees, stopped the spread of fires—as though they were networks of small firebreaks.

However, since the 1970s, non-native grasses have invaded the desert and have become increasingly dominant in native plant communities. The increasing dominance of these grasses and the burgeoning human population in the Mojave Desert have led to more fires, threatening the desert wildlife and the native perennial plants, both of which are poorly adapted to survive the increasing frequency and intensity of these fires.

Recent USGS studies have shown that non-native annual grasses now dominate most plant communities in the Mojave Desert. Unlike most native annual plants, which specialize in particular microhabitats, these grasses grow in many different situations and can create continuous fuel beds across the landscape, filling in the plant-free space that once separated and protected native perennials from fire.

And unlike native annuals, which crumble and blow away soon after they die, dried remains of the non-native grasses stay rooted in highly flammable dense stands for years after they die. They ignite easily and carry fire rapidly and unbrokenly across the landscape.

Many native annuals can survive fires by remaining dormant as seeds in the soil, but they may not successfully compete with the non-native annual grasses, which dominate after-fire landscapes. The wildlife that survive

the fire may be adversely affected by the changes in the plant structure of their habitat.

The invasion of non-native annual grasses and the increased frequency of fires are changing the face of the Mojave Desert. Because non-native plants are difficult to control, preventing their initial establishment may be the best approach to managing them. Based on the limited information available, it appears wildfires should continue to be suppressed in desert scrub habitats. Studies in progress by USGS scientists are further evaluating the effects of fire and developing postfire restoration techniques to minimize the dominance of non-native annual grasses in the Mojave Desert.



Over time, with invasion by non-native annual grasses and repeated burning, an area with many native species could become a non-native annual grassland with low diversity and few native plants and animals. Photo by M. Brooks