

Nonnative Plants, Regional Climate Change, and Emerging Desert Fire Regimes

Guy McPherson, Professor, University of Arizona, School of Natural Resources, Tucson, Arizona

There are more than 50,000 nonnative species in the United States alone, invading terrestrial ecosystems at the rate of 700,000 hectares each year at an annual cost of \$120 billion. These nonnative species threaten at least 400 species with extinction. Given the magnitude of the problems associated with biological invasions, it is not surprising that we are largely unable to manage, much less eradicate, nonnative species. To make matters even more challenging, every species on Earth is capable of invading other sites (as assured by biotic potential) and every site is subject to invasion by at least one, and potentially many, nonnative species. Because biological invasions depend exclusively on the match between characteristics of biological invaders and characteristics of sites, and because there are an infinite number of potential matches between species and sites, solutions to the problem of biological invasions are specific to species and sites. I will focus on the likely consequences for desert fire regimes resulting from ongoing biological invasions and regional climate change, and I will discuss the relevance of potential solutions. However, considering the disinterest in environmental issues displayed by citizens and their elected representatives, it seems unlikely we will seriously address the problem of biological invasions before the United States economy implodes as a result of increasingly expensive fossil fuels. The good news associated with the collapse of civilization will be enjoyed by relatively few people, for a very short period of time: global climate change suggests the extinction of our species within a century or two.

Guy McPherson is a professor at the University of Arizona, with appointments in the School of Natural Resources and the Department of Ecology & Evolutionary Biology. He teaches and conducts research on fire ecology, conservation biology, global climate change, and the collapse of civilizations.