

Arizona, Europe can learn from common fire threats

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Droughts of a severity never before encountered. Intense wildfires, the largest in history, burning through a growing proportion of the mountaintop pine forests in arid landscapes. Wildfire suppression costs rising to unprecedented levels. And worst of all, the loss of lives fighting these fires.

It sounds like Arizona, of course, but these trends are also occurring in Spain and other Mediterranean countries. Wildfires burn an average of nearly 2 million acres annually around the Mediterranean basin; 95 percent are human caused. In one region of Spain, fires in just two years burned almost 15 percent of the pine forests, proportionally an even bigger impact than Arizona's huge Rodeo-Chediski fire in 2002.

In Flagstaff, we are familiar with the ponderosa pine story: Frequent surface fires were interrupted by grazing, logging and fire suppression, allowing dense fuels to build up. Severe fires follow, especially in the increasingly hot, dry conditions we expect for the future. Is the story the same in Europe? Yes, in the sense that human-caused changes influenced fire, but there are important differences also.

Mediterranean Europe's experiences with fire parallel some of the most critical American problems: larger and more intense wildfires, erosion, property damage, and long-lasting loss of forestlands. The historical reasons are often different, but people on both continents can share ideas and techniques to make forests more resistant to severe burning and recover better after fires.

Europe's lands have been heavily farmed and grazed for more than 3,000 years, but after the Second World War people began moving to the cities, and agricultural uses declined. A combination of natural revegetation of abandoned fields, plus planting of millions of acres of pines, led to thick, connected fuels.

The climate has warmed while summer rainfall has declined since the 1960s. And while dry lightning is less common than in the southwestern United States, people start many fires accidentally (for example, sparks from trains), through negligence (a fire started by picnickers killed 11 firefighters last July in Guadalajara, Spain) or arson.

The traditional response to wildfire was to stabilize fire sites by seeding grasses and building check dams against soil erosion, remove the burned trees, and replant pine trees, except in the areas where pines reseeded themselves. But the increase in fire size and severity has led foresters and ecologists to re-think the feasibility of this strategy. New concepts that are emerging now center on setting practical priorities for restoration for sustainable, long-term conservation.

Rather than trying to perpetuate fire-prone forests of pure pines, foresters are experimenting with mixed-species forests where native oaks are encouraged and planted where needed. The mixed forests are less flammable, because the oaks don't have the resinous chemicals of pines, and the mixed forests also provide more diverse habitats for wildlife and surface-growing plants. Wide firebreaks are still used, but foresters also thin trees within forest stands to create safe sites where fires can't spread through the canopy.

In some places, prescribed fire is being tested as an alternative for reducing fuels. Timber cutting is often not economically feasible, but fuel treatments are still considered worth supporting by national governments and the European Union because of the high value of forests for watershed protection, recreation, and non-timber forest products such as cork and mushrooms. And ecologists are encouraging people to recognize that vegetation will inevitably change as climate warms, especially where forests are already growing at their environmental limits.

While the situation is different in many ways in Arizona, all of us who value pine-oak forests can learn from each other's successes and failures.

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