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Fire in Our Mountains, and Mountains in Our Rivers

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A familiar statement in the media these days goes something like: “It’s the largest recorded fire in the history of the state.” There is both truth and historical naiveté in that statement. Our shock over the size of these conflagrations highlights a growing problem: we are faced with a serious threat to our current course of population growth and development in the west, but we continue to ignore key lessons of the past. The truth is that part of what we are witnessing is new to our written histories. At the same time, this assertion of “largest in history” ignores the essential fact that much larger areas burned in the not-so distant 19th century. How quickly newspapers forget their own words. On April 16, 1882, for example, the Arizona Daily Star noted that “Prairie and wood fires have been raging in southern Arizona and western New Mexico recently. The territory burned over is reported to cover forty miles square [about 1 million acres]...”

There are numerous other historical accounts by soldiers and pioneers of gigantic burned areas in the west during the 19th century, and we know from tree-ring studies that fires were frequent and very large. Typically, these fires burned through ponderosa pine forests about once or twice per decade. This high frequency of fire occurrence assured that the flame lengths were low – about one to three feet in height – because dead branches and other fuels were regularly consumed, and so did not accumulate. The large, mature pine trees were left unharmed, except for a few that incurred “fire scars” at their base. It is from tree-ring dating of these fire scars that we find the same fire dates repeated over and over from one mountain range to another throughout the Southwest. Burning unhindered for months fires swept over millions of acres in 1748, 1851, 1879, and 1882. The big fire years of the 20th century –1994, 1996, 2000, and 2002 are impressive to modern Arizonans, but in terms of area burned, they pale in comparison to the big fire years of previous centuries.

And yet, the big fires we are witnessing today are different in important ways from those of the past. Contrast the image of low intensity flames, a few feet in height, sweeping through grass and pine needles, with the image we see today of an inferno with flames 200 feet high rolling through the crowns of large trees. The difference is caused by changes in the fuels. The frequent low intensity fires were eliminated between 1890 and 1900 in most Arizona forests when large numbers of sheep and cattle began to feed on the grass that was so important to the spread of surface fires. Livestock numbers fell after the First World War, but then government agencies began to be more effective at detecting and putting wildfires out.

During the rest of the 20th century living and dead fuels accumulated to the point that surface fires now can rapidly “ladder up” into the canopies of large trees. The very high intensity and extent of these “crown fires” are unprecedented in Southwestern ponderosa pine forests. One of the most worrisome indications of this is the erosion and

flooding that often follows these crown fires. Loss of ancient soils and formation of deep arroyos have occurred following recent fires in southern Arizona and elsewhere in the west.

Now, add two other factors to this mix of dense forests choked with living and dead fuels: people and drought. People love to live in the midst of pine forests. The attraction is akin to our desire to build along picturesque flood plains or hurricane-prone coastlines. The attitude is usually: “Yes, I know it’s a risky place, but it’s not *that* risky, and I’ll take my chances.” But of course it’s not just their “chance” and they won’t bear the costs alone when the worst scenario plays out. This kind of risk taking that involves all of us is particularly dangerous in regions such as ours where drought is a fact of life.

This year is panning out to be one of the driest in a century, and if we look to history we are reminded that it could get worse. Both rain gauge and tree-ring records tell us that the worst droughts in the past 1,000 years have tended to come in strings of dry years. A multi-year dry spell in the 1950s, for example, led to massive forest fires, bankruptcy of livestock ranches, and water rationing in New Mexico and Arizona. President Eisenhower declared New Mexico a disaster area and allocated federal relief. Consider the consequences today of a 1950s magnitude drought in the Southwest, with greatly increased populations, numerous housing developments in dense forests, and our increasing dependence on surface water from the Colorado River and Rio Grande. It’s not a pretty picture.

All of this “sky is falling” fretting does not mean that we can’t do anything about our predicament. We can save some of our forests by getting on with the job of reducing the fuels. We should keep in mind that this problem does not extend to all forests, and small diameter trees in pine forests are the main type of tree that needs thinning. This is going to take all the tools we have at our disposal, including chainsaws and prescribed fire, and a massive effort (and dollars) for many years to come.

There is a century of collective and cumulative responsibility for this problem, and it is time to get over the blame game. Land management agencies can move beyond the “analysis paralysis” and litigation in the courts by focusing their forest thinning work on the small diameter trees. People living in the forest can take responsibility for the risks they have exposed themselves and us to by removing fuels from around their houses, and by replacing flammable roofs with metal. It is also time to enact policy, zoning, and insurance measures in “fire plains” just as we do in flood plains. If we intend to keep catastrophic fire off our mountains, and our mountains out of our rivers, we must find a way to live within a changing environment.