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The Earth Ablaze

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The world seems to be on fire again, just as it was last year when destructive and deadly wildfires of enormous size raged in California, Chile, Argentina, British Columbia, Portugal and other countries around the world.

The widespread fires this year have magnified concerns that we are locked in a worldwide pattern of conflagration that is both persistent and catastrophic. Wildfires have been even more pervasive in 2018 in central and northern Europe than last year, including the United Kingdom, Sweden, Denmark, Estonia, Finland, Latvia, Malta, the Netherlands, Poland and Germany. In Greece, east of Athens, some 90 people were killed. (Last year in Portugal, more than 100 people died in wildfires, including at least 30 people who were trapped in their cars when flames engulfed a road.)

Already California is far ahead of last year's record-breaking numbers, with 14 wildfires raging, 750,000 acres burned, over 1,000 homes and businesses destroyed and multiple deaths. On Tuesday, the Mendocino complex fire burned its way to becoming the largest wildfire in state history. And we have yet to reach peak fire season.

Wildfires may well be the single greatest agent of deforestation worldwide. The destruction of natural habitat, the devastation of human habitation, the dislocation of large numbers of people, the disruption of commerce and the draining of government resources were all on scales in 2017 that we have not experienced before.

For the United States as a whole, last year was the second worst for wildfires in over 60 years, with 10 million acres burned, exceeded only by 2015, when about 10.1 million acres went up in flames.

As for this year, the prognosis is not good. The National Interagency Fire Center recently predicted that August "will be a very active month" with what it calls "above normal significant" potential for wildfires across parts of the Pacific Northwest, Northern Rockies, the northern Great Basin and California. For California, the fall season "may very well be robust" across parts of the state.

While we naturally focus on the immediate loss of lives, the full toll may not be so immediate. Recent epidemiological research following the enormous fires in Indonesia in the past few years suggests that lung disease from smoke and particulate matter inhalation may have caused over 100,000 additional premature deaths across Indonesia, Malaysia and Singapore.

A dangerous, large-scale feedback loop that promotes wildfires has emerged. Forests, woodlands and grasslands hold much of Earth's terrestrial carbon. When they burn, more carbon dioxide is released, increasing concentrations in the atmosphere and causing land and sea surface temperatures to rise. This warming increases the likelihood of even more widespread and intense fires and exacerbates the severe weather and sea level rise we are now beginning to experience.

What has been particularly worrisome in recent years is that the world's largest forests, the taiga of Russia and its boreal forest cousins that ring the Arctic and store much of the world's carbon, experienced wildfires at a rate and scale not seen in at least 10,000 years, according to paleoecological records.

The explosive rise in wildfires has occurred for two major, interrelated reasons: climate change and human behavior. As land surface temperatures rise, there has been a general warming across all seasons, with intense periods of heat during the warmest parts of the year, longer intervals without rain and marked reductions in relative humidity. Heat waves and droughts cause vegetation to dry into combustible fuels, enabling small fires to become widespread infernos.

Tossing a cigarette butt out a car window or failing to extinguish a campfire can end up obliterating hundreds of thousands of acres within weeks. Research on wildfires in the United States over the past 20 years found that 84 percent were started by people, accounting for 44 percent of the land burned.

Moreover, when no controlled burning takes place to eliminate flammable brush and deadwood that has built up on forest floors, those forests become ripe for intense fires that are difficult or impossible to control.

As we have seen in the unexpected, catastrophic fires last year in Gatlinburg, Tenn., and this year in Sweden, troubled by record heat and a worsening drought, wildfires are no longer limited to regions typically considered prone to such events. People and communities must recognize and come to grips with serious fire danger conditions and have advance plans for responding to disastrous wildfires. Australia has imposed special construction requirements for fire-prone areas to mitigate wildfire damage, but new, firewise policies for construction and development should exist everywhere wildfires loom as a threat.

Climate change has made wildfires collectively one of the most destructive extreme natural events we face, and this trend is likely to worsen in the coming years. Unless we take careful and thoughtful actions, providing education and incentives for adapting to wildfires as well as

enforcing stricter rules to prevent them, we risk much more than we realize.

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