Wildfires threaten drinking water and further desertification of US West Coast

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Over 5 million acres have burned through the fire-ravaged states of the West Coast of the United States over the last month. According to the National Interagency Fire Center, 21 major fires are still burning in California, 12 in Oregon and 8 in Washington state.

Thousands of homes and other buildings have been burned to the ground, with estimates of the dead between 33 to 35, and many more missing as hundreds of thousands have been forced to evacuate their homes from Washington to California.

A firefighter lost his life on Thursday, battling the fires in Yucaipa, California, bringing the total deaths in the state to 26. An older couple was also found dead amid the remains of their home in Butte County. The couple decided not to evacuate after hearing that the fire blazing near their home was 51 percent contained. In total, over 3.4 million acres have burned, and over 6,200 structures have been destroyed in the state.

The Oregon wildfires have killed at least 10 people, and 22 remain missing. One million acres have burned and 1,145 homes and 579 other buildings are destroyed. One person has been confirmed dead in Washington state. Over 800,000 acres have burned, and 195 homes and 223 buildings have been destroyed.

A thick layer of toxic smoke and ash continues to blanket the Pacific Northwest in what is considered by IQAir as the worst air quality in the world, with the poisonous air now having made its way across the country to Washington D.C. and New York and even across the Atlantic Ocean, with smoke visible in Europe.

With the rise in noxious smoke particles infiltrating the air, hospitals on the West Coast are starting to see a significant increase in the number of conditions related to respiratory and heart conditions. A report by the *Hill* yesterday confirms that the Stanford Health Care system, based in northern California, has seen a 12 percent increase in hospital admissions. Forty-three percent of these hospitalizations were due to an increase in strokes, as well as other cerebrovascular incidents, triggered by the levels of toxins in the air, quite possibly increasing levels of inflammation in the body. There has been a 14 percent increase in the number of heart patients being seen for aggravated conditions, 18 percent increase for kidney conditions, and 17 percent increase in asthma conditions, according to the *Guardian*.

Oregon's air quality is still one of the worst in the world, with the state's Air Quality Index noting that several cities in the state have a level well above the 500 mark, with 301 to 500 considered hazardous to human health. The smoke emitted from the fires compromises the immune systems of those with preexisting health conditions, as well as healthy individuals, compounding their risk for contracting and succumbing to COVID-19.

In addition to having to inhale the noxious smoke-filled air while simultaneously attempting to dodge contracting the deadly coronavirus at every turn, residents will have another challenge to contend with long after the fires have been put out: the erosion of scorched land which, in turn, will have a dangerous impact on the quality of drinking water and threaten soil fertility—conditions which can create a second dust bowl.

Fires which burn close to the ground at high temperatures leave the ground in a nitrogen-depleted state and have the potential to destroy microorganisms vital to the chemical composition and bioavailability in the soil. These organisms, known as nitrogen-fixing bacteria, are responsible for capturing nitrogen in the atmosphere into a form of "fixed" nitrogen that is

pulled into the ground and is easily utilized by plants.

Ecological scientists explain that it can take years for the soil's microbiome to be restored after a major fire, with the full regeneration of lost trees and vegetation taking decades to centuries. However, the warmer temperatures associated with climate change and lack of shade—usually provided by trees and other vegetation, cooling the ground—can prevent vegetation from growing back without human intervention, drying out the land permanently, a process which is known among ecologists as desertification.

The destruction and erosion of forest lands and other ecosystems in the wake of wildfires also pose the threat to humans and the environment in the form of landslides and run-off, which also have the potential to pollute drinking water. Additionally, valuable infrastructure used to distribute water can be damaged or destroyed.

Water contamination due to run-off after wildfires can significantly slow down the production of treated water, impacting the rate at which drinking water can be made available. Stuart Khan, a professor at the University of New South Wales, whose background is in Environmental Engineering, told *Inside Climate News* (ICN), "If we have a lot of sediment come through, then we spend lots of time backwashing and less time providing drinking water, which can lead to shortages."

The United States Geological Survey (USGS) reports that approximately 80 percent of the US's freshwater comes from forestland watersheds. In the US, at least 3,400 communities rely on public drinking water that is produced by these watersheds.

When these source water supplies become contaminated due to chemical run-off or damage sustained to the water delivery system, many water-supplying agencies are forced to turn to their stored water supplies, which is not only of lower quality, and requires pretreatment, but is also costly. The USGS points out, "Unfortunately, the unpredictable nature of wildfire makes it challenging to develop treatment-plant-specific strategies for treating source water degraded by the effects of wildfire."

Dr. Monica Emelko, director of the Water Science, Technology and Policy group at the University of Waterloo in Ontario, Canada, told ICN, "Wildfire is going to affect water. And it's going to cost, and it's going to be bad," adding, "We can make water safe to drink in the Space Station, so it's possible to make safe drinking water. The question is: how much do you want to pay for it?" As ICN indicates, "it's difficult and expensive for many communities whose water treatment systems were not built for such emergencies."

Capitalism, which plunders and pollutes the globe for immediate gains and the pursuit of profits, has created and exacerbated climate change which has set the Americas ablaze from the Pacific Northwest to Brazil's Amazon rainforest.

Capitalist profit interests have undermined efforts to prepare for wildfire disasters which are only growing worse under the influence of human-induced climate change. Similarly, nothing has been done to implement the necessary water disaster preparedness plans to protect the sources which supply millions of people. The only way to stop the damaging effects of climate change and its catastrophic consequences is through an international struggle for socialism, and the expropriation of the world's wealthy elite, to meet the needs of society and to restore the health of the global ecosystem.