Coronavirus and wildfires combine to pose potential threat to Indigenous lives and lands

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An orangutan in a protected rainforest near the city of Kuching, in the Malaysian state of Sarawak. Orangutans and other animals are having their homelands destroyed by illegal logging. Credit: Dale Willman

As National Geographic pointed out recently, Indigenous populations

comprise less than five percent of the people now living on the planet, but they protect some 80 percent of the world's biodiversity. Indigenous groups often act as stewards of the land, protecting areas of the forests that they control from rampant development. But this year the assault of both forest fires and a pandemic are combining to pose a major threat to these already vulnerable populations and the lands on which they live. That was the topic of a recent webinar for journalists hosted by the Resilience Media Project of the Earth Institute at Columbia University.

Tropical forests, and the biodiversity they contain, are regularly threatened by human-set wildfires. Ane Alencar is the director of science at the Amazon Environmental Research Institute (IPAM). She said natural fires have traditionally occurred on average every 500 to 1,000 years. "The Amazon, it doesn't burn naturally, although humans have changed that." Now the vast majority of fires, at least in the Amazon, are caused by humans, and fires have become common during the dry season, threatening the biological riches these areas have to offer.

Illegal logging in particular is a major problem and has altered the fire landscape in the Amazon, the rainforests of Indonesia, and elsewhere. Farmers looking for land on which to graze cattle or to grow soybeans for the international market use workers to log sections of the forest. Then fires are set to clear the remaining brush and debris from the land. Ruth DeFries, the Denning Family Professor of Sustainable Development at Columbia University, said all the fires now have some source of human ignition, and that usually means clearing land for farming is the cause. "We see fires in the humid tropics because essentially it's an inexpensive way to clear debris."

This year, the health effects from wildfires are expected to be particularly severe because of a new threat. This year's fire season, now underway in many tropical regions, will be occurring during the

COVID-19 pandemic, presenting an additional risk to the region's Indigenous populations.

On their own, a wildfire or pandemic can wreak havoc with natural systems. But coming at the same time, they represent a compound risk, where each risk can greatly accentuate the damage caused by the other. For instance, respiratory problems caused by particulates in smoke from wildfires sicken or kill thousands of people each year. But these and other health problems will be particularly exacerbated this year because of the novel coronavirus.

"This year, it's especially concerning because the small particulate matter, the smoke, the soot that is emanating from these fires exacerbate respiratory infection," said Harvey Fineberg, a physician and the president of the Gordon and Betty Moore Foundation. "That respiratory susceptibility," he added, "means that COVID infections are more likely to be more serious among the populations who are directly affected by the fires in many tropical areas."

Here's how that could happen. Small particulates contained in wildfire smoke can lodge deeply in the lungs, impairing airway function, and as Fineberg suggests exacerbating respiratory infection. The COVID-19 virus, meanwhile, uses what are called ACE2 receptors to enter cells. The lower airways deep in the lungs contain a higher number of these receptors than the rest of the respiratory system, making that portion of the lungs particularly susceptible to a COVID-19 infection. If the particulates and smoke have already compromised those portions of the lungs, health officials speculate that those regions could then be more susceptible to an attack from COVID-19. However, it's too soon to have statistical studies finding a link between smoke exposure and COVID-19 outcomes, and data are particularly scant in rural regions of developing countries.

Yet another risk compounding the effects of wildfires and COVID infections is the current state of the health care system in Brazil and Indonesia—which is generally particularly acute in rural regions and poor urban settlements where Indigenous populations live. Marcia Castro is the Chair of the Department of Global Health and Population at the Harvard T. Chan School of Public Health. She said that in Brazil, the malaria season is about to begin. Meanwhile, in at least two states in the Amazon, they are seeing many more cases of dengue fever that expected. "So, it's going to be several layers of demand for hospital beds that will be even more complicated if we have the fire season." In some areas of the country, she said, the demand for hospital beds has already reached a 90 percent occupancy rate.

Because it's early in the fire season, the experts say it's not too late to reduce the most serious effects of these compound issues. Ane Alencar said if the laws currently in place are enforced, illegal logging will be greatly reduced. But without arrests, the loggers think they can do whatever they want, without facing consequences. "So we need to stop that and people need to be punished for doing illegal activities in the region."

Ruth DeFries agreed that enforcement is important, but she wants to take it one step further. Right now, she said, it's too easy for farmers to burn. "[T]he reason that people use fire is because it's cheap and it's easy. You set fire to your debris and you let it burn and then you have your land cleared." But with the right incentives, she said they can be encouraged not to burn, without needing to send them to jail. "I think [that's] where we need to go."

Harvey Fineberg, meanwhile, said the answer should come from leadership, from the local level on up to national politicians. "We have a very serious need for stronger regulation that will provide the foundation to avoid the degradation of our forests in wildfire and in other purposes."

And that, he said, must come from the politicians.

Another entry point for changing direction, Fineberg added, is addressing consumer demand for products created in these regions. "It's really important to build on the efforts that are already underway to insist on deforestation-free products. Reducing demand is a very powerful financial incentive that can ultimately improve the balance of protecting these very precious, limited resources." And finally, Fineberg said it's important to strengthen the laws that allow Indigenous control of forest lands.

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