By Angela Yang, Chief Conservation Officer – Forests have long served to protect and provide for all of Earth’s species. Trees help buffer climate extremes and natural disasters, absorb and store carbon from the atmosphere, keep our water sources pristine, preserve land cover and topsoil, and provide sources of food and refuge for an abundance of species, including our own. Trees are integral to a functioning, healthy forest ecosystem, but so are pathogens, the agents of disease. And in nature, this is the fragile, but intrinsic, ecological balance that sustains our world.

When ecological integrity is fractured through processes like deforestation, conditions are created that enable the spread and often emergence of diseases. It is only then that we are reminded how interconnected life on Earth is. The clearing or burning of forests and subsequent loss or displacement of biodiversity, shifts dynamics and unbalances the ecosystem. This allows opportunities for pathogens— and their vectors such as ticks or mosquitoes— to move among and between species or into new places. Forest clearings often create ideal habitat for mosquitoes and as forest habits are fragmented, wildlife populations are forced into closer proximity to each other and to human populations, promoting the spread of diseases such as malaria, Zika and Lyme disease.

Deforestation and the release of stored carbon contributes to warming temperatures that allow the Anopheles mosquito, which carries the parasite that causes malaria, and the deer tick, which carries the bacteria that causes Lyme disease, to move into areas where they could not survive previously. In the case of Lyme disease, deforestation and the loss of predators, allow white-footed mice, which host deer ticks, to proliferate. As a consequence of deforestation and its cascading impacts, the global spread, intensity and distribution of infectious diseases transmission are being altered.

These diseases and others, like the coronavirus behind SARS and COVID-19, are zoonotic, meaning they originate in animals, but can infect humans when the opportunity arises. In fact, almost 60% of infectious diseases are zoonotic in origin. Our actions, such as deforestation, encroachment of natural habitats, and the extraction and consumption of wildlife, create the optimal environment for these viruses to “jump” from one species to another and to us. The loss of forested habitat pushes wildlife closer to ever-expanding human populations, laying the foundation for these spillover events.

Globally, the rates of deforestation, whether for agriculture, urbanization or industry, are accelerating, with almost 30 million hectares, an area the size of Belgium, lost in 2018. And with it, our compromised ecosystems are losing resiliency and the ability to support us.

At Rainforest Trust, we take a holistic approach to our projects, aiming to protect not only the trees, but also the forest ecosystem. And by protecting forests— our frontline defense— we halt the downward spiral of events triggered by degraded ecosystems. Healthy forests, healthy wildlife, healthy people equals a healthy planet. We are one.