inhabitat

Climate change, deforestation lead to younger, shorter trees

04 June 2020

While natural disturbances — flooding, landslides, insect infestations, fungi, vine overgrowth, disease, wildfire and even wind damage — negatively impact forests, they do not compare with the magnitude of harm humans have precipitated. Consider how over-harvesting trees for more land use has altered forest landscapes. The felling of numerous tree stands has severely dwindled the carbon sinks required to fix excess atmospheric carbon resultant from human-induced greenhouse gas emissions.

Without the necessary carbon storage from forest trees, global temperatures will continue to rise and intensify consequent climate change damage. Climate change exacerbates conditions through insect and pathogen outbreaks that further compromise tree health and development. In fact, research has shown that annual “carbon storage lost to insects” equals “the amount of carbon emitted by 5 million vehicles.” This illustrates how substantial tree decline due to insects can be.

Why are biologists worried about the adversely shifting forest dynamics? As the U.S. Department of Energy’s Pacific Northwest National Laboratory (PNNL) explained, “Wood harvests alone have had a huge impact on the shift of global forests towards younger ages or towards non-forest land, reducing the amount of forests, and old-growth forests, globally. Where forests are re-established on harvested land, the trees are smaller and biomass is reduced.” Conservationists subsequently

admonish that continuing with business as usual will only worsen the conditions that increase tree mortality rates and the accompanying biodiversity crisis.

As NPR reported, “Researchers found that the world lost roughly one-third of its old growth forest between 1900 and 2015. In North America and Europe, where more data was available, they found that tree mortality has doubled in the past 40 years.” It is believed these worrying trends will persist unless changes are made and new protection policies enacted.

Research team lead, Nate McDowell of PNNL, realized there was a major problem as he studied how global temperature rise affected tree growth and the changes occurring within a forest. Satellite imagery and modeling data unveiled a comprehensive view of the state of global forests and their shifts from older, taller trees to younger, shorter ones. The overall picture is of extensive loss.

“I would recommend that people try to visit places with big trees now, while they can, with their kids,” McDowell advised. “Because there’s some significant threat, that might not be possible sometime in the future.”

McDowell’s research ties in closely with last summer’s study from National Science Review, which showcased how exposure to both rising temperatures and extreme temperature ranges have decreased vegetation growth throughout the northern hemisphere. The finding upended previous beliefs that global warming would increase vegetation photosynthesis and extend the photosynthetic growing season. Instead, global warming was seen to increase the chances of drought and wildfire, which reduced water availability and therefore distressed forest vegetation.

Source: https://inhabitat.com/climate-change-deforestation-lead-to-younger-shorter-trees/