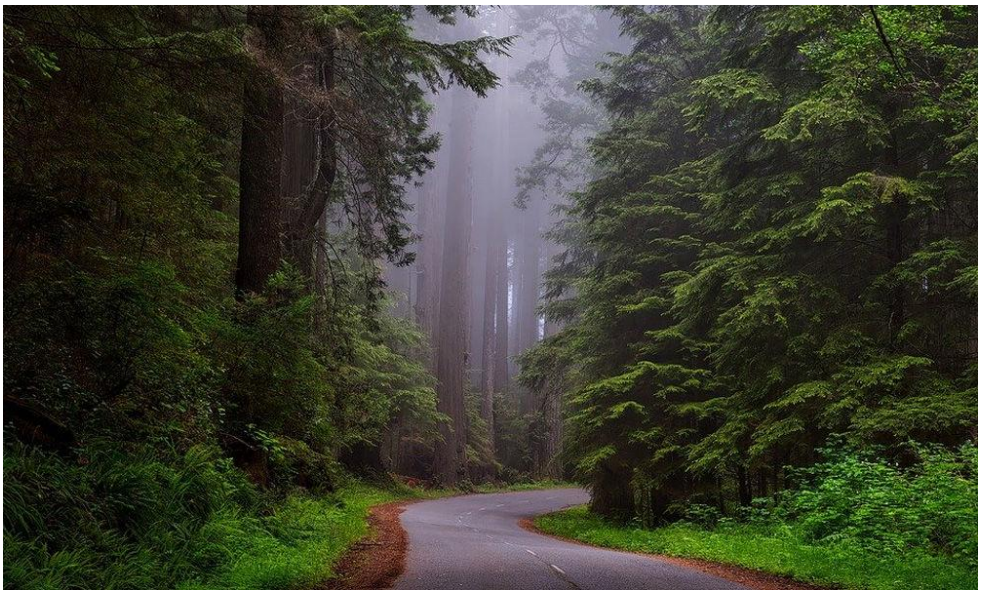
Environmental Changes Are Leading To Shorter, Younger Trees: Study

03 June 2020



A team of scientists at the Pacific Northwest National Laboratory have found that increasing temperatures and levels of carbon dioxide have been modifying the world's forests

Environmental changes are increasingly forcing forests toward shorter-statured and younger stands, reducing potential carbon storage, according to a new study published in Science, titled, 'Pervasive shifts in forest dynamics in a changing world'. A team of scientists at the Pacific Northwest National Laboratory (PNNL), led by Dr Nate McDowell found that increasing temperatures and levels of carbon dioxide have been modifying the world's forests. The rise in disturbances such as wildfire, drought, wind damage and other natural calamities are also fuelling this change. "This trend is likely to continue with climate warming," said McDowell. "A future planet with fewer large, old forests will be very different than what we have grown accustomed to. Older forests host much higher biodiversity than young forests and they store more carbon than young forests," he added. Advertisement According to a Forbes report, along with forest harvesting by humans, the Earth has seen a dramatic decrease in the age and stature of forests. In the last 100 years, over 30 per cent of forests have been lost across the globe. Losing taller trees have a detrimental effect on us and other lifeforms on Earth as they store more

carbon than younger smaller forests. It becomes harder to mitigate the worst effects of climate change without them. Based on increasing latitude, forests can be classified into three types; Tropical, Temperate and Boreal. Of the three types, more than half of tropical forests have already been destroyed. Advertisement Scattered remnants of the original temperate forests remain. The trees that are sometimes planted on the cleared areas, at the best end up becoming monoculture crops, not a forest. Much of the soil and almost all of the animals are gone from the forest microclimate. "Mortality is rising in most areas, while recruitment and growth are variable over time, leading to a net decline in the stature of forests," said McDowell. One major effect of rising temperatures and expanding dry periods is that trees shut off their stomata (the opening in their leaves through which they respire) more often to avoid moisture loss. But that also shuts down metabolism, especially photosynthesis, so the trees grow slower and smaller. Showcasing a classic positive-feedback mechanism, when big trees die they release a lot of CO2. Consequently, more trees dying cause temperatures to go up, causing more tree death and more CO2 released.

Source: https://thelogicalindian.com/environment/climate-change-forest-shorter-trees-21451