Forest logging increases risk of mega fires

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New growth in the ash forests of Victoria. Photo: David Blair

Logging in Victoria's mountain ash forests is increasing the risk of catastrophic wildfires, according to an expert from The Australian National University.

In a study published in the journal *PNAS* last week, Professor David Lindenmayer from the ANU Fenner School of Environment and Society, and a team of world-renowned ecologists, analysed Victoria's mountain ash forests after the 2009 Black Saturday bushfires as well as decades of ecological data.

Professor Lindenmayer said that he and the research team found that in the past century large areas of mountain ash forests have been subject to timber and pulpwood harvesting. This has created an area dominated by

young fire-prone trees and increases the risk of “mega fires”.

“Before European settlement, the fire regime was dominated by an infrequent severe wildfire that occurred in late summer,” explained Professor Lindenmayer. “Young seedlings germinate from seed released from the crowns of burned mature trees to produce a new even-aged stand.

“What we are now realising is the combination of wildfire and logging is creating a previously unrecognised landscape trap in which the behaviour of the ash forest landscapes is markedly different from that which would have occurred before European settlement.

“The core process underlying this landscape trap is a positive feedback loop between fire frequency and severity and a reduction in forest age at the stand and landscape levels caused by logging

“Individual patches of logged forest are becoming more fire-prone and when these are taken together the whole landscape is at risk of being consumed by mega fires,” he said.

Professor Lindenmayer added that the increasing prevalence of dense young regenerating stands will lead to an increased risk of severe wildfires happening more often.

“Detailed on-site measurements following the 2009 wildfires have revealed that young forest burns at higher severity than mature forest, and their analysis suggest we will see more of these severe wildfires in the future.

“Once a mountain ash forest landscape is dominated by widespread areas of young fire-prone forest, the increased risk for high severity widespread fire decreases the probability that the landscape can return to

its former mature state – particularly under the drier and warmer conditions associated with climate change. That's why it's described as a landscape trap; it's self sustaining."

The study also showed that not only will these forests be more prone to extensive wildfire, but stands of mountain ash forest will be replaced by other species, particularly wattle.

"These changes will significantly impair ecological functions like carbon storage, water production and biodiversity conservation," said Professor Lindenmayer. "This is historically unprecedented and is beginning to dominate the mountain ash landscapes we see today."

Provided by Australian National University