

Research predicts extreme fires will increasingly be part of our global landscape

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University of Tasmania Professor of Environmental Change Biology David Bowman led an international collaboration -- including researchers from the University of Idaho and South Dakota State University -- to compile a global satellite database of the intensity of 23 million landscape fires between 2002 and 2013. Credit: University of Tasmania

Increasingly dangerous fire weather is forecast as the global footprint of extreme fires expands, according to the latest research.

University of Tasmania Professor of Environmental Change Biology David Bowman led an international collaboration - including researchers from the University of Idaho and South Dakota State University - to compile a global satellite database of the intensity of 23 million landscape fires between 2002 and 2013.

Of the 23 million fires, researchers honed in on 478 of the most extreme wildfire events.

"Extreme fire events are a global and natural phenomenon, particularly in forested areas that have pronounced dry seasons," Professor Bowman said.

"With the exception of land clearance, the research found that extremely intense fires are associated with anomalous weather - such as droughts, winds, or in desert regions, following particularly wet seasons.

"Of the top 478 events we identified 144 economically and socially disastrous extreme fire events that were concentrated in regions where humans have built into flammable forested landscapes, such as areas surrounding cities in southern Australia and western North America."

Using [climate change](#) model projections to investigate the likely consequences of climate change, the research found more extreme fires are predicted in the future for Australia's east coast, including Brisbane, and the whole of the Mediterranean region - Portugal, Spain, France, Greece and Turkey.

"The projections suggest an increase in the days conducive to extreme wildfire events by 20 to 50 per cent in these disaster-prone landscapes,

with sharper increases in the subtropical Southern Hemisphere, and the European Mediterranean Basin," Professor Bowman said.

University of Idaho Assistant Professor Crystal Kolden said the United States had a much higher proportion of fire events become disasters than any other country in the study. Wildfire burned more than 10 million acres in the US in 2015, and cost over \$2 billion to suppress.

"What is really novel about this study is that in the US, we tend to make the assumption that all large and intense fires are disasters, and that there is nothing we can do about it," Assistant Professor Kolden said.

"But that is not the case at all. What makes a fire event a disaster in the US is when key factors combine - low density housing amidst dense forests, the right climatic conditions, and a lack of fire preparedness on the part of humans.

"We can't stop big, intense fires from happening here, and they are increasing under climate change. However, in the western US, we can reduce the potential for fire disasters by both reducing forest density and improving mitigation and preparedness through the development of [fire](#)-resilient communities."

The research has been published today in the prestigious scientific journal *Nature Ecology and Evolution*.

The research is released on the day that Professor Bowman's home state remembers the impact of 1967 bushfires which claimed the lives of 62 people, left 900 injured and more than 7000 homeless. The research resulting from these fires built the foundations of a globally relevant research effort in the field for Tasmania.

More information: David M. J. S. Bowman et al, Human exposure

and sensitivity to globally extreme wildfire events, *Nature Ecology & Evolution* (2017). [DOI: 10.1038/s41559-016-0058](https://doi.org/10.1038/s41559-016-0058)

Provided by University of Tasmania

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