Bushfires could mean rise in threatened native species

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Sunrise at Trial Bay in NSW during the bushfires. Credit: Trevor McKinnon

The damage caused by the catastrophic 2019-2020 Australian bushfires could lead to a dramatic jump in the number of native species at risk, according to new research.

James Cook University's Dr. Stewart Macdonald was part of a University of Queensland-led study that examined the impact of the fires on animal habitats.

He said the fires that burnt through 97,000 square kilometers of forest, bush and farmland were unprecedented.

"By comparison, these fires were at least 50 times more extensive than California's worst wildfires on record. They were also exceptionally severe, burning Australian ecosystems that typically do not burn, such as rainforest," said Dr. Macdonald.

He said at least 832 vertebrate species are likely to have been impacted by the fires to some degree.

"For example, Kate's leaf-tailed gecko was one of three species that had more than 80% of its range burnt. 15 species, including the endangered broad-headed snake and the Sphagnum frog, had between 50% and 80% of their range burnt," he said.

UQ School of Earth and Environmental Sciences Ph.D. candidate Michelle Ward said many of the species impacted by these fires were already declining in numbers because of drought, disease, habitat destruction, and invasive species.

"Our research shows these mega-fires may have made the situation much worse by reducing population sizes, reducing food sources and rendering habitat unsuitable for many years," said Ms Ward.

The team found that 49 species not currently listed as threatened may now warrant assessment for listing under the Environment Protection and Biodiversity Conservation (EPBC) Act.

"If these EPBC assessments find that all 49 animals meet listing criteria, the number of threatened Australian terrestrial and freshwater animals would increase by 14 percent," said Ms Ward.

Professor James Watson, from the Wildlife Conservation Society and UQ, said anthropogenic climate change was exacerbating fires in Australia.

"While fire is a crucial aspect of many ecosystems, we're witnessing climate change-induced drought combined with land use management practices that make forests more fire prone," Professor Watson said.

"We need to learn from these events as they are likely to happen again."

Ms Ward said Australia needs to urgently reassess the extinction risk of fire-impacted species to better conserve remaining habitats. "We must assist the recovery of populations in both burnt and unburnt areas. This means strictly protecting and managing important habitats for other threats like habitat loss, invasive species, and disease."

Dr. Macdonald said the study was a broadscale assessment that could be done quickly.

"While these sorts of assessments can never tell us the full story, they can be used to prioritize the species that need urgent on-ground surveys. We know that many animals are resilient, but the scale of these fires means much more of a species' population has been impacted simultaneously, making it harder for them to recover," he said.

"Impact of 2019–2020 mega-fires on Australian fauna habitat" has been published in *Nature Ecology and Evolution*.

More information: Michelle Ward et al. Impact of 2019–2020 mega-

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