

# Adapting and mitigating wildfire risk due to climate change: Wildfire Mitigations for Homeowners and Communities

Simon Wegner, Grant Pearce and E.R. (Lisa) Langer  
[Simon.wegner@scionresearch.com](mailto:Simon.wegner@scionresearch.com)

## Introduction

As part of a study on adapting and mitigating wildfire risk due to climate change to support agencies in planning for and reducing the growing risk of extreme wildfires in Aotearoa New Zealand's vulnerable rural-urban interface (RUI), we have prepared a set of recommended wildfire risk mitigation and preparedness actions for agencies to communicate to homeowners and communities living in the RUI. [Wildfire mitigation recommendations]

Best-practice recommendations from more than 120 publications from Aotearoa New Zealand, Australia, Canada and the United States were reviewed and compiled to produce a list of wildfire risk mitigation, preparedness and response actions. Following coding, grouping by topic and merging of repeating or overlapping concepts, an initial synthesis list of approximately 250 recommendations was produced.

Feedback was gathered during the development process from representatives from Fire and Emergency New Zealand (FENZ), the Ministry for Primary Industries (MPI), the Queenstown Lakes District Council (QLDC) and a number of residents within a high wildfire risk area as part of a northern Wānaka/Albert Town community case study. The recommendations were revised to suit New Zealand contexts and to ensure they do not conflict with relevant legislation or codes following the review process. However, the recommendations have not been endorsed or adopted by these organisations.

This has resulted in around 170 best practice wildfire risk reduction, mitigation and preparedness action recommendations which agencies can communicate when engaging with at-risk RUI communities. They describe mitigation actions homeowners can take to prepare themselves and their homes to reduce their risk from wildfire.

Further information about the project aims, methodology and caveats about how this information should be applied can be found in the Adapting and mitigating wildfire risk due to climate change: extending knowledge and best practice report (Langer, et al. 2021; [www.ruralfireresearch.co.nz](http://www.ruralfireresearch.co.nz)).

## Contents

The list of wildfire risk reduction, mitigation and preparedness actions contained in the attached spreadsheet has been grouped into actions to be implemented at different stages, which are displayed in separate tabs. The final tab outlines the full range of recommendations compiled from the literature that were used in developing this work. Some recommendations are duplicated because they are appropriate in multiple contexts. The categories of actions are:

- When building or remodelling a home
- When landscaping or designing outdoor spaces and property infrastructure
- When planning for wildfire evacuation
- When preparing for the start of each wildfire season
- When a wildfire occurs
- Full list of recommendations reviewed from the literature.

## Important caveats

The recommended actions are aimed primarily at RUI situations and not necessarily to wider rural contexts (e.g. farming, livestock animals, etc.). Importantly, the recommended mitigations are based primarily on the consensus of advice internationally, expert insight, anecdotal evidence and correlation of a limited number of variables. Other than those materials and designs which have been tested in a laboratory, it is not currently possible to provide a definitive scientific assessment as to the effectiveness of most recommended mitigations, to prioritise them for action, or to define objective thresholds for how they should be applied (e.g. precisely how many metres of vegetation clearance should be recommended). In addition, the mitigation actions recommended may conflict with competing priorities, such as ecological protection or urban growth, and may not be appropriate in all local contexts. Therefore, FENZ and other agencies should determine which of these recommended mitigations they wish to promote in which contexts.

These recommendations must not be presented in isolation. They form only one part of what must be a coordinated communications effort that also includes educating communities, homeowners and residents about wildfire and what factors shape their individual and collective risk. This companion material should include:

- The principles of how wildfires spread and what factors affect the rate and direction of spread.
- The limits of firefighting capacity and capability against fires of different intensities.
- What to consider when making an evacuation plan, including information about the speed of wildfire spread, likelihood of traffic congestion, and the difficulty of driving through smoke.

In addition, the recommendations must be accompanied by the following caveats when shared with homeowners and communities:

- These recommendations can help you improve the chances that you and your home will survive a wildfire, but remember that no amount of risk reduction can guarantee safety. Some wildfires may overcome even the strongest mitigations and the best efforts of firefighters.
- Always evacuate if a wildfire threatens your home, and do not wait for an official warning to evacuate if a fire is nearby. Only shelter in place as a last resort if escape is no longer possible.
- No single action is enough. The recommended actions are intended to work together to collectively reduce your wildfire risk. Even major mitigation actions, such as installing exterior sprinkler systems will not be effective unless taken alongside other measures.
- The recommendations describe the ideal and will not all be feasible or practical in all situations. If more susceptible sites, construction materials, designs or landscaping cannot be avoided, compensate by taking greater precautions in other ways. Consider the intent of the recommendations and consult with Fire and Emergency NZ representatives, fire engineers or other experts to find alternative solutions that will work for you.
- Be sure to follow the Building Code and all applicable local regulations. Work with your local council to ensure you remain compliant.

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