



# FINDINGS

# We found there is no one-size-fits-all solution for prescribed burning. Risk mitigation varies by region and management value.

## From hectares to tailor-made solutions for prescribed burning

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Prescribed burning is a central feature of fire management, yet we lack a robust quantitative basis for understanding and comparing its effectiveness at mitigating risk for different regions and management values. This project aims to address these gaps and provide support to agency decision makers across southern Australia

### Introduction

The express purpose of our research is to support the delivery of effective, 'tailor-made' prescribed burning solutions across southern Australian ecosystems by providing a quantitative trajectory of risk reduction for multiple values in response to differing prescribed burning strategies. The project is divided into two phases: fire behaviour accounting and risk accounting.

### Methods

A large number of fire behaviour simulations were carried out with the PHOENIX RapidFire model, with key inputs including ignition location, fuel type and arrangement, local weather streams and fire history including combinations of different rates of edge and landscape treatment. We use Bayesian decision networks to estimate the level of risk mitigation available through different prescribed burning treatments.

### Results

The project has generated a large amount of output, spanning raw simulation results, risk estimates, cost effectiveness and climate change impacts. An example of the intersection between prescribed burning treatment, location and climate change is shown in Figure 1. In the NSW Nandewar region, increasing edge and landscape have similar effects in reducing area burnt by wildfire. Climate change has the potential to strongly reduce this effectiveness, although some scenarios suggest similar effectiveness to current levels.

### Discussion

The Prescribed Burning Atlas is a tool for end users to explore, query and use outputs of the project. It can be used to guide the implementation of 'tailor-made' prescribed burning strategies to suit the biophysical, climatic and human context of all bioregions across southern Australia.

Project output is at the landscape-scale (~200,000 ha) and draws on all case study locations across southern Australia. At the Prescribed Burning Atlas users can:

- select from 13 case study landscapes (Fig 1);
- select different treatment rates (between 0 and 15% p.a.) and treatment locations (edge and landscape);
- explore the area burnt by wildfire and associated risk across five management values (life loss, house loss, road damage, powerline damage and area burnt below minimum tolerable fire interval) for selected landscapes and treatment strategies;
- explore the cost-effectiveness of different treatment options;
- explore the effects of climate change on the risk mitigation available from prescribed burning (Fig 2);
- read FAQs and access project publications

For more information, please email hamishc@uow.edu.au

### Project outputs

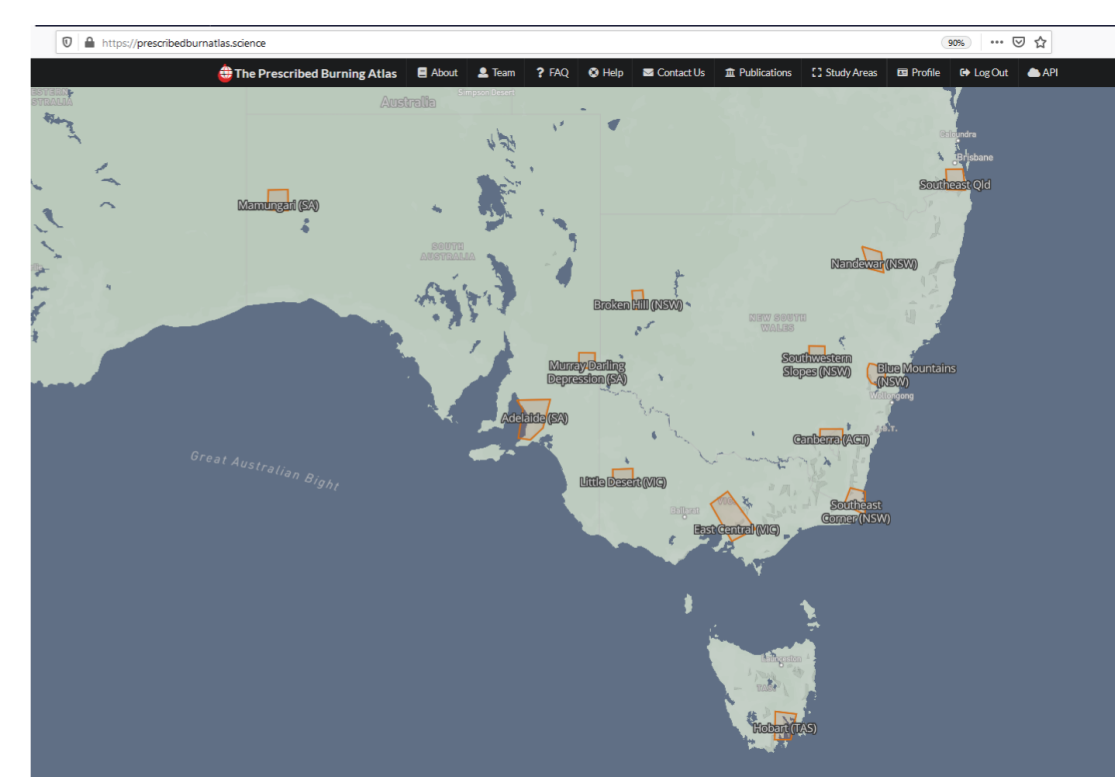


Figure 1: The Prescribed Burning Atlas is now live. Users can register at <https://prescribedburnatlas.science>

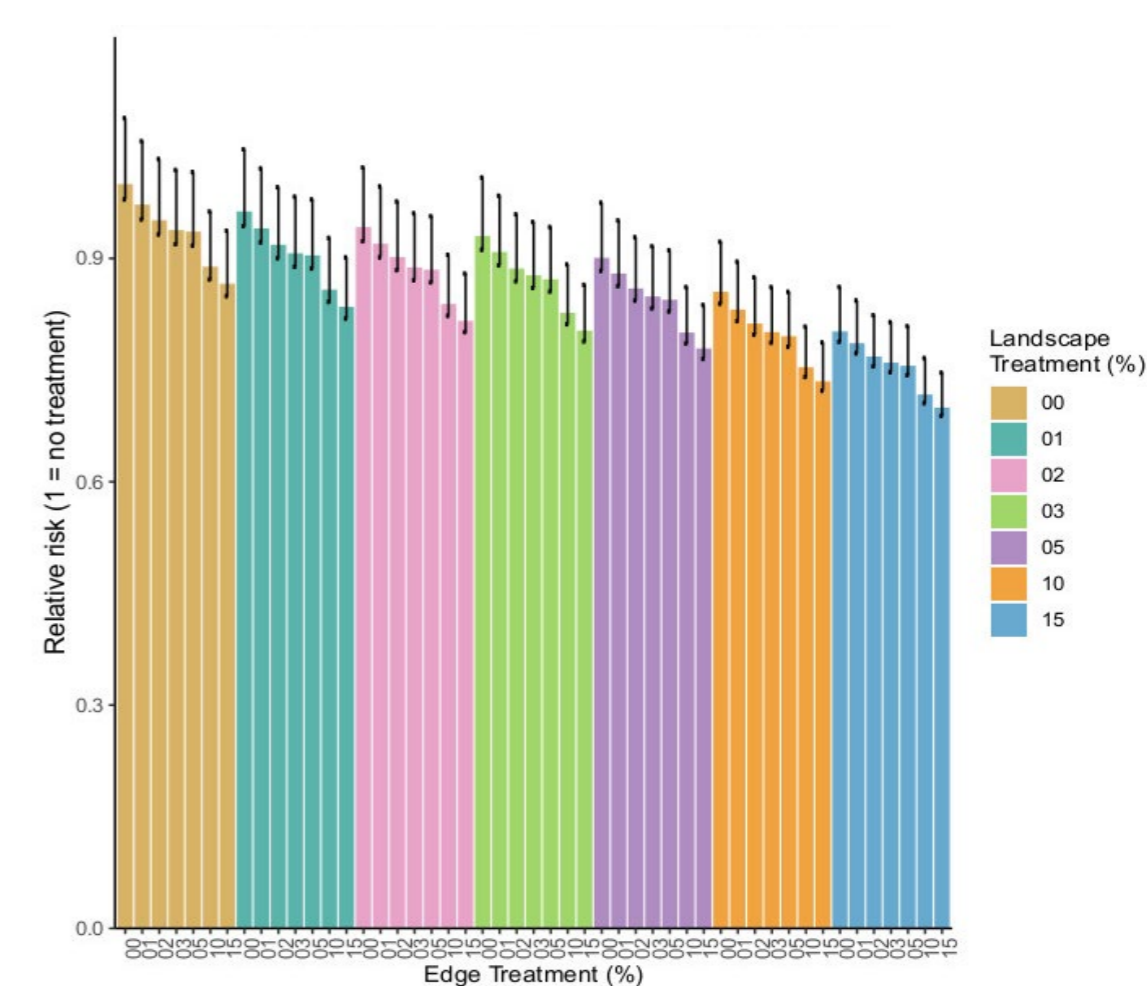


Figure 2: PROJECTED INFLUENCE OF CLIMATE CHANGE ON AREA BURNT BY WILDFIRE IN THE NSW NANDEWAR CASE STUDY LANDSCAPE. COLOURS SHOW AMOUNT OF LANDSCAPE TREATMENT, WHILE NUMBERS ON X-AXIS SHOW AMOUNT OF EDGE TREATMENT. BLACK BARS SHOW THE RANGE OF CLIMATE CHANGE PROJECTIONS (EVANS ET AL. 2014). IN MOST SCENARIOS CLIMATE CHANGE IS PROJECTED TO DECREASE THE RISK MITIGATION AVAILABLE FROM PRESCRIBED BURNING.