

NATURAL HAZARDS
RESEARCH FORUM

STREAM 1 WORKSHOP 3

Bushfire risk at the rural-urban interface

Prof David Bowman
Dr Grant Williamson
Dr Stefanie Ondi
Dr Sharon Campbell
Amila Wickramasinghe
University of Tasmania

John Gilbert
Country Fire Authority (Vic)

Melissa O'Hallaran
NSW Rural Fire Service

Jeremy Little
Department of Energy, Environment and
Climate Action (Vic)



slido
SCAN TO PARTICIPATE
CODE: NHRF23

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#NHRF23



Bushfire Risk and the Rural-urban interface Project

David Bowman
ARC Laureate Fellow
Director Fire Centre
Biological Sciences
School of Natural Sciences
University of Tasmania

UNIVERSITY of TASMANIA

FIRE CENTRE 

Bushfire Research Hub

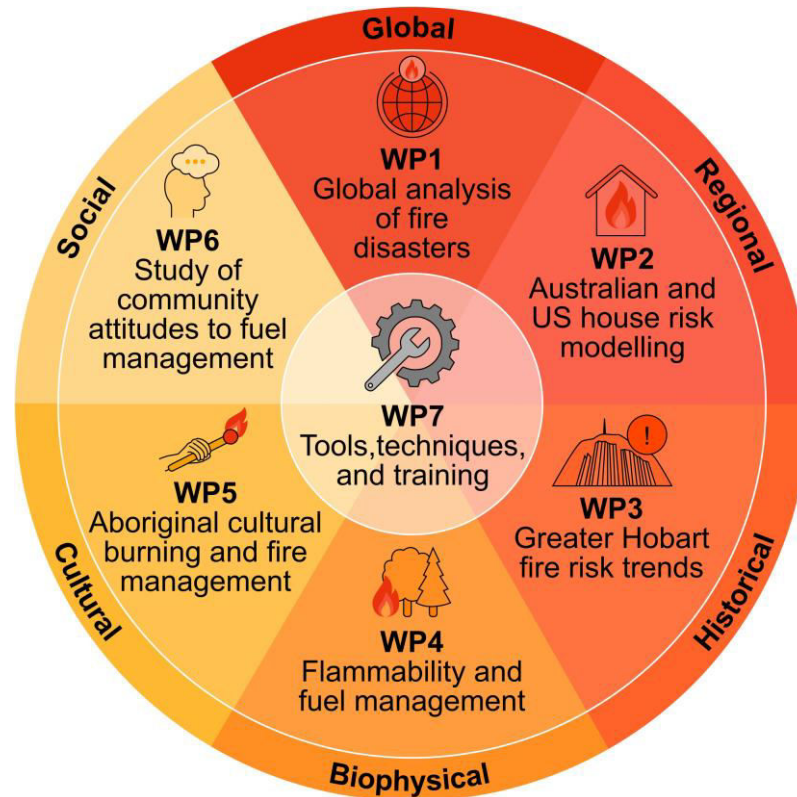


Australian Government
Australian Research Council



Australian Government
National Health and Medical Research Council

ARC Laureate Fellowship



Genesis NHRA Project



Call for Expressions of Interest

Project T2-A5: Bushfire risk at the rural-urban interface

Expressions of Interest due 23 October 2022 to research@naturalhazards.com.au

1. Community centred/led risk reduction

Increasing awareness, a sense of responsibility for, and sustainable community action to reduce bushfire risks outside of the home, within and just beyond the Asset Protection Zone (APZ).

- Identify challenges, capacity, and opportunities for community centred/led risk reduction at the RUI
- Develop a customised risk rating for residents' properties and assessment of practical measures to reduce the risk in their gardens
- Determine what legislation/regulations/incentives/programs best motivate action and compliance
- Suggest how householders can best be supported to reduce risk on and near their property

2. Bushfire behaviour in interface models

Improve our understanding of fire behaviour in the RUI

- Improved ember modelling and understanding of how bushfire spreads within townships
- Identification of the key site and vegetation characteristics that affect bushfire behaviour within the RUI, including garden plant flammability and garden arrangement / landscaping
- Understanding of how gardens and landscaping influence bushfire risk
- Improved mapping and monitoring capacity

3. Effective and innovative mitigation strategies

Identify and assess potential mitigation measures for stopping and reducing the spread of fire into the RUI.

- Test and evaluate non-conventional control options
- Explore the efficacy of different mitigation measures across a range of environments
- Identification of recommended mitigation measures

GEOSPATIAL (Comparative regional AUS-US)

Models of spot fires
(ember attack)

House-loss
modelling

Multi-scale landscape mapping
of fire hazard



BIOPHYSICAL

Live-fuel
flammability

Fire hazard
assessment

Gardens

Landscape



INTEGRATION AND MANAGEMENT

Fire hazard
assessment
tools

Socio-ecological
trade offs

Fire hazard mitigation:
Decision support
tool

Communication and
community outreach

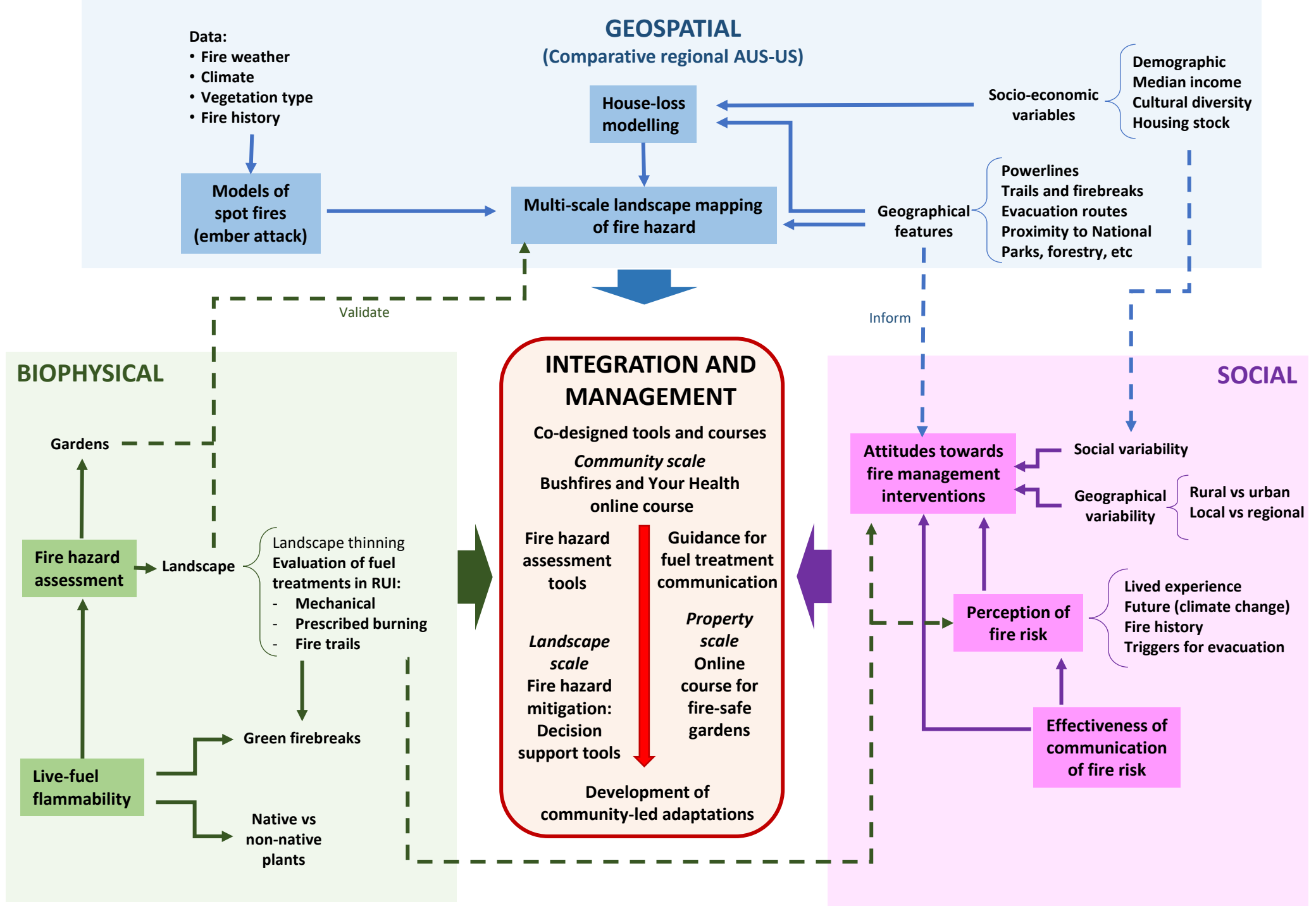
SOCIAL

Perception of
fire risk

Effectiveness of
communication
of fire risk

Attitudes towards
fire management
interventions





Current Foundation Research

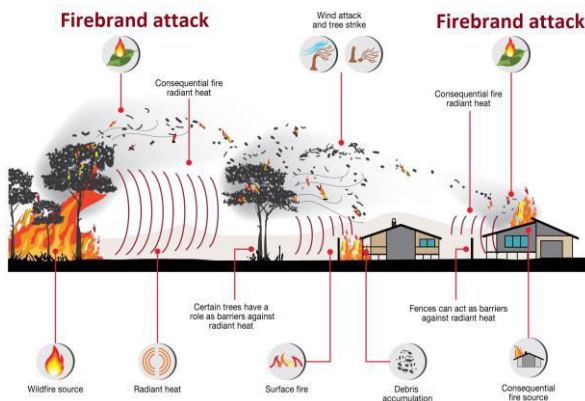
Geophysical – Dr Amil Wickramasinghe

Biophysical – Dr Stefania Ondei

Geospatial – Dr Grant Williamson

Health and Social – Dr Sharon Campbell

Quantifying the ember attack on the houses/buildings in the wildland urban interface and **developing an empirical relationship.**

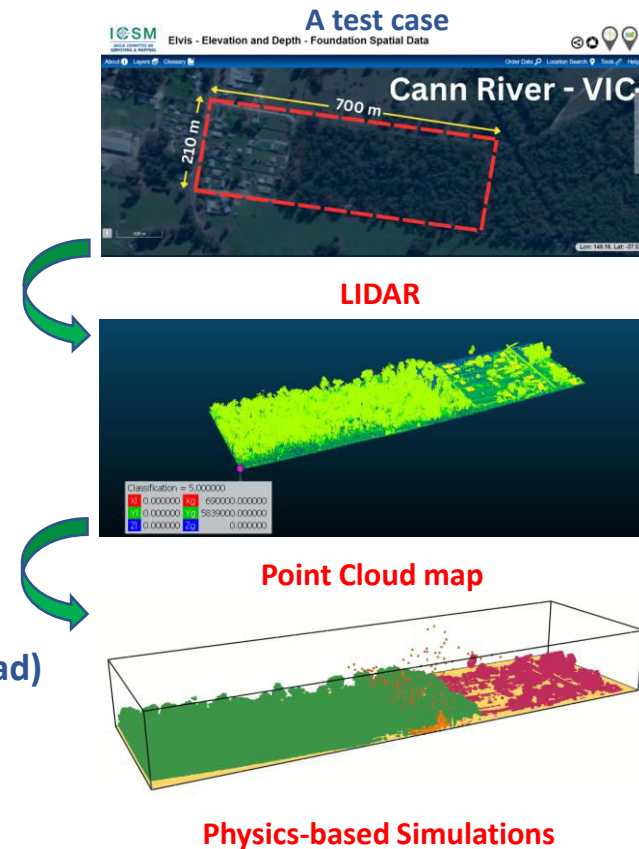


Variables	
FFDI (100, 80, 40)	3 Plausible Wind Speeds
	3 Plausible Temperature
Vegetation	3 Fuel Loads
Embers	3 Ember sizes
	3 Ember shapes
WUI	Varied house arrangement

Models will be validated against actual house loss records (with Owen Price)

Outcomes

- Quantitative importance of variables for ember attack (generation and spread)
- Simple mathematical relationship to predict for ember distribution
- Ember attack/distribution risk maps
- Ember properties at the spotting (temperature, mass)





GARDENS

Identify critical garden characteristics, based on existing assessment methods and case studies

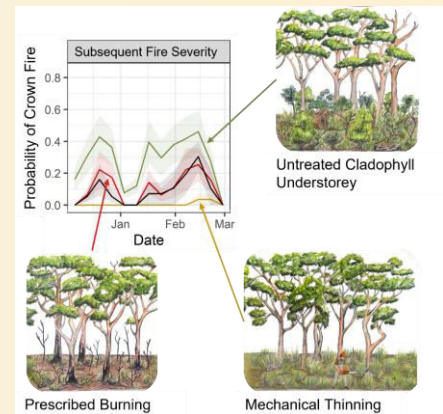


Quantify flammability of plants at the RUI



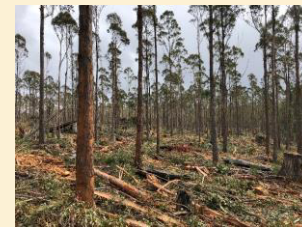
LANDSCAPE

Build on an existing study, which has shown differences in the effectiveness of different fuel treatments



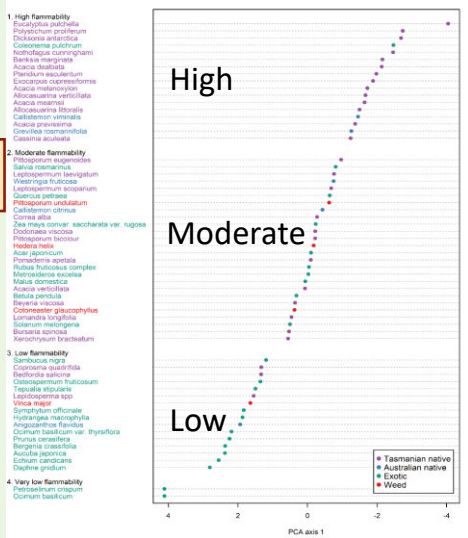
Furlaud et al., in press

Remeasure existing transects and add new ones



Develop a customised risk-rating method

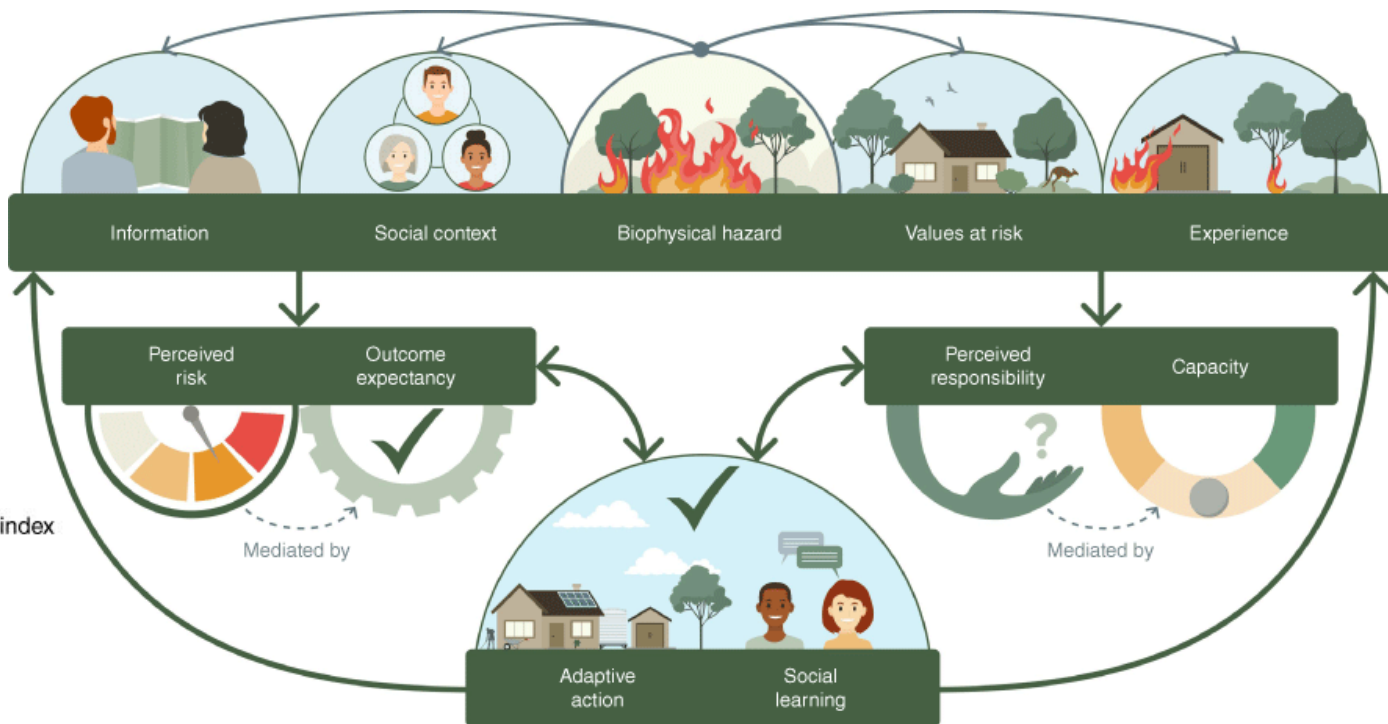
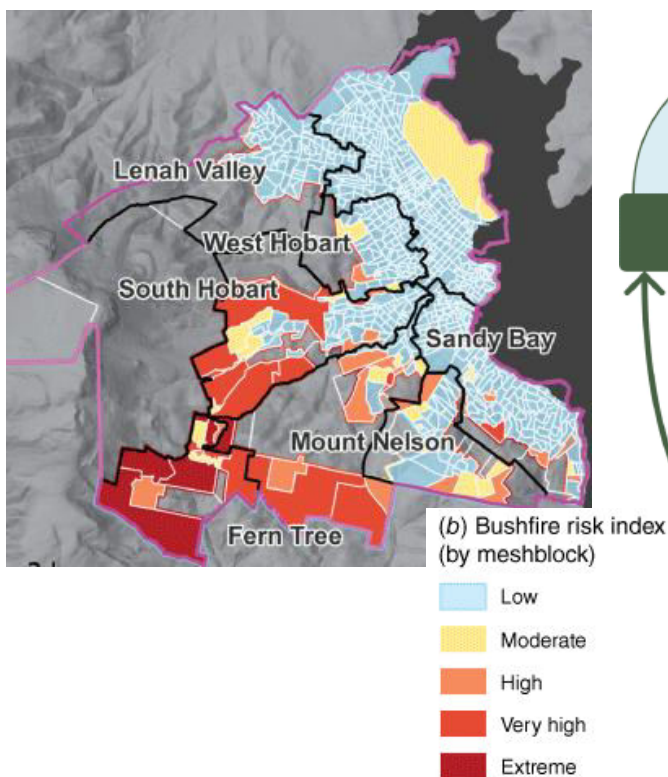
Use it to assess properties on the RUI and identify social and geographic factors associated with increased garden fire hazard





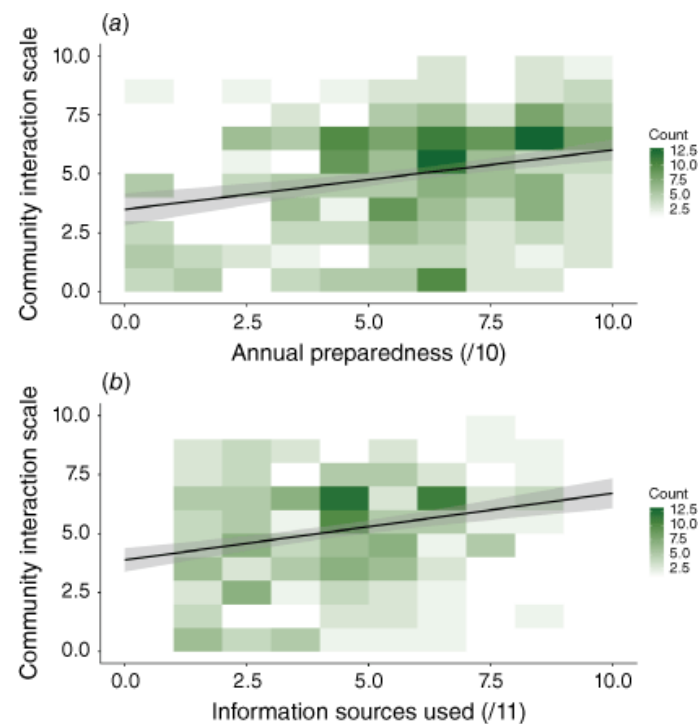
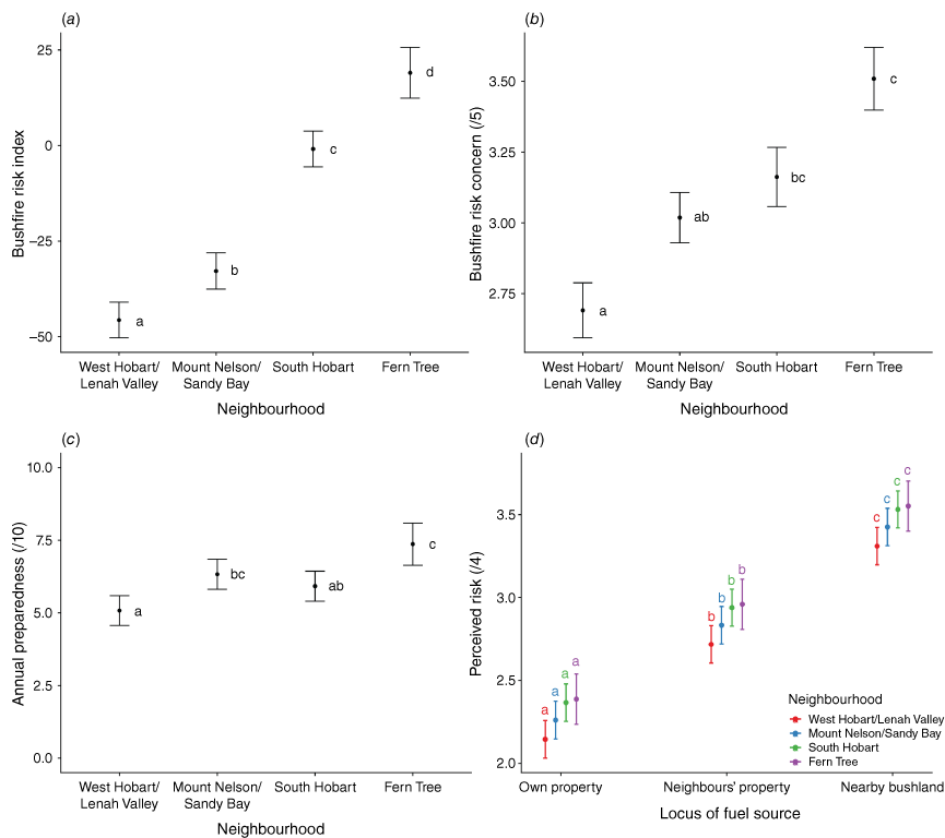
* Building on study that aligned biophysical risk index with community perceptions of risk, and fire preparedness

- Do residents underestimate their risk? Do they act on the risk to prepare?
- Survey (406) and focus groups in four bushfire-prone neighbourhoods





- Perceptions of risk aligned with biophysical risk, but did not translate to adaptive action
- Residents underestimate risk on own property, overestimate risk from outside property



'Bushfires and Your Health' short course



- Three courses, 670+ participants
- Course completion associated with increased bushfire knowledge, bushfire preparedness and health-promoting behaviours
- Translated into six high priority languages

Tasmanian population bushfire survey



- 2016 Tasmanian Population Health Survey analysis
- Repeat questions from 2016
- Additional questions on bushfire risk perception, preparation activities, information sources and understanding, barriers and enablers to leaving

Environmental health community of practice



- Group of people who share a concern, a set of problems, or a passion, and who deepen their knowledge and expertise in this area by ongoing interaction
- Tasmania/environmental health focus
- Online and F2F, web presence