



# Preparing for Disaster:

Climate change and the growing threat of bushfire in Australia

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## Australia: a bushfire prone land

- ➔ Bushfire is inevitable in Australia, occurring annually but not in a geographically consistent manner
- ➔ Australian vegetation is dominated by fire adapted eucalypt species (800 endemics) Lucas *et al.*, 2007
- ➔ Bushfire occurs primarily in the savannas of the tropical north, but the south-eastern corner of the country is also susceptible
- ➔ The largest proportion of the Australian population lives in the south-east - population expansion here continues apace
- ➔ Climate projections suggest that the south-eastern corner of Australia is likely to become hotter and drier in the future Lucas *et al.*, 2007; Hennessey *et al.*, 2005





## A population under threat

*“Even if the probability and intensity of bushfire remain constant, continuing population growth and economic and infrastructure development, particularly within the peri-urban environment, results in a concomitant increase in the potential magnitude and significance of loss and disruption associated with bushfire activity...” Paton, 2006*





## People living at the peri-urban fringe

- ➔ What characterises peri-urban areas?
  - new suburbs, new people
  - large lots, lots of trees
  - homeowners chasing a lifestyle, or living on the periphery of cities because of high housing cost and/or low availability close to the centre
- ➔ What characterises the people living there?
  - different experiences
  - different beliefs about bushfires
  - different attitudes to fire and risk management
- ➔ Perception of risk and knowledge of bushfire threat varies considerably





## Encouraging people to meet the threat

- ➔ Diversity of residents poses problems for risk managers
- ➔ Current Australian risk communication aims to encourage people who are living in known bushfire risk areas to prepare for the threat of bushfire
- ➔ Australasian Fire Authorities Council (AFAC):  
extracts from the 'Position Paper on Bushfires and Community Safety'  
(November, 2005)

*"... there will be circumstances, such as on days of very high or extreme fire danger, when fire agencies are unable to provide fire-fighting resources in sufficient time and strength ... Therefore people planning to defend their properties must be prepared to be self sufficient."*

*"Education of the community should foster a sense of partnership between residents, neighbours, land-owners and managers, fire agencies and government ..."*

*"People need to prepare, then stay and defend their property, or leave early."*





# The importance of preparing

- ➔ Preparation enables people to deal with hazard activity by increasing resilience and ensuring a quick recovery
- ➔ Frees up resources that fire-fighters may otherwise allocate to the defence of unprotected homes
- ➔ Enables homeowners to make a choice between fleeing the fire or staying to defend - empowering the householder
- ➔ However, despite the attention directed at achieving this goal in Australia, sustained levels of preparedness in at-risk communities remains low
- ➔ Neither perception of risk, nor the standard approach to risk communication seem to engender sustained preparation

Duval & Mulilis, 1999; Lindell & Whitney, 2000; Paton, 2003; Paton *et al.*, 2000





# What influences bushfire preparation?

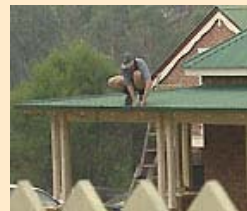
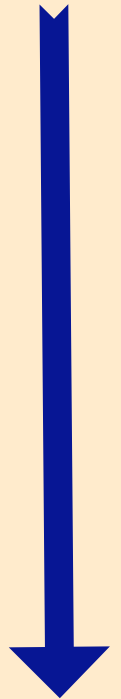
- ➔ A good question... because a good answer will help to provide information that can inform risk communicators
- ➔ Our research suggests some householder characteristics may increase the likelihood that they would consider preparing: age, gender, home ownership, residence length and previous experience
- ➔ But these characteristics aren't driving behaviour change - nor does living in high bushfire risk areas
- ➔ Antecedents of behaviour vs cognitive processes that underpin behaviour change? Paton, 2003
- ➔ What drives the decision to prepare?





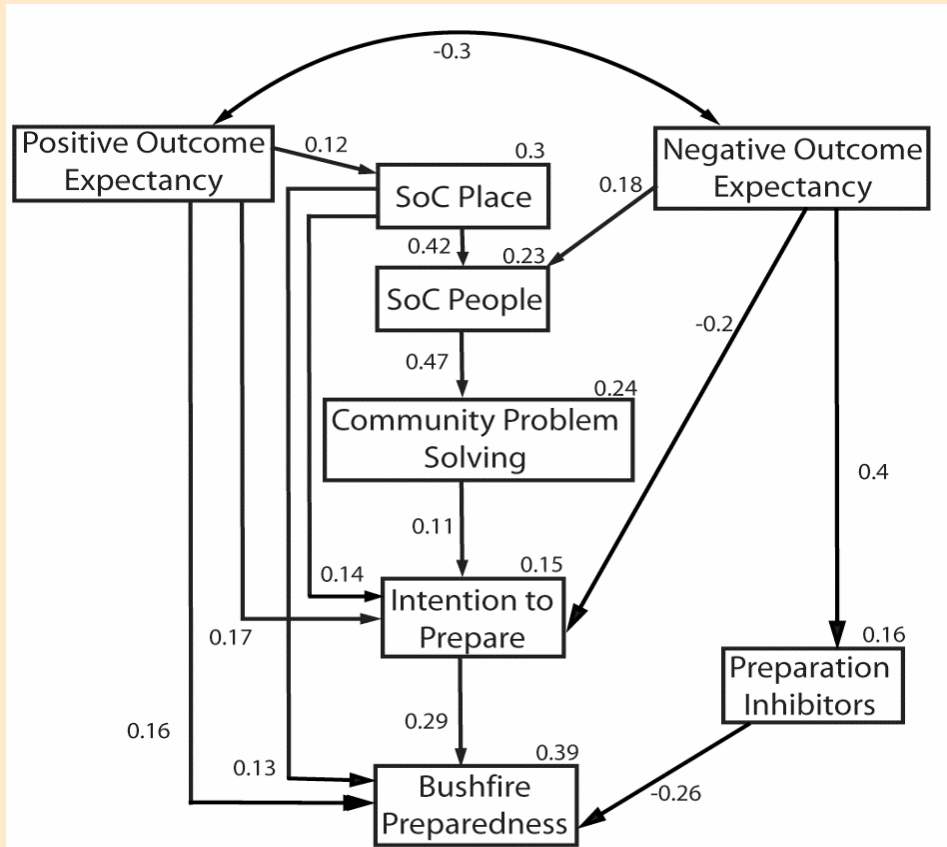
## Research methodology

- What is the cognitive process behind householders' decisions about adopting protective behaviours?
- Mixed methodology of qualitative key informant interviews (N=41) and a bushfire preparedness survey (N=1106), which were undertaken in Tasmania and New South Wales, Australia
- Qualitative data used to develop a substantive model of preparedness decision making
- Longitudinal quantitative data (2006/2007) from preparedness surveys used to test and confirm model using Structural Equation modelling (SEM)





# Bushfire preparedness decision making



- ➔ Predicting 39% of variability in preparedness
- ➔ Process is driven by outcome expectancy perceptions
- ➔ Key process revolves around a sense of community:
  - connection to place
  - connection to people
- ➔ Formation of preparatory intentions is very important
- ➔ Preparation behaviour is also strongly influenced by inhibitory factors (salience)

$\chi^2 = 8.519$ ,  $df = 10$ ,  $p = 0.578$ ;  $RMSEA = 0.001$  (90% 0.0 -> 0.044),  
P-Value for Test of Close Fit ( $RMSEA < 0.05 = 0.976$ ;  $NFI = 0.983$ ,  $GFI = 0.995$ ,  $AGFI = 0.984$ )



## Research into practice

- ➔ While cognitive processing is very complex, there are some areas that risk communicators can target to improve preparedness:

Building positive outcome expectancy gives people a sense that preparing is worthwhile

Building sense of community ensures people share information and support one another

Positive outcome expectancy and good sense of community lead people to develop strong intentions to prepare, and increase bushfire salience

- ➔ Utilising a risk communication message that incorporates information showing people preparing and defending their property successfully
- ➔ Targeting risk information to encourage community based activities
- ➔ Encouraging information transfer from old to new residents, and between community and risk management agencies
- ➔ Paton (2006) showed that individuals who intended to prepare were more likely to adopt protective behaviours
- ➔ Novel risk communication techniques that address this process should increase preparedness levels (in an all-hazards context)



## Information provision or community engagement?

- ➔ Future climate predictions suggest more frequent and more intense bushfires in the future
- ➔ To meet this growing threat, emergency management agencies must utilise best practice communication in order to increase preparedness
- ➔ Both communication techniques are required for effective risk communication:
  - Information dissemination should educate community members
  - Community engagement should accompany this information and help the community to interpret and understand this information relative to their particular circumstances
- ➔ Where communities do not exist, disasters have little impact - therefore, community members must be a fundamental component in disaster risk management, resilience and vulnerability reduction

# Thank you

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