



**Bushfire Cooperative Research Centre Extension:
Communicating Risk - Human Behaviour Under Stress (2) Project**

Occasional Report Number 1: 2011

**Checklist Items For Researchers:
Householder Preparations For Bushfires**

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July 2011**

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Acknowledgements

The following people contributed significantly to developing the bushfire preparations checklist items and questionnaire (in alphabetical order):

Ruth Beatson
Adrian Birch
Peter Hayes
Alina Holgate
Damien Killalea
Mary Omodei
Kerry Suhrbier
Roger Strickland

Disclaimer

This report is intended to assist researchers investigate aspects of community bushfire safety. It is not intended as a guide for residents about how to protect their property from bushfires. Those seeking information about how to prepare for bushfires should contact their state or territory bushfire agency.

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Summary

The report begins by noting that bushfires constitute a serious natural hazard for many Australian communities, accounting for numerous recent deaths and property losses. Only a modest amount of research into community bushfire safety has been reported so far. It is proposed that the availability of a generic checklist of householder bushfire preparation activities may assist researchers in the future. The development of a 30-item research checklist is described. The bushfire preparations checklist includes items related to staying and defending *and* to leaving safely. It can be modified readily to meet specific research aims. It is suitable for use in hard-copy, electronic, and on-line formats.

Background

Historically, Australian communities have proved vulnerable to four kinds of natural disasters: tropical cyclones, severe storms, floods, and bushfires. Of these, bushfires have accounted for the most fatalities (Ellis, Kanowski & Whelan, 2004). From 1900 to 2008, bushfires caused 552 recorded civilian deaths. Two-thirds of the deaths resulted from just 10 fires or fire seasons which all involved extreme fire weather conditions (Haynes, Handmer, McAnaney, Tibbits, & Coates, 2010). Fires which occurred in several parts of Victoria on 7 February 2009 ('Black Saturday') caused 173 deaths and the destruction of more than 2,000 homes. Fires in Western Australia on 29 December 2009 (Toodyay), 10 January 2011 (Lake Clifton), and on 6 and 7 February 2011 (Perth Hills) resulted in the destruction of more than 100 homes in total.

Only a modest amount of research into householder preparation for bushfires, as an aspect of community bushfire safety, has been published in scientific journals to date. A few other studies have been conducted by agencies, and written up as in-house reports (for examples see Whittaker & Handmer, 2010). One issue which may have contributed to the limited amount of available research about householder preparations for bushfire is the lack of a readily available checklist-type instrument describing bushfire preparation activities for researchers to use or adapt, without the need to 're-invent the wheel from scratch' for each study.

This report aims to make available to community bushfire safety researchers a checklist of householder bushfire preparation activities which can be used as the basis for research investigating aspects of community bushfire safety associated with preparation for bushfires. The goal was to generate a manageable (rather than an exhaustive, and lengthy) checklist of activities, incorporating those actions regarded by experienced community bushfire safety practitioners and researchers as sound preparation by residents of communities at-risk of bushfire attack for either staying and defending or for leaving safely.

Development of the Checklist Items

A search of the scientific literature revealed only one published Australian study which listed householder bushfire preparation activities (Paton, Kelly, Burgelt, & Doherty, 2006). (A list of preparation activities tailored for the Californian wildfire risk situation was published by Martin, Bender, and Raish, 2007). Another list of householder bushfire preparation activities had been developed for use in a postal survey of residents of communities affected by the Victorian 7 February 2009 ('Black Saturday') bushfires

(Whittaker, Haynes, McLennan, Handmer, & Towers 2010). Items from the two Australian lists were combined, after amalgamating items with similar content, to form a 22-item first version of a proposed checklist of householder bushfire preparation activities. This checklist was circulated by the authors to an eight-person panel comprising members with expertise in: community bushfire safety research; community bushfire safety education; bushfire behaviour; buildings fire safety and approval; and post-bushfire investigation. Members of the panel were asked to examine the list of items independently and to: (a) identify any items which they did not regard as describing essential bushfire preparatory activities; and (b) suggest other essential preparatory activities which should be added to the list, including items relevant for property defence *and* for leaving safely. After collating the responses and combining proposed activities with similar content a revised, 25-item, version was prepared. This was circulated to panel members for comment, and suggestions for further revisions were invited. An additional two items were suggested.

A 27-item draft survey questionnaire version of the checklist was then prepared. The response format allowed respondents to indicate if they had undertaken the preparatory activity, or the strength of their intention to do so, or their lack of any intention to do so. This questionnaire was circulated to a panel of four experienced researchers. Members were asked to review the questionnaire instructions and format and to suggest revisions to improve the quality of the data likely to be obtained. When the suggestions were compiled a further three items were added to the checklist, and numerous changes were made to the instructions and the wording of some items.

Copies of the resulting 30-item survey questionnaire were then given to five individuals who had no connection with the development of the survey and whose residence was in a location they judged to be at risk of bushfire attack. They were asked to first complete the questionnaire as if they were taking part in a community bushfire safety survey, and then to go through the survey a second time noting any difficulties they had experienced in: understanding an instruction, or understanding an item, or responding to an item. Their comments resulted in several minor changes of wording of the questionnaire.

Use of the Checklist

The current version of the checklist in questionnaire format is at Appendix A. This version asks first (Section A) about bushfire safety plans for a fire season, and for when a bushfire warning is received. Then (Section B) there is a checklist list of bushfire preparatory activities which might be relevant irrespective of whether the householder plans to leave or to stay and defend the property. Finally (Section C), there is a checklist of preparatory activities relevant to a day of predicted Severe or Extreme fire danger rating. It was decided not to include reference to a day of Catastrophic fire danger rating because of an expectation that many residents of at-risk communities would be aware of fire agency policy that residents of at-risk communities should leave their property on a day of Catastrophic fire danger rating.

The checklist should be viewed as a possible basis or starting point for a given bushfire preparation research project. The number of items can be reduced or increased to meet the specific needs of a study. Response formats can readily be varied by researchers to match the aims of their project. Numerical values can be assigned to response categories for quantitative analyses, as required. The checklist can be embedded in a larger

questionnaire, and the instructions concerning the checklist items can be varied as necessary.

The questionnaire has been constructed so as to be suitable for completion in both hard-copy and electronic formats. Only minor changes in the instructions are needed to make it suitable for on-line administration.

It is proposed to trial the questionnaire version of the checklist in a communities bushfire safety survey research study as part of the Bushfire Cooperative Research Centre Extension: Communicating Risk - Human Behaviour Under Stress (2) Project in 2011/2012. This may result in changes to the checklist and an update of the present report.

Researchers may use the checklist for research purposes only, free of charge and without the need to obtain permission. The citation for the checklist is:

McLennan, J. & Elliott, G. (2011). *Checklist Items For Researchers: Householder Preparations For Bushfires*. Melbourne: Bushfire Cooperative Research Centre and School of Psychological Science La Trobe University.

The authors would be grateful for copies of reports of any research conducted using the measure, and for any comments or suggestions about revisions to the checklist. The corresponding author's contact details are:

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<http://www.bushfirecrc.com/research/vicfires-taskforce/victorian-fires-mail-survey>

APPENDIX A: BUSHFIRE PREPARATIONS RESEARCHER'S CHECKLIST QUESTIONNAIRE

PREPARING FOR A BUSHFIRE

Below is a list of things that people who live in a place that could be at risk from a bushfire can do to make themselves safer. For each one, say whether you or a member of your household has **already done, partially done, definitely will do, intend to do, may do, or will not do**, to prepare for a bushfire this fire season.—*If an item does not apply (e. g., it is about livestock or pets and you do not have any), then choose N/A.*

A. For this fire season:

1. Prepared a bushfire plan involving all members of the household for what to do when a day of **severe, or worse, fire danger** is forecast or declared for your region.

- Already done Partially done Will definitely do Intend to do May do Will not do
 N/A

1b.

If you **already have a bushfire plan**, it is (choose one):

- a. leave early (that is, before 10am on all days with an Extreme Fire Danger rating or worse, or the night before those days).
- b. leave when there is a warning or signs of a fire.
- c. stay to defend the home.
- d. Some family members leave, others stay to defend.
- e. Other (please describe):

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2. Have you prepared a bushfire plan involving all members of the household for what to do when there is **a warning** that there **is** a bushfire burning that might threaten your home?:

- Already done Partially done Will definitely do Intend to do May do Will not do
 I will never be in this situation because I always check the fire danger ratings and always leave before there is a warning for my area (i.e. I leave in the morning on all days rated Severe, Extreme, or Catastrophic)

2b. If you **already have a plan**, it is (choose one):

- a. leave immediately (i.e. as soon as there is a WARNING that there is a bushfire that MIGHT threaten your home)
- b. leave, but not until there are clear signs that the fire is LIKELY to threaten your home (e.g. when you can see smoke, or embers, or flames)
- c. Stay to defend the home.
- d. Some family members leave, others stay to defend.
- e. Other (please describe):

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B. The following preparations could be made, whether your bushfire plan is to leave or stay and defend. Please indicate whether you have:

3. Checked that you have enough home contents and building insurance.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

4. Stored important documents and possessions safely elsewhere, or in a fire-proof location on site, or have them packed ready to take with you when you leave.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

5. Used landscaping, tree planting, or the layout of the garden to reduce the bushfire risk to the house.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

6. Installed roof gutter protection.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

7. Enclosed under-floor spaces to prevent embers or flames entering.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

8. Covered gaps and vents to reduce the risk of embers entering the house through openings under the roof or in walls.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

9. Installed seals and/or draft protectors around windows and doors.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

10. Installed shutters for windows.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

11. Installed a sprinkler system on or around the house.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

12. Installed a water tank for firefighting purposes and/or to supply sprinkler system.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

13. Removed bushes close to the house and cut back overhanging tree branches.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

14. Moved combustible material such as firewood, garden furniture, lawn mower and fuel, paint tins, old cars or tyres away from the house.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

15. Cleared leaves, twigs, long grass from around the house to a distance of 20 – 30 meters.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

16. Identified a location nearby where you, or other family members, could shelter safely if you **had to leave** your home because of a bushfire.

Already done Partially done Will definitely do Intend to do May do Will not do N/A
applicable

17. Planned what to do if you decided to leave your home because of the risk of a bushfire: e. g., where to go and stay, the route to take, what to do about pets and livestock.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

18. Obtained a battery-powered radio with fresh batteries.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

19. Prepared a kit of protective clothing and gear (boots, gloves, dust masks, eye protection) for members of the household.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

20. Installed a pump that does not depend on mains electric power (i.e., petrol, diesel driven, or electrically powered by a generator).

Already done Partially done Will definitely do Intend to do May do Will not do N/A

21. Obtained and prepared hoses for firefighting long enough to reach all parts of the house.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

22. Obtained and prepared firefighting equipment such as ladders, buckets, and mops.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

23. Installed or constructed a fire shelter or bunker in which to take refuge if necessary.

Already done Partially done Will definitely do Intend to do May do Will not do N/A

C. On days when the fire danger rating is classified “Severe “or “Extreme” will you:

24. Fill containers (buckets, bins, drums) with water and place these in or around the house.

Will definitely do Intend to do May do Will not do N/A

25. Clear leaves from the roof gutters and roof surfaces.

Will definitely do Intend to do May do Will not do N/A

26. Fill some containers with emergency drinking water.

Will definitely do Intend to do May do Will not do N/A

27. Make arrangements for pets or livestock to be safe.

Will definitely do Intend to do May do Will not do N/A

28. Park the car facing the way to drive away quickly; garage doors open, gates unlocked (even if the plan is to defend).

Will definitely do Intend to do May do Will not do N/A

29. Prepare a kit to take with you if you decided to leave because of the threat of a bushfire (or in case defense fails): water, food, change of clothes, toiletries, medications, valuables.

Will definitely do Intend to do May do Will not do N/A

30. Ensure my mobile phone is kept fully charged (and has sufficient credit for making calls if pre-paid).

Will definitely do Intend to do May do Will not do N/A

Any other things you have done or will do to make yourself safer from bushfires on severe or worse fire danger days? (please describe):

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