

### **RESEARCH DRIVING CHANGE** Showcase 2017

Dr Richard Thornton Chief Executive Officer





Australian Government Department of Industry, Innovation and Science **Business** Cooperative Research Centres Programme





### COLLECTIVE STRENGTH LOCAL NETWORKS GLOBAL LINKS





# A FORUM OF KNOWLEDGE













"We are still talking about getting **Research** into **Operations**. You guys are doing the full loop with **Research** to **Operations** and back into **Research**."

Ron Steffens, International Association of Wildland Fire









# **EMERGENCY WARNINGS**



## Queensland Fire and Emergency Services - QFES

If you're in the path of **#TCMarcia**, there is likely to be a number of hazards including fallen trees, power lines, debris and even possible structural damage to infrastructure and it is vital you do not explore collapsed buildings or go sightseeing.

As the severe weather passes and people begin to leave their homes, we're asking everyone to pay attention to traffic signs and road closures so you don't become stranded across a flooded road. #ifitsfloodedforgetit #bigwet

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# For their sake...

Know your bushfire risk... and make a plan for <u>all</u> your family.

For more information visit www.cfs.sa.gov.au Bushfire Information Hotline 1300 362 361 (TTY 133 677)



FIRE

PREPARE, ACT, SURVIVE,

Govern

# EDUCATE THE CHILD EDUCATE THE COMMUNITY





# VOLUNTEERS







# **MITIGATION**



bnhcrc.com.au

# COMMUNITY





SOUTHERN AUSTRALIA SEASONAL BUSHFIRE OUTLOOK 2015-16

Bushfire Potential 2015-16





## **CYCLONIC HOUSING MODEL**

<u>Wall Construction</u>
→ Timber frame
→ Weatherboard or FC
→ Cyclone rods @ 3 m

<u>Roof Construction</u>
 → Pitched frame (25°)
 → Mixed hip/gable
 → Corrugated iron (nails)
 → Collar ties every 2<sup>nd</sup>

Queenslander (typical 1925-1959)

## **POST EVENT STUDIES**

### HAZARD NOTE HAZARDSCRO



ISSUE 004 FEBRUARY 2015 TOPICS IN THIS EDITION | COMMUNITY SAFETY | RISK

#### CAPTURING COMMUNITY BUSHFIRE READINESS: POST-BUSHFIRE INTERVIEW STUDIES 2009-2014 CONTEXT



#### SUMMARY

While governments will continue to fund fire and land mana bushfires, there is now an expectation that residents should their safety and property protection. Fire agencies expend c community bushfire safety education. One way to review the is to interview residents who experienced a serious bushfire bushfire risk perception, their planning and preparation, and This Hazard Note summarises overall findings from seven po conducted since 2009. A significant percentage of residents that they were at-risk and neither planned nor prepared for a many reported having a plan, written versions of such plans percentage of residents whose plan was to leave had not pre implement their plan safely. Very few residents self-evacuate danger weather predictions. New approaches to promoting of need to be developed, trialled and evaluated.

#### ABOUT THIS PROJECT

The studies described in this Hazard Note were conducted by CRC and Bushfire CRC researchers, and involved interviews w threatened by destructive bushfires in Victoria, Western Austr Wales from 2009-2014. The studies were conducted at the re states, and their purpose was to inform agencies about how

Most Australian bushfire scientists predict that there will be more frequent severe bushfires threatening life and property, for two reasons (a) climate change resulting in reduced

### HAZARD NOTE

TOPICS IN THIS EDITION | CYCLONE | FUEL REDUCTION | RISK MANAGEMENT

### ESTIMATING FUEL LEVELS POST-CYCLONE



Not short anamous the dynamics of hair quantity of human futures (human gives in typical Column factor in Federary 2006 in Gaueniance). In the human business were need to develop 2000 and hair quark to interpletering the human future of the human gives human future (a and business) and an analysis of the human set of the human limit of anomolysis of the human set of the human set of the human limit of anomolysis of the human set of the human set of the human human daman set of the human set of the human set of the human human daman set of the human set of the human set of the human future (a human daman human ed the dynamics of fuel quantity and hazard following Severe Tropical CUMMARY

ABOUT THIS PROJECT The Hand Mole summaria the impact hereafts from a description data (commission of the end to the end to managery strateging (QPES)). It is to compare the encyclose description of the contral of the end of the Control Refers. In the bady work of the them provide end of the fast work meltitere of QPES still and exhibitions.

#### AUTHOR

uses (Jun) S. Goald, Senior Research Scientist, Fael and Fire Behaviour with the Bashlire and Natural Hazards CRC and Honorary Fellow with CSIRO. (analysis) | All Nazard Notes are available at vive behar.com.au/hazardnotes

CONTEXT The effects of tropical cyclones on bushfire risk and changes in the bohaviour are difficult to interpret. While there are a number of bushism that have documented the effects of cyclones on foreits, there is living understanding on the increase in fuel hazard and the behaviour of fires in cyclone damage

management and fire crew safety are also a primary concern when conducting hizzes reduction burns and planning suppression datagies in cyclone-damaged fuel, With detructive tropical cyclones (and other storge) in a plantage burnes (and other settructive tropical cyclores (and cure storms) in Australia becoming more trequent (Cook and Goyets 2008), emergency managers require a better understanding of how these changes in fuel accumulation and structure affect fire behaviour, in order to be better prepared for subsequent fire seasons.

#### BACKGROUND

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On 15 February 2015, Tropical Cyclone Marcie was identified as a category 1 cyclone and, over the next five days, intensified to a cate 4-5, with wind spreds of up to '95 km/h and 4-5, with wind speeds or up to this kinyh and guits up to 295 kin/h. On making landfall on 20 February it caused significant damage to property, infrastructure and forestad. to property, infrastructure and forestad registration to Datematance communities at Bythals, Casamia and Wost Yopporon. Interes cyclones, such as Marca, case massive disclation, seposit tases and rape of steems and banches, resulting in open cancer conditions and changes in understoore marcing and changes in materiations and changes in open-canopy controckinate conditions (Turton and Dale 2007; Pohlesan et al. 2008). These changes will have an effect in determining changes wat have an erfoct in determining the risk and behaviour of bushlires. They c accelerate the amount of surface and coa y-debris fuel available for combustion. which will affect fire spread, flame structure,





#### CAPTURING COMMUNITY MEMBERS **BUSHFIRE EXPERIENCES: INTERVIEWS WITH RESIDENTS FOLLOWING THE 12 JANUARY 2014 PARKERVILLE (WA) FIRE**

Report for the Department of Fire and Emergency Services Western Australia



Jim McLennan La Trobe University



HAZARDSCRC

#### **RAPID RESPONSE REPORT: STUDY OF HEATWAVE** IMPACTS ON NSW NORTHERN RIVERS REGION 2017

Tofa, M., Gissing, A., Van Leeuwen, J. and Smith, C. Risk Frontiers, Macquarie University, Sydney, NSW



#### egetation. Before this project, no framework for assessing the changes in fuel hazard had This gap in knowledge constrained the a developed. trist gap is knowledge constrained the fire and emergency managers charged with devising mitigation and response strategies for cyclone-affected fuels. Other strategies for cyclone articlaid rules. Other practical factors such as fire weather, smoke management and fire crew safety are also







## NATIONAL RESEARCH PRIORITIES

What are the big research questions across fire and natural hazards for the next decade?



Notional research priorities for natural hazares energies y what are the most significant natural hozard emergency management issues Australia faces or

This was the question posed to emergency service agencies around Australia in a series of This was the question posed to emergency service agencies around Australia in a series of encodered to the Buildine and Natural Hazards CRC throughout 2016.

This publication is an outcome of one of these workshops and part of a broader rational research the publication is an outcome of one of these workshops and part of a broader rational research encoder and because the encoder of these workshops and part of a broader rational research the publication is an outcome of one of these workshops and part of a broader rational research the publication is an outcome of one of these workshops and part of a broader rational research the publication is an outcome of one of these workshops and part of a broader rational research the publication is an outcome of one of these workshops and part of a broader rational research the publication is an outcome of the publication of the publication the publication of the publication of the publication the publication of the publication of the publication the pub

against the workflots provided an exploration of major taxes that would be well as the support of research of a national revel. There was no different to support any of the bases or problem means have well as the problem of the support of support revelopment, the participant document the bases they believed were released to me support to provide to provide tables in the taxes they believed were released to me support to provide to provide the support of the bases they believed were released to me support to provide the reporting tables and the taxes that be based on the research undergraning their resolute importance.

This series of publications summarizes the outcomes of the watarback occurses by identifying national wit take place in 2017, they provide a guide for future research actuatives by identifying national profilia across mayor thereas. The watarback outcomes have also influenced the evolving research agreeds of the CRC.

this statement has been developed with the asistance of the evideous statematics, the evideous developed with the based as washing with key natural howard statement is wellopment and by video conference in all other Australian states on 5 August 2014.



National research priorities for natural hazards emergency management



lssues, priorities, directions

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