



MAPPING AND UNDERSTANDING BUSHFIRE AND NATURAL HAZARD VULNERABILITY AND RISKS AT THE INSTITUTIONAL SCALE

Annual Project Report 2014–2015

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Bushfire and Natural Hazards CRC





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Cover: Reducing the risk by reducing fuel for a fire.

Photo credit: David Bruce, Bushfire and Natural Hazards CRC



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EXECUTIVE SUMMARY

The Annual Project Report 2014–2015, marks the halfway point of the project *Mapping and understanding bushfire and natural hazard vulnerability and risks at the institutional scale*. In recent months, the project has gathered significant momentum and we look forward to a very busy year ahead.

A major decision for the project and a key deliverable was to decide on the most suitable platform to host the economic geography and values at risk maps. This was achieved through a collaboration with the Centre for eResearch Data and Innovation (CeRDI) at Federation University, Ballarat. This collaboration will continue to develop the map

Two key reports for the project were produced:

1. A report on the current state of risk ownership of strategic risk management of natural hazards in Australia, led by Celeste Young. This report was originally intended to be a brief desktop study but became a major report presenting a framework for assessing risk ownership and an analysis of publicly available documents.
2. A report developing a framework for the whole project that combines risk management and the Institutional Analysis and Development Framework building on earlier work[1]. This will be released through the BNHCRC as a working paper and later converted into journal papers.

Regular meetings have been held and assisted through ongoing contact with individual end users, has informed our research enormously. Discussions and exchange of materials within the economic research cluster has led to plans to undertake common case studies, exchange ideas and work towards building compatible frameworks.

Additionally, we have undertaken a number of outreach activities including presentations to meetings and conferences, detailed in this report.

Planning is now underway for a series of four stakeholder workshops to take place in August. These will apply a small number of scenarios to the draft values at risk maps to further explore issues around values and risk ownership. The results will influence the further development of the economy geography and contribute to the assessment of risk ownership and governance at the institutional scale.

END USER STATEMENT

Greg Christopher, *Senior Research Officer*, Emergency Risk and Resilience, Emergency Management Victoria

As an end user working group stakeholder for this project, to date I have participated in project meetings and the review of project documents. In this capacity, I aim to guide project outcomes for their utility in meeting the requirements of institutions with an element of responsibility for managing risks for bushfire and other natural hazards. The Victoria University research team has engaged well with its stakeholders for this project, communicating progress and requesting feedback.

The mapping of hazard data combined with a range of social and economic measures will provide useful information for prioritising more detailed analyses leading to enhancing mitigation controls. The outputs of this activity have the potential to inform the efficient allocation of resources for mitigation and enhance resilience.

A comprehensive study of institutional risk ownership for bushfire and other natural hazards will underpin the development of a governance framework for a strategic risk management approach. This framework will complement new emergency management governance arrangements introduced in Victoria. In particular, it is likely to detail a collaborative approach for prioritising investment for mitigation. This approach is consistent with, and in essence completes an 'all hazards' / 'all agencies' model in relation to mitigation.



INTRODUCTION



Current federal government spending on natural disaster response is more than 20 times spending on preparedness. When natural disasters are large and combine in unpredictable ways, they cross domains, moving from the private to the public realm, and shifting from a local, to a state or national concern. Many climate-related natural hazards and the number of people living in hazard prone areas are increasing, raising the potential of future, unmanaged loss.

WHY IS IT IMPORTANT?

The spending mismatch between response and preparedness is well understood, but we also face potential deficits in important social and environmental values. Liveability, sustainability and resilience are vital aspects of communities and the environment, but their contributing values are not well understood. These values are often public, shared and non-market, so if they are at risk, may not have clear owners. If risk owners – those responsible for managing these values – can be clearly identified, then we can begin to assess the balance between preparedness, potential damage and post-event recovery. Unowned risks may lead to values being damaged or lost.

HOW ARE WE GOING TO SOLVE IT?

The project will begin by mapping a broad range of economic, social and environmental values and relating these to natural hazards within Victoria. Specific local case studies will be used to make these different values visible. The project will explore who 'owns' these values, how they own them and what happens to them when risk crosses domains. We will then explore concepts of value and risk ownership through a series of workshop with end users. A governance framework to support better understanding of risk ownership will be developed.

PROJECT AIM

The project objective is to develop a framework for understanding the ownership of risks from bushfires and natural hazards at the institutional level. It will look at institutions involved in natural disasters, such as local, state and federal government, and the community and private sector, and assess how their specific values and rules interact with the broader values affected by natural disasters.

The project aim is to enable more effective decision-making through the allocation of risk ownership at the institutional scale. This will in turn inform the development of measures, including investment strategies, resilience and risk mitigation. We will:

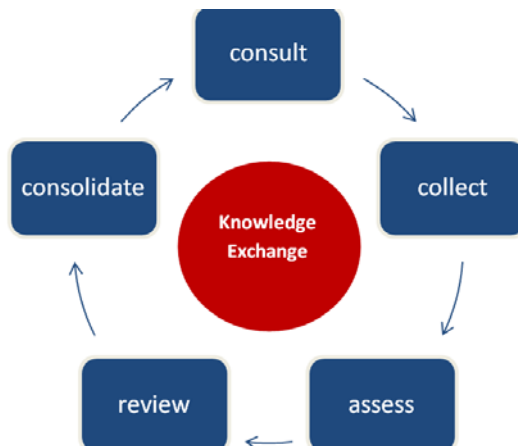
- Develop an economic geography of values at risk at geographic and institutional scales. Its appearance and output will be developed in consultation with key stakeholders.
- Assess risk ownership by asking “Who is responsible?”, “Who pays?”, “Who manages the risk” and “How is it managed?”
- Develop a governance framework to ascertain risk ownership to support the institutional understanding and management of values at risk. This task will examine current governance before, during and after disasters, looking at both emerging and future needs.

WHO WILL BENEFIT?

This project aims to benefit decision makers in institutional areas such as local, state and federal government, the community and relevant private sectors by helping them to better identify the different economic, social and environmental values at risk from natural hazards. It also aims to help clarify areas of risk ownership and show how governance can support the long-term management of natural hazard risk with respect to preparedness, resilience and effective recovery.

HOW WE WILL DO THIS.

The project team work closely with their end users to produce outputs fit for purpose. Ongoing consultation, evaluation and response to feedback are built into the research process to support this aim (see figure below).



WHAT THE PROJECT HAS BEEN UP TO

END USER ENGAGEMENT

During the last 12 months we have established regular meetings and contact with our end users. We have worked towards developing a shared understanding of the research we are undertaking with our stakeholders and why we are undertaking it, by preparing plain language descriptions of the project. As part of this process it has been important to understand our end user's needs and their decision-making context.

COLLABORATION

VISES has formed a new collaboration with the Centre for eResearch Data and Innovation (CeRDI) at Federation University, Ballarat to undertake the mapping component of the project. This collaboration has facilitated the development and delivery of the draft values at risk map (see overleaf), which is the major deliverable in phase one.

Team members (Young and Jones) attended the Research Advisory Forum in Sydney in April 2015 where met with stakeholders and other research teams in the economic cluster. This resulted in a greater shared understanding of the synergies and differences between our projects. With the other members of our cluster, we have continued to explore ways to share knowledge and support each other's' activities. Examples include shared case studies (Victoria) and exchange of assessment methods to foster better integration.

TEAM CHANGES

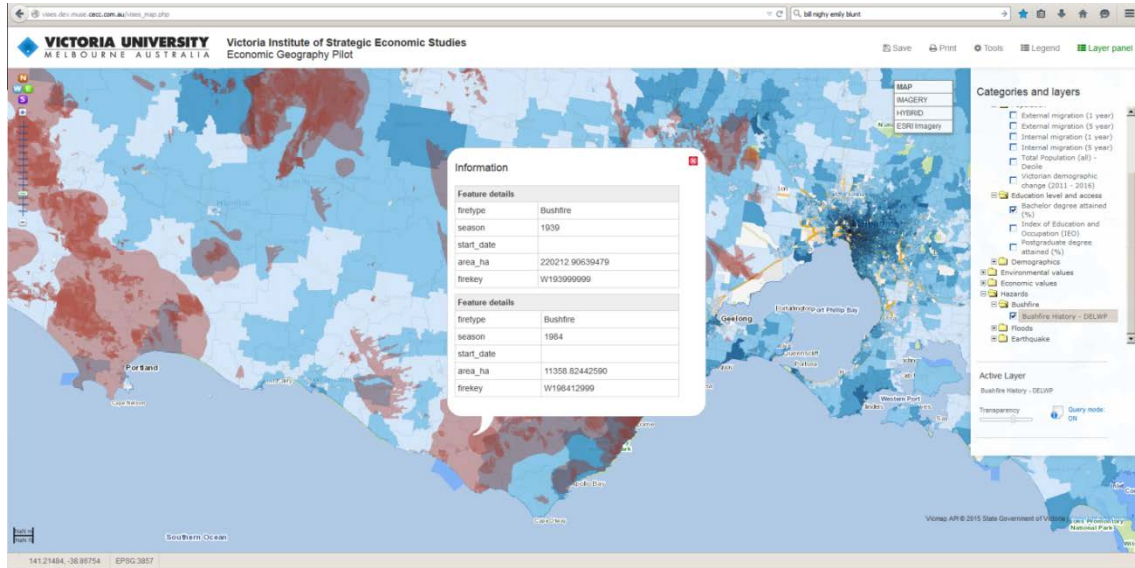
We have welcomed a new addition to our team, Dr John Symons. Dr Symons joins us after completing his PhD at VISES examining the business case for voluntary emissions reductions in the transport sector. Dr Symons has an extensive background in sustainability and environmental economics, having worked for the Ecology Programs at the Sydney Olympics, sustainability projects for planning consultancies and ARUP engineering as well as local government in the UK. We have also seen the departure of Kathleen Hurley from the team.

WORK PRODUCED

Work completed during the past twelve months includes the draft values at risk map and two reports, one on risk ownership and the other developing the framework for the project.

The next phase of our research is progressing with the initial stages of planning well underway for the four workshops in August. Further meetings are planned to set up a common case study in Victoria with the location of interest still to be determined.

Draft values at risk map



The first phase of our research has focused on understanding what values are at risk and how best to represent them. We undertook initial interviews with our key stakeholders who also answered a brief questionnaire detailing their current use of spatial data and potential needs. These findings were used to inform map development. Key questions for this part of the research were:

- What values are risk
- How are these values at risk?

Draft maps were then developed on a platform constructed by collaborative partners CeRDI, combining available hazard data and key economic, social and environmental values for Victoria. These inputs can be used to illustrate values at risk and provide the basis for assessing important elements such as vulnerability and risk ownership.

Understanding risk ownership



The important report *Whose risk is it anyway: Desktop review of institutional ownership of risk with natural hazards and disasters*[2] examines the allocation of risk ownership and establishes a framework for this type of assessment. Key questions for this part of the research were:

- Who manages the risk?
- Who is accountable and how?
- Who pays for the risk?

This captures our current understanding of risk ownership for natural hazards in Australia, its main strengths and gaps. These findings will contribute to four planned workshops in August.

Framework development

The report Mapping Values at Risk from Natural Hazards at Geographic and Institutional Scales: Framework Development[3] describes how we are developing the project framework. It combines the standard risk management framework with the Institutional Analysis and Development Framework to assess the systemic aspects of natural hazard risk.

ADDITIONAL ACTIVITIES

Team members (Young and Jones) attended the European Climate Change Adaptation Conference in Copenhagen in May, where Celeste Young chaired a session, combined they presented five papers and one poster. They were also invited to present their work at the Environmental Change Institute, Oxford University, UK following the conference. They used this opportunity to meet with other researchers at Oxford University and the London School of Economics to discuss the potential for future collaborative activities.

Other activities supporting research and engagement include:

- Young, C and project team: two posters at AFAC 2014, September.
- Young, C., NCCARF conference: Climate Adaptation 2014 Future Challenges, October 2014. Poster and oral presentation, Beyond grief: engaging for action. *Received highly commended poster award.*
- Young, C., Poster presentation AFAC September 2014 in Auckland New Zealand.
- Jones, R., Young, C., CRC Project Update. Invited Speakers AFAC Annual Meeting of Financial Officers, 14 April (2015).
- Young, C., Presentation: Beyond ERM: Building organisational resilience to systemic risk. (Invited Speaker) Enterprise Risk Management for Government Conference, April 27 -29th (2015).
- Young, C., Convened session, Beyond Risk Engaging for Action European Climate Change Adaptation Conference, Copenhagen May 9-11 (2015).
- Jones, R., Young, C. and Symons, J. Presentation The institutional economics of rapid and unpredictable climate change. Engaging for Action European Climate Change Adaptation Conference, Copenhagen May 9-11 (2015).
- Jones, R., Young. C., Invitation to present work being undertaken to Environmental change Institute, Oxford University, UK.
- Young, C., Communication and policy framework advice for the DELWP, Victoria.
- Celeste Young's paper the Problem-solution Framework, a guide to adaptation for practitioners was distributed within the CRC.
- A number of meetings with our stakeholders and also potential stakeholders to discuss the research and synergies with their current priorities and agendas.

NEXT STEPS

Following the workshops we will be consolidating our research findings and will start developing the governance framework based on our improved understanding of risk ownership. When a draft is completed we will work with our end users to test, evaluation and refine this framework. We will also continue to refine the draft values at risk map in collaboration with our end users and other researchers within our cluster and develop our case studies for the final report.



PUBLICATIONS LIST 2014–2015

PAPERS

Young, C.K., Symons, J. and Jones, R.N. (2015) Whose risk is it anyway? Desktop review of institutional ownership of risk associated with natural hazards and disasters. Bushfire and Natural Hazards Cooperative Research Centre, Melbourne, 46 pp.

Jones, R.N., Young, C.K. and Symons, J. (2015) Mapping Values at Risk from Natural Hazards at Geographic and Institutional Scales: Framework Development, Bushfire and Natural Hazards Cooperative Research Centre, Melbourne, pp. 32 (submitted for publication)

Jones R.N, Young C, Symons J (2015) Risk ownership and natural hazards: across systems and across values. Paper for AFAC2015 New Directions in Emergency Management currently under review.

ARTICLES

Young. C., Understanding grief can help us adapt to climate change, The Conversation 5 March 2015 <https://theconversation.com/understanding-grief-can-help-us-adapt-to-climate-change-37518>





CURRENT TEAM MEMBERS

We are part of the Victoria Institute for Strategic Economic Studies at Victoria University. Our team is transdisciplinary working across economics, natural and social science and practice-based research. Members are:

- Professor Roger Jones – Project Lead Researcher
- Ms Celeste Young – Research Project Manager and Researcher
- Dr John Symons – Researcher
- Professor Peter Sheehan – Researcher
- Professor Bruce Rasmussen – Researcher

OUR STAKEHOLDERS

Our stakeholders are divided into two groups. The end user working group form a core part of our research process and contribute directly into the project. This group is represented by key members of the following organisations:

- Emergency Management Institute Australia, Commonwealth Attorney-General's Department
- Department for Communities and Social Inclusion, South Australia
- Rural Fire Service, New South Wales
- Emergency Management Victoria
- State Emergency Services, Tasmania
- Department of Environment, Land, Water and Planning, Victoria
- SAFECOM, South Australia

Another group of 'inform and advise' stakeholders is being kept up to date with project progress and will be invited to participate, comment or advise at key points. These people have specific knowledge and areas of expertise and will assist with ensuring the quality and robustness of the research. Stakeholders who have agreed to participate to date and include industry, government and community representatives.



MILESTONES TO DATE

Milestone	Date due	Status	Notes
2.1.1: Delivery of Quarterly Report to CRC	September 30, 2014	Completed	
2.1.2: Research Paper 1 "Institutional framework for values" suitable for publication submitted to Bushfire and Natural Hazards CRC	December 21, 2014	Final draft being copy-edited June 30	To be delivered early July
2.2.1: Delivery of Quarterly Report to CRC	January 7, 2015	Completed	
2.3.1: Finalisation of draft 'Values at Risk' map	February 1, 2015	Completed	New collaboration with CeRDI Federation University
2.3.2: Delivery of draft 'Values at Risk' map	February 1, 2015	Completed	
2.3.3: Desk-top review of materials for risk ownership	March 1, 2015	Completed	Released June 2015
2.3.4: Development of 4 x 1 day workshops key stakeholders and end users to ascertain risk ownership and current institutional structures	March 30, 2015	Completed	
2.3.5: Delivery of Quarterly Report to CRC	March 30, 2015	Completed	
2.4.1: Delivery of 2 x 1 day workshops	June 30, 2015	Postponed until August	All four scheduled workshops to be run In August
2.4.2: Delivery of Quarterly Report to CRC	June 30, 2015	Completed	
2.4.3: Delivery of Annual Report to CRC	June 30, 2015	Completed	You are reading it
2.4.4: PhD project proposal approved by internal university technical committee	June 30, 2015	Cancelled	We have been unable to secure a PhD student so this milestone has been removed

TABLE 1. MILESTONES AND STATUS FOR 2014–15



REFERENCES

1. Jones, R.N., et al., *Valuing Adaptation under Rapid Change*. 2013, Gold Coast, Australia: National Climate Change Adaptation Research Facility. 182.
2. Young, C.K., J. Symons, and R.N. Jones, *Whose risk is it anyway? Desktop review of institutional ownership of risk associated with natural hazards and disasters*. 2015, Bushfire and Natural Hazards Cooperative Research Centre: Melbourne. p. 47.
3. Jones, R.N., C.K. Young, and J. Symons, *Mapping Values at Risk from Natural Hazards at Geographic and Institutional Scales: Framework Development*. 2015, Bushfire and Natural Hazards Cooperative Research Centre: Melbourne. p. 36.