



Tasmania bushfires, February 2016. Photo by Mick Reynolds, NSW Rural Fire Service

- Key Topics:
- capability [2]
 - emergency management [3]
 - multi-hazard [4]

Catastrophic and cascading events: planning and capability [5]
Over three years, the project focused on the nature of catastrophic disasters and how they are conceptualised in the Australian context; the historical frequency of compound disasters in Australia; the most appropriate practices to plan and prepare for catastrophic disasters; and how businesses and community organisations can best be incorporated into planning and preparedness arrangements for catastrophic disasters. The key finding from this research is that existing principles for disaster planning and risk reduction are not effectively implemented to develop plans that consistently inform decision making. To improve this, a key utilisation output from the research has been an emergency management capability maturity assessment tool that can be utilised by governments and organisations to better understand potential capability gaps in the context of severe-to-catastrophic disaster scenarios. Outcomes of the research were presented as evidence to the Royal Commission into National Natural Disaster Arrangements.

Project: detail Notabs

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Description

This project focussed on the research questions:

- What is the nature of catastrophic disasters and how are they conceptualised in the Australian context?
- What has been the historical frequency of compound disasters in Australia?
- What are the most appropriate practices to plan and prepare for catastrophic disasters?
- How can businesses and community organisations best be incorporated into planning and preparedness arrangements for catastrophic disasters?

The research was based on literature reviews; interviews with representatives from emergency management organisations, businesses and community organisations; analysis of historical disaster loss data and content analysis of previous business contributions to disaster responses.

The project adopted a collaborative approach with end-users assisting to define research questions and utilisation outputs. A key utilisation output from the research has been an emergency management capability maturity assessment tool that can be utilised by jurisdictions and organisations to better understand potential capability gaps in the context of severe-to-catastrophic disaster scenarios. Through utilisation funding provided by the Bushfire and Natural Hazards Cooperative Research Centre, this tool will be promoted for use across all jurisdictions.

Following analysis of emergency management legislation, a model Commonwealth Emergency Management Act was drafted for consideration by end-users.

Outcomes of the research were presented as evidence to the 2020 Royal Commission into National Natural Disaster Arrangements.

[Read the final report here.](#) [55]

Watch Andrew talk about the frameworks which are being developed to assist emergency managers to better deal with catastrophic disasters.

Related News



30 JUL 2021

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EMERGENCY MANAGEMENT, LAND MANAGEMENT

[56]



18 JUN 2021

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CAPABILITY, EMERGENCY MANAGEMENT

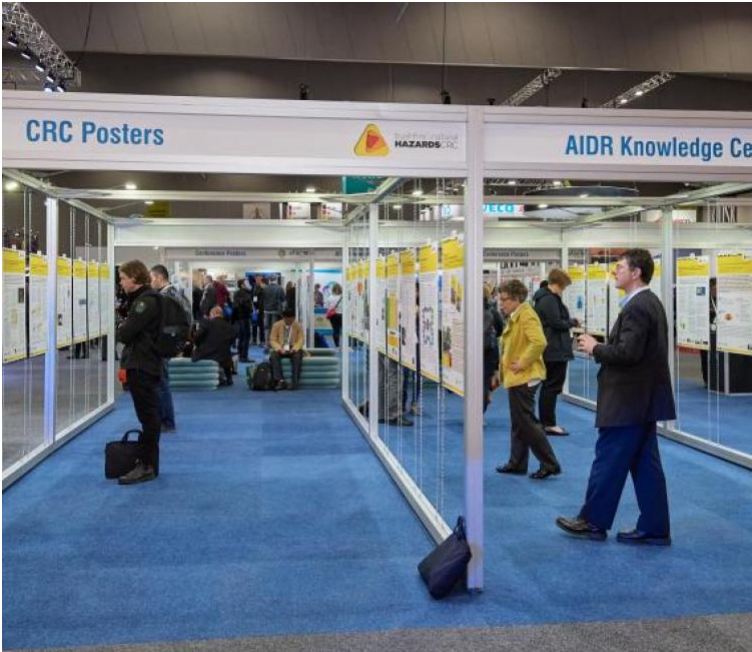
[57]



15 DEC 2020

New online - December 2020
COMMUNICATION, EMERGENCY MANAGEMENT

[58]



25 SEP 2020

New online - September 2020
EMERGENCY MANAGEMENT, FIRE

[59]



New online - April 2020
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21 APR 2020

[60]



Media seek research insights
COMMUNICATION, FIRE

23 JAN 2020

[61]



16 DEC 2019

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[62]



19 NOV 2019

CRC science making national impact
FIRE, FIRE SEVERITY

[63]



18 OCT 2019

Your views on catastrophic disasters needed
COMMUNITIES, EMERGENCY MANAGEMENT

[64]



09 AUG 2019

Severe weather research has impact
COINCIDENT EVENTS, FORECASTING

[65]



28 JUN 2019

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COMMUNICATION, DECISION MAKING

[66]



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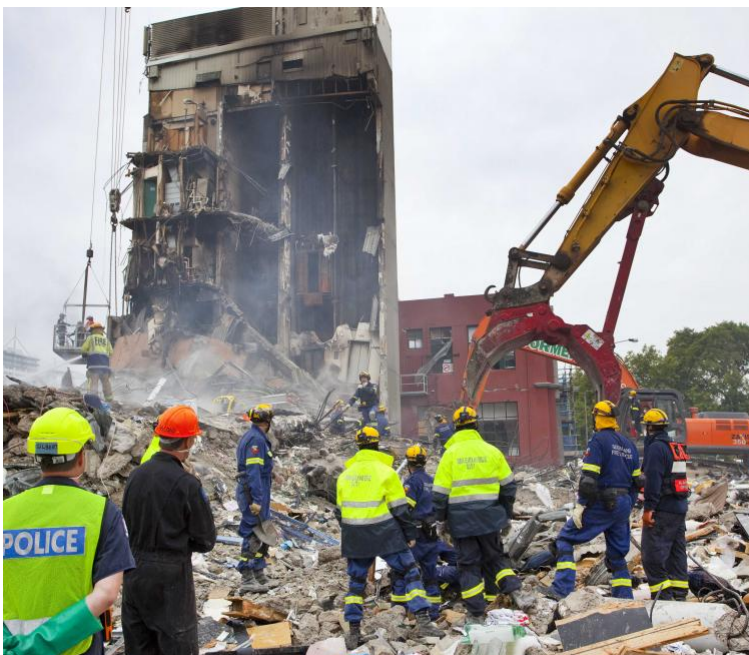
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25 JUN 2019

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EARTHQUAKE, EMERGENCY MANAGEMENT

27 MAY 2019

[69]



CRC research in magazine's spotlight
EMERGENCY MANAGEMENT, FIRE

27 MAY 2019

[70]



Are we dropping the ball? A look to our workforce in 2030
CAPABILITY, EMERGENCY MANAGEMENT

17 MAY 2019

[71]



Indonesia recovers and shifts to preparedness
CAPABILITY, EARTHQUAKE

17 DEC 2018

[72]



Conference papers available online
EMERGENCY MANAGEMENT, MULTI-HAZARD

18 SEP 2018

[73]



New online - August 2018
CHILD-CENTRED, EMERGENCY MANAGEMENT

21 AUG 2018

[74]



Disability inclusion in disaster
CHILD-CENTRED, DECISION MAKING

03 AUG 2018

[75]



19 APR 2018

Helping emergency managers, urban planning and mitigating tsunami risk project updates
CAPABILITY, PLANNING

[76]



29 MAR 2018

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[77]



29 MAR 2018

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31 AUG 2017

New natural hazards science for Australia
MENTAL HEALTH, RESILIENCE

[81]



08 JUN 2017

Disaster Risk Management: Insights from US Experience
CYCLONE, MITIGATION

[82]



22 MAR 2017

















New science set to dazzle

[83]

Publications

Year	Type	Citation
2023	Report	Gissing, A. [6] & George, S. [84] Business involvement in disaster management [85]. (Natural Hazards Research Australia, 2023). Google Scholar [86] BibTeX [87] EndNote XML [88]
2022	Report	Gissing, A. [6] Development of Capability Targets for the NSW Emergency Management Sector [89]. (Bushfire and Natural Hazards CRC, 2022). Google Scholar [90] BibTeX [91] EndNote XML [92]
2021	Report	Gissing, A. [6] & George, S. [84] Community organisation involvement in disaster management [93]. (Bushfire and Natural Hazards CRC, 2021). Google Scholar [94] BibTeX [95] EndNote XML [96]
2021	Report	Gissing, A. [6] Capability Maturity Assessment facilitators guide [97]. (Bushfire and Natural Hazards CRC, 2021). Google Scholar [98] BibTeX [99] EndNote XML [100]
2020	Report	Gissing, A. [6] <i>et al.</i> Planning and capability requirements for catastrophic and cascading disasters - final project report [55]. (Bushfire and Natural Hazards CRC, 2020). Google Scholar [101] BibTeX [102] EndNote XML [103]
2020	Report	Gissing, A. [6] <i>et al.</i> Compound natural disasters in Australia: a historical analysis [104]. (Bushfire and Natural Hazards CRC, 2020). Google Scholar [105] BibTeX [106] EndNote XML [107]
2020	Report	Gissing, A. [6], Eburn, M. [12] & McAneney, J. [108] Planning and capability requirements for catastrophic and cascading disasters [109]. (Bushfire and Natural Hazards CRC, 2020). Google Scholar [110] BibTeX [111] EndNote XML [112]
2019	Conference Paper	Van Leeuwen, J. [113] & Gissing, A. [6] Business involvement in natural disasters in Australia and New Zealand [114]. <i>Bushfire and Natural Hazards CRC Research Day AFAC19</i> (2019). at <https://www.bushfireandnaturalhazards.com.au/afac19>
2019	Report	Eburn, M. [12], Moore, C. [119] & Gissing, A. [6] The potential role of the commonwealth in responding to catastrophic disasters [120]. (Bushfire and Natural Hazards CRC, 2019). Google Scholar [121] BibTeX [122] EndNote XML [123]
2019	Report	Gissing, A. [6] Catastrophic and cascading events: planning and capability [124]. <i>Annual Report 2018 1-16</i> (2019). Google Scholar [125] BibTeX [126] EndNote XML [127]
2018	Conference Paper	Gissing, A. [6], Eburn, M. [12] & McAneney, J. [108] Planning and capability requirements for catastrophic and cascading events [128]. <i>AFAC18</i> (Bushfire and Natural Hazards CRC, 2018). Google Scholar [129] BibTeX [130] EndNote XML [131]
2018	Conference Paper	Bates, J. [132] Research proceedings from the 2018 Bushfire and Natural Hazards CRC and AFAC Conference [133]. <i>Bushfire and Natural Hazards CRC & AFAC annual conference 2017</i> (Bushfire and Natural Hazards CRC, 2018). Google Scholar [134] BibTeX [135] EndNote XML [136]
2018	Conference Paper	Van Leeuwen, J. [113], Gissing, A. [6] & Avci, A. [137] Responses to the Lombok earthquake, 2018 – Rapid assessment study [138]. <i>AFAC18</i> (Bushfire and Natural Hazards CRC, 2018). Google Scholar [139] BibTeX [140] EndNote XML [141]
2018	Conference Paper	Gissing, A. [6] & Avci, A. [137] The Hawaii nuclear alert: how did people respond? [142]. <i>AFAC18</i> (Bushfire and Natural Hazards CRC, 2018). Google Scholar [143] BibTeX [144] EndNote XML [145]
2018	Journal Article	Gissing, A. [6], Van Leeuwen, J. [113], Tofa, M. [14] & Haynes, K. [10] Flood levee influences on community preparedness: a paradox? [146]. <i>Australian Journal of Emergency Management</i> 33 , 5 (2018). Google Scholar [147] BibTeX [148] EndNote XML [149]
2018	Report	Gissing, A. [6] Increasing emergency management capacity through business sector involvement [150]. (Bushfire and Natural Hazards CRC, 2018). Google Scholar [151] BibTeX [152] EndNote XML [153]
2018	Report	Gissing, A. [6], Eburn, M. [12] & McAneney, J. [108] Shaping future catastrophic disasters [154]. (Bushfire & Natural Hazards CRC, 2018). Google Scholar [155] BibTeX [156] EndNote XML [157]

Presentations & Resources

DATE	TITLE	FILE SIZE	DOWNLOAD	KEY TOPICS
18 Apr 2017	Planning and Capability Requirements for Catastrophic and Cascading Events [160]	1005.25 KB	 1005.5 KB	[161] (1005.25 KB) emergency management [3], multi-hazard [162]
07 Jul 2017	Lightning presentation: planning and capability requirements for catastrophic and cascading events [162]	1021.56 KB	 1021.56 KB	[163] (1021.56 KB) emergency management [3], multi-hazard [164]
31 Aug 2017	Fire Australia Issue Three 2017 [164]	5.22 MB	 5.22 MB	[165] (5.22 MB) [166], prescribed burning [167], severe weather [168]
25 Oct 2017	Planning and capability requirements for catastrophic and cascading events [169]	1.07 MB	 1.07 MB	[170] (1.07 MB) multi-hazard [4], risk management [171]
16 Mar 2018	Fire Australia Issue One 2018 [172]	5.37 MB	 5.37 MB	[173] (5.37 MB) emergency management [3], fire severity [174]
05 Apr 2018	Catastrophic and cascading events - project overview [176]	0 bytes	 0 bytes	[175] (0 bytes), emergency management [3], planning [176]
16 Apr 2018	Planning and Capability Requirements for Catastrophic and Cascading Events [179]	1.22 MB	 1.22 MB	[180] (1.22 MB) emergency management [3], planning [181]
18 Sep 2018	Transformative culture of disaster risk management as an enabler to resilience [181]	3.74 MB	 3.74 MB	[182] (3.74 MB) [4], resilience [183]
18 Sep 2018	Tourist responses to the Lombok Earthquake, 2018 – Rapid Assessment Study [184]	1.91 MB	 1.91 MB	[185] (1.91 MB) [86], response [187]
19 Sep 2018	Adoption of a strengths-based approach to address catastrophic disasters [188]	1.73 MB	 1.73 MB	[189] (1.73 MB) management [3], planning [178]
19 Sep 2018	The Hawaii Nuclear Alert:How did people respond? [190]	964.71 KB	 964.71 KB	[191] (964.71 KB) response [187]
08 May 2019	Evidenced based capability maturity assessment for severe to catastrophic events RAF May 2019 [192]	1.3 MB	 1.3 MB	[193] (1.3 MB)
20 Jun 2019	Evidenced based capability maturity assessment for severe to catastrophic events [194]	1.96 MB	 1.96 MB	[195] (1.96 MB) planning [178]
27 Aug 2019	Whole of Community Approach to Planning and Capability for Catastrophic Disasters [196]	1.6 MB	 1.6 MB	[197] (1.6 MB), planning [178]
31 Jul 2020	Readiness for the next major bushfire emergency [198]			emergency management [3], fire [199], fire impacts [200]
29 Jul 2021	Capability Maturity Assessment Tool [201]	1.14 MB	 1.14 MB	[202] (1.14 MB) emergency management [3], policy [203]
12 Aug 2021	What can we improve now to prepare for future catastrophic and cascading disasters? [204]	615.37 KB	 615.37 KB	[205] (615.37 KB) emergency management [3], policy [206]

Posters



[206] 19 SEP 2018

Increasing Emergency Management Capacity Through Business Sector Involvement

[206]
CAPABILITY [2], EMERGENCY MANAGEMENT [3]

The resource capacities of emergency management organisations are geared around managing relatively frequent...



[207]

Influence of Road Characteristics on Flood Rescues in Australia

[207]
COMMUNICATION [208], EMERGENCY MANAGEMENT [3]

Shaping Future Catastrophic Disasters

[209]

EMERGENCY MANAGEMENT [3], MULT-HAZARD [4]

It is important to consider how future catastrophic disasters might be shaped by choices we make as a society...



[210]

Planning and Capability Requirements for Catastrophic and Cascading Events

[210]

CAPABILITY [2], PLANNING [178]

The connection between disaster planning, capability and capacity are essential, but often overlooked. In...

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Links

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<https://www.bnhcrc.com.au/publications/biblio/export/xml/8382> [87] <https://www.bnhcrc.com.au/publications/biblio/bnh-8109> [88] http://scholar.google.com/scholar?btnG=Search%2BScholar&as_q=%22Community%2Borganisation%2BInvolvement%2Bin%2Bdisaster%2Bmanagement%22&as_sauthors=Gissing&as_occt=any&as_epq=&as_oq=&as_eq=&as_publication=&as [89] <https://www.bnhcrc.com.au/publications/biblio/export/bibtex/8109> [90] <https://www.bnhcrc.com.au/publications/biblio/export/xml/8109> [91] <https://www.bnhcrc.com.au/publications/biblio/bnh-8136> [92] http://scholar.google.com/scholar?btnG=Search%2BScholar&as_q=%22Planning%2Band%2Bcapability%2Brequirements%2Bfor%2Bcatastrophic%2Band%2Bcascading%2Bdisasters%2B-%2Bfinal%2Bproject%2Breport%22&as_sauthors=Gissing&as_occt=any&as_epq=&as_oq=&as_eq=&as_publication=&as [93] <https://www.bnhcrc.com.au/publications/biblio/export/bibtex/7705> [94] <https://www.bnhcrc.com.au/publications/biblio/export/xml/7705> [95] <https://www.bnhcrc.com.au/publications/biblio/bnh-7296> [96] http://scholar.google.com/scholar?btnG=Search%2BScholar&as_q=%22Compound%2BNatural%2Bdisasters%2Bin%2BAustralia%3A%2Ba%2Bhistorical%2Banalysis%22&as_sauthors=Gissing&as_occt=any&as_epq=&as_oq=&as_eq=&as_publication=&as [97] <https://www.bnhcrc.com.au/publications/biblio/export/bibtex/7296> [98] <https://www.bnhcrc.com.au/publications/biblio/export/xml/7296> [99] <https://www.bnhcrc.com.au/people/jmcaneney> [100] <https://www.bnhcrc.com.au/publications/biblio/bnh-6809> [101] http://scholar.google.com/scholar?btnG=Search%2BScholar&as_q=%22Planning%2Band%2BCapability%2BRequirements%2Bfor%2Bcatastrophic%2Band%2Bcascading%2Bdisasters%22&as_sauthors=Gissing&as_occt=any&as_epq=&as_oq=&as_eq=&as_publication=&as [102] <https://www.bnhcrc.com.au/publications/biblio/bnh-6405> [103] <https://www.bnhcrc.com.au/publications/biblio/bnh-6405> [104] <https://www.bnhcrc.com.au/publications/biblio/bnh-6405> [105] <https://www.bnhcrc.com.au/publications/biblio/bnh-6395> [106] http://scholar.google.com/scholar?btnG=Search%2BScholar&as_q=%22The%2BHawaii%2Bnuclear%2BAlert%3A%2BHow%2Bdid%2Bpeople%2BRespond%3F%22&as_sauthors=Gissing&as_occt=any&as_epq=&as_oq=&as_eq=&as_publication=&as [107] <https://www.bnhcrc.com.au/publications/biblio/export/bibtex/4804> [108] <https://www.bnhcrc.com.au/publications/biblio/export/xml/4804> [109] <https://www.bnhcrc.com.au/publications/biblio/bnh-4676> [110] http://scholar.google.com/scholar?btnG=Search%2BScholar&as_q=%22Flood%2Blevee%2Binfluences%2Bon%2Bcommunity%2Bpreparedness%3A%2Ba%2Bparadox%3F%22&as_sauthors=Gissing&as_occt=any&as_epq=&as_oq=&as_eq=&as_publication=&as [111] <https://www.bnhcrc.com.au/publications/biblio/export/bibtex/4676> [112] <https://www.bnhcrc.com.au/publications/biblio/export/xml/4676> [113] <https://www.bnhcrc.com.au/publications/biblio/bnh-6347> [114] http://scholar.google.com/scholar?btnG=Search%2BScholar&as_q=%22Increasing%2Bemergency%2Bmanagement%2BCapacity%2Bthrough%2Bbusiness%2Bsector%2Binvolvement%2B%22&as_sauthors=Gissing&as_occt=any&as_epq=&as_oq=&as_eq=&as_publication=&as [115] <https://www.bnhcrc.com.au/publications/biblio/export/bibtex/6347> [116] <https://www.bnhcrc.com.au/publications/biblio/export/xml/6347> [117] <https://www.bnhcrc.com.au/publications/biblio/bnh-6629> [118] http://scholar.google.com/scholar?order=field_date_release&as_q=%22Shaping%2Bfuture%2Bcatastrophic%2Bdisasters%22&as_sauthors=Gissing&as_occt=any&as_epq=&as_oq=&as_eq=&as_publication=&as [119] <https://www.bnhcrc.com.au/publications/biblio/export/bibtex/6629> [120] <https://www.bnhcrc.com.au/publications/biblio/export/xml/6629> [121] <https://www.bnhcrc.com.au/resources/presentation-slideshow/3495> [122] <https://www.bnhcrc.com.au/file/7296/download?token=YEirYnXp> [123] <https://www.bnhcrc.com.au/resources/presentation-slideshow/3763> [124] <https://www.bnhcrc.com.au/file/7576/download?token=HglVv6C8> [125] <https://www.bnhcrc.com.au/resources/fireaustralia-edition/3943> [126] <https://www.bnhcrc.com.au/file/7804/download?token=wmB8emre> [127] <https://www.bnhcrc.com.au/research/topics/catastrophic-disasters> [128] <https://www.bnhcrc.com.au/research/topics/severe-weather> [129] <https://www.bnhcrc.com.au/resources/presentation-slideshow/4153> [130] https://www.bnhcrc.com.au/file/7934/download?token=e_QW_0e2 [131] <https://www.bnhcrc.com.au/research/topics/risk-management> [132] <https://www.bnhcrc.com.au/resources/fireaustralia-edition/4489> [133] <https://www.bnhcrc.com.au/file/8152/download?token=NkpleDd> [134] <https://www.bnhcrc.com.au/research/topics/coastal> [135] <https://www.bnhcrc.com.au/research/topics/fire-severity> [136]

<https://www.bnhcrc.com.au/resources/presentation-audio-video/4508> [177] <https://www.bnhcrc.com.au/file/8171/download?token=w95Z1cpY> [178] <https://www.bnhcrc.com.au/research/topics/planning> [179]
<https://www.bnhcrc.com.au/resources/presentation-slideshow/4521> [180] <https://www.bnhcrc.com.au/file/8182/download?token=kMw3AGgC> [181] <https://www.bnhcrc.com.au/resources/presentation-slideshow/4879> [182]
<https://www.bnhcrc.com.au/file/8816/download?token=lv-qGdKk> [183] <https://www.bnhcrc.com.au/research/topics/resilience> [184] <https://www.bnhcrc.com.au/resources/presentation-slideshow/4849> [185]
<https://www.bnhcrc.com.au/file/8777/download?token=iC0ziKTl> [186] <https://www.bnhcrc.com.au/research/topics/earthquake> [187] <https://www.bnhcrc.com.au/research/topics/response> [188]
<https://www.bnhcrc.com.au/resources/presentation-slideshow/4925> [189] <https://www.bnhcrc.com.au/file/8901/download?token=nUcjw-Sj> [190] <https://www.bnhcrc.com.au/resources/presentation-slideshow/4943> [191]
<https://www.bnhcrc.com.au/file/8928/download?token=79Hd-DMG> [192] <https://www.bnhcrc.com.au/resources/presentation-slideshow/5576> [193] <https://www.bnhcrc.com.au/file/9949/download?token=DLSY29Q> [194]
<https://www.bnhcrc.com.au/resources/presentation-slideshow/5652> [195] <https://www.bnhcrc.com.au/file/10057/download?token=rOkUTrC> [196] <https://www.bnhcrc.com.au/resources/presentation-slideshow/5983> [197]
<https://www.bnhcrc.com.au/file/10396/download?token=BZaetelf> [198] <https://www.bnhcrc.com.au/resources/external-resource/7168> [199] <https://www.bnhcrc.com.au/research/topics/fire> [200]
<https://www.bnhcrc.com.au/research/topics/fire-impacts> [201] <https://www.bnhcrc.com.au/capability-maturity-assessment-tool> [202] <https://www.bnhcrc.com.au/file/13064/download?token=DW7GfS6A> [203]
<https://www.bnhcrc.com.au/research/topics/policy> [204] <https://www.bnhcrc.com.au/hazardnotes/103> [205] <https://www.bnhcrc.com.au/file/13075/download?token=NEQXKOxe> [206] <https://www.bnhcrc.com.au/resources/poster/4949> [207] <https://www.bnhcrc.com.au/resources/poster/4950> [208] <https://www.bnhcrc.com.au/research/topics/communication> [209] <https://www.bnhcrc.com.au/resources/poster/4951> [210]
<https://www.bnhcrc.com.au/resources/poster/5841>