



LEARNING FROM ADVERSITY: WHAT HAS 75 YEARS OF BUSHFIRE INQUIRIES (1939-2013) TAUGHT US?

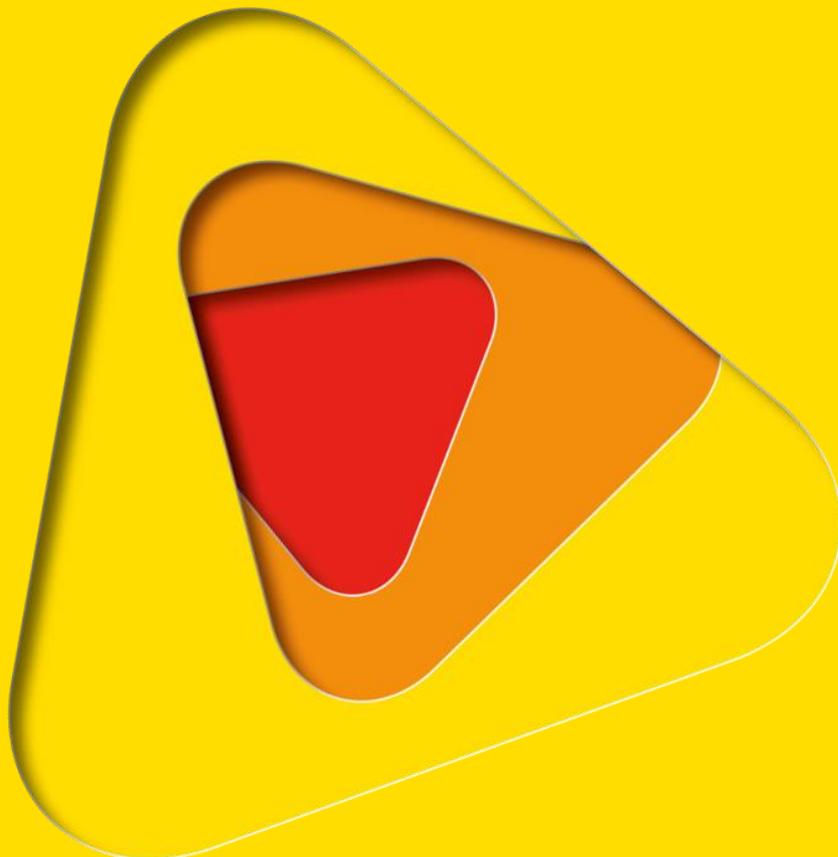
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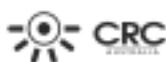
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ABSTRACT

This paper reports on preliminary research conducted at the ANU on the effectiveness of formal, public post event inquiries. With a focus on inquiries into bushfires the paper presents a broad overview of the inquiries over time as well as a detailed review of the multiple inquiries into the 2003 Canberra fires to ask what has been learned from these processes.

INTRODUCTION

Following major natural hazard events, such as the 2009 Victorian ‘Black Saturday’ bushfires and the 2011 Queensland and Victorian floods, Australia usually engages in formal, complex, post-event inquiries to identify how the tragedy occurred and what can be done to prevent future occurrences. Since 1939 there have been over thirty inquiries into wildfires and wildfire management and at least another fourteen into floods, storms, other natural hazards and emergency management arrangements.

Notwithstanding this plethora of inquiries, fires and floods continue to occur, property is damaged and lives are lost. In his report into the 1989 Hillsborough tragedy in the UK, Lord Taylor said:

That it was allowed to happen, despite all the accumulated wisdom of so many previous reports and guidelines must indicate that the lessons of past disasters and the recommendations following them had not been taken sufficiently to heart... there is no point in holding inquiries or publishing guidance unless the recommendations are followed diligently. That must be the first lesson.¹

Holding a Royal Commission or similar inquiry may give the impression that lessons are being learned and that, by following the recommendations of the last inquiry, the ‘problem’ of fires or disasters will be solved. The fact that catastrophic events continue to recur is evidence either that the community is failing to learn the lessons from the past, or the inquiries fail to identify the true learning – that catastrophic events may be inevitable, or that Royal Commissions are not the most effective way to identify relevant lessons from past events.²

This paper is a preliminary review of the recommendations from 51 inquiries into bushfire management and response Service to ask ‘what have we learned?’ The inquiries range from the 1939 Stretton Royal Commission into Victoria’s fires, to 2013 and inquiries into Tasmania’s wildfires, the Auditor General’s performance audit on bushfire readiness in the ACT and the Malone inquiry into the Queensland Rural Fire. The aim of the review was to identify recurrent themes or recurrent ‘lessons identified’ (if not learned).³ These findings will inform further work being funded by the Bushfire and Natural Hazards CRC that is seeking to identify if there are better ways to identify learning from the impact of natural hazard events.

¹ *The Hillsborough Stadium Disaster 15 April 1989; Inquiry by the Rt. Hon. Lord Justice Taylor, Final Report* (London, 1990), [22] and [23].

² Neil Dufty, ‘Evaluating emergency management after an event: gaps and suggestions’ (2013) 28(4) *Australian Journal of Emergency Management* 15.

³ Attorney General’s Department, *Australian Emergency Management Handbook Series, Handbook 8: Lessons Management* (Commonwealth of Australia), p 3.



METHODOLOGY

The researchers identified some 257 inquiries into the preparation for and response to natural hazard events. From those we identified 51 that were solely related to bushfires and bushfire management and where the recommendations were readily available. The reports the subject of this review include operational reviews (such as the McLeod Inquiry into the Operational Response to the 2013 Canberra fires), Parliamentary inquiries (such as the Parliamentary inquiry into the 2001/2002 Sydney fires), coroner's inquiries, Auditor Generals' reports on fire management and the operation of fire services, and commissioned inquiries (such as the Malone review of the Queensland Rural Fire Service). A list of the reports the subject of this review can be found in appendix 1, below.

These inquiries produced 1727 recommendations. Having listed the recommendations, two of the researchers, Eburn and Hudson independently coded the recommendations into one of 5 broad themes;

- A – Shared responsibility;
- B – Preparedness;
- C – Response;
- D – Recovery;
- E – Fire agency organisation; and
- F – Research and technology.

Where there was disagreement as to the coding the researchers discussed their differing interpretations and determined the appropriate code by consensus.

At the same time, Cha conducted a review of three inquiries into the 2003 Canberra fires.⁴ This event was unique in that it occurred in one small jurisdiction and was the subject of three independent post event reviews. They were:

1. The McLeod *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT* (2003);
2. The inquiry and inquest by Coroner Doogan, (*The Canberra Firestorm: Inquests and Inquiry into Four Deaths and Four Fires between 8 and 18 January 2003* (2006)); and
3. Post-event litigation against the State of New South Wales that was heard in the ACT Supreme Court (*Electro Optic Systems Pty Ltd v New South Wales; West v New South Wales* (2012) 273 FLR 304).

Although not strictly speaking a post event inquiry, the Supreme Court litigation did determine issues of fact that is the Court made findings of what occurred and whether or not the actions of the agencies was, legally, 'reasonable'. In this review the question was asked, if these events present consistent findings as to what occurred and what should have occurred, is there a need to have fact-finding processes that extend for 10 years after the event? If the findings are not consistent 'how can the community and fire agencies learn lessons from multiple processes?'⁵

⁴ Ignatious Cha, *Learning Lessons from Fires: A study of post-disaster inquiries in the 2003 Canberra fires* (Paper submitted in fulfilment of the requirements for the unit ENV3010 Independent Research Project, The Australian National University, 2014). This research was conducted under the supervision of Eburn and Dovers.

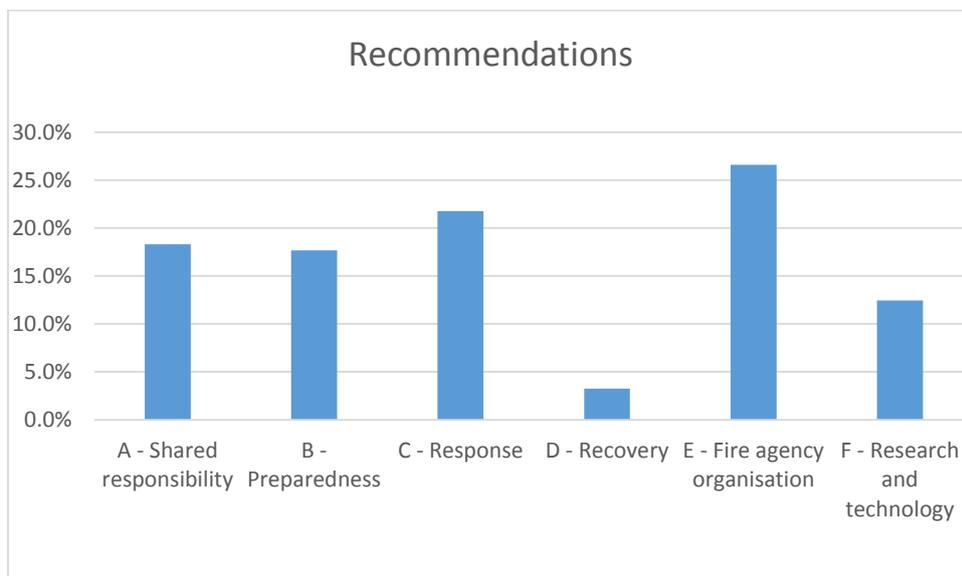
⁵ Ibid, 2.



This approach took both a broad view, looking at inquiries over 75 years and across the jurisdictions as well as a narrow focus, three inquiries into one event, to ask ‘What has 75 years of bushfire inquiries (1939-2013) taught us?’

RESULTS

The distribution of recommendations, across the 6 categories, is shown in Table 1, below.



Recurring themes, across each category, can be identified as the examples in Appendix 2, below, show.

DISCUSSION

Ideally the product of 51 inquiries and over 1700 recommendations would be that the Australian community would understand and be prepared for catastrophic fire events and losses on the scale of the 2009 Victorian fires will never occur again. History suggests that this is unlikely; so what has been the value of these inquiries?

Answering that question is not easy and not possible here; it may be that recommendations have been made and implemented and that has indeed mitigated the impact of the next fire event but it does not follow that similar issues have recurred and further recommendations are required. Just because an issue recurs does not mean it has not been acted upon. For example, In 1939 Stretton recommended the establishment of a state fire authority that became the Country Fire Authority. The presence of the CFA no doubt has significant impact on Victoria’s resilience to fires today but was never expected to stop all fires. It was beyond the scope of this research to explore if and how recommendations have been implemented but we believe it is still of interest to identify if there are ‘persistent lessons identified’.⁶

Even so, our simple survey shows over time and across jurisdictions, there are recurring themes and issues. That may, or may not, mean that ‘the recommendations are followed diligently’.⁷ Perhaps they have not been followed diligently as, over time lessons are learned and then forgotten, or lessons

⁶ Kevin Pollock, *Review of Persistent Lessons Identified Relating to Interoperability from Emergencies and Major Incidents since 1986* (Emergency Planning College, York (UK), 2013).

⁷ *The Hillsborough Stadium Disaster 15 April 1989; Inquiry by the Rt. Hon. Lord Justice Taylor, Final Report* (London, 1990), [22] and [23].



identified in one jurisdiction are not learned until a similar event occurs in another (but that may have changed given the rush by all Australian jurisdictions to implement the recommendations from the 2009 Victorian Bushfires Royal Commission). It may be that recommendations are being made that just cannot be implemented. Noting that radio communications is a problem during a fire and that work should be done to improve or investigate ways to ensure effective radio coverage does not create the technology, nor the budget to make this happen. Many of the issues identified are 'wicked problems':

A wicked problem is one for which each attempt to create a solution changes the understanding of the problem. Wicked problems cannot be solved in a traditional linear fashion, because the problem definition evolves as new possible solutions are considered and/or implemented.⁸

So even if 'followed diligently'⁹ the recommendations may not, and cannot, solve the problem.

It may be that the recommendations are indeed not 'followed diligently'.¹⁰ The recommendations may be impracticable or rejected by the industry or government due to conflicting priorities, budget constraints or a belief that they are just not appropriate. There is no guarantee that a Royal Commission, whether constituted by a single Commissioner or a team will actually come up with useful and meaningful recommendations.

Another issue may be competing recommendations. Diligently applying the recommendation from one Commission may require action contrary to another, and recommendations change over time. For example, following the 1983 Ash Wednesday fires Victoria amended the State Disasters Act 'To provide for the appointment of a Minister as Co-ordinator-in-Chief'.¹¹ The Review Committee took the view that

The concept of a State Disasters Act which makes one Minister responsible for counter-disaster planning, preparedness, co-ordination of participating agencies and welfare relief measures is sound. In this regard, the Committee believes that the same mechanism should be superimposed on the existing structure of the State Disaster Plan by extending the legislation... The result of this modification would be that ... [i]n the event of a declared disaster... the Minister would assume his responsibilities for the implementation and control of all measures to combat the disaster in his capacity as Co-ordinator-in-Chief.¹²

The Committee concluded that:

There is strong justification for a policy, formalised by legislation, under which a Minister is designated as Co-ordinator-in-Chief of disaster affairs and is responsible for direction and control across the whole spectrum of preparedness, combat and relief activities.¹³

⁸ Above, n 3, p 3.

⁹ Above, n 1.

¹⁰ Ibid.

¹¹ Victoria, *Report of the Bushfire Review Committee on Bushfire Disaster Preparedness and Response in Victoria, Australia, Following the Ash Wednesday Fires 16 February 1983* (1984, Melbourne), p 142.

¹² Ibid, p 146.

¹³ Ibid, p 154.



And they recommended that:

There be a close integration of the responsibilities of the Minister under the State Disasters Act and the State Disaster Plan ... [with] Ministerial responsibility for direction and control of counter—disaster preparedness, combat and relief activities.¹⁴

Come forward to ‘Black Saturday’ where the 2009 Victorian Bushfires Royal Commission said:

The Commission agrees that the designation ‘Coordinator’ and the description of the role as including coordination of agency activities can lead to confusion about the minister’s role. The Commission is clear that it was not intended for the legislation to imply that the minister had any operational responsibilities.¹⁵

The Royal Commissioners went on to recommend that:

The State consider amending the *Emergency Management Act 1986* and the Emergency Management Manual Victoria in order to achieve the following:

- remove the title of Coordinator in Chief of Emergency Management from the Minister for Police and Emergency Services
- clarify the function and powers of the Minister
- designate the Chief Commissioner of Police as Coordinator in Chief of Emergency Management, who would have primary responsibility for keeping the Minister informed during an emergency.¹⁶

Diligently implementing the recommendations from 1984 lead to role confusion and lack of clear command in 2009. Inconsistent recommendations may arise over time and as part of the nature of ‘wicked problems’ where ‘which each attempt to create a solution changes the understanding of the problem’.¹⁷ Further experience provides relevant learning so a recommendation is tested but, in light of experience, modified in the next inquiry. Inconsistency can be expected both over time and across jurisdictions. It may also be expected where different inquires, because of their different objectives. To test that hypothesis we can look at the 2003 Canberra fires where a single event, in a single jurisdiction was subject to (at least) three fact-finding inquiries; did they identify the same lessons?

The review of the three reviews post the 2003 Canberra fires revealed both consistency and inconsistency. All three inquiries were of the view that failure to aggressively combat the fires when they first ignited on 8 January represented a lost opportunity and contributed to the eventual firestorm that burned into urban Canberra.¹⁸ In that sense the ‘lesson’ to be identified, that aggressive first attack should be implemented, was identified in 2003, the litigation simply confirmed that view some 10 years later. But there are differences; the McLeod and Doogan inquiries may well have identified that there was a failure to aggressively attack the fires and this allowed the fires to grow and burn into Canberra. What those inquiries could not do, and the Supreme Court litigation could do, was to determine whether or not that failure represented a breach of duty to others with a corresponding obligation to pay damages. All three inquiries could confirm that the action was not taken, only Higgins CJ could determine that, even so, the decision to withhold fire fighters was ‘reasonable’ in the circumstances.

¹⁴ Ibid.

¹⁵ Victoria, 2009 Victorian Bushfires Royal Commission, *Final Report* (2011), Vol II, Part A, p 84.

¹⁶ Ibid, Recommendation 11.

¹⁷ Above, n 3, p 3.

¹⁸ Above n 4, p 9.



On the other hand, there were inconsistencies. When the IMT believed that the fire had burned beyond a suitable fire break a decision was made to use the Goodradigbee River as the next line of defence. Both McLeod and Doogan believed that the Goodradigbee River would have been an ineffective containment line in the prevailing conditions. McLeod noted that the severe drought conditions increased the probability for the areas burnt to rekindle and spark, and that ember attack would subsequently cause fires again.¹⁹ Doogan accepted expert evidence that the Goodradigbee River was ridden with abundant fuel load, and was therefore dangerous for it to be used as the Western containment line.²⁰

Higgins CJ, on the other hand, took the view that the River would have been an effective fire break. He went further and found that had preventative measures, that he believed were 'feasible', been implemented 'the fire would, in my view, have been unlikely to have crossed to the west of the Goodradigbee River on 17 and 18 January 2003'. His Honour's finding, that the use of the river as the western containment line was defensible [198] and that the fire could have been contained, seems contrary to the views of McLeod and Doogan but further, as a legally binding finding of fact it allowed the judge to conclude that the failure to take steps to prepare the river constituted a breach of a common law duty of care.

Diligently following²¹ the findings (the court's rulings are binding, be retrospective findings rather than recommendations for the future, but an agency that wishes to avoid future liability would be expected to distil the lesson from the tribunal's findings for future reference) leads to the conclusion that the use of a river, overgrown and in drought conditions is likely to be futile and dangerous at the same time it is both reasonable, and with proper preparation would have been effective!

CONCLUSIONS

This has been a brief and introductory review. The question we asked was 'what has 75 years of bushfire inquiries (1939-2013) taught us?' What they have taught us is that there are multiple recurring themes and that may show a problem in the lessons management process. It may be that the inquiries are identifying issues that cannot be solved, making recommendations that cannot be implemented or that their recommendations are sound but ignored or not diligently applied. Further, recommendations both over time and over inquiries, even those that are inquiries into the same event, may produce inconsistent findings and suggestions. It follows that applying Justice Taylor's first lesson, that 'There is no point in holding inquiries or publishing guidance unless the recommendations are followed diligently'²² is neither easy nor any guarantee that a future disaster will be averted. In the context of natural hazards it is inevitable²³ that there will be future disasters.

It may be that these types of inquiries are useful but they do have their limitations.²⁴ And if diligently following their recommendations is unlikely to avert future disasters then one has to question their value, given the amount of money that has been spent on the 51 inquiries identified, and they relate to bushfire alone.

¹⁹ Ron McLeod, *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT* (2003, ACT Government), p 61.

²⁰ Maria Doogan, *The Canberra Firestorm: Inquests and Inquiry into Four Deaths and Four Fires between 8 and 18 January 2003* (2006, ACT Coroners Court), p 154.

²¹ Above, n 1.

²² Above, n 1.

²³ *National Strategy on Disaster Resilience-Companion Booklet* (2012, Commonwealth of Australia, Canberra), p 6.

²⁴ See Michael Eburn and Stephen Dovers, 'Learning lessons from disasters: alternatives to Royal Commissions and other quasi-judicial inquiries', *Australian Journal of Public Administration*, at press.



Worse than having recommendations that are lost, forgotten, rejected or unfunded are recommendations that are inconsistent. Multiple inquiries may reveal multiple aspects of the 'truth' but they, no doubt, cause problems for agencies that are charged with ensuring they are 'followed diligently'.²⁵ How is industry meant to apply the recommendations if one tribunal says a proposed action would have been ineffective and another takes a contrary view?

We do not have an answer to that question but research we will undertake on behalf of the Bushfire and Natural Hazards CRC seeks to find alternate ways to conduct post event inquiries, particularly after significant high impact events where the community is directly and personally interested in the outcomes, that may produce effective and consistent recommendations and avoid unnecessary duplication.

²⁵ Above, n 1.



APPENDIX 1: INQUIRIES INCLUDED IN THIS REVIEW (BY YEAR)

1. Stretton, L. (1939). *Report of the Royal Commission to Inquire into the Causes of and Measures Taken to Prevent the Bush Fires of January, 1939, and to Protect Life and Property, and the Measures Taken to Prevent Bush Fires in Victoria and Protect Life and Property in the Event of Future Bush Fires* (Victoria).
2. Stretton, L. (1944). *Report of the Royal Commission to Inquire into the Place of Origin and the Causes of the Fires which Commenced at Yallourn on the 14th of February, 1944 : the Adequacy of the Measures which had been taken to Prevent Damage and the Measures to be taken to Protect the Undertaking and Township at Yallourn* (Victoria).
3. Rodger, G.J. (1961). *Royal Commission appointed to enquire into and report upon the bush fires of December, 1960 and January, February and March, 1961 in Western Australia. The measures necessary or desirable to prevent and control such fires and to protect life and property.* (Western Australia).
4. Barber, E. (1977). *Report of the Board of Inquiry into the Occurrence of Bush and Grass Fires in Victoria.* (Victoria).
5. Miller, S.I et al. (1984). *Report of the Bushfire Review Committee on bushfire preparedness in Victoria, Australia, following the Ash Wednesday fires 16 February 1983.* (Victoria).
6. Milton, P. (Chair), (1984). *House of Representatives Standing Committee on Environment and Conservation, Report: Bushfires and the Australian Environment* (Commonwealth).
7. Hiatt, J.W. (Coroner), (1996) *Inquiry into the cause and origin of the bushfires occurring in New South Wales between 31st December, 1993 and 14th January, 1994 and Inquests into the manner and cause of death of Norman John Anthes, Robert Eglinton Page, William John Roach and Pauline Mary O'Neil.* (New South Wales).
8. NSW Audit Office (1998) *Performance Audit Report: Rural Fire Service - The Coordination of Bushfire Fighting Activities.* (New South Wales).
9. Jones, R. (Chair), (2000). *NSW Legislative Council, General Purpose Standing Committee No 5: Report on Inquiry into the NSW Rural Fire Service.* (New South Wales).
10. Stevenson, J. (Coroner), (2001). *Inquest into the Deaths of Mark Douglas Cupit, Claire Wynne Dean, George Allan Fitzsimmons and Eric Furlan and Inquiry into fire at Mt Kuring-Gai National Park.* (New South Wales).
11. Johnstone, G. (Coroner), (2002). *Report of the Investigation and Inquests into a Wildfire and the Deaths of Five Firefighters at Linton on 2 December 1998.* (Victoria).
12. Price, J. (Chair) (2002). *Joint Select Committee on Bushfires: Report on the Inquiry into the 2001/2002 Bushfires.* (New South Wales).
13. Cameron, J.W. (Auditor General), (2003). *Fire prevention and preparedness.* (Victoria).
14. Esplin, B. (Chair), (2003). *Report of the Inquiry into the 2002-2003 Victorian Bushfires.* (Victoria).
15. McLeod, R. (2003). *Inquiry into the Operational Response to the January 2003 Bushfires in the ACT.* (Australian Capital Territory).
16. Nairn, G. (Chair), (2003). *A Nation Charred: Report on the inquiry into bushfires.* (House of Representatives Select Committee into the recent Australian bushfires, Commonwealth).
17. Pearson, D.D.R. (Auditor-General), (2004). *Performance Examination: Responding to Major Bushfires.* (Western Australia).
18. Brown, M. (Chair) (2004). *Legislative Assembly Public Accounts Committee: Review of Fire Services Funding.* (New South Wales).
19. Ellis, S. et al. (2004). *National Inquiry on Bushfire Mitigation and Management.* (Council of Australian Governments).



20. Hope, A.N. (Coroner), (2005). *Inquest into the death of Judith Lesley Ward and Lorraine Melia ('Albany fires')*. (Western Australia).
21. Emergency Services Commissioner (2005). *Examination of Prescribed Burning Practices*. (Victoria).
22. Breuer, L (Presiding Member), (2005). *Parliament of South Australia, Environment, Resources and Development Committee: Eyre Peninsula Bushfire and Native Vegetation*. (South Australia).
23. Doogan, M. (Coroner), (2006). *Inquests and Inquiry into Four Deaths and Four Fires between 8 and 18 January 2003*. (Australian Capital Territory).
24. 2007, Monterola, V. (Chair), (2007). *Ministerial Review of Bushfire Management in South Australia*. (South Australia).
25. Poole, G. (Auditor-General), (2008). *Management of Rural Fire Services in Queensland*. (Queensland).
26. 2008, Coroner Schapel, A.E. (Coroner) (2008). *Inquest into the Deaths of Star Ellen Borlase, Jack Morley Borlase, Helen Kald Castle, Judith Maud Griffith, Jody Maria Kay, Graham Joseph Russell, Zoe Russell-Kay, Trent Alan Murnane And Neil George Richardson ('Wangary fires')*. (South Australia).
27. Pandazopoulos, J. (Chair), (2008). *Parliament of Victoria, Environment and Natural Resources Committee: Inquiry into the Impact of Public Land Management Practices on Bushfires in Victoria*. (Victoria).
28. Fire and Emergency Service Authority of Western Australia (2009). *Post Incident Analysis: Bridgetown Complex Fire 23 (Peninsula), Fire 24 (Hester), Fire 26 (Ferndale), Thursday January 15th 2009 to Tuesday January 20th 2009*. (Western Australia).
29. Hope, A.N. (Coroner), (2009). *Inquest into the deaths of Trevor George Murley, Lewis Kenneth Bedford and Robert Wayne Taylor ('Boorabin fires')*. (Western Australia.).
30. Department of Premier and Cabinet (2009). *Review of Western Australia's bushfire preparedness*. (Western Australia).
31. Teague, B et al. (2009). *2009 Victorian Bushfires Royal Commission: Interim Report 1*. (Victoria)
32. Teague, B et al. (2009). *2009 Victorian Bushfires Royal Commission: Interim Report 2*. (Victoria)
33. 2010, Ferguson, E. (2010). *A Review of the Ability of the Department of Environment and Conservation Western Australia to Manage Major Fires*. (Western Australia).
34. Noetic Solutions Pty Limited (2010). *Major Incident Review of Toodyay Fire December 2009* (Western Australia).
35. 2010, Heffernen, B. (Chair) (2010). *Senate Select Committee on Agricultural and Related Industries: The incidence and severity of bushfires across Australia*. (Commonwealth).
36. Teague, B et al. (2010). *2009 Victorian Bushfires Royal Commission: Final Report*. (Victoria)
37. Noetic Solutions Pty Limited (2011). *Post Incident Analysis for Blackwood Fire 11 – Milyeannup-Sollya, 23 November to 5 December 2011*. (Western Australia).
38. 2011, Blake H.M (Auditor-General), (2011). *Special Report No. 99: Bushfire Management*. (Tasmania).
39. Ellis, S. (2011). *Major Incident Review: Lake Clifton, Red Hill and Roleystone Fires June 2011*. (Western Australia).
40. Emergency Services Commissioner (2011). *Review of the Tostaree Fire*. (Victoria).
41. 2011, Fire Services Commissioner (2011). *Review of Community Bushfire Warnings*. (Victoria).
42. Keelty M.J. (2011). *Shared Responsibility: The Report of the Perth Hills Bushfire February 2011 Review*. (Western Australia).
43. Key, S. (Presiding Member), (2011). *Natural Resources Committee Bushfire Inquiry Final Report*. (South Australia).



44. Wendt, W. (Chair), (2011). *Public Accounts and Public Works Committee: Management of Rural Fire Services in Queensland*. (Queensland).
45. O’Gorman, A.P. (Chair), (2011). *Community Development and Justice Standing Committee: Western Australia’s Readiness for the 2011-12 Bushfire Season* (Western Australia).
46. Eldridge, L. (2012). *Review of the Operations of Bushfires NT*. (Northern Territory).
47. Noetic Solutions Pty Limited, (2012). *Post Incident Analysis for Blackwood Fire 8 – Ellensbrook-Gnarabup, 23/24 November 2011*. (Western Australia).
48. Keelty, M.J. (2012). *Appreciating the Risk: Report of the Special Inquiry into the November 2011 Margaret River Bushfire*. (Western Australia).
49. Cooper, M. (Auditor General) (2013). *Performance Audit Report: Bushfire Preparedness*. (Australian Capital Territory).
50. Hyde, M. (2013). *2013 Tasmanian Bushfires Inquiry*. (Tasmania).
51. Malone, T. (2013). *The Malone Review into Rural Fire Services in Queensland 2013*. (Queensland).



APPENDIX 2: EXAMPLES OF RECURRING THEMES IN EACH CATEGORY

A - Shared responsibility – education.

Stretton 1939	Ellis 2004	Schapel 2008	Wendt 2011
<p>It is suggested that in every school ... fire prevention be made a real part of the curriculum and that the lessons in that behalf be given at the commencement of the summer season. For adult education much of the work now undertaken by the Forests Commissions should be supplemented. Slides and pictures in picture theatres should be shown at the beginning of summer and on the eve of holiday seasons, together with instructions as to the penalties for lighting fires illegally and the fact that fire places are provided at roadsides for picnic fires. It is suggested that at such seasons the newspapers, whose proprietors have always been willing to further this sort of education, should inform the public of the law relating to fires and of the consequences of their breach and of the methods to be adopted to prevent spread of fire ...</p>	<p>The Inquiry recommends that state and territory governments and the Australian Government jointly develop and implement national and regionally relevant education programs about bushfire, to be delivered to all Australian children as a basic life skill.</p>	<p>That the Chief Officer and the Editors of all newspapers and other media outlets develop a Memorandum of Understanding that ensures that all CFS press releases concerning total fire ban days and ongoing bushfire incidents are published in full.</p>	<p>that the Deputy Premier, Attorney-General, Minister for Local Government and Special Minister of State establish with local government a communication strategy to inform all residents about their fire prevention responsibilities.</p>



B – Preparedness – hazard reduction burns.

Stretton 1939	Rodgers 1961	Doogan 2006	Teague 2010
Burning – ... the Forests Commission must recognize the necessity of protective burning in its areas... this method of prevention of outbreak and spread cannot, either in the public or private interest, be ignored.	The Forests Department make every endeavour to improve and extend the practice of control burning to ensure that the forests receive the maximum protection practicable consistent with silvicultural requirements.	That a hazard-reduction program be introduced, involving regular and strategic burning in all areas of the ACT – including the catchment areas – with a view to have fuel-reduced areas in a pattern across the landscape, excluding only small areas of particular ecological or conservation importance.	The State fund and commit to implementing a long-term program of prescribed burning based on an annual rolling target of 5 per cent minimum of public land.

C – Response – improving communication including the use of ‘wireless transmitting sets’ (radio).

Stretton 1939	Hiatt 1996	Nairn 2003	Keelty 2011
Early Detection – Look-Out Towers – Towers so placed that no part of the forest is beyond range of vision of observers, should be placed throughout the forest. These towers should be in communication by telephone with a central body devoted to fire fighting, and as far as possible with each other. Wireless transmitting sets whereby instructions may be given to ground patrols carrying small receiving sets are used in such towers in many parts of the world.	The Court recommends to the Government of New South Wales that it ensures the Government Radio Network is implemented totally to provide an effective radio communications system for the Fire Services of New South Wales, including an efficient fire ground communications system which will enable all fire fighters participating in operations to communicate with each other and the Fire Control Centre.	The Committee recommends that ... an urgent review on a district basis, of the suitability of the current allocated radio spectrum to ensure that as far as possible, fire fighter safety is not being compromised through inadequate communications. Commit to the development, in conjunction with representative bodies of all emergency services, to a National Strategic Radio System.	FESA and local governments jointly review radio communications capability prior to the 2011/12 bushfire season with a view to improving the current delivery of service to firefighters.



D – Recovery – avoiding under-insurance.

Jones 2000	Esplin 2003	Nairn 2003
The Committee views the actions of some property owners who fail to insure, or under-insure, their properties as unsatisfactory, and recommends to the Government that this matter be reviewed.	That CFA, in their education and information packages, encourage appropriate insurance cover, and ensure that insurance becomes a part of the householder's annual checklist.	The Committee recommends that insurance companies ensure that potential and existing policyholders are aware of the need to regularly review their insurance policies to prevent undervaluing. This could be done through renewal notices and quarterly reminders. This should include a list of bushfire risk reduction measures that policyholders can implement to decrease the cost of their premium.

E - Fire agency organisation – command structure

Stretton 1939	Hiatt 1996	WA Auditor General 2004	Malone 2013
The institution of a State Fire Authority is recommended. ... It is recommended that the functions of this authority should be primarily those of defining a general policy of prevention and suppression of bush fires and protection of life and property; of organizing and recruiting local brigades; of maintaining discipline of local brigades and over local fire authorities; and of acting independently, with or without such advice as it may care to take.	There should be a Rural Fire Service with a command structure from the Board of Commissioners through a commander incorporating Fire Control Officers and voluntary bush fire brigades.	Government should: establish a State-wide command structure across volunteer Bush Fire Brigades for fighting major bushfires, to more effectively manage the coordination of personnel and resources	That the Rural Operations division currently sitting within the Queensland Fire and Rescue Service become an autonomous unit called Rural Fire Service Queensland and be led by a Deputy Chief Officer. Structure and Leadership of the Rural Fire Service



F - Research and technology – spatial awareness

Esplin 2003	Pandazopoulos 2008	Teague 2010	FESA 2012
<p>That DSE: • Provide further training and/or field staff for the routine acquisition and reporting of geographic data (maps of fire extent for prescribed and unplanned fires) and fuel-array data (quantity, type, condition and arrangement before and after fire as in the Overall Fuel Hazard Guide).</p>	<p>That the Department of Sustainability and Environment implement remote sensing imagery as a routine part of its pre-burn and post-burn assessment process for prescribed burning. Maps of every prescribed burn should be produced in a similar format to those used in Western Australia, indicating the boundary of each burn and the varying fire intensities achieved within the burn area. The boundaries of all Fuel Management Zones within each burn should also be indicated. In the case of the CFA the information from the Investigation and Review Unit should be regularly made available to the Board. Each prescribed burn map should be made publicly available on the Department of Sustainability and Environment's website, together with a map of the same burn area which shows the pre-burn fuel hazard levels and a statement of the total area treated within each Fuel Management Zone by each prescribed burn.</p>	<p>The State identify a central point of responsibility for and expertise in mapping bushfire risk to: ■ review urgently the mapping criteria at present used by the Country Fire Authority to map the Wildfire Management Overlay, to ensure that the mapping used to determine building and planning controls is based on the best available science and takes account of all relevant aspects of bushfire risk; ■ map and designate Bushfire-prone Areas for the purposes of planning and building controls, in consultation with municipal councils and fire agencies; ■ finalise the alignment of site-assessment methods for planning and building purposes, taking into account bushfire risk to human safety as well as to property.</p>	<p>6. Maps prepared for prescribed burns should address the fuel type and burn history of the burn area as well as surrounding areas. Predicted rates of spread under prescribed and other conditions should recognise the complexity of coastal heathlands.</p> <p>7. Fuel loads on private property need to be identified and included in understanding fire behaviour in determine the contribution they make to the burn risk assessment.</p> <p>36. Better maps are required for urban/rural interface fires</p>