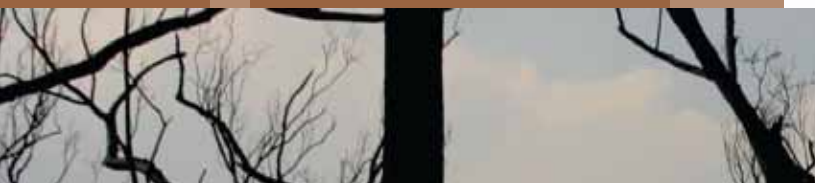


Victorian

2009 February Fires

Report by Chris Taylor



A Report on Driving Influences and Land Tenures Affected



1.0	INTRODUCTION	3
2.0	CONDITIONS LEADING UP TO THE FEBRUARY FIRES	4
2.1	WEATHER.....	4
2.1.1	Overview.....	4
2.1.2	Temperature	4
2.1.3	Rainfall.....	5
2.1.4	Drought indices.....	5
2.2	IMPACTS ON FUELS.....	6
2.2.1	Grassland fuels	6
2.2.2	Forest fuels.....	6
2.3	FUEL/FIRE RELATIONSHIP	7
2.4	LEADING UP TO 7 FEBRUARY 2009	7
3.0	RATING THE CONDITIONS OF 7 FEBRUARY	10
3.1	OVERVIEW	10
3.2	FIRE DANGER INDEX	10
3.3	GRASSLAND FIRE DANGER INDEX	11
3.4	FOREST FIRE DANGER INDEX.....	11
3.5	FIRE DANGER INDICES OF 7 FEBRUARY 2009	11
4.0	WEATHER CONDITIONS AND WILDFIRES IGNITED ON 7 FEBRUARY 2009	12
4.1	TEMPERATURE.....	12
4.2	RELATIVE HUMIDITY AND FUEL MOISTURE CONTENT.....	12
4.3	WIND SPEED.....	12
4.4	FIRES ON 7 FEBRUARY 2009	12
5.0	SELECTED MAJOR FIRES IGNITED ON 7 FEBRUARY 2009	15
5.1	OVERVIEW	15
5.2	KILMORE EAST/KINGLAKE FIRE	15
5.2.1	Fire Danger Index and driving influences	15
5.2.2	Ignition of the Kilmore East Fire.....	15
5.2.3	Spread of the Kilmore East fire	16
5.2.4	Previous prescribed burns.....	22
5.2.5	Continuing fire spread and the wind change	22
5.2.5	Lightning strikes and the spread of fire into the Yarra Ranges National Park	23
5.2.6	Containment and control of the Kilmore East Fire.....	23
5.2.7	Areas affected by the Kilmore East fire.....	25
5.3	MURRINDINDI FIRE	27
5.3.1	Fire Danger Index and driving influences	27
5.3.2	Ignition of the Murrindindi fire.....	27
5.3.3	Spread of the Murrindindi fire	27
5.3.4	Fire severity and forest age classes in the O'Shannassy	35
5.3.5	Fire intensity and thinning (logging) operations.....	37
5.3.6	Influence of cool temperate rainforests	40
5.3.7	The containment and control of the Murrindindi Fire.....	42
5.3.8	Area breakdown for the Murrindindi Fire	42
5.4	OVERALL MURRINDINDI/KILMORE COMPLEX.....	43
5.5	CHURCHILL FIRES	44
5.5.1	Fire Danger Index and driving influences	44
5.5.2	Ignition of the Churchill fire	44
5.5.3	Spread of the Churchill fire	44

5.5.4	Southern extent of main fire	49
5.5.5	After the wind change.....	51
5.5.6	Containment and control of the Churchill fire.....	52
5.5.7	Churchill fire affected areas breakdown	53
6.0	OTHER FIRES IN VICTORIA.....	54
6.1	DELBURN FIRE, LATE JANUARY 2009	54
6.2	BUNYIP FIRE.....	56
6.3	ERICA FIRE	57
6.5	REDESDALE FIRE.....	59
6.6	DAYLESFORD FIRE.....	60
7.0	OVERALL AREA FIRE AFFECTED	62
8.0	FIRE DANGER AND CHANGING CLIMATE PATTERNS	63
8.1	OVERVIEW	63
8.2	REPORT BY LUCAS, HENNESSY, MILLS AND BATHOLS	63
8.3	DID CLIMATE CHANGE EXACERBATE THE FIRES OF 7 FEBRUARY?	64
9.0	FUEL REDUCTION BURNS AND EXTREME FIRE DANGER INDEX (FDI).....	64
10.	CONCLUSIONS.....	66
	REFERENCES.....	67

1.0 Introduction

The wildfires of 7 February 2009 were unprecedented and many communities endured one of the worst peacetime disasters in Australia's history. These fires tragically claimed 173 lives, damaged or destroyed more than 2000 properties and 61 businesses, burned through entire towns and affected 430,000 hectares of land throughout Victoria. Disasters on this scale do not occur in isolation, but are the result of preceding events and conditions. The Victorian Bushfires Royal Commission has been charged with investigating the causes of and responses to these fires. To date, it has focused on warnings, information, protecting people during bushfires, identifying wildfire risk, emergency management and response.

The next step for the Royal Commission is to examine building standards in 'bushfire' prone areas, hear evidence about the structure and regulation of the electricity industry in Victoria and look at land management issues. Given that the condition of the land was relevant to the behaviour of the fires that started on 7 February, this report will focus on land tenure issues and driving influences. It is a submission to the Commission and is being made generally available to the public as a tool for people seeking to submit to the Commission. The aim of this report is to identify relevant issues for further investigation by the Royal Commission, with particular reference to its investigation into land management.

The report begins with a brief overview of the weather conditions leading up to the events of 7 February 2009. Tolhurst (2009), Sullivan and McCaw (2009) and Karoly (2009) consider that these conditions significantly influenced the severity of the fires. The main body of the report focuses on three fires: 1) Kilmore East/Kinglake: 2) Murrindindi and 3) Churchill. Each review of these fires has a brief summary of the weather and fire danger index (FDI) observed on 7 February 2009, then reports on the types of land tenure affected by the fires, the intensity of the fires, and some management issues concerning environmental values. A percentage analysis of fire affected land tenure is provided to provide readers with an overview of where the fires started, on what type of land tenure and how much of each type of land was fire affected.

The report concludes with an overview of observed and predicted changes in climate patterns which may already influence fire behaviour on those land tenures and which are predicted to increase fire severity and number of extreme fire danger days in the future.

The information in this report is preliminary and may be superseded once comprehensive academic and departmental analysis is undertaken. However, it is hoped this report will help the Royal Commission identify a number of key issues of relevance and assist members of the community in contributing toward reducing the risk of such a disaster causing significant loss of life, property and the environment in the future. The report draws from data from the following sources:

- The Interim Report by the Royal Commission and supporting documentation
- Department of Sustainability and Environment's (DSE) Fire Web page
- Bureau of Meteorology
- NASA Earth Observatory
- Media reports
- On-site visits to a number of the fire affected areas
- Review of literature and interviews with fire prevention and response personnel and witnesses