

INSIDE THE INFERNO

EPISODE 2



© ATOM 2014

A **STUDY GUIDE** BY KATY MARRINER



AUSTRALIAN TEACHERS OF MEDIA

<http://www.metromagazine.com.au>

ISBN: 978-1-74295-514-8

<http://www.theeducationshop.com.au>

EPISODE 2: 'ON THE FRONTLINE'

No nation is as ravaged by fire as Australia. It is the ever-present force that shapes our land and people. Every summer threatens to explode into an inferno, yet despite repeated disasters, this enemy remains largely unknown to us. Why is it so deadly, and how can we fight it? In this series, we'll meet the scientists trying to crack the mystery of Australian fires and join the front-line forces using an astounding array of technology to fight back. The battle rages as we go *Inside the Inferno*.

CONTENTS

3	Curriculum links
4	Expert opinions
4	Synopsis: Episode 2
5	Before and after viewing activity
5	Viewing activity
5	Fire fighting
8	The wind
8	Case study 1: Wollemi National Park
8	The Erickson air crane
9	Case study 2: John Phillips
9	Unmanned Aerial Vehicles
9	Bushfire safe homes
10	The urban interface
10	Case study 3: Canberra 2003
11	Fire tornadoes
12	Satellite imagery
12	The bush fights back
13	The Australian black fire beetle
13	Fighting fire with fire
14	<i>Inside the Inferno</i> online
14	Bushfire education
15	Key creative



SERIES SYNOPSIS

To live in Australia is to experience bushfire. Australia is the most fire-prone natural environment on earth. Nowhere else in the world is so regularly ravaged by infernos of the intensity, scale and destructive force of the Australian bushfire. As our population grows and spreads and as the effects

of climate change are felt, the danger to loss of life and property escalates.

What do we know about bushfires and how can we prevent their devastating consequences? Not surprisingly, Australia is a world leader in fire research and the complex and

technologically sophisticated job of fire fighting and prevention.

Inside The Inferno takes us into the terrifying heart of major fire events, unfolding the research that explains how fires start, grow and change; and how we predict them, prevent them,



fight them and hopefully survive these violent natural disasters. By drawing on the most recent bushfire season, *Inside the Inferno* explains our current scientific understanding of bushfires. In addition, the series examines the history of bushfires in Australia and what recent conflagrations tell us about the how fires ignite, evolve and die, and the crucial role that weather plays during a fire event.

Inside The Inferno explores not only the devastating mega fires such as Black Saturday in Victoria 2009 and the Canberra fires of 2003, but also major fire fronts that received little attention. The focus is how these fires provoked the evolution of the science of bushfires and how we can devise strategies to combat them.

With exclusive access to the world's largest fire fighting organisations, the NSW Rural Fire Service (RFS) and Victoria's Country Fire Authority (CFA), this two part series is the most comprehensive examination ever attempted of the science of big fires.

CURRICULUM LINKS

Inside the Inferno is a two part documentary series. Each episode has a running time of 52 minutes.

This study guide to accompany *Inside the Inferno* has been written for secondary students at all levels. It provides information and suggestions for learning activities in Civics and Citizenship, English, Environmental Science, Geography, Media, Outdoor and Environmental Studies, Science and cross curriculum projects addressing Sustainability.

Inside the Inferno acknowledges bushfires as a fact of life in Australia and considers how, through limiting their impact, we can live with them more safely and effectively.

Activities in this study design have been designed to educate students about the characteristics and causes of bushfires, as well as their occurrence and impact. By considering the history of bushfires in Australia, students can develop an understanding of the importance of landscape management in limiting the prevalence and devastation of bushfires, and study the effects of bushfires on the natural and built environments. Information about research projects both in Australia and overseas, allow students to consider how advances in science and technology are improving our ability to assess bushfire risks and achieve risk reduction.

As a documentary *Inside the Inferno* illustrates the effectiveness of case studies and personal storytelling in bushfire education. The examples of Australia's most recent bushfires and interviews with bushfire victims and firefighters, allow students to analyse safe bushfire behaviours and the effectiveness of emergency assistance. In addition, discussion of this content develops students' empathy with and understanding of the experience of the trauma and social upheaval that bushfires cause for individuals and communities.

For students living in bushfire prone areas, who may find themselves one day needing to prepare for, or manage, a bushfire, such knowledge will be particularly valuable.

Some students may have experienced first-hand the impact of bushfires. Teachers need to respect the personal circumstances of students and remain aware of their sensitivities while viewing and discussing *Inside the Inferno*.



EXPERT OPINIONS

JAMIE CARTER, Blue Mountains Fire
Captain

Jamie Carter is an experienced fire captain. Carter leads hazard reduction operations.

DAVID CRUST, Head Ranger National Parks
and Wildlife Services

David Crust is the head ranger of the Wollemi National Park, 500,000 hectares of almost impenetrable wilderness on Sydney's doorstep.

MICHAEL DOHERTY, Plant Ecologist

Michael Doherty is a plant ecologist who is using his expertise in vegetation dynamics and management to help improve bushfire management in urban areas.

SHANE FITZSIMMONS, RFS Commissioner
Commissioner Shane Fitzsimmons has more than 25 years experience with the NSW Rural Fire Service (RFS) serving as both a volunteer and salaried officer.

JASON FORTHHOFFER

Jason Forthhofer, a scientist at the US Government's Fires Sciences Lab in Montana is researching what causes fire tornadoes.

MIKE FROMM

US Navy Research Centre
Meteorologist Mike Fromm of the Naval



Research Laboratory, in collaboration with several national and international laboratories, is interested in the frequency and intensity of wildfires.

BEN SHEPHERD, RFS Media Manager

PHIL KOPERBERG, Ex NSW Rural Fire Service Chief & Chairman of NSW Emergency Management Committee
Phil Koperberg is Australia's most experienced firefighter having run the Rural Fire Service for 20 years. Koperberg is now the Chairman of the New South Wales Emergency Management Committee, responsible for advising the New South Wales government on emergency response strategies, since 2011.

KANE LAMBKIN, RFS Officer

SIMON LEWIS, Meteorologist
Simon Lewis is a meteorologist with the RFS. His role is to monitor weather conditions and collect weather data that will aid fire fighting efforts.

RICK MCRAE, ACT Emergency Services
Agency

Rick McRae is a risk analyst with the

ACT Emergency Services Agency. He has spent over a decade investigating the Canberra fires of 2003.

GARY AND TRISH McDONALD, Canberra
residents

Gary and Trish McDonald witnessed the Canberra fires of 2003.

JOHN PHILLIPS, Farmer

John Phillips is a sheep farmer at Weddin Mountain, New South Wales. His property is threatened by a bushfire.

ROB ROGERS, Deputy Commissioner New
South Wales Rural Fire Services

Rob Rogers has been a fire fighter for more than 30 years. Rogers is responsible for leading the RFS's operational capabilities to ensure that volunteers and salaried staff are enabled to prevent, mitigate and suppress fires in rural fire districts across NSW.

PROFESSOR HELMUT SCHMITZ

Professor Helmut Schmitz is interested in the Australian black fire beetle and its potential to improve bushfire fighting technology. He regularly travels from Germany to Australia to study the Australian black fire beetle

VICTOR STEFFENSEN, Indigenous fire
practice

Victor Steffensen is an Indigenous fire practitioner and runs fire workshops across Australia.

SYNOPSIS: EPISODE 2

While we've come to accept that fire is an essential feature of the Australian summer, with each new fire season, comes a greater understanding of how fires behave in Australian conditions. 'On the Frontline' introduces the scientists trying to crack the mystery of Australian fires and join the frontline forces bringing an astounding array of technology to the fire zone.

For decades our ways of fighting bushfires had hardly changed – rickety fire trucks, rakes and wet blankets were the only weapons of

choice. But in the past few years fire fighting has been revolutionised by technology, much of it making the transition from the war zone to the fire zone.

The New South Wales Rural Fire Service (RFS) rely on technology to support the rapid information processing and communication required to put out a major bushfire. The 300 strong workforce at RFS headquarters gather and collate data that enables them to predict and prevent fire events and also ensure that fire fighting teams are

well equipped to predict battle any blaze.

Drawing on the case studies of a recent fire in the Wollemi National Park and the inferno that devastated Canberra's suburbs on January 18, 2003, 'On the Frontline' showcases the state of the art technology such as Erickson aircrews, unmanned aerial vehicles and LiDAR laser satellites, along with the scientific research that is equipping Australia's fire fighting services and those living in the bush and on the urban interface to be bush fire ready.



BEFORE AND AFTER VIEWING ACTIVITY

Teachers are recommended to ascertain student knowledge and understanding of bushfires prior to viewing 'On the Frontline' and to revisit this discussion after a screening of the episode.

Use the KWL chart to make notes about bushfires.

KWL is a thinking tool.

K = What I know

W = What I want to know

L = What I learned

Please see "Chart 2" on page 7

The term wildfire is used in 'On the Frontline'. A wildfire is a fire that is burning out of control in the open.

Viewing activity

- Use the data chart to record information about the causes, impacts and responses to bushfires explained in 'On the Frontline'.

Please see "Chart 2" on page 7

Fire fighting

Episode 2 takes us to the headquarters of the New South Wales Rural Fire Service (NSW RFS). It is mid January and the bush fire season is at its peak. Today's operation spans a high intensity blaze in a pine plantation, a fast moving grass fire threatening the highway link between Brisbane and Sydney, and a month-old blaze in a state forest.

- How does 'On the Frontline' portray the RFS? The RFS is the world's largest volunteer fire service. Members of the RFS provide fire and emergency services throughout NSW.
- Use the internet to research the role and responsibilities of the RFS. Make a PowerPoint about the RFS that informs an audience about:
 - a. The role and responsibilities of the fire service.
 - b. The history and traditions of the fire service.

the fire service.

- c. The workforce of the fire service.
- d. The achievements of the fire service.
- e. The use of technology to manage bushfires.

Suggested link: <http://www.rfs.nsw.gov.au/>

For students who do not live in New South Wales, research the work of the fire service in your state or territory.

Suggested links:

Australian Capital Territory:

http://esa.act.gov.au/actrfs/?_sm_au_=iVVKcw0VRSHVnfq5

Northern Territory:

<http://www.pfes.nt.gov.au/Fire-and-Rescue.aspx>

Queensland:

<https://ruralfire.qld.gov.au/>

South Australia:

<http://www.cfs.sa.gov.au/site/home.jsp>

Tasmania:

<http://www.fire.tas.gov.au/>

Victoria:

<http://www.cfa.vic.gov.au/>

Western Australia:

<http://www.dfes.wa.gov.au/alerts/Pages/default.aspx>

- Make a PowerPoint about the fire service that informs an audience about:
 - a. The role and responsibilities of the fire service.
 - b. The history and traditions of the fire service.

CHART 1

TOPIC: BUSHFIRES

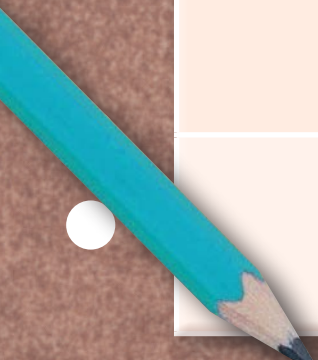
WHAT I KNOW	WHAT I WANT TO KNOW	WHAT I LEARNED

CHART 2

SUBJECT: BUSHFIRES

(Source: *Inside the Inferno* – 'On The Frontline')

CAUSES	IMPACTS	RESPONSES





- c. The workforce of the fire service.
- d. The achievements of the fire service.
- e. The use of technology to manage bushfires.

- What other services and agencies are integral to bushfire management?
- Australia's country fire services are staffed by both paid and volunteer fire fighters.
 - Would you volunteer to be a member of a volunteer fire service?
 - Using the links listed above, investigate the opportunities for youth to play a role in bushfire safety and prevention.
- How can social media be used to help detect and fight bushfires?

Case study 1: Wollemi National Park

'In a way, we've ended up with this 500,000 hectare time capsule of a landscape that looks pretty well as it did before European arrival in Australia. And that's a really amazing thing, and that's something that's pretty unusual in this age.' – David Crust

Pine. Prehistoric survivors from the age of the dinosaurs, the last remaining Wollemi pines were only discovered in a canyon in Wollemi National Park 20 years ago.

- Explain the significance of the firefighters' efforts to protect the Wollemi pine.

The wind

While every fire burns with a common pattern, the front burning hottest and moving fastest, it is wind that will determine the speed and direction in which it travels. Wind is what makes fires so unpredictable. Sudden changes in wind direction are a fire fighter's worst nightmare. Wind changes make for difficult and dangerous conditions for fire crews and place lives, property and the bush at greater risk. Keeping track of wind changes is fundamental to fire suppression.

- Draw a diagram to illustrate the effect of wind change on a fire.
- Why is wind the enemy of fire fighters and those in the path of a bushfire?

Wollemi National Park is half a million hectares of pristine wilderness, just two hours drive from the centre of Sydney. 'On the frontline' draws on a bushfire burning in Wollemi National Park to explain the firefighting techniques used in rugged bushland.

Using on 'On the Frontline' and other resources, explain the following fire fighting techniques:

- o Aerial intelligence
- o Flir
- o Weather data
- o Heli-bucketing
- o Containment lines
- o Ground fire crews

Environmental protection is an important responsibility of fire services. The fire in Wollemi National Park threatens the rarest trees on earth – the Wollemi

The Erickson air crane

Since it first arrived in Australia in 1998, the Erickson air crane has become the rock star of fire fighting. The air cranes make an annual tour to Australia from the United States each summer. Able to suck up to 9,000 litres of water in just 45 seconds, the Erickson air crane is unrivalled in its ability to effectively fight a bushfire.

- Draw and annotate a diagram to show how an Erickson air crane fights bushfires.
- Why is the Erickson S-64 Air-Crane N179AC also known as Elvis?
- Why doesn't Australia own any Erickson air cranes?

Suggested link: <https://www.youtube.com/watch?v=rSv2hFt5EI>



Case study 2: John Phillips

Farmer John Phillips has a property at Weddin Mountain, 300 kilometres west of Sydney. 'On the frontline' shows Phillips defending his property and livestock during a bushfire.

- What challenges does Phillips face in defending his property and livestock?
- What strategies does Phillips and the fire crew use to defend his property and livestock from the approaching bushfire?
- What resources does Phillips access to help defend his property and livestock from the approaching bushfire? How do these resources make fighting the fire easier and safer? What factors compromise the reliability of these resources?
- What risks does Phillips and the fire crew face in fighting the bushfire that threatens Phillips property?
- Why does 'On the Frontline' tell Phillips' story?

- Phillips decided to stay and fight the fire. What factors influence people's decision to 'stay and fight'? What factors influence people's decision to leave? What is the 'prepare, stay and defend or leave early' policy? Why does the 'prepare, stay and defend or leave early' policy stress the need to 'leave early'?

Unmanned Aerial Vehicles

Boeing is adapting its war drones for use in detecting Australia's bushfires. Unmanned aerial vehicles (UAV) are remotely controlled by a specialist ground team. Loaded with high definition and infra-red cameras, UAVs detect fire hotspots and allow the firefront to be mapped.

- List the advantages of using UAV technology. Are there any disadvantages?
Suggested link: <http://www.boeing.com/boeing/defense-space/military/scaneagle/>

Bushfire safe homes

'Everybody loves the amenity that's the Australian bush, and it's great. But if you live there for your lifetime, inevitably you will face a serious fire situation. Now unfortunately there are some people who are going to face it more than once.' – Rob Rogers

'It's a balance you weigh up. If you want a view like this, of you want to live in a bushfire prone area, you have to pay what it costs to protect your assets.' – home owner

'It's probably cost us over \$200,000 additional; over and above what the house would have cost to build.' – home owner

Despite the risks, Australians continue to build in fire prone areas, resigned to the inevitability of danger. Some trust in science and technology to make their houses more survivable.

- Do you live in a bush fire zone? Is your home bushfire ready?



Make a list of ways that your family home could be prepared and protected in the event of a bushfire.

- What is an asset protection zone? How does it protect a house built in a bushfire zone?
- Your task is to design a flame zone house. Use the internet to investigate bushfire resistant architecture. Work with a peer to complete drawings of your design and to write a design report. Display the designs in the classroom and then hold a class competition to select the winning design.

The urban interface

Today, the urban areas of Australia's cities are much larger and as their boundaries expand, more and more people are living in suburbs that form the urban interface – a danger zone for bushfires. More than a million Australian homes now lie in these high risk areas.

- Describe the geographic factors that make homes built in the urban interface vulnerable to bushfire.
- What evidence in 'On the Frontline' proves that homeowners in the

urban interface have a false sense of security?

- Using a map of the capital city of your home state or territory, identify the suburbs that form the urban interface. Write a description of the urban interface. Your description should indicate where the urban interface is located and provide information about its physical and human characteristics.

Case study 3: Canberra 2003

'Everything you can see from here, burnt – everything.' – Rick McRae

January 18, 2003. The height of a long hot summer. Drought, severe winds and extreme temperatures combined to produce the conditions for the perfect fire storm. Driven by the winds, four separate fires joined to become one vast fire front. Canberra, the nation's capital was right in its path. By mid afternoon the skies turned to

night as the city's suburbs came under devastating attack.

Rick McRae from the National Fire Research Centre has spent a decade investigating that day, one of the greatest infernos in recorded history:

'Over a quarter of a million hectares burnt in this fire event in total. Colleagues of mine who flew in reconnaissance helicopters during and after the event reported astonishing things going on. You've got this enormous storm overhead, the sky's gone, black, and where it isn't black it's blood red.'

- Why was Canberra devastated by the bushfires?
- News reports about the Canberra fires can be accessed at: <http://www.smh.com.au/specials/canberraablaze/>. What do these news reports reveal about the Canberra fires?
- Drawing on 'On the Frontline' and other resources, create an



annotated timeline of the Canberra fires of 2003.

Many people believe they can rely on firefighters to protect their home and family during a bushfire. This can sometimes be the case. However, during a major bushfire, firefighters and equipment will be fully occupied controlling the spread of the fire. There will probably not be enough resources to protect every home at risk. People have to take responsibility for their own protection and survival.

- 'It never occurred to me, you know we live in a capital. You don't think. Like, when you see bushfires on TV you see houses surrounded by bush. We're not' – Canberra resident
Drawing on the archival footage, identify some of the strategies that the residents of Canberra implemented to protect themselves on January 18, 2003? What strategies did they use to protect their property?
What preventative action, if any, could have been taken to minimise the damage?

What is a fire plan? How can a fire plan help people to survive a bushfire?

- Since late 2009, a new fire hazard system has been implemented throughout Australia.
What is the Fire Danger Rating?
How can you determine the Fire Danger Rating for your locality?
Why is the Fire Danger Rating an improvement on previous fire hazard systems?
Design a poster that explains the Fire Danger Rating.

Suggested links:

- <http://www.abc.net.au/news/specials/canberra-bushfires-remembered/>
- <http://www.canberrabushfires.com.au/>
- <http://www.extremeweatherheroes.org/science-of-extreme-weather/case-studies/canberra-bushfires.aspx>
- <http://www.highfirerisk.com.au>

Fire tornadoes

'It was just this monster.' – Gary McDonald

Canberra residents Gary and Trish McDonald were witnesses to an event

that even a decade later is seared in their memory – a fire tornado. A vast column of fire, cloud and debris a thousand metres high tore through the Canberra suburbs. This unprecedented event was the first proof of something researchers called pyro-tornadogenesis.

- What is a firewhirl?
- What is a fire tornado?

Suggested links:

- <http://www.australiangeographic.com.au/topics/science-environment/2012/11/fire-tornadoes-a-rare-weather-phenomenon/>
- <http://www.smh.com.au/environment/researchers-confirm-first-fire-tornado-during-2003-bushfires-20121119-29liv.html>
- <http://www.weather.com/news/tornado-central/fire-tornado-firewhirl-photos-20130814>
- <http://www.youtube.com/watch?v=5H1eVy6O3Fo>

At the Missoula Fire Sciences Laboratory in Montana, United States, researchers investigate what causes firewhirls and fire tornadoes. Researching the behaviour of firewhirls and fire tornadoes will give firefighters



an insight into the likely location where they may form and the kind of damage they can do.

- Explain the significance of the research being undertaken at the Missoula Fire Sciences Laboratory.

Suggested link: <http://www.firelab.org/>

A pyrocumulonimbus cloud (pyroCb) is a type of cumulonimbus cloud that forms above a source of heat, such as a wildfire.

- Draw a diagram to explain how a pyrocumulonimbus cloud forms.
- Why are these clouds called 'a thunderstorm on steroids'?

Satellite imagery

Satellite imagery is a tool used by Australian firefighters to support detection and response.

CALIPSO is a joint US and French satellite mission. CALIPSO stands for Cloud-Aerosol LiDAR and Infrared Pathfinder Satellite Observation. Combining an active LiDAR (Light Detection and Ranging) instrument with passive infrared and visible imagers, CALIPSO has the capacity to probe the vertical structure and properties of thin clouds and aerosols over the globe.

- How can CALIPSO data be used in the fight against bushfires?

Suggested links:

<http://www-calipso.larc.nasa.gov>
<http://www.nasa.gov/topics/earth/features/calipso-australia.html>

Himawari-8 entered geostationary orbit on 16 October 2014. The next-generation Japanese geostationary meteorological satellite is expected to start operation in mid-2015.

- How does Himawari-8 differ from existing meteorological satellite technology?
- What role can Himawari-8 play in detecting and responding to Australian bushfires?

Suggested links:

<http://www.jma.go.jp/jma/jma-eng/satellite/>
<http://www.data.jma.go.jp/mscweb/en/himawari89/>

The bush fights back

'If you were sitting in this exact spot on day after the Canberra fires went through, you wouldn't believe it would look like this after ten years. It would have been ash, charcoal; no green material would have been visible. But nonetheless most of the plants here were alive, even though they didn't look it.'
 – Michael Doherty

Fire has been present on the Australian continent for millions of years. Many of Australia's native plants have evolved to survive bushfires and even rely on bushfires as a means of reproduction.

- Working as a class, list the impacts that bushfires have on vegetation. When you have finished making the list, sort the impacts into positive and negative impacts, as well as short and long term impacts.
- What is natural regeneration?
- Ecologist Michael Doherty had been closely studying the Canberra bush before the 2003 fires hit. Returning to his plots after the fires, enabled Doherty to track the effects of the fires on the vegetation. What has Doherty's research indicated about the resilience of the Australian bush?



Suggested link: <http://www.environment.gov.au/system/files/resources/f88bf19a-7a0e-45f1-a06d-c90ecb014d04/files/bush-jan04-article-7.pdf>

- Drawing on 'On the Frontline', write a haiku poem about the burnt landscape. Write another haiku about the landscape as it shows evidence of regeneration.
- What flora will survive a bush fire? What flora will thrive? What flora will die?

Your task is to research a plant that is fire resilient. Make two PowerPoint slides about the plant that you have selected. Collate each student's PowerPoint slides to form a slide show.

The Australian black fire beetle

'So, we really do not know how exactly the Australian black fire beetle detects a fire but we are convinced that the fire beetle has many mechanisms to become aware of the fire even from larger distances of many kilometres.' – Professor Helmut Schmitz

One of evolution's most extraordinary

gifts is a tiny beetle that one day may provide us with the perfect solution to detecting fires. Australian black fire beetles are able to detect fire from as far as 80 kilometres away, and while every other creature flees, they head directly towards the fire.

Each summer, Professor Helmut Schmitz travels from Germany to research the beetles.

- Draw an Australian black fire beetle. Label the drawing to show the adaptations that improve the beetle's chances of survival. Underneath the drawing, write a description of: the beetle; the beetle's habitat; and the beetle's adaptations.
- How does a fire beetle detect a bushfire?
- How can the fire beetle help researchers improve bushfire management?

Many animals have evolved to survive fire events and have developed

specialised relationships with fire. In addition, fire affects the age, structure and composition of vegetation, creating habitats that suit different animal species.

- Working as a class, list the impacts that bushfires have on animals. When you have finished making the list, sort the impacts into positive and negative impacts, as well as short and long term impacts.
- Your task is to research an animal species that has adapted to fire. Make two PowerPoint slides about the species that you have selected. Collate each student's PowerPoint slides to form a slide show.

Fighting fire with fire

'Fires are inevitable. They will always occur.' – Phil Koperberg

We cannot make Australia fireproof but we must do all we can to prevent bushfires from starting and spreading.



- What is hazard reduction?
What are the aims of hazard reduction?
Make a list of the pros and cons of hazard reduction.
How does 'On the frontline' portray hazard reduction?
Suggested link: <http://www.rfs.nsw.gov.au/fire-information/hazard-reductions>

Fire has always been part of the Australian story, but it hasn't always been our enemy. For tens of thousands of years, Indigenous Australians used fire to manage the landscape. Aboriginal leader Victor Steffensen believes that embracing ancient knowledge is the future of fire management.

- Victor Steffensen is a film and music producer committed to creating works that support Indigenous community and the environment. Steffensen is dedicated to strengthening Indigenous knowledge in many ways.

Throughout Steffensen's career he has developed specific training and research methodologies using multi media and film for the revival of land management particularly through fire management and the transfer of traditional knowledge.

Learn about Victor Steffensen at:
<http://mulong.com.au/>
<http://mojowire.net.au/tag/victor-steffensen/>
<http://www.livingknowledgeplace.com.au/>



- 'People don't understand fire.' – Victor Steffensen
Explain the importance of Victor Steffensen's fire workshops.
- Drawing on 'On the Frontline' and other resources, investigate how Australia's Indigenous population once used fire as a means of bushfire prevention.
Do you think traditional burning has a role to play in bushfire management?

Suggested link: <http://www.abc.net.au/local/photos/2014/07/15/4046317.htm>

Inside the Inferno online

The *Inside the Inferno* website offers students the opportunity to learn more about the documentary. The website can be accessed at <http://www.insidetheinferno.com.au>.

Teachers and students can like *Inside the Inferno* on Facebook at <https://www.facebook.com/insidetheinferno>



and follow *Inside the Inferno* on Twitter at <https://twitter.com/builttoburn>.

Bushfire education

Teachers are advised to access online resources for relevant curriculum materials. The following websites are recommended for use with secondary students:

- o Bureau of Meteorology
<http://www.bom.gov.au/weather-services/bushfire/index.shtml>
- o Bushfire Cooperative Research Centre
<http://www.bushfirecrc.com/>
<http://www.bushfirecrc.com/education/school-links>
- o Bush Fire Front
<http://bushfirefront.com.au/>
<http://bushfirefront.com.au/bushfire-problems/basics/>



KEY CREATIVE

MAX BOURKE DIRECTOR

An aeronautical engineering drop out, Max Bourke gave up rocket science for television and only occasionally regrets it. Bourke is the director behind the popular SBS food series *Gourmet Farmer* and *Shane Delia's Spice Journey*, as well as science documentaries *I Can Change Your Mind about Climate* and *Ten Bucks a Litre*.

SIMON NASHT WRITER & EXECUTIVE PRODUCER

Smith & Nasht Managing director and founder Simon Nasht has 25 years experience as a leading international filmmaker in Australia, the UK and the US and has consistently produced high-rating and award-winning documentaries for broadcasters including the ABC, SBS, BBC, Channel 4, ITV, PBS, Discovery, National Geographic, ZDF, NHK and RAI. Nasht has run successful production companies in London and New York and has worked as a foreign correspondent, political reporter and is a best-selling author.

MARCUS GILLEZEAU & ELLENOR COX PRODUCERS

Marcus Gillezeau and Ellenor Cox...ADD. Firelight has experienced critical and creative success with its productions since it was founded in 1998. Firelight's productions have screened in festivals world wide, won international and domestic industry awards, and have been critically acclaimed as industry game changers.

glossary-of-fire-terms

- o Bushfire Education
<http://www.bushfireeducation.vic.edu.au/about-this-resource.html>
- o Commonwealth Scientific and Industrial Research Organisation
<http://www.csiro.au/org/BushfiresOverview>
<http://www.csiro.au/Outcomes/Environment/Bushfires.aspx>
- o Country Fire Authority
<http://www.cfa.vic.gov.au/kids-schools/teachers/>
<http://www.cfa.vic.gov.au/kids-schools/secondary-school-resources/>
<http://www.cfa.vic.gov.au/kids-schools/secondary-schools/interactive/index.htm#/home>
- o Geography Teachers Association of Victoria
http://www.gtav.asn.au/CMS200/files/cms_files/

Bushfires_final_txt_LR.pdf

- o Geoscience Australia
<http://www.ga.gov.au/scientific-topics/hazards/bushfire>
- o National Museum of Australia
http://www.nma.gov.au/engage-learn/schools/classroom-resources/units_of_work/fire
- o New South Wales Rural Fire Service
<http://www.rfs.nsw.gov.au/resources/publications/students-and-teachers>
- o Splash ABC
<http://splash.abc.net.au/media/-/m/30033/climate-and-bushfires-in-australia>
- o Tasmanian Fire Service School Fire Education
<http://www.tfseducation.com.au/students/bushfire-and-other-natural-hazards>



SCREEN EDUCATION © ATOM 2014



This study guide was produced by **ATOM**. (© ATOM 2014)
ISBN: 978-1-74295-514-8 editor@atom.org.au

For information on **SCREEN EDUCATION** magazine,
or to download other study guides for assessment,
visit <<http://www.screeneducation.com.au>>.

Join ATOM's email broadcast list for invitations to
free screenings, conferences, seminars, etc.
Sign up now at <http://www.metromagazine.com.au/email_list/>.

For hundreds of articles on Film as Text,
Screen Literacy, Multiliteracy and Media Studies,
visit <<http://www.theeducationshop.com.au>>.