

BUSHFIRE IN THE LANDSCAPE

DIFFERENT VALUES, A SHARED VISION

NSW TEACHERS FEDERATION CONFERENCE CENTRE, SYDNEY June 23 and 24, 2011



SPONSORS

Bushfire in the Landscape
23rd - 24th June 2011

Speakers and sessions in which
they present may change prior
to the conference.

PLATINUM



NSW National Parks
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*The Grose Valley
Fire Group*



WELCOME

Letter from the Minister

Bushfires are often unpredictable in nature, they can be fierce and in many cases unforgiving, particularly in the harsh Australian climate. Every summer in New South Wales the men and women of the Rural Fire Service, Fire and Rescue NSW and the many volunteers, put their lives at risk to ensure the safety of others and the land.

Bushfires are a way of life in Australia. They come with the land that we inhabit. The Nature Conservation Council of NSW Bushfire Program is presenting its Eighth Biennial Bushfire Conference.

This conference explores the different values people place on the landscape and how that dictates how fire is perceived in the community. A vital area in which more discussion is needed is risk management, how we can better protect communities from the unpredictability of bushfires and how to preserve the Australian Landscape.

This conference is an opportunity for the public and fire experts alike to share their vision for progression in sustainable bushfire management. An opportunity for open discussion on biodiversity values, indigenous values and rural production values in fire management.

As the newly appointed Minister for Police and Emergency Services, I understand the importance of exploring initiatives that centre around more ecologically sustainable bushfire management. I applaud The Nature Conservation Council for their work in this area and I hope this conference proves both informative and productive.



The Hon. Michael Gallacher, MLC

Dear Distinguished Guests, Presenters, Representatives and Delegates,

On behalf of the Nature Conservation Council of NSW (NCC) and the Bushfire Management Program, we would like to welcome you to the eighth Biennial Bushfire conference - *Bushfire in the Landscape: Different values a Shared vision*.

The Bushfire Management Program has a long history of involvement in ecologically sustainable bushfire management in NSW and has witnessed monumental changes in attitudes towards the environment during this time. This has led to significant developments in policy, on-ground management and a greater emphasis on scientific research to underpin our actions.

However, continued urban expansion and rural development poses many challenges to bushfire managers. In particular, the ability to make good management decisions for healthy landscapes whilst also meeting community expectations. Taking ecologically sustainable bushfire management to the next level will require a more considered approach to the different values people place on their natural and built environments. '*Bushfire in the Landscape: Different values a Shared vision*' will be an opportunity for delegates from an array of backgrounds to participate in a forum which will explore these different values and how they influence fire management.

We would like to express our appreciation to our sponsors. This important community bushfire conference would not be possible without their generous and continued support.

Many thanks to the conference committee, in particular Rebecca LeMay and the NCC Bushfire Advisory Committee for their dedication and support. We hope that you enjoy the next two days and find them informative and a great opportunity to exchange knowledge with peers, experts and colleagues in the bushfire sphere.

Greg Banks and Anne Miehs
NCC Bushfire Management Program



Mr Michael Gallacher
NSW Minister for Police
and Emergency services

CONFERENCE COMMITTEE

Greg Banks
Pepe Clarke
Jane Garcia
Jane Gye
Rebecca LeMay
Kate McShea
Dr Judy Messer
Anne Miehs
Rob Pallin
Waminda Parker
Prof Don White



PROGRAM

DAY 1 THURSDAY 23 JUNE

A: BIODIVERSITY Keeping biodiversity on the burn agenda

Registrations: 8.15-9.00 am

SESSION 1: 9.00-10.30 am

Mr Rob Pallin
Bushfire Advisory Committee, NCC

Welcome

Mr Pepe Clarke
Chief Executive Officer, NCC

NCC's role in ecological fire management in NSW

Mr Steve Cansdell, MP
Parliamentary Secretary for the NSW Minister for Police and Emergency Services

Opening Address

Associate Professor Alan York (Keynote Speaker)
University of Melbourne

Victorian Bushfires Royal Commission: Implications for biodiversity Conservation in Victoria

Ms Sally Barnes
Office of Environment and Heritage

Living with fire in NSW parks

Morning Tea 10.30 - 11.00 am

SESSION 2: 11.00 am - 12.40 pm

Dr Michael Deering
Department of Sustainability, Environment, Water, Population and Communities

Fire management and environmental law

Mr Laurence Berry
Australian National University

The effects of fire mosaic patchiness on bird species distribution

Dr Elizabeth Tasker
Office of Environment and Heritage NSW

Using biodiversity research to inform land management: a case study from the Greater Blue Mountains World Heritage Area

Mr Michael Doherty
CSIRO

Time since fire: a necessary but not sufficient measure for assessing and managing fire thresholds

Dr Tina Bell
University of Sydney

The impact of fire on fungi

PROGRAM

B: INDIGENOUS Exploring new directions for Indigenous fire management in NSW

Lunch 12.40 - 1.40 pm

SESSION 3: 1.40 - 3.10pm

Mr Victor Steffensen (Keynote Speaker)

Traditional Knowledge Revival Pathways program

Getting everyone on the same page with Indigenous fire management

Ms Waminda Parker and Mrs Lana Andrews

Hotspots Fire Program

Building capacity for Indigenous communities to participate in fire management

Dr Scott Mooney

University of NSW

The drivers of late quaternary fire activity in Australia

Afternoon Tea 3.10 - 3.40 pm

SESSION 4: 3.40 - 5.00 pm

Mr Andrew Edwards

Bushfires Northern Territory

Fire management for conservation, Indigenous benefit, and greenhouse gas emissions abatement: West Arnhem Land, NT

Facilitated discussion session

Catered drinks and nibbles Teachers Federation Centre bar
5.00-6.30 pm

DAY 2 FRIDAY 23 JUNE

C: RURAL Rural production and the role of fire

SESSION 5: 9.00 - 10.35 am

Opening address by Commissioner Shane Fitzsimmons

NSW Rural Fire Service

Welcome by Mr Andrew Jones

Travers Bushfire Ecology

Mr Tim McGuffog (Keynote Speaker)

Forests NSW

Managing conflicts between biodiversity conservation, tree production and risk management in NSW Forests

Mr Pat Westwood and Ms Kennedy Tourle

Rural Fire Service and rural landholder

What has changed and what new hazards are posed? An example of six generations of rural farming practice and the role of fire in the central west slopes and plains

Mr Peter Droulers and Ms Karen Kneipp

Western Catchment Management Authority

Managing invasive native scrub with fire in Western NSW.

Morning Tea 10.35 - 11.05 am

PROGRAM

D: RISK Applications and limits to managing risk

SESSION 6: 11.05 am - 12.30 pm

Facilitated discussion session

Dr Kevin Tolhurst (Keynote Speaker)
University of Melbourne

Managing bushfire risk post the Victorian Bushfire Royal Commission

Dr Simon Heemstra
NSW Rural Fire Service

Risk Planning in NSW - How risk plans are being used as a management tool and future direction

Lunch 12.30 - 1.30 pm

SESSION 7: 1.30 - 2.50 pm

Dr Owen Price
University of Wollongong

The implications of return-for-effort from prescribed fire for bushfire risk reduction

Dr Penny Watson
University of Wollongong

Bushfire fuels and their variety in NSW and beyond

Dr Phil Zylstra
National Parks and Wildlife Service

Rethinking fire and fuels

Dr Jenny Scott, Ms Jennie Cramp and Ms Louise Pilkington
Ku-ring-gai Council

Climate change and bushfire-climate adaptation model for determining a better return on investment

Afternoon Tea 2.50 - 3.20 pm

SESSION 8: 3.20 - 4.45 pm

Dr Tim Prior
Institute for Sustainable Futures

Talking at or talking with communities? Improving bushfire risk communication by engagement

Facilitated discussion session: building a shared future

Mr Pepe Clarke
Chief Executive Officer, NCC

Closing address

OFFICIAL ADDRESSES

MR ROB PALLIN

Rob Pallin is a current member of the NCC Executive Board and was the Chair person of the Nature Conservation Council of NSW 2000-2005, Chairman of the Paddy Pallin group of companies, member of NPWS South Coast Advisory Committee. Robert is currently the NCC's representative on the Illawarra Bushfire Management Committee, the Lord Howe Island Bushfire Management Committee, the Bushfire Coordinating Committee and the Rural Fire Service Advisory Council. Robert was a councilor on Ku-ring-gai Council from 1991 to 1995 and chaired the Hornsby Ku-ring-gai Bush Fire Management Committee.

MR PEPE CLARKE

Pepe Clarke is the Chief Executive Officer of the Nature Conservation Council of NSW. Pepe is an environmental lawyer with a background in law, environmental science and community education. He previously spent three years in the Pacific where he played a key role in the establishment of a regional office for the International Union for Conservation of Nature (IUCN) and worked as a consultant to a range of international conservation groups, including WWF, Conservation International and the Wildlife Conservation Society. He was previously the programs director for the Environmental Defender's Office (EDO), and has worked as a lecturer and researcher for a number of universities. He has a passion for nature conservation and a strong commitment to working for a just and sustainable future.

MR STEVE CANSDELL

Mr Steve Cansdell is the Parliamentary Secretary for the NSW Police and Emergency Services, a Member of the NSW Legislative Assembly and the Member for Clarence. Mr Cansdell is known in the Clarence for his support for community causes, notably his annual Pedal for Preschools bike ride in which he cycles to every community preschool in the electorate, raising about \$10,000 in the process. He has led numerous community campaigns in relation to hospitals and for safer roads. Prior to becoming Member for Clarence, Steve ran a successful sign writing business. He was also a Grafton City Councillor from 1993 to 2003.

COMMISSIONER SHANE FITZSIMMONS

Shane Fitzsimmons has more than 25 years experience with the NSW Rural Fire Service (RFS) serving as both a volunteer and salaried officer. In 1998 he was appointed an Assistant Commissioner with the RFS and has held portfolio responsibilities for Operations, Strategic Development and Regional Management. In 2004 he was appointed the inaugural Australasian Fire Authorities Council (AFAC) Visiting Fellow to the Australian Institute of Police Management (AIPM) for a period of 12 months. In September 2007 he was appointed Commissioner of the NSW Rural Fire Service. In March 2008 he was appointed a Director of the National Aerial Firefighting Centre (NAFC) and is currently the Chair of the NAFC Board. He is a member of the NSW State Rescue Board and is currently appointed as Chairman. In December 2009 he was appointed as a Director on the Bushfire Cooperative Research Centre. Shane was awarded the National Medal in 1999 and the Australian Fire Service Medal (AFSM) in 2001.

MR ANDREW JONES

Andrew Jones has 20 years experience in bushfire management, environmental planning and ecology. His career commenced in 1989 with Gosford City Council as an Environmental Officer and then Bushland Manager. In 2006 Andrew joined the NSW National Parks and Wildlife Service as Fire Management Officer for the Central Coast Hunter Range Region where he gained a great deal of experience in fire fighting operations during several significant fire seasons. He is currently a volunteer with the Gosford Rural Fire Service. Andrew has supervised the preparation of fire management plans for 16 national parks within the region and played a major role in the development of risk management plans for seven bush fire management committee areas. He was involved in state wide working groups for the development of fire plan formats and for fire equipment development.

A: BIODIVERSITY



Photo by Anne Miehs

BIODIVERSITY

VICTORIAN BUSHFIRES ROYAL COMMISSION: IMPLICATIONS FOR BIODIVERSITY CONSERVATION IN VICTORIA

Associate Professor Alan York
BSc(Hons), PhD

*Research Leader, Fire and Biodiversity Program,
Department of Forest and Ecosystem Science,
University of Melbourne*

Biography

Associate Professor York leads the Fire and Biodiversity Research Program within the Department of Forest and Ecosystem Science at the University of Melbourne. His research group is currently investigating the interactions between fire, landscape pattern and biodiversity. Associate Professor York has been involved in applied fire ecology research for over 30 years; working primarily in universities and State research agencies. From 2000-2002 he was the NCC representative on the Wollongong Bushfire Management Committee and remembers those years as 'interesting times' in the development of better approaches to fire management in NSW.

Abstract

Victoria is one of the most bushfire-prone areas of the world and has long experienced extensive and severe wildfires. Conditions in late-January/early February 2009 however led to the most devastating fires on record; burning 430,000 hectares of land and resulting in the damage or destruction of more than 2,000 homes and the loss of 173 human lives. The State Government subsequently established a Royal Commission to conduct an extensive investigation into the causes of, the preparation for, the response to and the impact of those fires. The final report of the 2009 Victorian Bushfires Royal Commission, released in July 2010, included 67 recommendations covering areas such as bushfire safety policy, emergency and incident management, planning policy and fuel management. The State government endorsed a number of these recommendations, and committed to a long-term program of prescribed burning; establishing a rolling target of a minimum of five per cent on public land (385,000 ha.) per year. This program's stated focus was to be on reducing risk to life and property, but also promised an increase in resources for fire ecology research and biodiversity monitoring.

Prior to the Royal Commission, the Department of Sustainability and Environment (DSE) had been aiming to treat about 1-2% of the total public land estate with prescribed fire. The dramatic increase to a target of 5%+ has raised serious concerns amongst scientists and nature conservation agencies. State-wide annual targets such as this, focussing on area burnt rather than achieving stated management objectives, have the potential to have perverse outcomes for biodiversity. This presentation examines some of the potential consequences of changed fire management practices on Victoria's flora and fauna and highlights emerging positive developments in biodiversity monitoring and fire ecology research.

LIVING WITH FIRE IN NSW PARKS

Ms Sally Barnes

Deputy Chief Executive Parks and Wildlife Group, Office of Environment and Heritage (NSW)

Abstract

The NSW National Parks and Wildlife Service (NPWS) manages about seven million hectares of parks and reserves across NSW and much of this land is fire-prone. As one of four recognised fire authorities in NSW and as a public authority under the *Rural Fires Act 1997*, NPWS has responsibilities to manage bushfire and its associated risks in partnership with other fire authorities, adjoining land owners and the community. In order to fulfill this legislative mandate and NPWS primary fire management objectives, the service works at a landscape scale to achieve both risk management and environmental outcomes. A fire management planning framework including: reserve fire management strategies prepared for all NPWS reserves; the NPWS Fire Management Manual; and draft Living with Fire in NSW National Parks Strategy supports this.

New fire management insights are obtained by investing significant resources into applied fire and biodiversity research programmes and using the results to improve management and biodiversity protection. NPWS also has ongoing contractual arrangements with the Bushfire CRC and the University of Wollongong for bushfire research. NPWS management aims to protect natural values including wildlife, habitats, wilderness areas, threatened species and catchments, as well as protection of places and objects of cultural and scientific value. Key conservation

BIODIVERSITY

actions are outlined in Priority Action Statements (PAS) under the *Threatened Species Act 1995*.

Future drivers of fire management include climate change, demographic shifts in NSW, social, economic and environmental factors and the outcomes of recent inquiries. As a response to the 2009 Victorian Bushfires Royal Commission, NPWS has developed an 'Enhanced Bushfire Management Program' which will double NPWS hazard reduction activities, more than double the current area treated to a minimum of 135,000ha/yr, and provide additional rapid response teams to respond to remote area fires before they spread.

FIRE MANAGEMENT AND NATIONAL ENVIRONMENTAL LAW

Dr Michael Deering
BSc (Hons), GcertMgmt, PhD

*Director, Species Listing
Section, Approvals and Wildlife
Division, Department of
Sustainability, Environment,
Water Populations and
Communities*

Biography

Dr Deering specialises in environmental and natural resources policy. He is currently the Director of the Species Listing Section in the Federal Department of Sustainability, Environment, Water, Population and Communities. The Species Listing Section is responsible for improving the conservation of Australia's native species by listing high priority threatened species and key threatening processes, and preparing conservation advice to assist stakeholders conserve threatened species.

The section also provides secretariat support for the Threatened Species Scientific Committee. The Committee is an independent group of scientific experts that provides advice to the Minister for Sustainability, Environment, Water, Population and Communities on the listing, conservation and recovery of threatened species and ecological communities, and the listing and abatement of key threatening processes.

Abstract

This talk will outline the Australian Government's role in fire management and will provide information on the assessment of 'Fire regimes that cause biodiversity decline' as a key threatening process under national environment law.

Fires are significant disturbance events in almost all Australian terrestrial ecosystems and can maintain biodiversity or cause the loss of biodiversity. Inappropriate fire regimes have been identified as a threat to more than 750 of the about 1500 nationally threatened terrestrial species, and to 32 out of the 48 nationally threatened ecological communities.

The independent Threatened Species Scientific Committee (the Committee) has recently completed its assessment of a nomination to list 'Fire regimes that cause biodiversity decline' as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Under the EPBC Act, a process can be listed as a key threatening if it threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community. A decision by the Minister for Sustainability, Environment, Water, Population and Communities on the listing of this process is due later this year.

If listed, the Minister will decide whether to implement a threat abatement plan for the key threatening process. A threat abatement plan could provide guidance on ways to reduce the negative impacts of inappropriate fire regimes on biodiversity, and could help to facilitate coordination of fire management activities across different regions throughout Australia.

Listing of 'Fire regimes that cause biodiversity decline' as a key threatening process would not change current regulation. Neither would all prescribed burning need to be submitted for environmental assessment. The federal government's role in fire management would continue to be limited to activities where a significant impact on nationally protected matters is likely.

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THE EFFECTS OF FIRE MOSAIC PATCHINESS ON BIRD SPECIES DISTRIBUTION

Mr Laurence Berry
Honours Student

*The Fenner School of
Environment and Society, The
Australian National University*

Biography

Mr Berry is conservation biology Honours student at the Fenner School of Environment and Society under the supervision of Dr Don Driscoll and Prof David Lindenmayer. His research interests include the landscape ecology of disturbance, the effects of fire on biodiversity and species dispersal dynamics.

Abstract

Inappropriate fire regimes pose a significant threat to biodiversity. With fire severity and frequency predicted to increase with global climate change, informed fire management is becoming increasingly recognised as an important factor in asset protection, biodiversity conservation and natural resource management. Few attempts have been made to define the spatial and temporal scale of fire mosaic patterns necessary for satisfactory biodiversity conservation. Mr Berry's research looks at the effects of fire mosaic patchiness on bird biodiversity. This involved a replicated natural experiment in a Mallee ecosystem at Pinkawillinie Conservation Park on the Eyre Peninsula, South Australia. He examined the relationships between bird species richness and abundance and post-fire variation in patch size and isolation. All patches were created by a large fire in 2005 and all possessed the same pre-burn age. Five treatment blocks were established, each with large and small patches at both high and low isolation. Each block also included sites in the burnt matrix at high and low isolation. Bird species richness and abundance increased with patch size. The effects of isolation on bird species distribution varied depending upon the scale of buffer. Total bird species richness and abundance were higher at long unburnt sites than within the fire mosaic. Individual species exhibited a variety of responses to patch size and isolation, indicating that a range of patch sizes and connectivity gradients are desirable to maintain species richness. Bird species traits were linked with environmental variables, which determined the distribution of some species throughout the landscape. This research addressed key knowledge gaps regarding species responses to patch size and isolations within a fire mosaic and provides practical guidelines for applied avian conservation strategies and future research.

USING BIODIVERSITY RESEARCH TO INFORM LAND MANAGEMENT: A CASE STUDY FROM THE GREATER BLUE MOUNTAINS WORLD HERITAGE AREA

Dr Elizabeth Tasker
BSc(Hons), PhD

*Research Scientist, Fire
Ecology Unit, Scientific
Services Office of Environment
and Heritage (NSW)*

Biography

Dr Liz Tasker is a Research Scientist and manager of the Fire Ecology Unit in the Scientific Services Division of the NSW Office of Environment and Heritage. She has worked as a fire ecologist for more than 15 years. Her research interests include how fire frequency, intensity, size and seasonal timing of fires affect animals and plants, and how this knowledge can be incorporated into fire management.

Abstract

The National Parks and Wildlife Service (and the Office of Environment and Heritage, of which it is a part) has legislative obligations to manage national parks both for the conservation of flora and fauna and to protect human life and property from wildfires. These two goals require different, and often contradictory management actions. The NPWS seeks to balance these through a combination of (a) land zoning and (b) fuel- and biodiversity- thresholds. The land-zoning approach divides the landscape into Asset Protection, Strategic Fire Advantage and Land Management Zones, each of which is managed for a different goal. While neither this nor the fuel-thresholds are new, the biodiversity thresholds have only been in use since 2004 and are an ongoing project. In her talk, Dr Tasker outlines what these biodiversity thresholds are (currently they are primarily fire frequency thresholds to maintain floristic diversity), how they have been derived and what is involved in applying them to a particular landscape, using the Greater Blue Mountains World Heritage Area as a case study. Dr Tasker also discusses some of the limitations of the current thresholds, and describe some of the work being carried out to refine them in the Blue Mountains World Heritage Area.

BIODIVERSITY



TIME SINCE FIRE: A NECESSARY BUT NOT SUFFICIENT MEASURE FOR ASSESSING AND MANAGING FIRE THRESHOLDS

Mr Michael Doherty
BSc(Hons)

*Plant Ecologist, CSIRO
Ecosystem Sciences and ANU
Fenner School of Environment
and Society, Canberra*

Biography

For the past 25 years Mr Doherty has worked on a wide range of vegetation survey and vegetation management projects for Local, State and Federal governments and has developed detailed expertise of the ecology of southeastern Australian vegetation communities. Mr Doherty has been with CSIRO since 1991 and is currently researching the interaction between fire frequency and fire intensity in relation to plant community composition, plant species richness and vegetation structure in southern NSW, a component of which is contributing to a part-time PhD at ANU.

Abstract

Along with the concept of the fire regime, the concept of ecological thresholds has been widely applied in fire management as a way of creating an evidence based feedback loop between biological responses and management actions. Although not without critics, the concept has been adopted in relation to fire and vegetation management in NSW and in the ACT, particularly in relation to fire frequency and its interaction with the primary juvenile period of potentially fire vulnerable plant species. However, while fire intensity or its resultant - fire severity, is also widely recognised as being a major influence on vegetation response and recovery, it has yet to be explicitly and adequately incorporated into fire management planning for biodiversity conservation. Time since fire alone does not give sufficient information to assess the state of a given area to determine potential fuel loads, vegetation composition or vegetation structure. This paper will use examples from the 2003 fires on the NSW/Act border to show contrasting vegetation response within particular plant communities to different levels of fire intensity and discuss ways that such information could be incorporated into fire management.

THE IMPACT OF FIRE ON FUNGI

Dr Tina Bell
BSc(Hons), PhD

*Senior Lecturer, University of
Sydney*

Biography

Dr Bell completed her undergraduate and postgraduate studies in Botany at the University of Western Australia. For her PhD she investigated the fire and nutrient response of Australian heaths and continued in this research theme as a Postdoctoral Fellow at the University of Cape Town in South Africa. She returned to the University of Western Australia as a Teaching and Research Fellow before moving to eastern Australia. Here she contributed to research on fire ecology with the Victorian Department of Sustainability and Environment and the University of Melbourne. Dr Bell joined the Faculty of Agriculture, Food and Natural Resources at the University of Sydney in 2010 as a Senior Lecturer in Fire Ecology. She has been associated with the Bushfire Cooperative Research Centre since its inception in 2002 and has contributed to ecology and plant physiology related research funded by the Australian Research Council. In 2009 she was awarded a Fulbright Professional Business/Industry Scholarship.

Abstract

Responses of flora and fauna to varying fire regimes have been examined extensively in Australian ecosystems; however fungi have not received the same amount of research attention. Despite their huge diversity and unquestionable functional significance, little is known about the taxonomy, biology and ecology of Australian fungi. As a consequence, even less is known about the effect of fire on fungal communities. Fungi have significant roles in releasing and recycling of nutrients through decomposition and as symbiotic partners; they are an important source of food for certain vertebrates and invertebrates and can affect soil structure via their extensive mycelia networks. Disturbances such as fire alter the ability of fungi to facilitate these ecosystem processes and may be of importance to long-term forest health, productivity and sustainability. Knowledge of the responses of fungi to fire is essential for effective land management but in the absence of information, management of fungal substrates (e.g. organic matter, vegetation, woody debris) is recommended.

B: INDIGENOUS



INDIGENOUS

GETTING EVERYONE ON THE SAME PAGE WITH INDIGENOUS FIRE MANAGEMENT

Mr Victor Steffensen

*Director, Traditional
Knowledge Revival Pathways*

Biography

Mr Victor Steffensen is the co-founder and Director of the Traditional Knowledge Revival Pathways program in North Queensland, Australia. Over many years of experience with land and cultural management, he has developed trustful relationships and project outcomes with many Indigenous communities from all over Australia.

Traditional Knowledge Revival Pathways is a grass roots developed tool that provides communities the capacity to preserve, protect, transmit, and promote their traditional knowledge through cultural expressions in accordance with their customs, values, needs, and aspirations. The initiative strives to make significant contributions towards demonstrating dual knowledge systems towards the protection and management of the environment and ecosystems by fire and other land management practices. The digital multi media component of the methodology is to assist the traditional transfer while developing research processes that are practically evolving into a number of outcomes related to people re-connecting with country and their well-being.

Abstract

Mr Victor Steffensen presents a story about the experiences of re-applying and strengthening Traditional fire management practices within interested groups around Australia. Through many years of engaging practical research, training, and recording methods, the project work to date is uncovering the holistic links that fire has to the community and environment. Fire is one of the five natural elements that clearly needs respect as it has traditionally and naturally been a part of people and culture through many ways that has reflected a special relationship to man as a spiritual responsibility. Today fire is seen as a destructive force which most Australians fear due to a disconnection of society from the land and its people. This has clearly led to a point that is now creating problems with the natural world and above all confusion amongst the people of today, that surprisingly takes no lessons from the vast history that historic and traditional people have gained over many hundreds and thousands of years. This now leads to the challenge we face today, to revive our relationship with fire and keep this respect alive, not only in terms of looking after the land but to heal the differences between people and their relationship to country.

BUILDING CAPACITY FOR INDIGENOUS COMMUNITIES TO PARTICIPATE IN FIRE MANAGEMENT

Ms Waminda Parker and Mrs
Lana Andrews

*Waminda Parker - Hotspots
Manager for the Nature
Conservation Council*

BSc(Hons)

*Lana Andrews - Coordinator
of the Hotspots Programme for
the NSW Rural Fire Service.*

*BLMC(Hons) and qualifications
in Business Management,
Project Management and
Facilitation*

Biography

Ms Waminda Parker is the Hotspots Manager for the Nature Conservation Council of NSW. She has been part of the Hotspots Fire Project since its inception nearly six years ago. Ms Parker brings to the project a passion for fire management within an ecological context, and a clear understanding of the need for integration of its various elements. She has a particular interest in strategic planning and related project management to deliver conservation programs outside protected areas and within fragmented and mix-used landscapes.

Ms Andrews joined the Hotspots team several years ago and has been instrumental in its development, delivery and promotion. Combining her interest in environmental management and community engagement and as a trained volunteer fire fighter, Ms Andrews oversees the operational component of the Hotspots Program streamlining delivering content and approach. She also has experience in Bush Fire Impact Analysis in NSW and Victoria, collecting and analysing data related to fire behaviour, human behaviour and building and land use planning. Ms Andrews has extensive experience in the development and implementation of communication materials. She is currently working with Hotspots partners to tailor the program for specific community groups and supporting delivery in new areas across the state.

Abstract

Working with Local Aboriginal Land Councils (LALCs) the Hotspots Fire Project (Hotspots) has designed a training program that caters to individual property fire management planning. These map-based property plans aim to explore ways to plan for and implement management strategies which address cultural, biodiversity and risk management values. The GIS property plans include background property information (vegetation, fire history, topography, operational considerations, threatened species and cultural values), a fire management strategy and a 12 month action plan. Utilising information derived from the land owner and regional land managers, management zones are identified with strategies and actions established for each zone recommending how fire should be managed into the future.

Coordinated by a trained Hotspots facilitator the planning approach relies heavily on extensive engagement between the ALC, relevant neighbours, ecologists, archaeologists and government agencies within the biodiversity and fire management sectors. The collaborative approach to planning seeks to build connections within that community to:

- increase the understanding and knowledge exchange between Aboriginal and non-Aboriginal communities regarding cultural associations to fire
- provide an understanding of the ecological setting of the landscape and the role of fire within
- provide sustainable fire management strategies for biodiversity conservation and to protect cultural values
- outline risk constraints and operational management responsibilities for the property

As part of delivery, Hotspots can also offer tailored operational training (including the participation in a demonstration burn) under the direction of the NSW Rural Fire Service.

The volume of interest emerging within the Indigenous community to participate in fire management in areas where Hotspots has worked has been encouraging. In moving forward, there are clear merits to maintaining support mechanisms which enable Indigenous communities to actively engage in fire management. Strengthening cultural viability in fire management may also be achieved by pursuing opportunities to improve the cohesion between cultural, biodiversity and risk values for shared outcomes.

THE DRIVERS OF LATE QUATERNARY FIRE ACTIVITY IN AUSTRALIA

Dr Scott Mooney
BSc(Hons), PhD

Senior Lecturer, School
of Biological, Earth and
Environmental Sciences,
University of NSW

Biography

Dr Scott Mooney is a Senior Lecturer at the School of Biological, Earth and Environmental Sciences at the University of NSW. Scott has several publications exploring the long-term prehistory/history of fire in humid landscapes of eastern Australia using the quantification of charcoal in radiometrically-dated (e.g. 14C) sedimentary environments. He was the lead author on a recent compilation of 223 sedimentary charcoal records from Australasia and is a member of the Scientific Steering Group of the Global Palaeofire Working Group. Dr Mooney's area of research is climate change and human impact.

Abstract

This talk will describe recently published work (*Quaternary Science Reviews* 30: 28-46) which compiled 223 sedimentary charcoal records from Australasia in order to examine the temporal and spatial variability of fire regimes during the past 70,000 years. The resulting composite records demonstrate that fire activity in Australia over the long term follows climate, with colder periods characterised by less and warmer intervals by more biomass burning. Notably, there is no change in the composite record of fire activity corresponding to the arrival of humans in Australia

at 50 ± 10 ka and no correlation between an archaeological index of human activity during the past 40 ka and the composite record. Changes in biomass burning in the last 200 years were however the largest of the last 70,000 years. Tension between the maintenance of natural disturbance regimes and risk, coupled with ideas about the role of humans in the past, have resulted in considerable debate about fire and natural resource management. The implications of this work have been controversial in that it places emphasis on climate as the primary driver of prehistoric fire activity in Australia. The talk will conclude with reconciliation of this work with the ethnographic record and with Indigenous perspectives.

FIRE MANAGEMENT FOR CONSERVATION, INDIGENOUS BENEFIT, AND GREENHOUSE GAS EMISSIONS ABATEMENT: WEST ARNHAM LAND, NT

Mr Andrew Edwards
PhD(submitted)

Bushfires Research, Bushfires NT

Biography

Whilst working as a Spatial Scientist for Parks and Wildlife in the Northern Territory, Mr Edwards developed techniques for the mapping of fires using satellite imagery at various scales appropriate to fire management in the NT's extensive conservation estate. Andrew was then seconded to Bushfires NT (the Northern Territory's rural fire service) where he was employed to conduct the research that underpins the west Arnhem Land Fire Abatement project. The project has since won a Eureka prize for Innovative Solutions to Climate Change, and now attracts million dollar annual funding as an offset from a big polluter. The project employs dozens of Indigenous people and has the potential to positively affect conservation management of the region which is the Northern Territory's biodiversity hot spot.

Abstract

The West Arnhem Land Fire Abatement (WALFA) project area covers approximately 28,000 km². The Arnhem Land plateau, overlapping both the WALFA region and the World Heritage Listed Kakadu National Park to the west, contains the highest concentration of Northern Territory endemic flora and fauna species, due mainly to the rough topography, ostensibly providing fire refugia. Fire managers working in the region have access to rich Indigenous knowledge and related fire management skills. This is due mostly to a small number of people who remained outside the major settlements and on the Plateau. These people were much less constrained by settler and other interests and were more strongly dependent on resources managed with, or accessed using fire.

By the late 20th century the people of the plateau had all but gone and the country was under threat from chaotic and destructive fire regimes. The Natural Heritage Trust in the late 1990s provided the initial funding to re-introduce fire management in the west Arnhem Land region. Through the efforts of key people, the project was fortunate enough to develop good governance structures. Good relationships were established between scientists and senior traditional owners. Management was undertaken using tools from the traditional and western science toolboxes, so that when the Greenhouse Gas Abatement Program (GGAP) was announced the project was well placed to not only provide the strong possibility of abating greenhouse gas emissions through improved fire management strategies, but also of accurately calculating those emissions.

The WALFA project has set the bench mark. The project has achieved success by following the leadership provided by Traditional knowledge, through the application of extensively validated spatial information derived mainly from satellite data, and the dedication and good will of all parties to manage country properly.

C: RURAL



MANAGING FIRE AND TIMBER PRODUCTION IN NSW STATE FORESTS

Mr Tim McGuffog
BForSci(Hons), AdDip
Public Safety (Firefighting
Management), GCertAppMgmt
*State Fire Manager, Forests
NSW*

Biography

On completing his Forestry degree from ANU, Mr McGuffog commenced work as a forester on Melville Island in the NT. This eventually led to an interest in fire management and his appointment with the Bushfire Council of the NT. He spent 15 years with the organisation planning and undertaking operational fire management across the NT, working extensively with land managers and volunteers. In 2003 he took up the position as Regional Inspector for north Qld with the Qld Rural Fire Service. In 2007 he was appointed as Deputy Chief Officer of the ACT RFS. Now, as State Fire Manager with Forests NSW, Mr McGuffog has been able to once again focus his skills and experience on forestry, land, and fire management.

Abstract

Forests NSW (FNSW) has a successful history as one of NSW's lead fire fighting agencies. It has led the way and developed capability and strategy to manage fires across its estate and compiled significant natural resource management data and knowledge over many years.

There have been significant changes in recent years in the area of estate managed by Forestry, the business focus of the organisation and the development of cooperative fire fighting arrangements in NSW. Significant areas formally managed by FNSW have now gone across to Parks and Reserves. FNSW is now a Government Trading Enterprise meaning that we have to both cover the costs of our operations and pay a dividend to Government from revenue from timber sales and production. The agency is bound by stringent environmental management requirements detailed in Regional Forest Agreements, Environmental Management Systems, and a state wide bushfire fuel management plan.

FNSW is one of the four NSW fire authorities and has clear legislative obligations for control and management of bushfires on its estate. FNSW works collaboratively and cooperatively within the NSW Rural Fire Services Bushfire Coordination framework and is represented on the Bushfire Management Coordinating Committee (BFCC) at the state level and regionally and locally on the Bushfire Management Committees (BFMCs) in all areas where FNSW has estate.

Like the other agencies, FNSW adopts a risk based approach to fire management and in both fuel hazard reduction and wildfire response operations if we set our priorities based on life, property and the environment. It has a focus on timber resource as a significant commercial asset and place high priority on its protection as a consequence. The presentation details the considerations that FNSW undertakes in managing fire on its estate and how we balance the use and management of fire in regard to timber production, protecting forest infrastructure and assets, sustainable environmental management and reducing risks to adjoining life and property.

WHAT HAS CHANGED AND WHAT NEW HAZARDS ARE POSED? SIX GENERATIONS OF RURAL FARMING PRACTICE AND THE ROLE OF FIRE IN THE CENTRAL WEST SLOPES AND PLAINS

Mr Pat Westwood and
Ms Kennedy Tourle
*Community Safety Officers
(ORANA TEAM), NSW Rural Fire
Service*

Biography

Previously working with the NCC, Mr Patrick Westwood left to continue a career in fire management with the Rural Fire Service. Currently he is working in the ORANA team which encompasses the Wellington, Dubbo and Narromine local government areas, in Central West NSW.

Ms Kennedy is the eldest of three siblings that are the sixth generation to be involved in farming on their property near Dubbo. She and her family are actively involved in the Emmagool Rural Fire Brigade and have seen changes to the way fire has been used on property over time. Ms Kennedy also was recently employed full time as a Community Safety Officer with the NSW Rural Fire Service at the Orana office.

Abstract

This presentation will provide an example of changed use of fire and farming practice in the Dubbo area from as far back as 1840. Ms Kennedy and her two brothers are the sixth generation of Tourles to be involved in farming on their Obley Rd property. With the property currently being run by her father Scott Tourle, there is a long documented and anecdotal history of farming practice and use of fire, resulting in changes to on farm vegetation and behaviour of fires. Some of the history pre-dates the ex NSW Surveyor General John Oxley's expeditions along the Macquarie River in the early 1800's. The presentation will explore challenges faced by fire authorities, current hazard reduction strategies in the future and discuss areas that require further investigation.

MANAGING INVASIVE NATIVE SCRUB WITH FIRE IN WESTERN NSW

Mr Peter Droulers
and Ms Karen Kneipp
BMgmt, GCertAcc,
GCertPubSecMgmt

*Acting Catchment Coordinator
(Monitoring and Evaluation),
Western Catchment
Management Authority*

Biography

Mr Droulers has a farming and natural resource management background. He has more than 25 years experience managing rural properties in NSW and Victoria. Mr Droulers is currently employed by the Western Catchment Management Authority (WCMA). For the past three years he has been responsible for the development of Property Vegetation Plans (PVPs) and general clearing advice to Western Catchment landholders. Mr Droulers is able to combine his practical farming experience and scientific knowledge to provide realistic advice to WCMA landholders.

Abstract

Invasive native scrub (INS) has caused major changes to landscapes in the Western Catchment of NSW with adverse effects on production. The reduction in bushfires since European settlement has contributed to these changes. The priority for managing INS is to maintain open areas and reduce further increase in INS density. The most cost effective way to manage INS is the control of seedling germination events with fire. Mass seedling germinations occur following prolonged high rainfall and there is a limited window of opportunity to manage the seedlings.

Seedlings of many invasive native species are susceptible to fire with almost 100% kill rate if seedlings are less than 30 cm in height. The kill rate with fire dramatically decreases with plants above 30 - 50 cm. Although fire has limitations in managing INS it is considered to be the only realistic tool to manage INS seedlings at a larger scale.

The management of total grazing pressure before and after burning is crucial to achieving improved environmental and production outcomes. Effective management of INS will result in a mosaic of native vegetation types in the landscape creating a diversity of habitats. The control of INS has benefits for production and the environment with improved native groundcover and soil stability.

D: RISK



Photo by Di Thompson

MANAGING BUSHFIRE RISK POST THE VICTORIAN BUSHFIRE ROYAL COMMISSION

Dr Kevin Tolhurst
DipFor, BForSci(Hons), PhD
*Senior Lecturer, Fire Ecology
and Management, University of
Melbourne*

Biography

Dr Kevin Tolhurst is Senior Lecturer in Fire Ecology and Management in the Department of Forest and Ecosystem Science, University of Melbourne and a member of the Bushfire Cooperative Research Centre. Kevin provides expert advice on fire behaviour and fire suppression strategies at major bushfires. Recent examples include the Black Saturday fires in Victoria in 2009, and the Great Divide Fires in 2007. Dr Tolhurst has been involved in several inquiries and court cases involving fires including: Linton Coronial Inquiry, Canberra Coronial Inquiry, House of Representative 2003 Inquiry, 2005 Wangary Coronial Inquiry S.A., the 2008 Parliamentary Inquiry into the 2007 fires in Victoria and the 2009 Victorian Bushfires Royal Commission. Dr Tolhurst's current research activities are centred around developing a bushfire risk management decision support system that can be used nationally.

Abstract

Objective and systematic assessment of bushfire risk has not been used in Australia. Instead, we have relied on responding to pressure from the public, politicians or various interest groups. Simple quantitative measures such as extent of area burnt, number of fires, numbers of houses destroyed, and insurance payout amounts have been used. However, these measures have not provided an objective and systematic means of assessing the level of bushfire risk and hence the value of various mitigation options in reducing the level of risk. The Bushfires Royal Commission following the fires in Victoria in 2009 implied that the loss of 173 human lives was unacceptable. Amongst a wide range of recommendations, one was that prescribed burning should be conducted across the State at an annual rate of 5% of the public land area. This has promoted vigorous debate and a series of research projects. One decision support tool being used is PHOENIX RapidFire, a bushfire characterisation and risk assessment tool developed as part of the Bushfire CRC. PHOENIX RapidFire has been used to assess the levels of risk to water supplies, biodiversity values, house loss, carbon stores, timber values, and critical infrastructure. Whilst there has been some useful insights gained through this process, it has also highlighted the need for better bushfire vulnerability models and means of determining acceptable levels of risk. Bushfire risk is a useful way of evaluating different management options, but requires careful definition of values and management objectives.

RISK PLANNING IN NSW - HOW THEY ARE BEING USED AS A MANAGEMENT TOOL AND FUTURE DIRECTION

Dr Simon Heemstra
BSc(Hons), PhD
*Manager Community Planning,
NSW Rural Fire Service*

Biography

Dr Heemstra has been employed by the RFS for over nine years and is currently the Manager of Community Planning. This section is responsible for policy and standards for environmental assessment for hazard reduction, bush fire risk management planning, prescribed burn planning, fuel and vegetation assessment, environmental and risk management research, weather and fire behaviour analysis as well as climate change adaptation. Dr Heemstra is a member of the national scientific working group for the new fire danger rating system and completed a PhD on bushfire patchiness in 2007. He has been a volunteer fire fighter within the Woronora Rural Fire Brigade for 16 years.

Abstract

The majority of the Bushfire Fire Management Committees within NSW have now completed the second generation of Bush Fire Risk Management Plans (BFRMPs). These new plans will be applied in a range of management areas to make communities safer from the effects of bushfires. This includes prioritising works, allocating funding and performance management. The risk plans are also being used to prioritise the production of Community Protection Plans. The BFRMPs are being compiled into a state layer for analysis and management. Concurrently we are looking at lessons learnt from the development of the next round of risk plans. This includes the adaptation of current research as well as new research being undertaken at the University of Wollongong. Possible future directions for the next round of risk planning will be discussed.

THE IMPLICATIONS OF RETURN-FOR-EFFORT FROM PRESCRIBED FIRE FOR BUSHFIRE RISK REDUCTION

Dr Owen Price
BSc(hons), MSc, PhD
Research fellow, Centre for Environmental Risk Management of Bushfires, University of Wollongong

Biography

Born in the UK, Dr Price emigrated to Australia in 1991. He worked as a research scientist for the Parks and Wildlife Commission in Darwin (NT) for 15 years. During this time, he conducted research into a range of topics including bioregional conservation planning and a PhD on rainforest conservation. Fire is a critical driver of the ecology of northern Australia, and he found himself considering its role in his research. Since 2007 Dr Price has worked for the Centre of Environmental Risk Management of Bushfires (CERMB) as a bushfire risk modeller. His research aims to quantify the drivers of bushfire risk and the effectiveness of fire management using existing datasets (such as fire history mapping).

Abstract

There is a common perception that prescribed fire supplants unplanned fire: that is for every one hectare of treatment, the area of unplanned fires will be reduced by one hectare. However, recent studies involving multiple lines of evidence indicate that between three and four hectares of treatment are required to eliminate one hectare of unplanned fire. This has many consequences for fire risk management:

1. Current levels of prescribed burning (e.g. about 1% per annum) reduce risk by a relatively small amount (e.g. about 10%) compared with zero treatment.
2. A major reduction in risk via prescribed burning (e.g. 50% reduction) may require a major increase in rate of treatment, of the order of ten fold over current levels (i.e. about 8 to 10 % treatment rate).
3. Even so, considerable residual risk would remain.
4. The costs involved in risk reduction via prescribed burning are great. To achieve the recommendations of the 2009 Victorian Bushfires Royal Commission in NSW would cost \$100 million per year and leave the residual risk at 60% of current levels.
5. The resultant increase in the total area burnt has potential negative impacts for biodiversity, for greenhouse gas emissions and for the potential to mitigate against increased fire incidence as a result of climate change.
6. There are probably more effective strategies than landscape-scale application of prescribed burning, such as targeting treatment to the urban interface or improving the fire-resistance of the built environment.

BUSHFIRE FUELS AND THEIR VARIETY IN NSW AND BEYOND

Dr Penny Watson
BSc, MEnvMgt, PhD
Research Fellow, Centre for Environmental Risk Management of Bushfires, University of Wollongong

Biography

Dr Watson's interest in fire and the bush started when fires roared up the hill in front of the house where she grew up in the Adelaide Hills. It was in Queensland, however, that she first had a chance to investigate what happens when bush burns: as part of a Masters degree at Griffith University Dr Watson looked at the effects of fire frequency in the shrubby woodlands of Girraween National Park near Stanthorpe. Returning to NSW in 2001, she completed at PhD on the fire ecology of Western Sydney's grassy woodlands. Dr Watson enjoys operating at the interface between science, management and community. She has been involved in two major initiatives promoting sustainable fire management for biodiversity conservation: the South-east Queensland Fire and Biodiversity Consortium (as coordinator), and the Hotspots Project in NSW (as project ecologist). Her current job at the University of Wollongong's Centre for Environmental Risk Management of Bushfires focuses on plants and fire in a different but no less fascinating way: its aim is to document patterns in NSW bushfire fuels across time and space.

Abstract

Over the past two years, staff at the University of Wollongong's Centre for Environmental Risk Management of Bushfires have started to explore the dynamics of bushfire fuels across vegetation formations in NSW, and beyond. We are finding that fuels vary considerably, and logically, across vegetation classes. This presentation will provide a taste of emerging patterns. Bushfire fuels come from bushland plants: the story of fuels encompasses plant characteristics, plant growth, plant death and the balance between litter fall and decomposition. Differences between vegetation types in fuel characteristics and their rate of development after a fire will affect fire behaviour, which will in turn influence management options.

RETHINKING FIRE AND FUELS

Dr Phil Zylstra
BAppSc, PhD

*Fire Technical Officer, NSW
National Parks and Wildlife
Service*

Abstract

The Forest Flammability Model is a next generation fire behaviour model developed by the NPWS, which as well as being the first peer-reviewed fire behaviour model for broad-scale use in Australian forests has so far demonstrated significant improvements in accuracy compared to previous models. Because it does not rely on the assumptions held by these models, it is able to identify the most effective approaches to manage fuels and fires in areas of forest, heath or grassland. The model is introduced and its implications for incident, fuel and risk management are discussed along with the potential for application in managing fire sensitive species, water, carbon and modelling of climate change effects and feedbacks.

CLIMATE CHANGE AND BUSHFIRE: CLIMATE ADAPTATION MODEL FOR DETERMINING A BETTER RETURN ON INVESTMENT

Dr Jenny Scott, Ms Jennie
Cramp and Ms Louise Pilkington

Dr Jenny Scott
BSc(Hons), GradDipEnvLaw, PhD

Ms Jennie Cramp BSc

Ms Louise Pilkington BSc,
GradCertBusAdmin

Ku-ring-gai Council

Biographies

Dr Jenny Scott has over 20 years experience in the environment industry across a broad range of sustainability agendas. She has worked at the University of Western Sydney as a research fellow developing sustainability frameworks for both public and private sector application. Her current work with Ku-ring-gai Council focuses on building research partnerships to collaborate on some of the 'wicked' problems confronting local government such as climate change adaptation and sustainability risk assessment.

Ms Louise Pilkington has been Ku-ring-gai Council's Sustainability Officer for over eleven years and has been involved in Ku-ring-gai's transformation in regards to the mitigation and adaptation of climate change. Louise is also a qualified fire fighter and has combined her fire fighting experience with her tertiary qualifications and local government experience as the basis of climate change and bush fire management in Ku-ring-gai.

Ms Jennie Cramp works as the scientific officer for bushfire within the team at Ku-ring-gai Council. As a qualified fire fighter she contributes to the strategic planning of hazard reduction burns, undertaking environmental assessments, planning community education and liaises between Council's bushfire mitigation team, fire agencies and land managers. She is completing post graduate studies in bushfire management at the University of Melbourne.

Abstract

Scientists are predicting that climate change is likely to result in longer fire seasons, increased frequency of extreme or catastrophic fire-risk days, increased fire intensity and reduced opportunities to undertake prescribed burning. Hazard reduction burning can be useful in reducing the fire intensity (except in the most severe conditions). However, research has demonstrated that the long term implications of hazard reduction burning on catchment hydrology and nutrient cycling result in the drying of catchments that in-turn promote fire. Resorting to

more burning is a simplistic measure when a better return on investment could be to implement a range of effective measures for protecting the built environment and community from bushfire attack. In light of this and to tackle responsibilities in addressing climate change, Ku-ring-gai Council has been actively conducting collaborative research into climate change adaptation. This has led to some significant achievements including a risk assessment of climate change, a new model to assess vulnerability and resilience and identifying and prioritising a vast suite of potential adaptation options.

Through collaborative research with Macquarie and Bond Universities, Council staff gained much knowledge including the use of Poisson distribution, Bayesian theory and the Borda count prioritisation method to determine cost effective measures of climate change adaptation. Following extensive consultation with experts and local community, Council staff created a prioritisation model that departed from the norm of traditional cost benefit analysis by incorporating financial and non financial costs including social and environmental costs. Benefit was considered to be that achieved in reducing the specific risks arising from the local bushfire vulnerability factors. By doing so, adaptation options can be selected on the basis of risk reduction capacity and least impact, whether that impact is social, environmental or financial.

TALKING AT OR TALKING WITH? IMPROVING BUSHFIRE RISK COMMUNICATION BY ENGAGEMENT

Dr Tim Prior
BSc(Hons), MAppSci, PhD
*Research Principal, Institute
for Sustainable Futures,
University of Technology*

Biography

Dr Prior gained a PhD from the University of Tasmania in which he examined the factors that influence household bushfire preparation. The research focused particularly on the individual and community-based cues that affect decision-making under risk. This work was conducted through the Bushfire Cooperative Research Centre and has informed recent bushfire risk communication strategies in south-eastern Australia. Aside from this work, he has established a successful science communication business, which specialises in communication products for science, environmental management and community education. Dr Prior currently manages a collaborative research project examining Australia's mineral futures. This work is investigating the macro-scale challenges, the dynamics, and the drivers of change facing the Australian minerals industry.

Abstract

Bushfire in Australia is inevitable. As a natural process, it represents an essential component of the Australian ecology. However, as human settlement expands and encroaches on areas previously regarded as wilderness, fire in the bush has become one of Australia's most frequent and devastating natural hazards. Far from a diminishing risk, climate change projections suggest that bushfires in Australia will become more frequent and more intense.

The ability of landowners to respond to and recover from a bushfire event depends to a great degree on their level of household preparation. However, evidence suggests that existing bushfire risk communication techniques have limited success. Landholders do not act on the 'face value' of this information, but interpret it in the context of their social, cultural, environmental and economic circumstances, and in response to socio-psychological decision-making cues that influence the decision to prepare.

The nature of bushfire hazard as a community threat requires all sectors of a community to work together effectively in order to successfully manage bushfire risk, and risk information processes must engage the community to be successful. Risk engagement offers an alternative to traditional 'passive' risk communication processes because it acknowledges individual and community-specific differences in risk perception and action. This presentation will explore how people make decisions about preparing for bushfire and discuss ways that this information might be incorporated into risk engagement processes to improve levels of preparedness in at-risk Australian communities.



POSTERS

MANAGING BUSHFIRE RISK AND BIODIVERSITY CONSERVATION: INTEGRATING POLICY AND PLANNING

Dr Emily Moskwa
BSc, PhD

*Postdoctoral Researcher,
Centre for Rural Health and
Community Development, the
University of South Australia*

Abstract

Catastrophic fires in peri-urban regions are reframing perceptions of what constitutes effective fire management. The main objective of this study was to examine the gap between policy and practice of bushfire mitigation and biodiversity conservation measures. To do this we reviewed the bushfire risk prevention and bushfire management policies and plans of a number of state and local level planning authorities (e.g. local councils on the urban fringe of Adelaide and Port Lincoln) to evaluate the management implications for biodiversity conservation in South Australia. Our review revealed a disconnect between bushfire mitigation policy and biodiversity conservation policy; the need for an integrated planning model is accordingly proposed to increase the impact of strategies.

RURAL LANDHOLDERS: ONE 'GROUP' OR MANY?

Dr Judy Lambert
BPharm, BSc(Hons),
GradDipEnvMgt,
GradDipBusAdmin, PhD
Director, Community Solutions

Abstract

There can be few areas of land management more complex or more emotive than the management of fire in our changing climate. Whatever that complexity, the rural landholders who manage about 70% of the Australian landscape have a key role in moving fire management to a more sustainable basis. We may think of them as one group - Australian farmers - but rural landholders are an immensely diverse 'group'. A growing body of literature from the social sciences and rural 'extension' shows that social, cultural and economic factors all impact on a landholder's decision-making. Risk aversion and their degree of trust in information and those providing it are key factors in how individual landholders engage with change, including changes in fire management. Well-documented studies show that growers in the beef, cropping and intensive rural industries are more likely to fit Keirse's 'SJ' temperament (people who value social stability, security, loyalty and belonging and who are hard-working, careful, steady-paced and reliable). However, as family farms give way to larger corporate properties and to 'tree change' settlers from urban backgrounds, this picture is changing. The 'Hotspots' fire management project exemplifies the confluence of these changes in attitude, policy and desired outcomes. As with all of us, the needs, perceptions and values of individual landholders strongly influence their attitudes to land management, past experiences shape attitudes and values and our personalities influence our preferred ways of learning. If those of us who come from community or government perspectives want landholders to manage fire in ways that achieve a complex mix of objectives, then we must invest time and resources in building shared understanding and trust among and with the landholders on whose properties much of the fire management will happen. A facilitated collective learning approach offers one useful tool in achieving this outcome.

CHARACTERISTICS OF BLUE MOUNTAINS HEATH FAVOURED BY HONEYEATERS

Mr Michael Franklin
BAppSc
*Student/Senior Technical
Officer, University of Western
Sydney*

Abstract

Blue Mountains Heath (BMH) provides nectar from flowering shrubs that is an important food resource for honeyeaters (*Meliphagidae*). Blue Mountains National Parks and Wildlife staff who conduct prescribed burns in BMH have asked whether there is any relationship between time since last fire (TSLF) and honeyeater numbers. This research aims to determine 1. the optimal age range (as TSLF) of BMH for honeyeater habitat and 2. the characteristics of BMH that are favoured by honeyeater species occurring in the area. Electronic maps of annual wildfires and prescribed burns over the past 40 years were used with GIS software to determine BMH sites across a gradient of time since fire. Twelve study sites were selected with a range of TSLF of 2 - 39 years. Replicate random sampling took place within sites during cool and warm seasons. Honeyeaters were surveyed using

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point count methodology tailored to suit the BMH vegetation structure. Shrubs in flower and number of inflorescences were counted in circular quadrats. Eight honeyeater species were observed with the New-Holland Honeyeater (*Phylidonyris novaehollandiae*) being the most abundant species. Initial analysis suggests a significant yet weak relationship between New-Holland Honeyeaters and TSLF. It was expected that bird numbers would be positively correlated with inflorescences and this is generally the case with sites of <5 years TSLF showing little honeyeater activity and few inflorescences. Nectar resources were available to honeyeaters during both the cool (*Banksia ericifolia*) and warm (*B. serrata* and *Lambertia formosa*) sampling periods. Yellow-faced Honeyeaters (*Lichenostomus chrysops*) were observed in relatively large numbers over Kings Tableland study sites during their southern migration in September 2010.

FIRE AND BIODIVERSITY IN NORTH EASTERN NSW: LOOKING AT WAYS TO PROMOTE COLLABORATION AND REGIONAL DELIVERY

Dr Lynn Baker
BAppSc, MResSc, PhD
Head Biodiversity Conservation
Unit North East, Office of
Environment and Heritage
(NSW)

Abstract

The Border Ranges Rainforest and Northern Rivers Regional Biodiversity Management Plans are national regional recovery plans which promote integrated and collaborative action for biodiversity conservation and management in northern NSW. Priority objectives in both plans are to promote: appropriate fire regimes for the conservation and enhancement of biodiversity; a consistent and coordinated approach to fire and biodiversity conservation across the region; and broader community engagement in sustainable fire management. A Border Ranges Fire and Biodiversity Consortium is being established with the aim of addressing some of these key objectives. The Consortium will pilot this approach in northern NSW and if successful, partners will seek to promote the approach more broadly. The potential for stakeholders to collaborate on a coordinated approach to fire and biodiversity through a consortium and the use of spatial mapping to facilitate planning is explored.

CARRYING AND COMMUNICATING FIRE: BUILDING RELATIONSHIPS AND CREATING CHANGE

Ms Jacqueline Gothe and Ms
Peta-Marie Standley J.Gothe
BA Dip Graphic Design ASTC
P Standley BA Arts in Ed,
MEnvMgt

Jacqueline Gothe (Design
University of Technology
Sydney and Communicating
shared traditional knowledge
Partnership between UTS and
TKRP)

Abstract

The spaces between Indigenous fire knowledge and scientific approaches to land management contain tensions of difference but also interconnections of similarity and change. The fragility of the space requires alternative ways of working and considerations that are benefited through a creative negotiation of entrenched patterns, constant dialogue of ethics and a determination by the participants in the face of many obstacles. Working with Traditional Knowledge Revival Pathways (TKRP) project Jacqueline Gothe and Peta Standley independently through their own expertise have actively supported the ambitions of the Elders to benefit changes in recognition of the value of Traditional Knowledge to contemporary resource management in Australia.

This presentation will bring to the fore collaboration, communication and co-generation principles understood in this long term Indigenous led project. Collaboration and on-ground experiences from visual communication and cultural ecological research perspectives provide insights to research practice, support to on-ground action and examples of positive outcomes for fire management in Australia.



POSTERS

RAPID FUEL ACCUMULATION IN NORTH COAST WEST SCLEROPHYLL FOREST

Mrs Ali McCallum
BAGSc

*Environmental Scientist,
GeoLINK*

Abstract

A Bushfire and Ecological Values Report was prepared for an area of north coast wet sclerophyll forest on the mid north coast of NSW. Published fire biodiversity thresholds for wet sclerophyll forest are 30 to 60 years. There are potential occurrences of threatened species on the site that either have low fire tolerance or fire biodiversity thresholds of 25 years. Literature shows that fuel accumulates rapidly after a fire in wet sclerophyll forests. After three to four years the fuel achieves a steady state fuel load of 20 t/ha. Indicative fuel loads were assessed in areas that have had: no recorded fire, fire in 2000 and fire in 2010. Indicative fuel loads were between: 19.5 and 29.5 t/ha² for the sites that had: no recorded fire and fire in 2000 respectively. These levels equate to 100% fuel loads. The indicative fuel loads in the area burnt in August 2010 was 14.5 t/ha, equating to a 60% fuel load nine months after fire. Results imply that the duration of hazard reduction after fire in wet sclerophyll forests is limited by rapid fuel accumulation.

TRANSLATING SCIENCE INTO PRACTICE FOR IMPROVED FIRE MANAGEMENT AND BIODIVERSITY CONSERVATION IN SOUTH EAST QUEENSLAND

Dr Samantha Lloyd PhD and Mr
Craig Welden

*SEQ Fire and Biodiversity
Consortium Coordinators*

Abstract

Established in 1998 by Griffith University, a number of state agencies and local government authorities, the South East Queensland Fire and Biodiversity Consortium (SEQFBC) is a network of land managers and stakeholders devoted to providing a coordinated response and best-practice recommendations for fire management, fire ecology and the conservation of biodiversity in the South East Queensland (SEQ) region through education, community engagement and applied research. SEQFBC is hosted by SEQ Catchments, the regional resource management body for SEQ. This new partnership provides excellent opportunities for ongoing engagement with private landholders, public land managers and academic institutions in fire management and fire ecology research.

The SEQFBC has a number of key functions, including:

- Education, extension and engagement - assisting land management agencies and private land holders with evidence based support and information where fire management issues arise and for the purposes of fire management planning with biodiversity conservation objectives
- Research - applied fire ecology research in the SEQ region to investigate knowledge gaps in biodiversity and fire management
- Representation and response - provision of a coordinated response to matters of regional, state and national fire management and fire ecology importance (i.e. legislative amendments, government inquiries, state planning policy reviews, local government planning and policy issues).

As part of the education function, the consortium has produced a number of publications and documents that meet the needs of the members and the community that include information on fire ecology and the response of flora and fauna to fire, to more detailed publications on how to develop a fire management plan for an individual property and strategic planning and monitoring documents for land managers. Copies of all publications can be viewed at the following website www.fireandbiodiversity.org.au



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