SEQ Fire & Biodiversity
CONSORTIUM
Celebrating **20 Years**

20th Anniversary Fire Forum

Fire, Research & Partnerships

MT COOT-THA BOTANIC GARDENS
BRISBANE, AUSTRALIA

JUNE 11th 2019

www.fireandbiodiversity.org.au

SEQ Fire & Biodiversity
CONSORTIUM
Celebrating **20 Years**

The South East Queensland (SEQ) Fire and Biodiversity Consortium

The SEQ Fire and Biodiversity Consortium acknowledge that the place we now live in has been nurtured by Australia's First Peoples for tens of thousands of years. We believe the spiritual, cultural and physical consciousness gained through this custodianship is vital to maintaining the future of our region.

The SEQ Fire and Biodiversity Consortium gratefully acknowledges the support of Healthy Land and Water. Healthy Land and Water is an independent, not-for-profit organisation working to improve the sustainable use of land and waterways in South East Queensland. The SEQ Fire and Biodiversity Consortium is supported by Healthy Land and Water through funding from the Australian Government's National Landcare Program.

Healthy land & water

Australian Government

National Landcare Program

SEQ Fire and Biodiversity Consortium contact details:

Address: PO Box 13204 George Street, Brisbane, Queensland 4003 Ph: +61 7 3503 1415
Fax: +61 7 3177 9190 Email: Samantha.L@hlw.org.au / Craig.W@hlw.org.au
Weblink: **www.fireandbiodiversity.org.au**

Photo credits: City of Gold Coast, Craig Welden (SEQ Fire and Biodiversity Consortium), Cuong Tran (Ten Rivers), Deborah Metters (Second Nature Environmental Services), Julian Selke (Department of Transport and Main Roads, Qld), Nadine Andersen Photography and Sam Lloyd SEQ (Fire and Biodiversity Consortium).

Cover photo: South Stradbroke Island, hazard reduction burn, 2009 (City of Gold Coast).

Back photo: SEQ Fire and Biodiversity Consortium, Fire Management Planning workshop, Sunshine Coast, 2017 (C. Welden).

Welcome to the
SEQ Fire and Biodiversity Consortium
20th Anniversary Fire Forum

Welcome to the 20 Year Anniversary celebration of the SEQ Fire and Biodiversity Consortium, at the Mt Coot-tha Botanic Gardens, Toowong. With the theme *Fire, Research and Partnerships*, this forum aims to showcase applied fire ecology and onground fire management projects and programs that highlight the value of partnerships and longevity in applied fire ecology and onground management. As always, we will have a focus on *translating science into practice*, with our session on local fire research, in particular student projects.

We have brought together a range of world-class speakers from a variety of stakeholder groups – including Traditional Owners, utility providers, NGOs, emergency services, government agencies, local government and research institutions. We have carefully planned the day to provide opportunities to share, engage, learn and network. We encourage you to connect with others in the dynamic field of bushfire knowledge, understanding, planning and practice.

It is a remarkable achievement for the SEQ Fire and Biodiversity Consortium to have reached 20 years and it is illustrative of not only the dedication and expertise of those involved, but also the importance of the outcomes, including manuals, literature reviews (and other resources), workshops, training, research projects, scholarships, project coordination, two national conferences, partner representation, policy and legislative responses and of course, the ever popular Fire Forums!

The past few years have been particularly challenging with substantial changes to funding and it is a significant win that we have navigated our way through, further galvanising the support of our partners along the way. A final mention needs to go to the tireless efforts of our Steering Committee members, our Manager (Dr Samantha Lloyd) and Coordinator (Craig Welden) and the support given to them by Healthy Land and Water.

Welcome and enjoy!

Chandra Wood

Chair, Steering Committee
SEQ Fire and Biodiversity Consortium

Senior Co-ordinator Natural Environment
Brisbane City Council

The SEQ Fire and Biodiversity Consortium

Established in 1998, the SEQ Fire and Biodiversity Consortium, is a network of land managers and stakeholders committed to improving fire and biodiversity management outcomes, supporting and disseminating fire ecology research, facilitating partnerships between key stakeholders and building the capacity of land managers and private land owners to address issues of fire management and biodiversity in south-east Queensland.

Established with funding from the National Heritage Trust, the SEQ Fire and Biodiversity Consortium has had several hosts, starting with Logan City Council (1998 – 2002) and moving to Griffith University with a focus on research in late 2002 and from there to the former Natural Resource Management Regional Body for SEQ, SEQ Catchments in 2009. Following a merger in 2016, between SEQ Catchments and Healthy Waterways (forming Healthy Land and Water) the SEQ Fire and Biodiversity Consortium was fortunate to receive continued support.

Currently embedded with Healthy Land and Water, the SEQ Fire and Biodiversity Consortium is supported in part by funding from the Australian Government's National Landcare program. Current funding provides for a Manager (Dr Samantha Lloyd) three days per week and a Coordinator (Craig Welden) four days per week. SEQ Fire and Biodiversity Consortium priorities and deliverables are guided and supported by a Steering Committee and Working Groups e.g. Engagement and Training, in parallel with Healthy Land and Water and funding-driven commitments.

The SEQ Fire and Biodiversity Consortium aims to ensure knowledge is not lost when funding fluctuates and/or staff change – with both former Coordinators, Dr Penny Watson and Dr Cuong Tran still involved and contributing on a regular basis, which is greatly appreciated. The same can be said of many of the people who have, and still do contribute to the SEQ Fire and Biodiversity Consortium – via the Steering Committee, working groups, research partnerships or project support – many of these people have done so for a decade or more and their contribution is greatly appreciated.

Healthy land & water

Australian Government

National Landcare Program

For more information, or to subscribe to the Enews service, visit: **www.fireandbiodiversity.org.au**.

SEQ Fire and Biodiversity Consortium Steering Committee

The SEQ Fire and Biodiversity Consortium Steering Committee meets approximately four times a year and guides growth, priority activities and strategic planning. The SEQ Fire and Biodiversity Consortium gratefully acknowledges the contribution and commitment of previous Steering Committee members and the following current Steering Committee members:

- Chandra Wood (Chair) - Brisbane City Council
- Rodney Anderson - City of Gold Coast
- Bruce Bunkum - Moreton Bay Regional Council
- Paul Donatiu - Healthy Land and Water
- James Haig - Queensland Fire and Emergency Services
- Francis Hines - Queensland Fire and Emergency Services
- Peter Leeson - Queensland Parks and Wildlife Service
- Dr Samantha Lloyd (Manager) – SEQ Fire and Biodiversity Consortium/ Healthy Land and Water
- Dr Geoff Lundie-Jenkins - Queensland Parks and Wildlife Service
- Stephen Martin - Powerlink
- Guy Morgan - Sunshine Coast Council
- David O'Connell - Logan City Council
- Mark Ready - Toowoomba Regional Council
- Michael Reif - Sunshine Coast Council
- Dr Tim Robson - City of Gold Coast
- Clare Rogers - Brisbane City Council
- Andrew Sturgess - Queensland Fire and Emergency Services
- Cuong Tran – Former SEQ Fire and Biodiversity Consortium Coordinator
- Lee-Anne Veage – Logan City Council
- Craig Welden (Coordinator) – SEQ Fire and Biodiversity Consortium/Healthy Land and Water
- John Young - Ipswich City Council

Photo: Dr Sam Lloyd - Manager, SEQ Fire and Biodiversity Consortium (left) and Chandra Wood - Chair, Steering Committee, SEQ Fire and Biodiversity Consortium and Brisbane City Council (right).

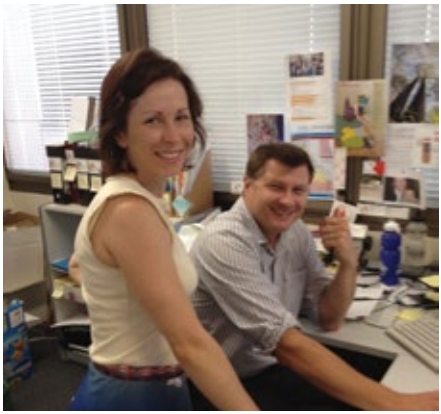


Photo: SEQ Fire and Biodiversity Consortium Manager (Dr Sam Lloyd) and Coordinator (Craig Welden).

SEQ Fire and Biodiversity Consortium Partners

One of the key strengths of the SEQ Fire and Biodiversity Consortium is the number and diversity of partners. Each partner organisation contributes financially and inkind and these contributions increase significantly the value, networking reach, influence, skill base and knowledge potential of the SEQ Fire and Biodiversity Consortium.

The SEQ Fire and Biodiversity Consortium gratefully acknowledges support from all 19 partners, some of whom have been collaborating for 20 years. The SEQ Fire and Biodiversity Consortium would like to recognise Healthy Land and Water, who have generously hosted the SEQ Fire and Biodiversity Consortium since July 2016. This impressive list of 19 partners reflects the broad support the SEQ Fire and Biodiversity Consortium receives and reflects its active and dedicated network:

NB: the Queensland Government logo represents the Department of Transport and Main Roads - Darling Downs District.

SEQ Fire and Biodiversity Consortium Retrospective

Over the next few pages the SEQ Fire and Biodiversity Consortium have put together some photos and images of people, events and deliverables that highlight and celebrate some of the partnerships and achievements of the last 20 years.

Photo: Pine Rivers Shire Council, Pine Rivers Catchment Association, SEQ Fire and Biodiversity Consortium, Fire Management Planning Workshop, Samford 2001.

Photo: Dr Penny Watson, SEQ Fire and Biodiversity Consortium Coordinator 2000 – 2002

Photo: Dr Cuong Tran, SEQ Fire and Biodiversity Consortium Coordinator 2002 – 2009

SEQ Fire & Biodiversity consortium

ISSUE 1 2013

Translating science into practice for improved fire management and biodiversity conservation in South East Queensland

Next-Gen. Weather forecasting to roll out this year!

By Craig Welden

A new forecast service is set to be implemented in Queensland in Spring this year called the Next Generation Forecast and Warning System (NexGenFWS).

The digital forecast system contains highly detailed weather information on grids at 6km spacing. This type of format allows forecasters to concentrate their time and energy on scientific input to the database rather than spend time creating manual text forecasts.

Queensland has had the benefit of other states trialling the program with Victoria launching the pilot program in 2008, followed by other southern states with Western Australia going live in October, 2012. Lessons learnt from almost 5 years of its implementation have been used to provide a more robust program to suit the specific needs of Queensland users.

Figure 1 BOM Forecaster using the Next Generation Forecast and Warning System.

The NexGenFWS platform works off a set of forecast weather element grids that extend the forecasting out to 7 days for every part of the state. This will be a huge improvement to the rural communities, who will receive the same level of service as the major cities.

Vikash Prasad (BOM Qld) said that the NexGenFWS forecast services will be available to the public through MetEye, a web based visualisation tool expected to replace the current Forecast Explorer used by the other states.

National Burning Project Gets Going

By Gary Featherston, AFAC

The National Burning Project is a joint venture between AFAC and the Forest Fire Management Group (FFMG). It is a ten year undertaking that commenced in 2010. The project consists of eleven sub-projects that are linked to form a framework of coordinated actions to improve the efficiency and effectiveness of prescribed burning in meeting public policy objectives.

Last year, work was completed to compile a science review and a review of current practices. The Bushfire Fuel Classification System compiled a glossary and fuel assessment guide. Also completed were risk management frameworks for two of the major risks, fuel and smoke. These reports are currently being re-designed ready for publication.

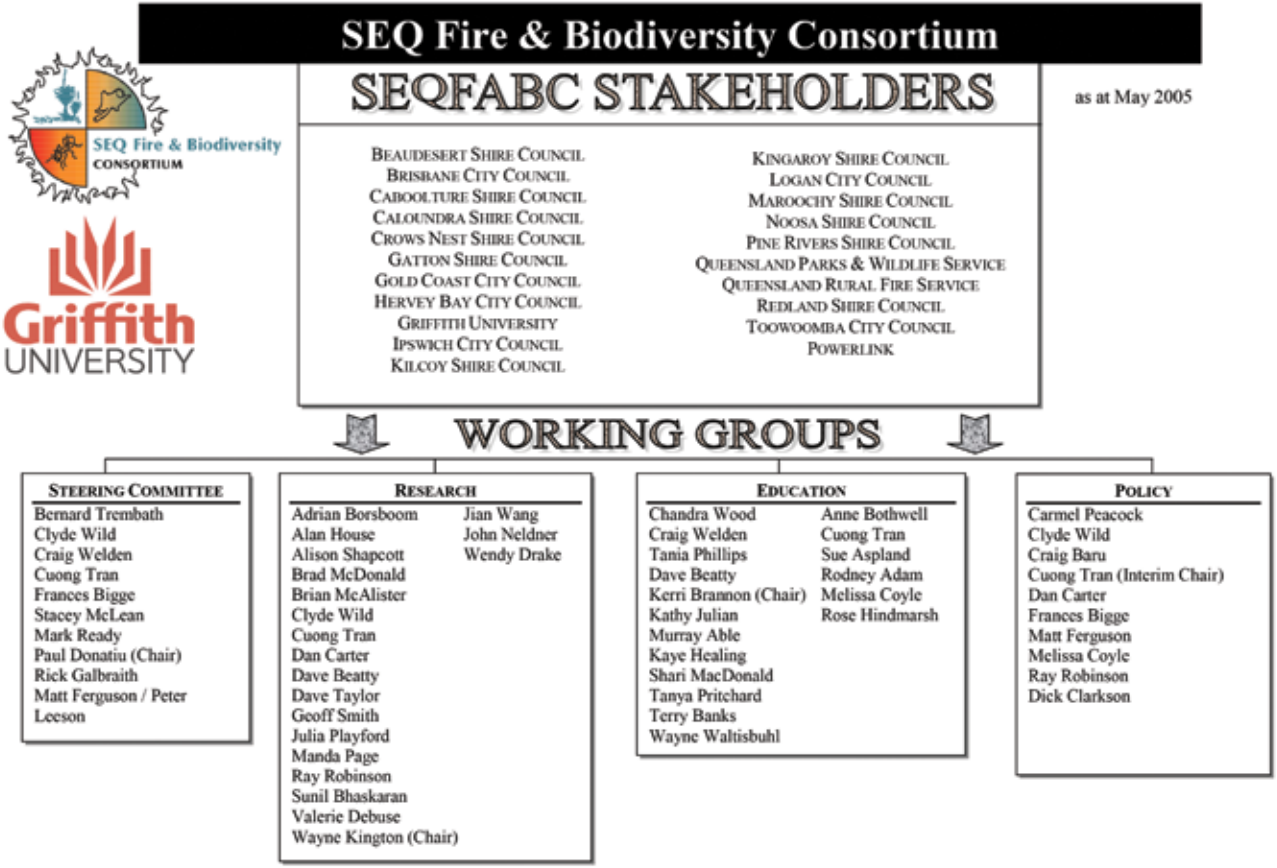
Parts of two sub projects have been funded by agency contributions for this year. A best practice guide for operational burning is being prepared by GHD, building on their work done on the review. They are travelling to meet key practitioners and identify good practice. The completion of the guide is planned for October 2013.

The National Bushfire Fuel Classification System is also continuing. CSIRO will be trialling the classification framework as part of a case study in the ACT. The fuels in the ACT are well known, close to the researchers and monitored intensely by field based programs by Parks and Conservation staff. These attributes made it an ideal case study location.

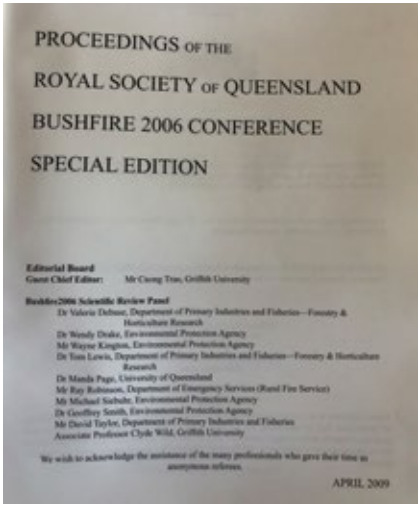
For further information contact Gary Featherston, Manager, Rural and Land Management Group, AFAC on 0428 408 144 or at gary.featherston@afac.com.au

Contents

Front page of the April 2013 SEQ Fire and Biodiversity Consortium newsletter.


SEQ Fire & Biodiversity Consortium
SEQFABC STAKEHOLDERS
as at May 2005
SEQ Fire & Biodiversity CONSORTIUM
Griffith UNIVERSITY
Beaudesert Shire Council
Brisbane City Council
Caboolture Shire Council
Caloundra Shire Council
Crows Nest Shire Council
Gatton Shire Council
Gold Coast City Council
Hervey Bay City Council
Griffith University
Ipswich City Council
Kilcoy Shire Council
Kingaroy Shire Council
Logan City Council
Maroochy Shire Council
Noosa Shire Council
Pine Rivers Shire Council
Queensland Parks & Wildlife Service
Queensland Rural Fire Service
Redland Shire Council
Toowoomba City Council
Powerlink
WORKING GROUPS
Steering Committee
Bernard Trembath
Clyde Wild
Craig Welden
Cuong Tran
Frances Bigge
Stacey McLean
Mark Ready
Paul Donatiu (Chair)
Rick Galbraith
Matt Ferguson / Peter Leeson
Research
Adrian Borsboom
Alan House
Alison Shapcott
Brad McDonald
Brian McAlister
Clyde Wild
Cuong Tran
Dan Carter
Dave Beatty
Dave Taylor
Geoff Smith
Julia Playford
Manda Page
Ray Robinson
Sunil Bhaskaran
Valerie Debuse
Wayne Kington (Chair)
Jian Wang
John Neldner
Wendy Drake
Education
Chandra Wood
Craig Welden
Tania Phillips
Dave Beatty
Kerri Brannon (Chair)
Kathy Julian
Murray Able
Kaye Healing
Shari MacDonald
Tanya Pritchard
Terry Banks
Wayne Waltisbuhl
Anne Bothwell
Cuong Tran
Sue Aspland
Rodney Adam
Melissa Coyle
Rose Hindmarsh
Policy
Carmel Peacock
Clyde Wild
Craig Baru
Cuong Tran (Interim Chair)
Dan Carter
Frances Bigge
Matt Ferguson
Melissa Coyle
Ray Robinson
Dick Clarkson

Promotional slide for "The Great Fire Debate", Queensland College of Art, South Bank, November 2005.



Proceedings of the Royal Society of Queensland, Bushfire 2006 Conference, Special edition - coordinated in partnership by the SEQ Fire and Biodiversity Consortium, 2009.

Promotional slide for the national conference, Bushfire 2016: Connecting Science, People and Practice, coordinated and hosted by the SEQ Fire and Biodiversity Consortium, November 2016.

Photo: Attendees at a SEQ Fire and Biodiversity Consortium Fire Management Planning Workshop, Redland, February 2006.

Photo: SEQ Fire and Biodiversity Consortium, Land for Wildlife Fire Management Planning workshop, Maroochy Botanic Gardens, September 2012.

Photo: SEQ Fire and Biodiversity Consortium Steering Committee, circa 2011. Left to right - Noel Ainsworth (SEQ Catchments), Mark Ready (Toowoomba Regional Council), Murray Abel (Powerlink), Chandra Wood (Brisbane City Council), Michael Reif (Sunshine Coast Council), Dr Sam Lloyd (Manager, SEQ Fire and Biodiversity Consortium), Peter Leeson (Queensland Parks and Wildlife Service), Paul Donatiu (formerly of Queensland Parks Association), Craig Welden (Coordinator, SEQ Fire and Biodiversity Consortium) and Dr Tim Robson (City of Gold Coast).

Photo: Attendees at the SEQ Fire and Biodiversity Consortium, Spring 2012 Fire Forum field trip at Laidley.

Photo: Presenters at the SEQ Fire and Biodiversity Consortium Traditional Owner Fire Management Forum hosted in parnership with Sunshine Coast Council, Beerwah, May 2013.

Photo: Bushfire 2016: Connecting Science, People and Practice, Conference Organising Committee. Left to right - Dr Geoff Lundie-Jenkins (Queensland Parks and Wildlife Service); Craig Welden (Coordinator, SEQ Fire and Biodiversity Consortium); James Haig (Queensland Fire and Emergency Services); Steve Martin (Powerlink); Chandra Wood (Brisbane City Council); Associate Professor Patrick Moss (University of Queensland); Dr Samantha Lloyd, Chair (Manager, SEQ Fire and Biodiversity Consortium); Dr Cuong Tran (Ten Rivers); Michael Reif (Sunshine Coast Council). Absent: Melissa Walker (Healthy Land and Water) and Annie Keys (Keys Consulting).

Photo: Overall Fuel Hazard Assessment training, delivered by the SEQ Fire and Biodiversity Consortium, in partnership with QFES and QPWS - Francis Hines (QFES) and Tim Killen (QPWS) delivering training, June 2017.

Photo: SEQ Fire and Biodiversity Consortium Coordinator, Craig Welden delivering a Fire Management Planning Workshop

Photo: New versions of the SEQ Fire and Biodiversity Consortium Fire Management Planning Kit (Parts A and B), and the Fire, Powerline Easements and Biodiversity Supplement (2018).

SEQ Fire and Biodiversity Consortium Strategic Plan

The SEQ Fire and Biodiversity Consortium is highly regarded and increasingly in demand, which provides a dilemma with respect to resourcing and deliverables. Whilst annual reports have been completed on an intermittent basis, the last strategic planning process was undertaken in November 2001. As a result, it was agreed by the Steering Committee that a new Strategic Plan was needed, in particular to investigate opportunities for growth. Subsequently, partners of the SEQ Fire and Biodiversity Consortium participated in a strategic planning process via a survey, workshop and participation and consultation on the development of the Strategic Plan in late 2018/early 2019.

The aims of the Strategic Plan are to:

- Identify the agreed values;
- Articulate the vision, mission statement, objectives and strategic priority areas;
- Identify growth opportunities to improve financial security, ensure sustainability and reach our vision, whilst maintaining our key values.

Figure 1 summarises the values, vision, mission, objectives and strategic priority areas for the SEQ Fire and Biodiversity Consortium, as reviewed by Workshop attendees. It also provides a structure connecting the activities (further outlined in the body of the Plan) through to the values.

Table 1: The key objectives of the SEQ Fire and Biodiversity Consortium

Objectives
To support the growth of the program, facilitating **financial sustainability.**
To increase the **awareness and capacity** of partners to balance bushfire risk management delivery with biodiversity conservation.
To increase the awareness and capacity of **private landholders** and **public land managers** in the appropriate use of fire as a land management tool that ensures property function and biodiversity values.
To support and facilitate **networks** and **partnerships**.
To support and facilitate applied **fire science**.

SEQ Fire and Biodiversity Consortium Strategic Priority Areas

As part of the Strategic Planning Workshop, attendees were asked to review the internal strengths and weaknesses, external opportunities and threats that impact upon its operations. Key outcomes were organised into themes and this analysis was used to refine the Strategic Priority Areas and relevant activities.

1. **Growth**

   Planning and facilitation of activities that support sustainable growth and financial independence and security.

2. **Education and Engagement**

   Private land holders, land managers and other stakeholders are provided practical information (in particular through the *Enews*, training and workshops) on fire management and biodiversity conservation.

3. **Networks and Collaboration**

   Private land holders, land managers and other stakeholders are provided with opportunities to network and collaborate.

4. **Representation and Response**

   Provision of coordinated responses to matters of significant fire management and fire ecology importance (e.g. legislative amendments and government inquires).

5. **Applied Fire Science**

   Facilitation and communication of applied fire ecology and fire management research.

The SEQ Fire and Biodiversity Consortium Manager, Coordinatior and Steering Committee are using this Plan as a guiding document to identify objectives and priorities for each financial year from 2019/2020 - 2023/2024. The priorities will drive the actions required to meet the objectives. The deliverables and outcomes from these priorities will be monitored through quarterly reporting and Steering Committee meetings. The Strategic Plan will be reviewed in the 2023/2024 year, with a view to having a new Strategic Plan ready for 2024/2025.

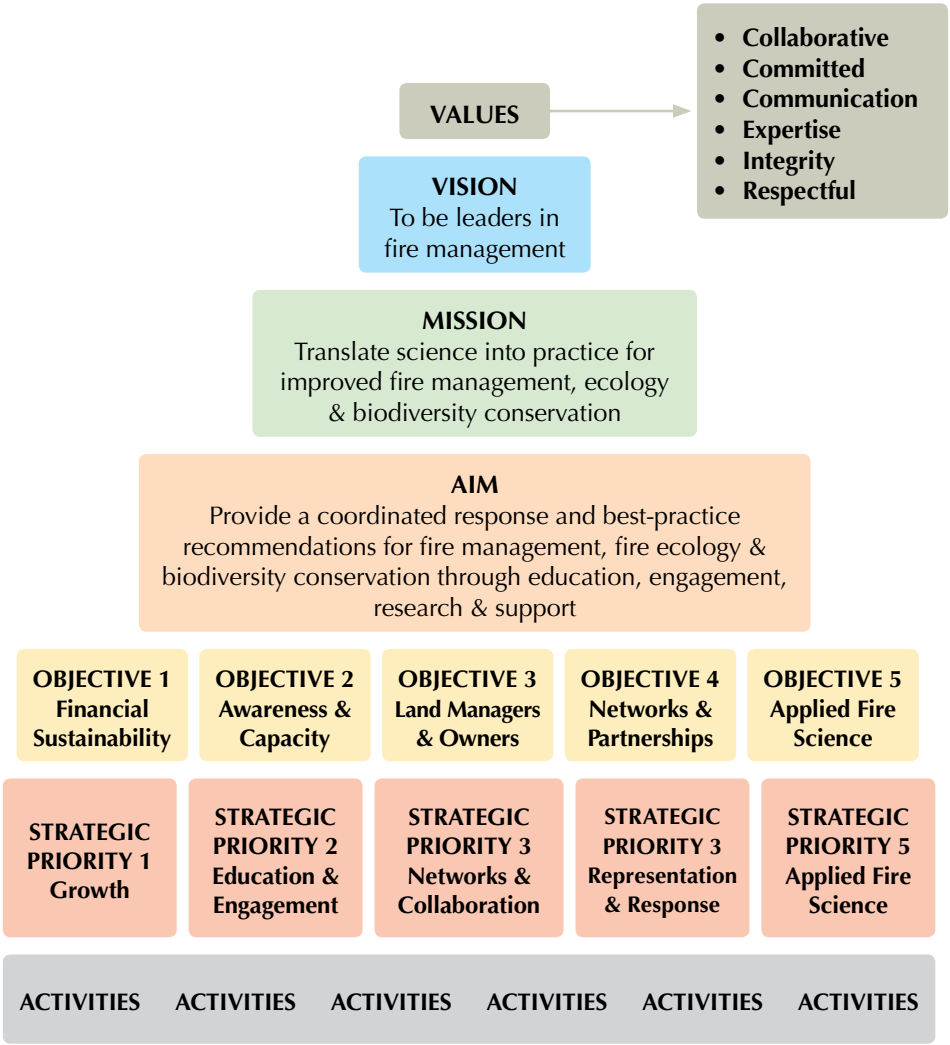


Figure 1: SEQ Fire and Biodiversity Consortium values, vision, mission, objectives and strategic priority areas, as reviewed by Strategic Planning Workshop attendees (November 2018), providing a structure connecting activities through to the values.

Thank you to our Sponsors

Ecological Society of Australia

The Ecological Society of Australia (ESA) is the peak group of ecologists in Australia with over 1500 members from all states and territories, and a 50-year history supporting ecologists, promoting ecology and ecological research. ESA aims to create a community of knowledge and understanding amongst ecologists, and reach out to those working in related fields.

Brisbane City Council

Brisbane City Council is committed to protecting, managing and enhancing Brisbane's biodiversity values. The Brisbane Vision includes the aspiration to maintain a clean and green city that continues to support a high level of biodiversity. Brisbane City Council was a founding member of the South East Queensland Healthy Waterways Partnership (now Healthy Land and Water), which works to protect our waterways, river and bay, and the South East Queensland Fire and Biodiversity Consortium, which advocates for best practice fire management. Council's bush risk management planning includes planned burns to maintain healthy fire adapted forests and lessen the impact of wildfires by reducing forest fuel levels.

Centre of Excellence for Prescribed Burning

The Centre of Excellence is developing relationships and building networks for increased capability through knowledge management and interdisciplinary, collaborative approaches to address the most challenging and significant prescribed burning problems for reducing risk and maintaining ecosystem health.

NRMjobs

NRMjobs is a niche service – communicating and promoting jobs and opportunities in the environment, water and natural resource management and targeted at people who work, study or are seeking work in the environment water and natural resource management field in Australia.

Program Overview

0900 – 0930	**Arrive and Tea/Coffee** Chair - Chandra Wood, SEQ Fire and Biodiversity Consortium, Steering Committee/Brisbane City Council
0930 – 0935	**Introduction and Housekeeping**
0935 – 0945	**Welcome and Traditional Owner acknowledgment** Margie Milgate, Healthy Land and Water, Qld
0945 – 0955	**Opening Address** Superintendent James Haig, Queensland Fire and Emergency Services, Qld
0955 – 1040	**Keynote Presentation** **Evidence Enabled Decisions: Research and Policy Relationships** Professor Alan York[1] and Elizabeth Ashman[2] University of Melbourne[1], Vic and The Department of Environment, Land, Water and Planning, Vic[2]
1040 – 1110	**Morning Tea** Chair - Chandra Wood, Brisbane City Council
1110 – 1140	**SEQ Fire and Biodiversity Consortium 20th Anniversary Retrospective: Research, Fire and Partnerships** Dr Penny Watson, Dr Cuong Tran[1], Dr Samantha Lloyd[2] and Craig Welden[2] Ten Rivers, Qld[1] and SEQ Fire and Biodiversity Consortium, Qld[2]
1140 – 1150	**Striking the Balance** Steve Martin and Murray Abel Powerlink, Qld
1150 – 1210	**Overview of Queensland Nov-Dec 2018 Bushfire Emergency** Superintendent James Haig, Andrew Sturgess & Francis Hines Queensland Fire and Emergency Services, Qld
1210 – 1215	**An Introduction to the Centre of Excellence for Prescribed Burning** Deborah Sparkes Centre of Excellence for Prescribed Burning, Vic
1215 – 1305	**Lunch** Chair - Mark Ready, Toowoomba Regional Council
1305 – 1340	**Keynote Presentation** **Biodiversity Management in Fire-prone Ecosystems: Long-term Partnerships are Essential but Challenging** Emeritus Professor Rob Whelan, University of Wollongong, NSW
1340 – 1410	**Cultural Fire Landscapes in Quandamooka Country** Darren Burns[1], Jacob Martin[1], Dave Kington[2], Dave Nadler[1], Nathan Frazier[1] and Joel Bolzenius[3] Quandamooka Yoolooburrabee Aboriginal Corporation, Qld[1], Queensland Parks and Wildlife Service, Qld[2] and Healthy Land and Water, Qld[3]

1410 – 1430	**Supporting Sustainable Fire Management On-ground: The Evolution of the Hotspots Partnership** Kate McShea[1], Jennie Cramp[2] and Paul Donatiu[3] Nature Conservation Council of NSW, NSW[1], NSW Rural Fire Service, NSW[2] and Healthy Land and Water, NSW[3]
1430 – 1450	**Fire Frequency, Vegetation Change and Lantana in Australia's Longest Running Fire Experiment** Dr Tom Lewis[1] and Peter Leeson[2] Department of Agriculture and Fisheries, Qld[1] and Queensland Parks and Wildlife Service, Qld[2]
1450 – 1510	**The Value of Long-term Monitoring: Vegetation Response to Fire in Brisbane** Dr Paul Williams[1] and Chandra Wood[2] Vegetation Management Science, Qld[1] and Brisbane City Council, Qld[2]
1510 – 1535	**Afternoon tea** Chair – Dr Samantha Lloyd, SEQ Fire and Biodiversity Consortium
1535 – 1555	**Indigenous Fire Management: Evidence from South East Queensland and Importance for Future Management** Associate Professor Patrick Moss, Penny Webster[S] and Dr Phillip Stewart University of Queensland
1555 – 1610	**Rainforest Expansion Reduces Understorey Plant Diversity in Dry Open-forest of South-eastern Australia** Dr Andy Baker[1], Associate Professor Rod Fensham[2] and Claudia Catterall[1] Southern Cross University and University of Queensland
1610 – 1625	**Fire & the Vegetation Management Act** Peter McDonald Department of Natural Resources, Mines and Energy
1625 – 1640	**Planned and Unplanned Fire Regimes on Public Land in Southeast Queensland; and the Cost Effectiveness of Prescribed Fire as a Bushfire Risk Mitigation Tool** Martyn Elliott[S] University of the Sunshine Coast
1640 – 1655	**Local temperature heterogeneity in controlled burns: Can it be predicted to inform management practices and can it be manipulated to protect old, large trees?** Victoria Crepin[S] Griffith University and GHD
1655 – 1710	Ariane Allen[S] (Southern Cross University/Logan City Council) **Changes in frogs and ecological function in burnt & unburnt habitat in Bundjalung NP**
1710 – 1715	**Close and thanks**
1715 – 1915	SEQFBC Networking Session

'S' denotes student presentation

Welcome and Opening Address

Margie Milgate: Director, Healthy Land and Water

Margie Milgate is an experienced agricultural consultant and educator and is passionate about empowering the community to improve and protect South East Queensland's natural resources. It is upon clear air, healthy soil, living water and great biodiversity that we all depend.

In addition to her board role at Healthy Land and Water, Margie is the Chair of the South East Queensland Catchments Members Association (SEQCMA). This large membership organisation comprises an alliance between community, local government and industry groups. SEQCMA is the major owner organisation of Healthy Land and Water. SEQCMA has a Board that meets 4 times a year and is focused on supporting the outcomes stated in the South East Queensland Natural Resource Management Plan 2009-2031.

Margie holds a Bachelor of Business (Agricultural Commerce) and a Master Degree in Environmental Management in the field of Sustainable Development. She is also a Graduate of the Company Directors Course. Margie is a keen participant in many community and industry groups. She is passionate about collaboration and bringing different people and organisations together for the benefit of the environment – for both present and future generations.

Superintendent James Haig: Executive Manager Bushfire Mitigation, Queensland Fire and Emergency Services

James joined QFES in 2015 as the organisation's inaugural head of its Office of Bushfire Mitigation.

This followed many years as a land manager in areas from Bass Strait to Cape York including practical experience as a ranger and forest manager in a wide range of roles involving extensive work with a variety of industries such as forestry (particularly Cypress) grazing, tourism, fisheries and mining/resources. James also served for a number of years on a private sector board as a director. Since joining QFES James has managed bushfire mitigation for the state with a particular emphasis on building partnerships and coordinating mitigation efforts. James has also spent time as Regional Manager in several regions to maintain practical skills and on ground knowledge. In 2017 James deployed to Canada as part of Australian team sent to assist with British Columbian wildfires. He was situation officer and operations lead in the State Operations Centre during significant parts of the Queensland bushfires in late 2018 as well as during cyclones and the recent Townsville and gulf country floods. James is also the QFES representative on the AFAC Rural Land Management Group.

Keynote Speakers

Elizabeth Ashman

Research Officer - Department of Environment, Land, Water and Planning, Victoria

After gaining her Masters at Griffith University, Elizabeth has worked across the public, private and not-for profit sectors in a range of policy and operational management roles- believing this helps her understand the balance between practical and aspirational in delivering better government outcomes through research. She has been managing research for Forest, Fire and Regions Group of DELWP for many years now and knows the drivers to use science evidence to support decisions in the Victorian government has never been stronger.

Emeritus Professor Rob Whelan

Emeritus Professor - University of Wollongong, NSW

Emeritus Professor Rob Whelan is a higher education consultant based in Canberra. Prior to recent university leadership roles in the UAE, he was Dean of Science and Head of Biological Sciences at the University of Wollongong. His research addresses fire ecology and conservation biology of vulnerable plants and animals and he is the author of The Ecology of Fire (1995). He was editor of Austral Ecology, panel-member on the National Inquiry into Bushfire Mitigation and Management (COAG 2004), Chair of the New South Wales National Parks Advisory Council, and is a Steering Committee member for the NSW Bushfire Research Hub.

Professor Alan York

Professor - Landscape Biodiversity, University of Melbourne

Alan leads the Fire Ecology and Biodiversity research program within the University of Melbourne's School of Ecosystem and Forest Sciences. His research group, based at Creswick in rural Victoria, is currently investigating how fire causes patterns in the landscape, and how plants and animals respond to these patterns. Alan has been involved in applied ecological research for over 35 years; working primarily in universities and State research agencies in NSW and Victoria.

Speaker Abstracts

Keynote Speakers

Evidence enabled decisions: Research and policy relationships

Professor Alan York[1] and Elizabeth Ashman[2]

University of Melbourne[1], Vic and The Department of Environment, Land, Water and Planning, Vic[2]

For nearly a decade, science evidence from the Integrated Forest Ecosystem Research (IFER) Agreement- a partnership between the Department of Environment Land Water and Planning (DELWP) and the University of Melbourne (UM) - has supported development of Victorian government strategy, policy and operations. The impact of this research has been huge. From informing the design of planned burning regimes to benefit biodiversity and minimise carbon loss; to improving the predictability of bushfire behaviour, so that suppression is better targeted to minimise environmental, and social and economic damage; and the development of risk assessment tools that enable better prediction of post-fire water hazards, like contamination, debris flows and flooding.

Framed around six core research themes - biodiversity, carbon, hazards, socio-economics, water and vulnerability, and complemented by the development of an integrated Decision Support System that brings the previous decades work together to model and predict impact across a range of scenarios, IFER has had a lasting and profound influence on DELWP.

This year, the partnership between UM and DELWP enters its fourth three-year research program. It will build on the past nine years to deliver a stronger targeted program and contemporary evidence to inform DELWP's directions. This presentation will explore the genesis of IFER, the research-policy relationship it supports, and both the adaptation of the program and the pivotal role biodiversity research has had. This research has provided a framework for a better understanding of the effects of fire on plant and animal communities and provided DELWP with evidence-based science to inform decision making. Through its research training and coursework programs, UM is helping DELWP staff broaden their skills, and train the next generation of fire ecologists and land managers.

Biodiversity management in fire-prone ecosystems: Long-term partnerships are essential but challenging

Emeritus Professor Rob Whelan

University of Wollongong, NSW

In this presentation, I review a number of projects related to fire and biodiversity conservation that could not have been successful without long-term partnerships: long-term Ground Parrot censuses at several sites in NSW; reintroduction programs for the endangered Eastern Bristlebird in NSW, and the establishment of the Centre for Environmental Risk Management of Bushfires. Although these initiatives were all based in universities, partner organisations made significant contributions to research and/or management in all of them. However, maintaining effective connections between partners has not been trivial. Lessons have been learned from all these

projects, highlighting the following factors: (i) the need for a shared commitment to an agreed set of outcomes; (ii) clear and complementary contributions from each of the partners; (iii) active and continuous leadership of the project; (iv) good communication of progress and open acknowledgement of contributions by all partners. The challenge will always be finding ways of maintaining these components of success over a time-span for a partnership that exceeds the duration of involvement of individuals working on a project.

Presentation Abstracts

SEQ Fire and Biodiversity Consortium 20th Anniversary Retrospective: Fire Research and Partnerships

Dr Penny Watson, Dr Cuong Tran[1], Dr Samantha Lloyd[2] and Craig Welden[2]

Ten Rivers, Qld[1] and SEQ Fire and Biodiversity Consortium, Qld[2]

Established in 1998, the SEQ Fire and Biodiversity Consortium is non-government and not-for-profit and the broad aim is to translate science into practice for improved fire management and biodiversity conservation in south east Queensland. Established with funding from the National Heritage Trust, the SEQ Fire and Biodiversity Consortium has had several hosts, starting with Logan City Council (1998 – 2002) and moving to Griffith University, with a substantial funding investment and focus on research in late 2002. From there, it moved to the former Natural Resource Management (NRM) Regional Body for SEQ, SEQ Catchments in 2009. Currently embedded with Healthy Land and Water, the SEQ Fire and Biodiversity Consortium is supported in part by funding from the Australian Government's National Landcare program. Current funding provides for a Manager three days per week and a Coordinator four days per week. SEQ Fire and Biodiversity Consortium priorities and deliverables are guided and supported by a Steering Committee and Working Groups (Education/Training and Research), in parallel with Healthy Land and Water and funding-driven commitments.

The evolution of the SEQ Fire and Biodiversity Consortium can be grouped into five distinct phases (below). This presentation will look at the successes and lessons from each phase, strategies for program longevity and what the future holds for the SEQ Fire and Biodiversity Consortium:

1 - Initiation / foundation work (Dr Cuong Tran commissioned as Project Officer) from 1998 – 1999/2000 at Griffith University. Key achievements and deliverables include a comprehensive literature review on ecologically sustainable fire regimes for SEQ, provision of a research gaps analysis and gathering foundation support for the formation of the SEQ Fire and Biodiversity Consortium.

2 - Formation / governance / research resources / extension (Dr Penny Watson) from 2000-2002 at Logan City Council. Key achievements and deliverables include the milestone resource Fire management guidelines derived from ecological research, establishment of the Fire Management Planning workshop series and manual, fact sheets and other resources and community engagement.

3 - Consolidation / research / gap analysis (Dr Cuong Tran) from 2002-2009 at Griffith University. Key achievements and deliverables include establishment of a research program, in particular supporting students (four Honours and one PhD), expansion of the workshop program, development of key documents including Operational and Monitoring Manuals, establishment of the Fire Forum series, interstate stakeholder engagement, coordination of a

national bushfire conference (Bushfire 2006) and development of an understanding of fuel profiling in SEQ.

4 - Renewal / extension / land management / stakeholder engagement (Dr Sam Lloyd and Craig Welden) from 2010 – 2016 at SEQ Catchments. Key achievements and deliverables include establishment of a renewed program with host SEQ Catchments, expansion of the annual fire forum series to biannually, including our first forum on Indigenous Fire Management in 2013 on the Sunshine Coast, establishment of a Student Scholarship program, formation of the eNews and a website, expansion of the workshop program, establishment of a training program, partner-driven project coordination, expansion into land management and NRM, regional, state and interstate representation and coordination of a national bushfire conference, Bushfire 2016.

5 - Rebrand / extension / business strategy (Dr Sam Lloyd and Craig Welden) from 2016 – present at Healthy Land and Water. Key achievements and deliverables include the launch of the new Fire Management Planning Kit, development of resources including the Fire, Powerline Easements and Biodiversity Supplement and the Recommended Fire Regimes booklet, expansion of the training program, project delivery under the National Landcare Program with Healthy Land and Water, a strategic partner survey followed by development of a Strategic Plan and delivery of the 2018 Fire Forum in partnership with ESA.

Striking the Balance

Steve Martin & Murray Abel

Powerlink, Qld

Powerlink has been members of the SEQ Fire and Biodiversity Consortium for 20 years. During this time, our key motivation for being a member of the SEQ Fire and Biodiversity Consortium has been to strike the balance between safety, reliability, costs and biodiversity. Safety remains paramount and needs to consider people performing planned burns and fighting fires near transmission lines. Fire needs to be managed carefully near transmission lines to ensure reliability of our essential service to the community.

Customers and regulators expect costs associated with supplying high voltage transmission services to reduce in real terms, which can conflict with individual landholder expectations. Detailed investigations on biodiversity impacts from transmission line clearing have highlighted the benefits of minimising disturbance while removing incompatible species.

The collaborative work produced through the SEQ Fire and Biodiversity Consortium has assisted Powerlink to improve its management of corridors associated with transmission lines. In response to changing environmental factors, Powerlink will need to continue adapting to ensure the balance is correct for the context of our network business. Successfully integrating broader fire management with corridor maintenance will be a key to success.

QFES Overview of Queensland Nov-Dec 2018 Bushfire Emergency

Superintendent James Haig, Andrew Sturgess and Francis Hines

Queensland Fire and Emergency Services, Qld

The 2018 bushfire season in Queensland was unprecedented in the demands it made upon the Queensland Fire and Emergency Services (QFES), its partner agencies and the Queensland

communities. The season commenced very actively in August and peaked with a major bushfire event in late November and early December which coincided with a severe heatwave which broke many temperature records.

Between August and December over 4,000,000 hectares (2.3%) of Queensland was burnt. During the peak November- December event about 1,250 fires occurred with major fires in all 7 QFES region. For the first time Catastrophic fire conditions were experienced in Queensland with the Rockhampton area reaching an FFDI of over 130 on 27 November.

The management response to these fires involved over 3,000 QFES staff and volunteers along with 1200 personnel from every other state and territory and numerous staff from QFES partner agencies, as well as the community members themselves. An unprecedented number of aircraft were used including large airtankers. Disaster management arrangements were invoked for bushfires for the first time in the state.

To keep the public informed 570 bushfire warnings were issued along with 52 emergency alerts reaching over 1 million devices. QFES social media included some 640 posts reaching over 16 million followers whilst the Premier chaired daily live media conferences. A number of evacuations occurred including at Gracemere and in communities near the Deepwater fire. The season also saw QFES use and share its growing fire predictive modelling capability. Predictive products were used to inform decision making processes on numerous fires across the state.

Cultural Fire Landscapes in Quandamooka Country

Darren Burns[1], Jacob Martin[1], Dave Kington[2], Dave Nadler[1], Nathan Frazier[1] and Joel Bolzenius[3]

Quandamooka Yoolooburrabee Aboriginal Corporation, Qld[1], Queensland Parks and Wildlife Service, Qld[2] and Healthy Land and Water, Qld[3]

North Stradbroke Island is one of a string of barrier islands off the SEQ coast which includes Moreton Island, South Stradbroke Island, Bribie Island, and Fraser Island. These are sand islands with discreet and distinct ecological communities with a history of forestry or sand mining.

Traditional owner connection to these islands has led the way to Native Title claims. Native Title was recognised for the Quandamooka people in 2011 over a substantial area of the island, much of which is managed as National Park.

Naree Budjong Djara National Park is jointly managed by Quandamooka Yoolooburrabee Aboriginal Corporation and Queensland Parks and Wildlife Service. Archaeological investigation indicates more than 20,000 years of Aboriginal occupation. Woodland / Open forests on the island contain assemblages of very old Cypress, Blue Gum, Scribbly Gum, Bloodwood, and Brush Box. Many of these assemblages have been lost to wild fire in the last 160 years. The very existence of these associations is indicative of extremely long-term cultural use of fire. They are in fact cultural relics of the past, and as they are still alive represent and can, if we take the right action, be cultural landscapes of the future.

The rapid and ongoing loss of these communities is of critical concern to the traditional owners and the Queensland Parks and Wildlife Service. The changes to the environment associated with the loss of these iconic assemblies also bring increased risk to life and property, and habitat loss for many wildlife species.

Management of these landscapes with proper consideration for the burning practices and

land management which produced and maintained them, is in the interest of all. In essence, a return to Aboriginal fire management particularly in those areas of identified high cultural value.

Supporting Sustainable Fire Management On-ground: The Evolution of the Hotspots Partnership

Kate McShea[1], Jennie Cramp[2] and Paul Donatiu[3]

Nature Conservation Council of NSW, NSW[1], NSW Rural Fire Service, NSW[2] and Healthy Land and Water, Qld[3]

The Hotspots Fire Project (Hotspots) is a community engagement program, jointly delivered by the NSW Rural Fire Service (NSW RFS) and the Nature Conservation Council of NSW (NCC). Delivered over a series of workshops, with input from local community groups, land managers and fire agencies, the program supports and empowers rural landholders to be actively involved in fire management to maintain biodiversity and mitigate bush fire risk on private property.

Since its establishment in 2005, a critical component of the longevity of Hotspots is the partnership between the NSW RFS and NCC and the seven advisory agencies who support the governance and delivery of the program, including the South East Queensland Fire and Biodiversity Consortium, NSW Farmers Association, Forestry Corporation, Local Government NSW, Local Land Services, Office of Environment and Heritage, and National Parks and Wildlife Service.

The program evolution, and its success is based on a foundation of continued evaluation and critical analysis to ensure the core objectives are met. Program values and objectives are developed in collaboration with the advisory agencies to determine strategic direction for long-term delivery. Under the guidance of the delivery team, landholders prepare a map-based property management plan. This is supported by their participation in a demonstration burn to increase confidence and capacity to plan for and implement a controlled burn to meet multiple objectives.

Recent enhancements to the program include additional follow-up events to build networks and knowledge of related land management activities. The program has supported delivery of bush firefighter training, fauna and vegetation monitoring and post-fire community recovery. The seemingly unlikely partnership between a Government agency and a not-for-profit organisation in the delivery of Hotspots is not without its challenges, but the benefits to all partners including the community have created lasting outcomes to support sustainable fire management across the landscape.

Fire frequency, vegetation change & lantana in Australia's longest running fire experiment

Dr Tom Lewis[1] and Peter Leeson[2]

Department of Agriculture and Fisheries, Qld[1] and Queensland Parks and Wildlife Service, Qld[2]

We draw upon results from the longest running experiment in Australia to illustrate the importance of long-term studies in following vegetation change. Very frequent prescribed

burning has been undertaken over the period between 1952 and 2018 in dry eucalypt forest near Bauple in Queensland. This forest type shows remarkable resilience to repeated low-intensity fire. There are obvious differences in the density of understorey woody plants and species composition between frequently burnt treatments and areas that were burnt by a one wildfire (2006) in 72 years. The wildfire affected treatment has high densities of species such as Alphitonia excelsa (red ash), Cyclophyllum coprosmoides (coast canthium), Acacia leiocalyx (black wattle) and sedges (e.g. Lomandra species), while the most frequently burnt areas have an understorey dominated by native grass species. The density of *Lantana camara* (lantana) varied over time, but decreased in the frequently burnt areas relative to the long unburnt treatment.

Encouraging variation in fire frequency across the landscape, including areas with frequent fire, will encourage a mix of different species and understorey structures. Trees (>10 cm diameter at breast height) showed greater diameter growth rates in the most frequently burnt treatment; this is likely related to the differences in understorey density between treatments (i.e. more competition for resources where prescribed fire has been excluded). Thus, frequent fire has a potential role to play as a silvicultural management tool and in managing populations of certain weed species. The value of long-term observations in relation to fire frequency is discussed.

Observations from a decade of vegetation monitoring in Brisbane Conservation Reserves

Dr Paul Williams[1] and Chandra Wood[2]

Vegetation Management Science[1] and Brisbane City Council[2]

Brisbane City Council's Conservation Reserves protect over 9,500 hectares, including paperbark and eucalypt forests across a range of landscapes. In 2008, a BCC and SEQ Fire and Biodiversity Consortium project established permanently marked vegetation monitoring transects on Mt Coot-tha. There are now 64 transects across more than twenty reserves, with many providing a decade of data.

The results indicate the value of planned burning across the Brisbane landscape. A combination of wet conditions and fire promotes a healthy paperbark forest. The endangered shrub, *Zieria furfuracea subsp gymnocarpa*, is unusual in regenerating vegetatively, especially via root suckers, in comparison to abundant post-fire seed germination typical of many other Zierias. Fire plays an important role in the management of weeds, including Camphor laurel, Chinese elm and Lantana.

Scribbly gum forests on sandy soils show healthy regeneration following fires, with follow-up fires important for ensuring *Allocasuarina littoralis* plants do not become over-dominant. The most widespread forest type in SE Queensland is eucalypt forest on metamorphic hills. A decade of BCC monitoring data indicate the value of planned burning in maintaining a healthy native grass layer. Fire-killed shrubs, such as *Daviesia villifera* and *Hovea acutifolia*, show abundant fire-triggered germination, with shrubs maturing, seeding and senescing within a decade.

These data show the value of a commitment to ongoing monitoring. They provide an opportunity to refine fire regimes and implementation techniques, including the use of more regular burns during good soil moisture conditions.

Indigenous Fire Management: Evidence from South East Queensland and Importance for Future Management

Associate Professor Patrick Moss, Penny Webster[S] and Dr Phillip Stewart

University of Queensland

Indigenous fire practices may have played an important role in the maintenance of Australia's landscape but there is a key debate about the scale of its application to the Australian environment and how it can be applied to modern fire management. These presentations will focus on the evidence for traditional fire management in South East Queensland, particularly for the unique giant sand masses along the coast. Extensive palaeoenvironmental records provide insight into changes in fire regimes over at least the last 40,000 years in response to climate alterations, arrival of First Nations people and European colonisation. In particular a focus will be made on a key site, Jumping Grass Swamp, from Dunwich, Minjerribah. This site provides evidence of contrasting fire regimes that appear to reflect the shift from cool burns associated with the Quandamooka People to fire suppression associated with British settlement. Primarily this study uses macro-charcoal and geochemical analysis of a sediment record to assess past environmental alterations, extending back several thousand years to the present. In addition, land change analysis (from 1967 to 2017) based on aerial images of the site was applied to understand vegetation changes linked to fire management alterations and urbanisation. Key findings suggest that European colonisation had a profound impact on the island's environment, which indicates that the loss of traditional fire management is a key component for the maintenance of biodiversity/community dynamics and needs to be considered as an important component of future natural resource management for South East Queensland.

Rainforest expansion reduces understorey plant diversity in dry open-forest of south-eastern Australia

Dr Andy Baker[1], Associate Professor Rod Fensham[2] and Dr Claudia Catterall[1]

Southern Cross University and University of Queensland

Across high-rainfall regions of northern and eastern Australia, the expansion of rainforest pioneer trees into open-forests has become increasingly widespread. Increased rainforest tree cover can limit resource availability for understorey plant communities and reduce understorey diversity. While increased cover of sclerophyll trees can also displace understorey plants, it remains unclear if sclerophyll and rainforest trees differ in their competitive exclusion of understory plant communities, which contain most of the plant diversity in open-forests. We examined dry open-forest across contrasting fire histories (burnt, unburnt) and levels of rainforest (sclerophyll or rainforest midstorey) to hindcast changes in community composition. Understorey plants, overstorey structure and soils were sampled at 24 sites, and relationships of community composition to fire history, midstorey structure, midstorey composition and soil parameters were all examined. Here we show that an invading rainforest pioneer midstorey displaced over half of the understorey plant species, and reduced ground cover and density of dry forest specialists by ~90%. Significant understorey declines also occurred with increased sclerophyll tree cover following fire-exclusion, although losses were typically less than that of rainforest-invaded sites over the same period.

Understorey decline was most closely related to leaf area index and basal area of rainforest trees, suggesting competitive exclusion by rainforest trees through shading and potentially

belowground competition for water. Around 20% of species displaced by rainforest pioneers, lacked any capacity for population recovery, while transient seedbanks or distance-limited dispersal may limit recovery for a further 68%. We conclude that rainforest invasion leads to significant declines in understorey plant diversity and cover in open-forests. To avoid elimination of local native plant populations in open-forests, fires should occur with sufficient frequency to prevent tree cover from reaching a level where shade-intolerant species fail to thrive.

Fire & the Vegetation Management Act

Peter McDonald

Department of Natural Resources, Mines and Energy

Queensland's vegetation management framework includes measures that ensure landholders can protect their property from bushfires, including establishing and maintaining firebreaks and fire management lines and undertaking hazard reduction measures.

No approval or notification is required to clear necessary firebreaks or fire management lines to specified widths. Specifically, a landholder may clear to establish or maintain:

- a firebreak to protect infrastructure (other than a fence, road or vehicular track) up to 1.5 times the height of the tallest adjacent vegetation or 20m (whichever is wider);
- fire management line of 10 metres width a;

Should a landholder consider they need to clear a wider firebreak or fire management line than provided by the above measures, they are able to submit an application for a development approval. Further, a landholder does not need to notify or obtain any approval under the Vegetation Management Act to undertake hazard reduction burning (also known as 'fuel reduction burns' or 'control burning') to reduce fuel loads. This exemption applies irrespective of the vegetation management status of the vegetation.

Undertaking hazard reduction to reduce fuel loads is the responsibility of the landholder and requires only a permit from a local fire warden under the Fire and Emergency Services Act 1990. In a bushfire emergency, landholders can do any clearing required by an authorised fire officer. This exemption under the VMA was not changed by the 2018 legislative amendments and has not changed in 20 years.

Planned and unplanned fire regimes on public land in southeast Queensland; and the cost effectiveness of prescribed fire as a bushfire risk mitigation tool

Martyn Elliott[S]

University of the Sunshine Coast

Using Queensland Parks and Wildlife Service archived manually derived fire reports, this study considered the individual components of the fire regime (extent, frequency and season) to determine variation between planned and unplanned fire regimes in southeast Queensland. Overall, between 2004 and 2015, planned fire accounted for 31.6 % of all fire, and unplanned fire 68.4 % of all fire on Queensland Parks and Wildlife Service state-managed land. Unplanned fire was more common in spring, and planned fire was more common in winter. Unplanned fire affected 71.4 % of open forests and woodlands (148,563 ha), whilst 58.8 % of melaleuca communities (8,016 ha) and 66.6 % of plantations (2,442 ha) were burnt with planned fire.

Mapping fire history at a regional scale can be readily done with existing publicly available datasets, which can be used to inform the assessment of planned burning effectiveness for human asset protection and the management of biodiversity. Additionally, this research is part of a larger project which is aiming to estimate the temporally and spatially efficient application of prescribe fire on the landscape, by comparing expected benefits of prescribed fire against the expected costs of prescribed fire. The proposed design and outcomes of this research will be discussed.

Local temperature heterogeneity in controlled burns: Can it be predicted to inform management practices and can it be manipulated to protect old, large trees?

Victoria Crepin[S]

Griffith University and GHD

Controlled burns in southeast Queensland's dry sclerophyll forests are managed to be low intensity to create heterogeneous burn patterns and reduce the damage of fire on important landscape features, namely old, large trees. However, the effects of controlled burns at the fine-scale are poorly understood. Therefore, this study assessed burn heterogeneity using LiDAR (Light Detection and Ranging) data, as well as quantifying the efficacy of manual fuel reduction techniques to protect old, large trees. Five controlled burns were analysed, each with a 1 ha experimental plot. Temperature heterogeneity was measured using thermosensitive Tempilstik crayons applied to steel tiles that were distributed through each site on a regular grid, while also being attached to a sample of large trees. No significant predictable patterns related to temperature heterogeneity were found from the LiDAR-derived Digital Surface Model (DSM) of vegetation structure. However, patch edges and exposed areas with minimal fine fuel that hindered fire spread had reduced temperatures, while hotter temperatures were observed in the middle of vegetation patches and cool temperatures were recorded at edges or outside of these patches.

Manual fuel reduction through raking significantly decreased temperature at the trunk and hence tree exposure to fire, with stronger effects observed at 2 m compared to 1 m. Increased fuel height, size and structure resulting from vegetation patches will usually increase temperature, whereas its removal or reduction will significantly decrease temperature. Managers can use this information to support raking as a useful mitigation tool for valuable trees in controlled burns and that the distance raked should be equivalent to the value attributed to the tree. LiDAR data has the potential to be used as a predictive tool to find trees of greater burn risk to focus raking efforts, but requires further sampling and additional variables to qualify its use.

Influence of fire frequency on fauna communities in Bundjalung National Park

Ariane Allen

Southern Cross University and Logan City Council

Fire has been present in the global landscape since terrestrial plants evolved and has shaped the ecological function of vegetation across the world. Australia is a particularly flammable country and the evolution of Australian vegetation communities has been largely reliant upon fire. With almost 1000 species of flora and fauna at risk of extinction in New South Wales and

the well-publicised rate of fauna extinction across Australia, it is pertinent that further research is implemented and communicated to assist in biodiversity conservation.

Whilst there have been numerous studies in regard to faunal declines across Australia, these studies address factors such as vegetation clearing, fragmentation and predation, few studies have researched the effects of inappropriate fire frequency in relation to faunal species distribution and potential local extinction, particularly in regards to frogs. Faunal distribution is related to forest structure which provides habitat. Fire has the ability to manipulate forest structure, therefore impacting species distribution.

This Honours project aims to highlight the requirement of ecological burning, as a land management tool to sustain the ecological function of the Australian vegetated landscape, thereby maintaining faunal biodiversity. Changes in faunal communities in a long unburnt and more recently burnt site in Bundjalung National Park, New South Wales will be researched to determine ecological function as a result of varied fire frequency.

Notes

Notes

Notes

Notes

SEQ Fire & Biodiversity
CONSORTIUM
Celebrating **20 Years**

Thank you for your support

SEQ Fire and Biodiversity Consortium 20th Anniversary Fire Forum

www.fireandbiodiversity.org.au