Indigenous Communities, Peri-urbanism and Bushfire Issues in Northern Australia

Briefing Paper No 1

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Indigenous Communities, Peri-urbanism and Bushfire Issues in Northern Australia.

1.   Introduction

The Bushfire CRC Understanding Communities project is primarily focused on peri-urban regions in areas where intensive bushfires are possible. However, in the course of exploring peri-urbanism and its complexity, Indigenous communities arose as a special case deserving some attention. Therefore, this briefing paper aims to identify key issues for possible future research for bushfire issues and Indigenous communities in Australia. While this paper concentrates on bushfires they should not be seen as a stand alone issue but part of an overall natural disaster management plan for communities. This briefing paper consists of two main facets:

   i.   Review of existing literature
         - Review of themes in existing academic literature
         - Peri-urbanism and Indigenous communities
         - Possible future research for bushfire issues and Indigenous communities in Australia
   ii.   Summary of work undertaken by Tropical Savannas CRC in an appendix

2.   Summary

Most research on the topic of bushfires and Indigenous communities relates to ecological and land management issues as reflected largely in the work by the Tropical Savannas CRC. Some of the issues covered in this ecological approach are also pertinent to peri-urban Indigenous communities.

To assess the risk to and resilience of Indigenous communities a greater understanding is required of Indigenous peri-urban settlements and seasonal movement around these locations. This is because Indigenous settlements are of three main kinds:

- Indigenous towns
- Town camps
- Indigenous communities

There is increasing recognition of the role of Indigenous fire practices in contemporary fire management in northern Australia. However, research on the practical application of these fire practices at the community level could increase the effectiveness of fire management plans for Indigenous peri-urban settlements.

It is fundamental that researchers and fire service providers have extensive knowledge of the cultural significance of fire management in Indigenous communities, the diverse nature of individual communities and the possible impact of land rights issues. There is a real need for understanding of local situations and time spent on these issues would enhance the development of a plan that will operate successfully.

There appears to be very little research on peri-urban Indigenous settlements and their associated fire risks. Indigenous towns, town camps and in particular, outstations, are the types of locations which would benefit from more extensive research.

## 3.	Review of themes in existing academic literature

A case study by Monaghan (2004) on peri-urbanism and bushfire hazard for Aboriginal communities on western Cape York Peninsula has raised some issues regarding the necessity to explore how fire issues have been dealt with in the published literature. A brief review was undertaken to clarify the themes dealt with in the existing literature. Most published articles are case studies of particular locations across the north of Australia.

The papers reviewed can be loosely grouped into four subject areas as follows:

3.1	Indigenous fire practices
3.2	Ecological and land management issues including fire
3.3	Indigenous Native Title and land rights issues as they relate to land management
3.4	Policy response

### 3.1	Indigenous fire practices

The papers on Indigenous fire practices are those most directly related to the Understanding Communities program for fire and land management issues in Indigenous communities in north Australia. A consistent theme in many of these papers is the ongoing debate of the effect Indigenous fire management has had on the landscape including the timing and pattern of Indigenous burning.

Several studies of locations in north Australia conclude that Indigenous burning is not haphazard. Russell-Smith in his study of western Arnhem Land states that " The consistent pattern which emerges from these data is that Aboriginal people occupying the northern savannas employed burning in an organized, directed manner' (Russell-Smith et al., 1997). The concept that Indigenous burning was skilful is repeated by others (Whitehead et al., 2003, Bowman, 1998, Bowman et al., 2004, Yibarbuk et al., 2001). Yibarbuk in his study of fire management practice in north-central Arnhem Land refers to frequent, large and high intensity wildfires where there is no human intervention whereas "The situation at Dukaladjarranj, where Aboriginal occupancy has been close to constant, contrasts strikingly with this regional picture". Hill's study of the Kuku-Yalanji people in the wet tropics region of northeastern Australia does not support the idea that Indigenous fires have caused a substantial diminution of rainforest areas (Hill and Baird, 2003, Hill et al., 2000).

The spatial pattern of burning by Indigenous fire management was created for a variety of purposes including managing resources e.g. to 'clean' the country to avoid more intense fires later, for food and hunting and custodial reasons. Indigenous burning has created a "fine-scale mosaic of burnt and unburnt areas" which some researchers regard as important to break the grass-fire cycle and maintain the north Australian biodiversity (Bowman et al., 2004, Yibarbuk et al., 2001). However, Indigenous "burning was not undertaken to conserve biodiversity *per se*" (1992, Braithwaite cited in Russell-Smith et al., 1997) although the patchy, low intensity fires often produced this result.

The different cultural perception of the seasons by Indigenous groups affects the timing of burning (Bowman et al., 2004, Russell-Smith et al., 1997, Yibarbuk et al., 2001) "In contrast

to the European conception of the annual climate cycle, Indigenous people in northern Australia recognize more complex seasonal calendars, which may vary subtly between different language groups" (Bowman et al., 2004). The timing also varies in relation to the onset and conclusion of the wet seasons and intra-seasonal rains (Bowman et al., 2004).

In conjunction with the debate on Indigenous fire practices is the issue of the role that Indigenous burning should have in land management today and how best this can be achieved.

A symposium on biodiversity and fire in North Australia titled "Country in Flames' was held in Darwin in 1994. The proceedings are published by the Biodiversity Unit, Department of the Environment, Sport and Territories and the North Australia Research Unit, The Australian National University. The symposium covered a range of topics involving fire and in the introduction Rose states that "large domains of information are held by discrete groups of people who have little interaction with each other, so that there is a communication void amongst precisely those people who should be interacting with each other. I refer most specifically to Aboriginal natural ecologists and university trained scientific ecologists" (Rose, 1994). Essentially Rose is arguing that research needs to be conducted in collaboration with the community at the location being studied.

Traditional burning practices and their interrelationship with land management and natural hazards planning require the researcher to have extensive knowledge of the individual communities. However, Bowman claims that "such studies of indigenous landscapes are practically difficult to implement because they require individuals with broad training and experience, ranging from anthropology to field ecology" (Bowman et al., 2004). Most researchers acknowledge the cultural significance of the land to Indigenous people however the level of understanding varies as Yibarbuk states "clearly, there is a substantial gap to be bridged if we are to develop management regimes for northern Australia's fire-prone landscapes that address widely shared goals" (Yibarbuk et al., 2001). Some authors offer suggestions to address this need (Yibarbuk et al., 2001, Whitehead et al., 2003, Hill et al., 1999).

Hill's paper offers guidance on one way to develop a fire protocol that results from her research with one group of Australian Aborigines, the Kuku-Yalanji, and the government managers of the Wet Tropics of Queensland World Heritage Area. The protocol has been endorsed by Kuku-Yalanji as a suggested means of negotiating potential conflict over control of fire management, "the fire protocol is an ongoing means of negotiating the rights and responsibilities of both parties, which may prove more successful than previous Australian attempts at integrating indigenous and non-indigenous fire management" (Hill et al., 1999)

The Bushfire CRC research project Burning for Biodiversity in northern Australia carried out by Kate Parr, Peter Christopherson and Alan Anderson seeks to address this. The abstract presented at the Bushfire CRC Inaugural conference in October 2004 outlines the aims; "The Burning for Biodiversity project tackles two main issues:

- Improving understanding of effects of fire on biodiversity from both western and Aboriginal perspectives, and
- Increasing public awareness and education of fire in northern Australia."
  (Parr et al., 2004)

There are two initiatives; one is to establish a new fire research and education program at the Territory Wildlife Park near Darwin and the second is to work closely with a family of traditional owners in Kakadu National Park to better understand the benefits of Aboriginal fire management to the wetlands of the South Alligator River from both cultural and biodiversity perspectives.

3.2   Ecological and land management issues including fire

The second theme identified is that of research on ecological and land management issues which to some extent overlaps with the Indigenous fire practices papers but concentrates more on sustainability in tropical savanna landscapes. The debate on the role of Indigenous burning is also discussed in this second group of papers which is predominately work undertaken by the Tropical Savannas CRC (refer to 'Summary of work undertaken by Tropical Savannas CRC'). Papers from the international conference "Fire and savanna landscapes in northern Australia- regional lessons and global challenges" held in Darwin in July 2002, were published in a special edition of the *International Journal of Wildland Fire*. In the preface Russell-Smith notes that "rapid progress has been made in our understanding of regional fire patterns" and that there is a strong commitment to community participation in research "especially for remote Indigenous communities and pastoral enterprises that typically have limited economic, infrastructure and information resources" (Russell-Smith et al., 2003a).

There is concern at the evidence showing that Indigenous control over fire has broken down over much of the northern Australian savanna and how best to redress this. Mapping data has been used to assess the pattern of fire regimes over landscapes in north Australia to better understand the impact of fire. Russell-Smith acknowledges that while the importance of fire patchiness to maintain biodiversity is increasingly understood more work is required on this and related fire intensities (Russell-Smith et al., 2003b). The Kimberley region of West Australia has less documented data than the top end of the northern Territory concerning traditional fire use. Vigilante in his study comparing management regimes of different landholders in the North Kimberley concludes that indigenous people "achieved sustainable land management outcomes by utilizing fire for the full duration of the dry season". He also observes that due to the rugged and inaccessible country in the north Kimberley, "Aboriginal burning practices tend to centre around communities, outstations and areas accessible by road" (Vigilante et al., 2004)

The Desert Knowledge CRC research within theme 1, "Natural resource management for better livelihoods" includes the project Desert Fire and research involving Aboriginal land management practices.

3.3   Indigenous Native Title and land rights issues as they relate to land management

The third theme identified includes a number of articles concerning land rights and Native Title and this briefing is not intended to cover these in detail. However, these issues should be considered in any planning process as future changes may affect the implementation of fire management plans. Hughes examines the legal basis for Indigenous burning under the Bushfires Act 1980 (NT) and suggests that "translating the law into fire management policy and practice" is "not a legal problem but a land management problem". Hughes proposes that "What needs to happen is at an administrative and policy level, for people on the ground to be talking to each other and working out approaches". She concludes that "Fire management is integral to Aboriginal conceptions of land management" (Hughes, 1994).

As referred to previously, Hill developed a protocol with the Kuku-Yalanji group that wet tropics Aborigines see as a process operating "at the local level within the broad framework regional agreement they are currently discussing with government" (Hill et al., 1999). Whitehead acknowledges the complexity of these issues and that Indigenous culture has survived with the current outstation movement reflecting the desire to return to traditional homelands. He suggests a structure for the design of a large-scale fire management experiment and emphasizes that "consensus may be a long-term, 'emergent' rather than a designed outcome" (Whitehead et al., 2003)

Lane suggests that "developing an understanding of the efficacy of different institutional arrangements for the management of indigenous lands, depends, to a significant degree, on an analysis of indigenous participation in natural resource management" (Lane, 2002)
He continues to outline seven key factors in the literature on Australian indigenous participation that influence indigenous participation:

1. The tendency for planners and decision makers to overlook, ignore, or misinterpret indigenous perspectives
2. Constraints on the capacity of indigenous people to participate effectively in resource management, relative to other stakeholders
3. Patterns of land ownership act as an important constraint on indigenous participation
4. There is confusion around conceptions of indigenous (particularly Australian Aboriginal) social organization – conceptions that underlie many of the attempts to involve indigenous people in management.
5. This misconception of Aboriginal society is associated with a tendency to confine Aboriginal interests to traditional cultural concerns, such as the protection of sites of cultural significance
6. Indigenous participation is impeded by a perception that indigenous conceptions of environment and traditional management practices are not respected or recognized by nonindigenous Australian and mainstream management agencies.
7. The nature of Aboriginal social organization, particularly in relation to land, suggests that participatory strategies must be based on consensus and direct involvement. Western notions of delegation and representation are often inappropriate in Aboriginal domains.

Lane examines current approaches to Indigenous land management and programs undertaken. He states that there "has been no systematic, comprehensive approach to indigenous land management in Australia." Lane analyses different models and concludes that a hybrid of the institutional and community-based approaches would be an improved model which he refers to as "mediated community-based natural resource management" (Lane, 2002).

The Desert Knowledge CRC, theme 3 "Governance, management and leadership for sustainable futures" will examine both formal and informal governance arrangements including social networks.

3.4   Policy Response

A recently released publication "A guide to Disaster Risk Management in Queensland Aboriginal and Torres Strait Islander Communities" by the Department of Emergency Services emphasises the need for continuing collaboration with all people in a community when developing disaster risk management plans. A simple diagram outlines the steps to be taken and repeats at every stage the need for "telling, asking and listening" (Department of Emergency Services, 2004). The guide is intended to assist community Councils, Local Governments, consultants and disaster management professionals with disaster risk management in Aboriginal and Torres Strait Islander Communities.

The Council of Australian Governments (COAG) Review background paper "Improving emergency management outcomes for remote indigenous communities in northern Australia" examines some of the challenges and suggests strategies for the development of a national policy to guide disaster management. The paper recognises that "Systemic and structural disaster management, through *"prevention, preparedness, response and recovery" (PPRR)*, also needs to take into account the disparate environment of remote Indigenous communities relative to that of metropolitan and major regional centres.
This account needs to recognise and address the gaps and cultural differences between systems and structures predicated on an assumed level of community capacity that does not necessarily exist within remote Indigenous communities, outstations or homelands" (COAG, 2002)

The paper discusses emergency management issues in remote Indigenous communities including the move away from major centres to small indigenous settlements or homelands; that local government structures vary across remote communities and the mobile population. Some of the recommendations include an active role by ATSIC in mitigation objectives, risk assessment and involvement in mainstream emergency management.
At present it is unclear how the recommendations involving ATSIC will be implemented now that ATSIC has been disestablished.

**4.   Fire risk in Aboriginal peri-urban landscapes in North Australia
         Case studies from western Cape York Peninsula**

In his paper Monaghan examines the fire risk in Aboriginal communities of far North
Queensland with particular reference to two communities, Pormpuraaw and Kowanyama.
As outlined in Monaghan's paper, Aboriginal settlement is of three main kinds:
- Aboriginal towns
- Town camps
- Aboriginal communities

In addition, outstations are increasing in number and this situation is explained by Monaghan
"outstations are the main features of the peri-urban landscape, which are now emerging
around Aboriginal communities; they are small settlements that are located in the traditional
country of their residents and are mainly occupied in the dry season, which is also the time
of the greatest fire risk in the landscape" (Monaghan, 2004)

The association of traditional owners with the land and the reasons for fire setting are
summarized as "an expression of identity, of control of the physical, mythical and social
world, as well as a land management technique." (Monaghan, 2004)

Monaghan describes the fire behaviour and fire risk in the region with reference to fire
frequency maps. Extracts from the fire management plans for both Pormpuraaw and
Kowanyama demonstrate the scale at which fire management plans have been developed for
these communities. The following points are pertinent when considering the needs for fire
management plans in Aboriginal communities:

"The Pormpuraaw study also identified the following issues as germane to effective natural
hazard risk management

- The difference in perceptions of risk from natural hazards between local people and
  the 'Staff' population. Local people are more accepting of these risks and of their
  ability, and the capacity of the Council, the police and the SES to deal with them
- The maintenance of risk standards in the future planning of community housing,
  infrastructure and land use
- The absence of a rate revenue base and the reliance on external funding for Council
  operations
- Training and equipping of SES volunteers and community rangers (Monaghan and
  Taylor 2003).

The main issues in bushfire risk management planning in remote Aboriginal communities
revolve around the socio-political context of each community in terms of Staff – community
relations and local indigenous systems of governance." (Monaghan, 2004)

Monaghan describes the management of remote Aboriginal peri-urban landscapes which are
undertaken by two forms of government. The locally elected council tends to look after the
township and the 'Aboriginal domain' of tribe, clan or kinship affiliations looks after the
landscape. In addition there are homeland groups who have to be consulted in land
management issues. If bushfire risk assessment and plans are to be successful, Monaghan

argues that it is essential "to recognise the diverse range of natural resource interests and the local polities that exist within communities in the Peninsula" (Monaghan, 2004). He also stresses that "despite the widespread structural similarities in homeland group characteristics in Aboriginal Australia there are considerable differences in their 'modus operandi', even between two adjacent communities such as Pormpuraaw and Kowanyama, which preclude generalisations that might be made about fire management or regional scale peri-urban trends in remote Aboriginal communities."(Monaghan, 2004)

Monaghan suggests elements which are important to the consultation process based on his experience when developing the Pormpuraaw Natural Disaster Risk Management Study (2003, Monaghan and Taylor cited in Monaghan, 2004):

- Recognition that time must be spent in community consultation to ensure an understanding of each particular Aboriginal community. Surveys or reference groups do not gain sufficient information to ensure that subsequent plans will work.
- In conjunction with this, an understanding that comments about bushfire or land management made by different people in the community can vary depending on that person's authority or relationship to the land and "the social context of the informant has to be known before their statements can be interpreted" (Monaghan, 2004).
- The aims of community consultation need to be presented "clearly and unambiguously" so that language barriers can be overcome to enable participants to contribute. Monaghan has found that using geographical information systems to display the landscape and hazards based on known landmarks is effective in communities he has developed plans with.

In conclusion, Monaghan draws attention to the changes occurring as a result of the introduction of Shire councils and of ongoing Native Title determinations.

5.   Possible future research for bushfire issues and Indigenous communities in Australia

Since the "Country in Flames" symposium in 1994, research on fire and land management and the role of Indigenous fire practices has increased appreciably, particularly with the Tropical Savannas CRC. There has been a rise in indigenous community-based ranger groups and the formation of the North Australian Indigenous Land and Sea Management Alliance (NAILSMA) which aims to share knowledge across the north and develop collaborative arrangements with western science agencies. The first meeting was held in August 2004 at Menngen Aboriginal Land Trust west of Katherine.

However, debate on the benefit of Indigenous fire practices and their role in contemporary fire management across northern Australia continues. While it appears to be increasingly recognized that Indigenous patterns of fire may be beneficial for biodiversity there is considerable discussion about the timing of Indigenous burning and its role in land management. If fire management plans are to be developed for Indigenous communities, it would seem necessary to be clear that there is no consensus by western ecologists about the role of Indigenous fire practices. In addition, there is a diverse knowledge within Indigenous

fire practice which should not be lost and is particularly significant now with the movement back to homelands and outstations.

The pertinent issue for the Understanding Communities Project is to assess the risk to Indigenous communities in relation to the effectiveness of traditional fire management practices rather than the broad scale debate on the role of Indigenous fire practices in the past and present landscape. However, the possible impact of any change to traditional fire practices may well affect the practical aspects of preventing disaster at the community level. There appears to be very little research on peri-urban Indigenous settlements and their associated fire risks. This is particularly relevant with the movement back to homeland areas which have not been managed by traditional burning for some time so the risk to those moving there may be higher. Indigenous towns, town camps and in particular, outstations, are the types of locations which would benefit from more extensive research.

Research pertaining to Indigenous communities and bushfires is necessarily undertaken by researchers with extensive knowledge of those communities and where this has occurred; progress has often been made with plans acceptable to both western and Indigenous groups. To effectively develop plans for Indigenous settlements across North Australia, fire service providers need to have either the appropriate experience or training to enable them to liaise in an environment where there is a high level of cultural understanding. In addition, an awareness of changes to Indigenous land management due to Native Title and land rights issues is necessary to develop plans which will operate effectively in the future.

The challenge is to develop a fire management plan that is relevant to each culturally diverse community and allows for the dynamics of changing settlement patterns. Some principles of these plans are similar to those required for less remote urban-rural interface areas. The following covers some issues applicable to both although the priorities may differ:

- Consultation process to include all those involved
- Operation to be set at the local level
- Understanding of individual communities
- Consideration of individual needs within that community
- Changing dynamics of communities

This briefing paper was not intended to be a substantive literature review because the material is not directly related to Bushfire CRC activities. However, it is clear that the case study approach is highly relevant for the understanding of fire hazard and management in Indigenous communities. At this stage it is not possible for the Understanding Communities project to further pursue the issue of fire management in peri-urban Indigenous communities because there appears to be few researchers working on the issue. However, should the opportunity arise, a case study approach for Indigenous town camps and towns would be pursued which takes into account the consultative localized approach recommended in the more ecologically oriented research.

It may be that the type of work already done in this area is in unpublished government reports or in local emergency service plans, or it may be a real gap in understanding.

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Appendix 1.   Summary of work undertaken by Tropical Savannas CRC

This review summarises research and publications undertaken by the Tropical Savannas CRC from the Tropical Savannas CRC website (October 2004). Information relevant to the "Understanding Communities" Bushfire CRC program is presented in three parts as follows:

1. Overview of strategic directions and research themes for 2003-2007
2. Research relevant to "Understanding Communities" in Bushfire CRC
3. Publications relevant to "Understanding Communities" in Bushfire CRC

1.   Overview of strategic directions and research themes 2003-2007

The topics listed within key result areas and research themes have been listed here only if they are considered relevant/complementary to the Bushfire CRC.

Key result areas strategic directions 2003-2007

1. Healthy landscapes
2. Sustainable management systems includes:
          management strategies for fire
3. Viable and socially desirable regions includes:
          policy and management options for regional planning and development and
          associated guidelines
4. Productive and capable people includes:
          Communication strategies and processes
          Learning packages and education strategies

Scholarships available in range of areas including:
          Communication, knowledge building and adult learning in savanna
          management
          Fire management
          Indigenous knowledge conservation, ethno-ecology and cross-cultural
          solutions to natural resource management
          Regional planning and community engagement in savanna management
          Culture, community and demographic change in savannas

Research themes 2003-2007

1. Landscape ecology and health. Coordinator Dr John Ludwig, CSIRO, NT.
   - Meet the long-term needs (material, aesthetic and spiritual) of people with an
     interest in the tropical savannas

2. Industry and community natural resource management. Coordinator Dr Jill
   Landsberg JCU, Cairns and QPWS, Mareeba

- Development and validation of models and systems of adaptive management if ecological, economic and social goals to be achieved.
- Specific systems relevant to Indigenous land management and multiple land use are needed.

3. Regional Planning and management. Coordinator Dr Peter Whitehead CDU, Darwin.
   - An understanding of the social and economic dynamics of rural regions to meet the needs of both the environment and the people.
   - Develop frameworks to allow sustainable planning and management to meet this complex of public and private needs, responsibilities, benefits and costs.

4. Human capability development. Coordinators Mr Joe Morrison and Dr Peter Jacklyn CDU, Darwin.
   - Provision of scholarships for students in disciplines relevant to landscape management in Northern Australia
   - Use of "Savannas Information" developed by CRC to provide learning material to people in enterprises, communities, government and to students and the public.

<u>Savannas Information</u>

Savanna Explorer
Comprehensive information for eight geographic regions across Northern Australia for a variety of topics including land management issues such as fire.

Savanna map maker
Interactive maps of the vegetation of the tropical savannas and of the Victoria River District.

Savanna search
Database search facility for details of research papers, reports, books etc about the Savannas.

North Australian Fire Information
Fire maps of north Australia showing hot spots and fire scars.

Savanna Links
Newsletter with information on a range of land management issues, research and events across the tropical savannas. Published quarterly by Tropical Savannas CRC.

Tropical Savannas CRC Forums
Online discussion on various issues.

2.   Research relevant to "Understanding Communities" in Bushfire CRC

<u>**Round 1**</u>

Extension, vocational education and training
Richard Fell, Tropical Savannas CRC and NTU

This project includes a section on fire management with learning package and materials on fire management under following:
- Fire management book
- Case studies of practical fire management

Book published *Savanna Burning: Understanding and Using Fire in Northern Australia,* 2001, featured a number of fire management case studies to illustrate the book with real situations (see publications)

Learning processes of pastoralist stakeholders in the tropical savannas
Professor Allan Arnott, NTU Darwin

This examined the nature of current communication processes and some of the related communication issues with pastoralists. Final report published *"More than can be said: A study of pastoralists' learning",* 2001 (see publications).

Fire and Savanna Landscapes
Dr Jeremy Russell-Smith, Bushfires Council of NT, Darwin

Book published *Savanna Burning: Understanding and Using Fire in Northern Australia,* a practical guide and information resource for managing fire in Australia's tropical savannas. Completed consultancies:
- "Assessing fire patterns and their environmental impacts for national SoE reporting" to Environmental Australia's Sate of the Environment Unit.
- "Developing a sustainable satellite fire monitoring program for rural northern Australia" to the Rural Industries Research and Development Corporation.

Indigenous Projects

First round focused on issues of regional importance in various places across northern Australia

Papers from the international conference "Fire and savanna landscapes in northern Australia-regional lessons and global challenges" held in Darwin in July 2002, were published in a special edition of the *International Journal of Wildland Fire* (Vol 12, 2003)

FIREPLAN: Fire management for the savanna community
Project leader: Jeremy Russell-Smith, Bushfires Council of NT

FIREPLAN builds on directions set in previous project Fire and Savanna Landscapes. It provides opportunities to engage wider community in cross-cultural, cross-sectoral activities that have the potential to result in long-lasting social benefits.In 2004-05 FIREPLAN will continue to assist with the development and implementation of regional fire management initiatives (e.g. Cape York, western Arnhem Land, the Kimberley, and eastern Indonesia), as well as commence the undertaking of the across-north Australia, NHT Competitive Regional project, *Developing knowledge-based fire management for northern Australia savanna communities: Phase 1*.

Indigenous ecological knowledge for land management
Project leaders: Tom Vigilante, Kimberley Land Council, Derby, Peter Cooke, Northern Land Council, Darwin, Nick Smith, Balkanu Cape York Development Corporation, Cairns

This regional project comprises three sub-regional activities in the Kimberley in Western Australia, central and western Arnhem Land in the Northern Territory and Cape York Peninsula in north Queensland. The aim is to conserve Indigenous knowledge of species and ecological processes and that will include Indigenous aspirations for future use and management of natural resources.

Analytical and modelling methods for characterising regional community, economic and natural resource dynamics
Dr Mark Stafford Smith, CSIRO Sustainable Ecosystems, Alice Springs

This project is a year-long scoping study that explores what questions and attributes might underpin a systems framework to help facilitate sustainable land-use decisions in regional and remote communities.
Such a framework would encompass economic, social, natural resource and institutional dimensions, and would facilitate an understanding of how the social and economic resilience of rural and remote communities and their capacity for change interacts with land use.
The study aims to establish whether it is possible to develop such a framework, and/or if the approach used is worth pursuing further.

Integrating research and management at property and regional scales through participatory knowledge building.

Leaders: Profs. Helen Ross and Ockie Bosch, University of Queensland, Gatton

This project flows on from a scoping study conducted by Bosch and Ross in 2001–02. It provides a means to combine different forms of knowledge and embed them in ongoing management practices, through a participatory knowledge-building process.

The project will develop and test effective processes and tools for participatory knowledge building and community-based learning, and to help knowledge-building to become institutionalised in management practice at both regional and property scales.

A case study is being conducted in collaboration with the Northern Gulf Resource Management Group (NGRMG). The study is focusing on integration and use of knowledge (at property level) from landholders, scientists and agency staff.

Communication resources for the tropical savannas.

Leader: Dr Peter Jacklyn, Communication Coordinator, TS–CRC

The Communication project provides resources that enhance the effectiveness of communication:

- between partner agency staff and others involved in the Centre's activities (for example by providing an email newsletter, staff websites and assistance with workshops);
- between the Centre and its key stakeholders involved in the management and use of the tropical savannas (for example by providing a stakeholder newsletter, plain-English publications, bibliographies and mapping tools) and
- between the Centre and the broader community (for example by providing promotional and display material and media releases).

3. Publications relevant to "Understanding Communities" in Bushfire CRC

More than can be said: A study of pastoralists' learning

Compiled by Allan Arnott and Rebecca Benson, NTU.

In 1998-99 a group of TS-CRC researchers went out and talked to 18 pastoralists from northern Australia to discover how they went about making changes on their properties. They were interested in understanding how pastoralists learned, and how this in turn could best help extension workers and educators support pastoralists. The stories they collected included new ways of mustering, fencing, product diversification and using the Internet.

This book includes interviews and stories telling researchers how they went about making changes on their properties.
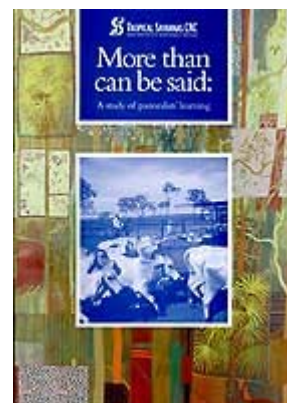
Savanna Burning: Understanding and using fire in northern Australia

Every year thousands of square kilometres of grasslands in northern Australia go up in flames and smoke. Is it wanton destruction or part of the natural ecosystem of tropical savannas?

Savanna Burning: Understanding and Using Fire in Northern Australia, is a readable and well-illustrated book—in full colour—that tries to answer that question by providing the latest information on fire to managers of pastoral, Aboriginal and conservation lands, ecologists and the general public.

It explores the benefits and damage caused by fire; how land managers can use fire more effectively to maintain natural resources, and the future pressures arising from global warming and carbon trading. It also asks how current fire patterns change ecosystems developed under traditional Aboriginal burning.
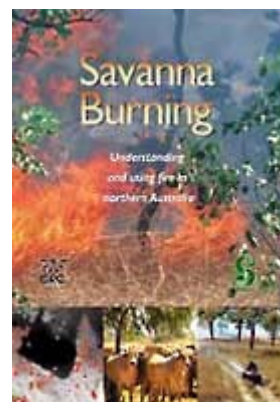
Cover of Savanna Burning, the new book on managing fire in northern Australia

Fire on the Savannas: Voices from the Landscape
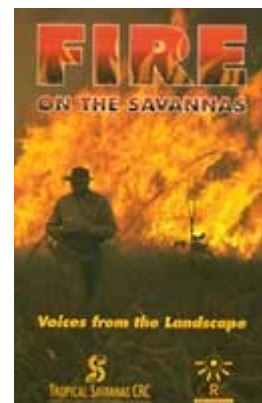

Edited by Dennis Schulz
Published by Tropical Savannas CRC

The booklet is based on interviews conducted at the CRC's fire management workshop held in March 1998. This workshop brought together pastoralists, indigenous land managers, scientists, conservationists, tour operators, miners and the military.

While the booklet is not an authoritative text on fire management, it is a fascinating account of viewpoints to fire management in the north, illustrating where these views diverge and meet. Proceedings of the workshop are also now in print.

Cover of Fire on the Savannas: Voices from the Landscape

The booklet's views are from:

- Pastoralist - Jeff Baker, manager of Mataranka Station, NT.
- Indigenous Pastoralist - Len Rosendale of Hopevale, Cape York, Queensland.
- Bush Administrator - Jim Forscutt, Mayor of Katherine, NT.
- Management Scientist - Dr Jeremy Russell-Smith, NT Bushfires Council.
- Traditional Burners - Dean Yibarbuk, Jimmy Kalarriya, Lofty Bardayal, Isaiah Buranali, Tom Wood, Jack Namandale, Ross Guymala from Arnhem Land, NT.
- Natural Historian - Dr David Bowman - NT University.
- Pastoralist - Tom Starr, former manager of Ban Ban Station, NT and tourism entrepreneur.
- Firefighter - Neil Phillips, Fire Control Officer for the southern operation - Bushfires Council of the NT.

Evaluating regional plans in Australian tropical savannas.

A guide for planners and reviewers.

G.T. McDonald, C.A. McAlpine, B.M. Taylor, A.R.Vagg
January 2003

The booklet *Evaluating regional plans in tropical savanna regions* provides a framework for reviewing and improving the technical content of regional plans based on landscape and social sustainability issues in northern Australia.